

Social Studies Teachers' Levels of Using Student-Centered Teaching Methods in the Sultanate of Oman

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ABSTRACT

The purpose of this study is to investigate social studies teachers' levels of using student-centered teaching methods (S-CTM) in Oman. Based on the literature on the Concerns-Based Adoption Model (CBAM), two instruments namely the Level of Use Self-Assessment (LoUS-A) and Level of Use Interview (LoUA) have been developed and administered to collect data. A sample of 525 social studies teachers from 170 Basic Education schools participated in this study.

Findings indicate that the Social Studies teachers in this study were in the (Mechanical Use) and the (Routine) user levels. Significant gender differences showed that females seem to be exhibiting higher LoU, as compared to males.

Based on the results of the study, it is recommended that interventions should be made to address teachers' immediate needs in implementing S-CTM. Implications for further research were suggested and the study instruments may be valuable tools for others studying educational change and innovations.

Introduction

This research is in the area of curriculum implementation. According to King (1991), it was only after the mid-1960s that curriculum implementation gained its importance in educational research. Before that, the success of implementation was determined by comparing the outputs against the inputs of a particular curriculum. There were no considerations given to the processes involved during implementation,

whether or not teachers completely understood or use the new programs. Disregard for implementation aspects has been one of the main reasons why many educational changes have failed (Fullan, 1982). However after mid-1960s, curriculum implementation gained researchers' attention and "the importance of documenting the processes that led to outcomes" was recognized (King, 1991).

According to Fullan (1982), implementation is "the process of achieving something new into practice." King (1991) identified curriculum implementation as a process seeking to improve education, which is the "processes of teaching and learning of a written curriculum into classroom situations" (Marsh & Willis, 2003). In implementing a curriculum, a curriculum plan is translated into reality when teachers execute it with students through teaching and learning processes. Curriculum implementation, according to Southern African Development Community (SADC) (2000), involves putting prescribed textbooks, syllabuses and subjects into action. It implies the translation of "exogenous or endogenous ideas into action" (Hurst, 1983) so that an innovation can be put into actual practice in classroom situations (Fullan & Pomfret, 1977; Marsh & Stafford, 1988; Marsh & Willis, 2003).

As teachers play an important role in the process of change, they need to learn continuously and to master the ways to integrate new ideas or teaching approach with the subjects they teach. More importantly, they have to accept the principle of innovation. Without teachers' highly usage, we cannot expect student-centered teaching methods innovation to be implemented successfully. The success of the educational innovation depends much on what teachers actually do. It is the responsibility of the government and the school administrators to pay attention to their levels of use to promote implementation of an innovation.

Hall, Wallace and Dossett (1973) postulated that the level of use individuals have about a change are an important dimension in the change process. Veen (1993) pointed out that for any educational innovation, it is important to realize that it is not the view of the innovators about the merits of the innovation that matters, but rather it is the view of the teachers about the innovation that is critical. In the case of this current study, the researcher needs to study Social Studies

teachers' Levels of Use of student-centered teaching methods in Social Studies teaching and learning. Many researches have postulated the importance of knowing teachers' Levels of Use in the implementation of curriculum innovation (Har, 1996; Desmone, 2005; Savage, 2000; Wan, 2002; Ying, 2001; Edmondson, 2005; Ford, 2006).

Consequently, it is important to examine Social Studies teachers' Levels of Use of student-centered teaching methods in Social Studies teaching and learning. Probably there are some factors that may inhibit the use of student-centered teaching methods in the classroom. Of course, school principals, Social Studies supervisors, and change facilitators are delighted to see the success of Social Studies curriculum implementation by using this innovation. Therefore, they should always have a good command of what Social Studies teachers Levels of Use in the implementation process, and immediately address any problems before it is too late.

Literature Review and Theoretical Framework:

Related literature on curriculum change and implementation gives a clear explanation on why an implementation of innovation fails or succeeds. Several studies support the notion that full implementation of curriculum innovation requires high Levels of Use of teachers. In other words, deficiency of teachers' Levels of Use may be the cause of failure of any implementation of curriculum innovation. Hence, teachers' Levels of Use are described as critical elements to determine whether the implementation of innovation will be successful or not.

Based on the Theory of Concern, and Concern-Based Adoption Model (CBAM) by Hall et al. (1973) the Levels of the innovation's use describe the behaviors of the users and the non-users in regards to the innovation. That means "The focus is not on how they feel, but on what they do in relation to the innovation" (Hall & Loucks, 1977, p. 265).

The CBAM does not see implementation of an innovation as a dichotomous event, but rather as a process with different levels; so, based upon research by Hall et al. (1973) an eight-level paradigm has been created. The bottom three levels in hierarchical order, non-use, orientation, and preparation, fall within the general realm of the nonuser. The top five levels in hierarchical order, mechanical, routine, refinement, integration, and renewal, encompass the user sphere. The

levels demonstrate a continuum of growth from not using an innovation to skill, experience, and looking for ways to alter the existing innovation (Berg, 1993). These Levels of Use are as below (Schoepp, 2004):

0- Non-Use. It is a state in which the user has little or no knowledge of the innovation, no involvement with the innovation, and is doing nothing toward becoming involved.

I- Orientation. It is a state in which the user has recently acquired or is acquiring information about the innovation and/or has recently explored or is exploring its value orientation and its demands upon the user and user system.

II- Preparation. It is a state in which the user is preparing for the first use of the innovation.

III- Mechanical. It is a state of usage in which the user focuses most effort on the short-term, day-to-day use of the innovation with little time for reflection. Changes in use are made more to meet user needs than client needs. The user is primarily engaged in a stepwise attempt to master the tasks required to use the innovation, often resulting in disjointed and superficial use.

IV(A)- Routine. Use of the innovation has stabilized. Few if any changes are being made in ongoing use. Little preparation or thought is being given to improving innovation use or its consequences.

IV(B)- Refinement. It is a state in which the user varies the use of the innovation to increase the impact on clients within immediate sphere. Variations are based on knowledge of both short- and long-term consequences for clients.

V- Integration. It is a state in which the user is combining own efforts to use the innovation with related activities of colleagues to achieve a collective impact on clients within their common sphere of influence.

VI- Renewal. It is a state in which the user re-values the quality of use of the innovation, seeks major modifications of or alterations to present innovation to achieve increased impact on clients, examines new developments in the field, and explores new goals for self and the system.

Significance of the Study:

It is anticipated that the results of this study would:

- Provide the Ministry of Education in Oman with current data that will aid the Ministry in making better policy decisions and applying educational strategies with greater certainty regarding the implementation of curriculum in schools.
- Offer clarifications for the Ministry of Education to facilitate change more effectively for the benefit of the teachers and students.
- Inform school officials, policy makers, service providers, and educators themselves in Oman about the Social Studies teachers' Levels of Use. This may be of value for the authorities to take into consideration and to enhance the positive factors and to avoid the factors that affect Social Studies teachers' teaching negatively.
- Help the Ministry of Education and Ministry of Higher Education in Oman to develop teacher's preparation program and in-service training programs to energize and sustain teachers' Levels of Use in Social Studies teaching and learning.

Statement of the Problem:

Teachers are the cornerstone of an educational system and are the most important agents for curriculum implementation. They determine the success or failure in implementing curriculum change during the process of teaching and learning (Wan, 2002). Consequently, the Department of Social Studies Curriculum in Oman has conducted training for Social Studies teachers' to improve the quality of teachers' use of student-centered teaching methods. A major problem that emerges is whether teachers can handle the entire changes placed on them as implementers of the newly introduced teaching methods.

Hall and Hord (2001) found that it is important to discover and identify teachers' levels of innovation use within an educational reform. Similarly, researchers have found that the lack of implementation of curriculum innovation can be the result of teachers' behavior in the teaching and learning process not matching the expectations of authorities of curriculum development (Ridgway, 2005; Peter, 2003; Wyman, 2003; Wan, 2002; Sun, 2001; Keung, 1995).

A major objective of the present study is to investigate the social studies teachers' levels of use of student-centered teaching methods in

teaching and learning, and to examine the effect of teachers' gender and teaching experience in their use. This study tries to answer these questions:

- 1 - What are the Levels of Use Social Studies teachers have in the adoption of student-centered teaching methods in Social Studies teaching and learning?
- 2 - Do Social Studies teachers' Levels of Use vary among teachers due to their teaching experience in Basic Education?
- 3 - Do Social Studies teachers' Levels of Use vary among teachers due to their gender?

Definitions of Key Terms:

For the purpose of this study, the following terms are defined:

Concerns-Based Adoption Model: In this study, it is a model to identify Social Studies teachers Levels of Use in adoption of student-centered teaching methods in Social Studies teaching and learning.

Level of Use: In this study, it is level of Social Studies teachers' use of student-centered teaching methods in Social Studies teaching and learning.

Student-Centered Teaching Methods: In this study, there are innovation teaching methods for implementing Social Studies inside classes in the Basic Education schools.

Social Studies teachers: In this study, they are all teachers who teach Social Studies subjects in the Basic Education schools in the Sultanate of Oman.

Basic Education: In this study, as defined by the Ministry of Education of Oman (2001b) is a "unified ten-year education, provided by the government for all children of school age. It meets their Basic Education needs in terms of knowledge, skills, attitudes, and values, enabling them to continue their education or training based on their interests, aptitudes, and dispositions, and enabling them to face the challenges of their present circumstances and future developments, in the context of comprehensive social development." (p. 1).

Teacher's teaching experience in Basic Education: In this study, it is the total number of teaching years that Social Studies teachers has in the Basic Education schools.

Limitations of the Study:

The study is limited by the sample that has been used. The results of the study are representative of the levels of use of Student-Centered teaching methods in social studies teaching and learning in government Basic Education schools of this survey population.

Methodology**Research Design:**

This study is quantitative and was conducted using a descriptive survey methodology. A descriptive survey is useful especially to tally the information acquired from a sample and make inferences about the social studies teachers' population in Oman.

Besides quantitative data, qualitative data were collected as complement to give a fuller picture of the problem being studied. Thus, the data in this study came from two sources, namely, questionnaire and in-depth interviewing.

Sampling:

In this study, the questionnaire was distributed in all educational regions in Oman. 50% from the total number of regular Basic Education schools was chosen randomly from each educational region as a stratified sample. Then, social studies teachers were chosen from each school. In other words, from the total of 339 Basic Education schools which include 1312 social studies teachers, 170 Basic Education schools participated in the study. Schools sample indicated that there are 787 social studies teachers, 525 of them participated in this study. The sample consisted of 226 males and 299 females.

Sampling for in-depth interviews using Levels of Use Interview Schedule (LoUIS) the researcher selected randomly 13 Social Studies teachers from the original sample, which participated in the Levels of Use Self-Assessment survey by asking them about possibility of participation in-depth interviewing.

The Instruments:

Based on the CBAM, Levels of Use (LoU), provided an effective and reliable way for interpreting teachers' Levels of Use in an innovation. So, it was used in the study for assessing the teachers' actual

practice in the use of Student-Centered Teaching Methods for teaching and learning in the schools. (Hall et al., 1975) identified eight different Levels of Use in an innovation. These Levels of Use of the innovation are stated in Levels of Use Chart. It is a framework for analyzing innovation adoption. The seven categories in the LoU chart are knowledge, acquiring information, sharing, assessing, planning, status reporting and performing. In each category, behavioral indicators are stated.

This study used both self-assessment questionnaire and interview as instruments for gathering data about teachers' Levels of Use. The researcher utilized these two instruments to collect Levels of Use data due to many advantages such as; (1) identifying deeply teachers' Levels of Use by using two types of instruments, and (2) gathering data through both qualitative and quantitative method to get a real Levels of Use.

Levels of Use Self-Assessment (LoUS-A):

This instrument is a self-assessment of the Levels of Use of Student-Centered Teaching Methods in teaching and learning, in terms of their behavior towards the innovation, based on the original Levels of Use self-assessment questionnaire developed by Hall and et al. (1979).

The Levels of Use self-assessment (LoUS-A) is an eight levels set with a brief explanation next to each. Teachers were asked to decide what level they should be at by putting a tick in the box next to it. The scale addresses eight Levels of Use divided into 2 main levels: nonusers include three levels; (O. Nonuse, I. Orientation, and II. Preparation), and users, involve five levels; (III. Mechanical Use, IV A. Routine, IV B. Refinement, V. Integration, and VI. Renewal).

Levels of Use Interview Schedule (LoUIS):

The focused interview for assessing LoU starts in an open-ended fashion and proceeds through a sequence of questions that closes in on a particular subject (Hall & Hord, 1987). Each of the basic question is followed by a series of level- and category-specific probes. Each probe requires the participant to describe behavioral actions they have taken or will be taking in the near future. In this way, the researcher as an interviewer collected information from interviewees (Social Studies

teachers) about what they were doing with the innovation (using Student-Centered Teaching Methods in Social Studies teaching and learning).

In the area of Levels of Use instrument many recent studies used the original Loucks, Newlove & Hall (1975) LoU interview schedule as an instrument for their studies (Wyman, 2003; Sun, 2001; Keung, 1995; Kannan, 2002; Ford, 2006; Edmondson, 2005). Due to the wide utilization of Loucks, Newlove & Hall (1975) LoU interview schedule as an appropriate instrument to measure individuals' and groups Levels of Use of the innovation, this study used an adapted focused interview instrument from Loucks, Newlove and Hall (1975) to measure Social Studies teachers' LoU in adoption of student-centered teaching methods in Social Studies teaching and learning. A sequence of questions categorized as knowledge, acquiring information, sharing, assessing, planning, status reporting and performing respectively were used to ascertain. In each of these categories, it was possible to score participants on an eight-point LoU scale.

Validity and Reliability of the Instruments:

To get the validity of both instruments (Levels of Use self-assessment and Levels of Use Interview Schedule) the researcher sent the modified instruments through e-mail to Gene Hall, one of the widely known experts in this area and the lead author of the Concern-Based Adoption Model (CBAM), and asked him to validate the modified instruments for measuring social studies teachers' levels of use of Student-Centered teaching methods in social studies teaching and learning. After receiving the feedback from the expert, the statements and questions were modified further before being retranslated into Arabic.

Because the instruments were distributed to an Arab population, the researcher translated the modified instruments into Arabic. To ensure that the translation was accurate, the instruments were translated back into English by a professional who was good in both Arabic and English. Back-translation is the common technique used to translate instruments in a cross-nation research. Deutscher (1973) cited that the technique is widely employed to deal with language problems. Further, two bilingual experts in Arabic and English languages revised all the

instruments to ensure that the two versions were similar and there were no significant differences between them. The main feedback from the two bilingual experts was about the Arabic version of the Interview Schedule's diction in questions number 9, 10, 13, 17, 18, which were then discussed with them to rewrite those five questions.

To ensure the accuracy and reliability of in-depth interviews, the researcher practiced with four Social Studies teachers for two times within three weeks and the researcher found that the results of these two times were very close. On the other side, the Concerns-Based Adoption Model - Levels of Use Self-Assessment is a single item survey, internal consistency reliability measures cannot be calculated for data gathered through it.

Data Analysis:

Data scoring was used in LoUS-A by computing items and dividing by the same number. Descriptive analyses were used to obtain the frequency distributions, standard deviations, percentages, and average mean, to be the minimum (0) which indicate nonuse and maximum (7) renewal. The study provided a graphic profile of the LoU groups. Data were also computed to present and compare profiles using the different factors and variables of the study.

For deeply answering question 1 of the study the researcher collected data by using interview to determine the actual Levels of Use of Social Studies teachers in the adoption of using student-centered teaching methods in Social Studies teaching and learning.

The responses from teachers on each question were a valuable information source for analyzing teachers' Levels of Use. The researcher used content-analysis techniques to analyze interview data. At first, the tape-recorded interviews were translated into English as raw data. The researcher focused on the indicators set in each category of the LoU chart (Hall et al., 1975) in terms of different Levels of Use. By studying the scripts and referring to the decision points of the LoU Chart, LoU of each interviewee in using student-centered teaching methods was determined.

In order to answer research questions numbers 2 and 3 the study used a one-way ANOVA to determine if there were significant differences between Social Studies teachers'; teaching experience in

Basic Education, and gender regarding their Levels of Use in the adoption of using student-centered teaching methods in Social Studies teaching and learning. Group profiles would also be made with the mean percentile scores of the eight of Levels of Use.

Results

To answer research question (What are the Levels of Use Social Studies teachers have in the adoption of student-centered teaching methods in Social Studies teaching and learning?), analysis of the individual item shows that the forty-six percent of teachers reported that they were either at Level III (Mechanical use) or IVA (Routine); while (26.5%) of teachers reported even at lower levels, Level 0 (Non-Use), Level I (Orientation) and Level II (Preparation) and (25.5%) reported themselves to be at higher Levels of Use, Level IVB (Refinement) and Level V (Integration). Only (1.7%) of teachers reported their Levels of Use at Level VI (Renewal). Details of the results are listed in Table 1.

Table (1)
Frequencies and percentage of Social Studies teachers' Levels
of Use Self- Assessment

Levels of Use	n	%
0 Non-Use	14	2.7
I Orientation	106	20.2
II Preparation	19	3.6
III Mechanical Use	123	23.4
IVA Routine	120	22.9
IVB Refinement	93	17.7
V Integration	41	7.8
VI Renewal	9	1.7
Total	525	100.0

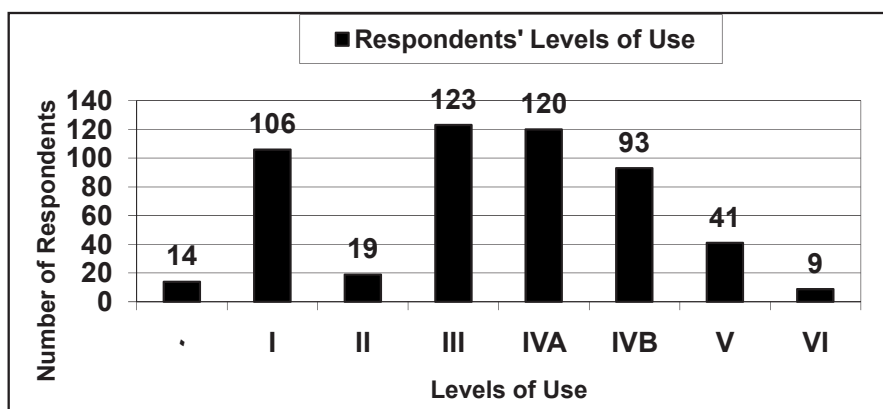


Figure (1) Levels of Use Self-Assessment profile of Social Studies teachers

After the interviews, the researcher analyzed the data according to the statements given in each category in the LoU Chart (Hall et al., 1975). The suggested criteria for assessing teachers' use of S-CTM in Social Studies teaching and learning set by the researcher and it is foreseeable that the Levels of Use recommended for each category might not be the same. The researcher had to analyze the data and made the decision to give an overall assessment of Levels of Use of the teachers. The following Table 2 shows the Levels of Use assessed by the researcher on the thirteen Social Studies teachers selected for this study. Levels of Use in each category of each teacher were also listed. It was found that the Levels of Use in each category were not exactly the same for every teacher. The majority of teachers got different Levels of Use in different categories. This was acceptable. The levels of each category were close together and not far apart except teacher number 4. He got level I (Orientation) in two categories, Level III (Mechanical use) in four categories and Level IVB (Refinement) in one category. His overall assessment was at Level III (Mechanical use).

Table (2)
Social Studies teachers' Levels of Use by interview on various categories
(N = 13)

T	Knowl- edge	Acquir- ing informa- tion	Sharing	Asses- sing	Planning	Status reporting	Perform- ing	Overall assess- ment
1	III	I	II	I	II	II	II	II
2	I	I	I	III	I	I	II	I
3	IVA	IVB	IVB	IVB	IVB	IVB	IVA	IVB
4	I	I	III	III	IVB	III	III	III
5	III	I	III	I	II	II	II	II
6	IVA	IVA	IVA	IVA	IVB	IVB	IVA	IVA
7	II	I	III	III	III	III	III	III
8	IVA	III	IVA	III	IVA	III	IVA	IVA
9	IVA	IVB	IVA	III	III	IVA	IVA	IVA
10	III	III	III	III	IVA	III	IVA	III
11	IVB	IVA	IVB	III	IVB	IVB	IVB	IVB
12	III	III	IVA	III	IVA	III	III	III
13	I	I	I	II	II	I	I	I

The following Table 3 and Figure 2 show the total number of Social Studies teachers (n=13) and percentile in each Level of Use assessed via the interview.

Table (3)
Frequencies and percentage of Social Studies teachers in each
Level of Use by interview

Levels of Use	n	%
0 Nonuse	0	00.0
I Orientation	2	15.4
II Preparation	2	15.4
III Mechanical use	4	30.7
IVA Routine	3	23.1
IVB Refinement	2	15.4
V Integration	0	00.0
VI Renewal	0	00.0
Total	13	100.0

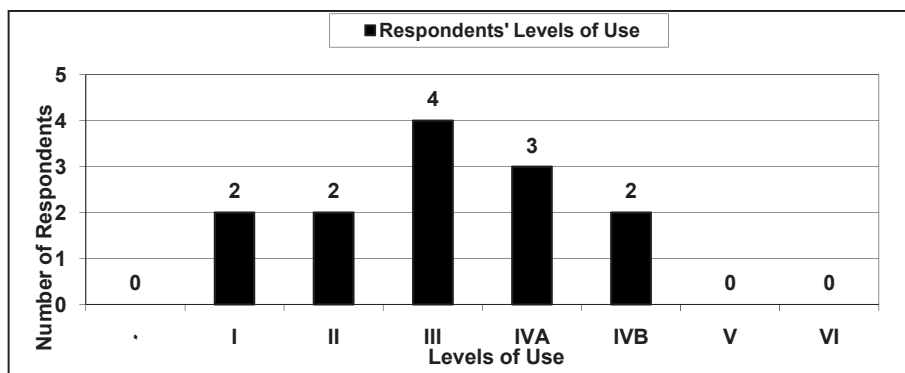


Figure (2) Profile of Social Studies teachers in each Level of Use by interview

Hall and Hord (1987) postulated that LoU is an indicator of the degree of implementation in the behavior dimension and typically there is a progression through the levels: non-use, orientation, preparation, mechanical use, routine, refinement, integration and renewal. The Levels of Use of the sample population are given in Table 1.

The result showed that 53.8% of teachers were either at Level III (Mechanical use) or Level IVA (Routine). That was about half of the

teachers. Thirty percent of the teachers were at lower Levels of Use, Level I (Orientation) and Level II (Preparation). They were about one third of the teachers. Fifteen percent of the teachers were at Level IVB (Refinement). None of the teachers were in Level 0 (Nonuse), Level V (Integration) and Level VI (Renewal).

In other words, the interview findings showed that two of the 13 social studies teachers were at level of Orientation as they focused on taking action to learn about the use of student-centered teaching methods, exhibiting interest in knowing more about it. As the typical responses of social studies (T2) appeared that "I got some overview session about S-CTM but I still need time to implement"; and (T13) mentioned that "I want to learn more about S-CTM and how I can use it".

Two of the 13 social studies teachers were at level of Preparation as they decided to use the student-centered teaching methods in social studies teaching and learning. For example (T1) responded that "I have not used S-CTM) yet but I have a plan to use it in the next semester"; and (T5) said that "I have started to prepare materials for use S-CTM".

At a level of Mechanical Use, they focused most efforts on the short term day to day use of student-centered teaching methods through teaching and learning process with little time for reflection. They worried about the issues related to efficiency, organizing, managing, scheduling and time demand. Changes in use were made to meet the needs of teachers. The attempt to use S-CTM in social studies teaching and learning was sketchy and superficial. The following are the typical responses of social studies. For example (T4) said that "I am not systematic to use student-centered teaching methods in social studies teaching and learning"; (T7) responded that "There is insufficient time for teaching social studies as there are only three periods per week in Basic Education schools so how to use student-centered teaching methods components is a problem"; (T10) mentioned that "Our discussion is mainly on how we can incorporate student-centered teaching methods requirements into social studies teaching and learning", and "There is no special room for social studies to do related tasks and activities, especially in cases of building social studies skills"; and (T12) explained that "If there is a need to use student-centered teaching methods in social studies teaching and learning, it is necessary to shorten the social studies curriculum and reducing activities inside social studies text-books".

Three of the 13 social studies teachers were at the Routine level as the use of student-centered teaching methods in social studies teaching and learning was stabilized and few changes were being made in ongoing use. Typical responses are given by social studies teachers. For instance, (T6) responded that "I have no attempt to change my way of use of student-centered teaching methods in social studies teaching and learning in response to pupils' feedback"; (T8) said that "I have no plan to make any changes"; and (T9) mentioned that "I will continue to act in this way".

Only two of the 13 social studies teachers were at the Refinement level as changes were made to use of student-centered teaching methods in social studies teaching and learning to increase the impact on students. The following are the typical responses of social studies. For example, (T3) said that "I will strengthen the use of student-centered teaching methods so as to further improve students' attitude and awareness in this aspect" and "Based on students' existing social studies knowledge, I will focus on guiding them to practice social studies behaviors and skills"; and (T11) responded that "We have talked about the importance of using student-centered teaching methods in teaching and learning process, relevant teaching materials and types of assignments so as to strengthen students' knowledge in social studies".

For analyzing the Levels of Use of Social Studies teachers among different groups with varied lengths of teaching experience in Basic Education system, the Social Studies teachers in Basic Education schools were divided into three groups: 1 to 3 years, 4 to 6 years, and 7 to 9 years of teaching experience. A one-way ANOVA was used to test teaching experience in Basic Education mean effect. The results of overall ANOVA are shown in Tables 4 and 5.

Table (4)
Levene's test of equality of error variances for Levels of Use based on
teaching experience in Basic Education

	F	df1	df2	Sig.
Levels of Use	2.014	2	522	.134

Table (5)
Univariates's for the Levels of Use based on
teaching experience in Basic Education

Effect	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Teaching experience in Basic Education	81.145	2	40.573	14.887	.000	.054
Error	1422.635	522	2.725			
Total	7451.000	525				

The univariate test for homogeneity of variance of Level of Use indicates that homogeneity of variance assumption has not been violated; the Levene's test of equality of error variances is not significant ($p > 0.05$).

The univariate tests of between-subjects effects yielded that the test is significant, ($F(2,522) = 14.887, p = .000$). This statistic indicates that there are significant differences between the three groups of teaching experience in Basic Education on their reported Levels of Use. The $\eta^2 = .054$ indicates a small effect size, meaning that (5%) of the variation in the dependent variable is attributed to variation on teaching experience (see Table 5).

Post hoc multiple comparisons using Tukey HSD test were conducted to see the Level of Use regarding the three groups of teaching experience in Basic Education to evaluate pair-wise differences among the means. The results are illustrated in Table 6.

Table (6)
Post hoc test for Level of use based on
teaching experience in Basic Education

Depen- dent Variable	(I) Teach- ing experi- ence in Basic Education	(J) Teach- ing experi- ence in Basic Education	Mean difference (I-J)	Std. Error	Sig.	5% Confidence interval	
						Lower Bound	Upper Bound
Level of Use	1-3 years	4-6 years	-.8438*	.1549	.000	-1.2067	-.4808
	1-3 years	7-9 years	-.3967	.3365	.466	-1.1854	.3919
	4-6 years	7-9 years	.4470	.3470	.402	-.3662	1.2602

*. The mean difference is significant at the .05 level.

The results in Table 6 indicate there is a difference between teaching experience in Basic Education groups in Level of use. There is a significant difference between teaching experience of 1-3 years and 4-6 years. A tabulation of the mean for LoU of the groups is set out in Table 7.

Table (7)
Mean of Social Studies teachers' teaching experience in
Basic Education based on their Levels of Use

Variable	Experience in Basic Education	N	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
Levels of Use	1-3 years	324	3.06	.092	2.885	3.245
	4-6 years	175	3.91	.125	3.663	4.154
	7-9 years	26	3.46	.324	2.826	4.098

The Social Studies teachers with all groups of teaching experience in Basic Education had (III Mechanical Use).

In the Levels of Use, teachers who have taught from 4 to 6 years indicated a higher LoU mean (3.91) than the other groups with mean (3.46) for teachers who have taught from 7 to 9 years and (3.06) for teachers who have taught from 1 to 3 years. This finding revealed that teachers who have taught from 4 to 6 years had more Level III (Mechanical Use) than other groups did (see Table 7). This is further illustrated using frequencies and percentage of Social Studies teachers in each Level of Use according to their teaching experience in Basic Education in Table 8.

Table (8)
Frequencies and percentage of Social Studies teachers in Levels of Use
based on their teaching experience in Basic Education

Levels of Use	Teaching experience in Basic Education					
	1-3 years		4-6 years		7-9 years	
	n	%	n	%	n	%
0 Non-Use	13	4.0	1	0.6	0	0.0
I Orientation	80	24.7	20	11.4	6	23.1
II Preparation	13	4.0	5	2.9	1	3.8
III Mechanical Use	82	25.3	37	21.1	4	15.4
IVA Routine	69	21.3	44	25.1	7	26.9
IVB Refinement	41	12.7	46	26.3	6	23.1
V Integration	22	6.8	17	9.7	2	7.7
VI Renewal	4	1.2	5	2.9	0	0.0
Total	324	100.0	175	100.0	26	100.0

For analyzing the Levels of Use of Social Studies teachers among their gender a one-way ANOVA was used to test gender mean effect. The results of overall ANOVA are shown in Tables 9 and 10.

Table (9)
Levene's test of equality of error variances for
Levels of Use based on gender

	F	df1	df2	Sig.
Levels of Use	.246	1	523	.620

Table (10)
Univariates's for the Levels of Use based on gender

Effect	Type III Sum of Squares	df	Mean Square	F	Sin.	Eta Squared
Gender	34.514	1	34.514	12.286	.000	.023
Error	1469.269	523	2.809			
Total	7451.000	525				

The univariate test for homogeneity of variance of Level of Use indicates that homogeneity of variance assumption has not been violated; the Levene's test of equality of error variances is not significant ($p > 0.05$).

The univariate tests of between-subjects effects yielded that the test is significant, ($F(1,523) = 12.286, p = .000$). This statistic indicates that there are significant differences between males and females on their reported Levels of Use. The $\eta^2 = .023$ indicates a small effect size, meaning that (2%) of the variation in the dependent variable is attributed to variation on gender (see Table 10).

For Social Studies teachers' Levels of Use analysis among their gender, a tabulation of the mean for LoU of the males and females are set out in Table 11.

Table (11)
Mean of Social Studies teachers' gender based on their
Levels of Use

Variable	Gender	n	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
Levels of Use	Male	226	3.07	.111	2.852	3.290
	Female	299	3.59	.097	3.398	3.779

In the Levels of Use females indicated a higher LoU than males with mean (3.59) for females and (3.07) for males. This finding revealed that the females had more Level III (Mechanical Use) of S-CTM innovation than the males. (See Table 11). This is further illustrated using frequencies and percentage of Social Studies teachers in each Level of Use according to their gender in Table 12.

Table (12)
Frequencies and percentage of Social Studies teachers in
Levels of Use based on gender

Levels of Use	Gender			
	Male		Female	
	n	%	n	%
0 Non-Use	9	4.0	5	1.7
I Orientation	55	24.3	51	17.1
II Preparation	12	5.3	7	2.3
III Mechanical Use	59	23.0	71	23.7
IVA Routine	52	21.7	71	23.7
IVB Refinement	35	15.5	58	19.4
V Integration	10	4.4	31	10.4
VI Renewal	4	1.8	5	1.7
Total	226	100.0	299	100.0

Discussion

The result of the research through interviews showed that in the use of S-CTM in Social Studies teaching and learning 7 teachers were assessed as being at the level of III (Mechanical use) and IVA (Routine). And 4 teachers were assessed as at the level I (Orientation) and level II (Preparation). It coincided with the results obtained from the self-assessments of the main sample of teachers. In their self-assessment, around forty seven percent of teachers (n=243) reported to be at the levels of III (Mechanical use) and IVA (Routine) and around twenty four percent at Level I (Orientation) and level II (Preparation). The reports of the two assessments were quite similar and both indicated that the majority of Social Studies teachers' Levels of Use was in level III (Mechanical use) and IVA (Routine).

About these two levels, Hall and Hord (1987) pointed out the characteristics of persons at Level III (Mechanical Use). These people were adapting to the change and were inefficient in the use of time, materials and resources. They were making changes but focusing on short term, day to day use of the innovation. This often resulted in

disjointed and superficial use and yet they expected to increase efficiency in the innovation. The teachers at Level IVA (Routine) established routines. Their use of the innovation was stabilized. They did little preparation or gave little thought to improve innovation use. They were onlookers and were waiting for other people's arrangements. They had no plans and no ideas of making any modifications. They were unchanging in their pattern of use. Summarily, teachers at Level III (Mechanical use) and IVA (Routine) acted as followers. They were passive in the use of S-CTM in Social Studies teaching and learning. They did not have their own ideas but just followed the instructions given by the Ministry to meet the minimum requirements.

A few Social Studies teachers were at the Integration Level of Use (by self-assessment) and no one (by interview) suggested that the Social Studies teachers preferred to work independently and in an isolated environment. It is then argued that there is a need for the change facilitators to tailor programs to develop collaborative work cultures within schools. This may help to reduce professional isolation of teachers (Fullan, 1991) and to raise the effectiveness of implementing student-centered teaching methods.

No one was at the Renewal Level of Use (by interview) and a few (by self-assessment) may reflect two things. First, the Social Studies teachers have no time or energy to carry out major modifications as they have to spend most of their time on day to day issues and there is little time for reflection. Second, they may not have seen the need to have major modifications. In this researcher's view, the reasons for this phenomenon are manifold. First, the student-centered teaching methods are not treated seriously by the school teachers and principals. Second, teachers' performance in implementing student-centered teaching methods in teaching and learning is never assessed. Third, the lack of motivation and inadequate professionalism of teachers are the main reasons for deterring them from advancing to the Renewal Level of Use regarding the implementation of S-CTM. Those teachers who were at the Level of V (Integration) and VI (Renewal) were the important teachers. They represented a quarter of the respondents. They were more active. The success of the S-CTM innovation in the school in fact depends largely on them.

In fact, the decision to begin the use of S-CTM in Social Studies

teaching and learning was to some degree not made by teachers. It was decided by the Ministry. In order to meet the expectations of the authorities, all teachers should have begun the use of S-CTM in teaching and learning. So they should all have been at least at III (Mechanical use) level. Around half of the teachers were assessed as at Level III (Mechanical use) and IVA (Routine) level. The result could be explained that though the teachers had begun using the S-CTM in teaching and learning, some of them still remained at the 'non-user' state of mind. These teachers were quite insecure, uncertain and not confident in their use of S-CTM in teaching and learning.

Hall and Hord (1987) remarked that Levels of Use can serve as a valuable diagnostic tool for planning and facilitating the change process. In this connection, Hall and Hord (2001) highlight that: "We strongly believe that each person's Level of Use and success with a change is in large measure influenced by the facilitation he or she receives. If no support and facilitating interventions are offered, many will never fully implement the innovation, and others will remain nonusers. Further, those who are at LoU III Mechanical use need interventions that will help them move beyond this level, or they may adapt the innovation to make it easier for them to manage, or they may stop using the new practice altogether. There are, however, affective actions that change facilitators can take to assist individuals in moving up the use levels" (p.92).

Marsh (1988) reviewed a number of CBAM studies and shared their views. He recognized that "the LoU data provide important cues about the type of assistance each teacher might need to achieve higher levels of implementation." In the context of this study, the information provided by LoU concerning the implementation of student-centered teaching methods can be helpful for change facilitators to provide timely specific assistance to teachers concerned. For example, a Social Studies teacher on LoU III (Mechanical Use) is likely to implement S-CTM in a superficial, stepwise fashion, without caring much for students' needs and attitudes. Giving this Social Studies teacher more encouragement, more information about the innovation, or more advice about how to use it may help them to implement S-CTM more effectively. In addition, Peter (2003) suggested that for teachers at the level of mechanical use, school leaders should provide them practical

workshops or guidance for solving technical questions so that they could become routine user of the innovation. For the teachers at the level of routine, school leaders should give praise and recognition to reinforce the teachers' efforts to encourage further refinement for the students.

Based on the result of question 2, the quantitative analysis revealed that the Social Studies teachers from all groups of teaching experience in Basic Education had level III (Mechanical Use). The result of One Way Anova showed that there were significant differences between groups of teaching experience in Basic Education regarding their Levels of Use in the adoption of S-CTM.

With respect to Social Studies teachers' Levels of Use, the result indicated that the teachers who had taught from 4 to 6 years had a higher mean than the other groups. This finding revealed that teachers who had taught from 4 to 6 years were adapting to the change and were more inefficient in the use of time, materials and resources than were first and third groups. In this area Hall and Hord (2001) reported that: "At this level, mechanical use, the user is activity engaged with the innovation in the workplace. This LoU characterized by experimentation by the user as he or she endeavors to make the change work for him or her. Adaptations are made in managing time, materials, and other logistics. There is a short-term day-to-day focus in planning and a general inefficiency in how the innovation is used. If it is a classroom innovation, the implementer is managing adaptations in its use or in the innovation itself in order to master use of the new practice" (p. 84).

The significant differences between teaching experience groups regarding their Levels of Use about using the innovation has been suggested by several researchers (such as Watson, 2006; Isleem, 2003; Blackwood, 2001; Marcinkiewicz, 1994). For example, Watson (2006) indicated that there was a significant difference among several groups of teaching experience in their Levels of Use favoring moderate teaching experience group. Also, Isleem (2003) revealed that the more instructional experience the teachers have, the more likely they are to use innovation for instructional purposes. In addition, Blackwood (2001) reported that there was a significant difference between the years of experience of the teachers and the level of innovation implementation; and moderate teaching experience teachers reported significantly higher

levels of innovation use. Although several studies have reported significant differences between teaching experience groups regarding their level of innovation use, a study done by Marcinkiewicz (1994) reported that there were no significant differences among teachers' teaching experience groups regarding their levels of innovation use.

In this case, why did the teachers with moderate teaching experience have higher Level of Use than the teachers with low and high teaching experience? The researcher suggests that there are several reasons for this outcome. One of these reasons is the teachers with moderate teaching experience have good experience and they are still active in implementing the innovation while the teachers with low teaching experience have little preparedness and are still new with the innovation (S-CTM); and teachers with high teaching experience are bored and thinking of implementing other innovations in their teaching and learning. Another reason is based on descriptive statistics. It appeared that the majority of teachers who had low and high teaching experience had only one training program about the innovation while these teachers with moderate teaching experience had much more training program than the first and second teaching experience groups.

Based on the result of question 3, the quantitative analysis revealed that the Social Studies teachers both male and female had level III (Mechanical Use). In the area of Social Studies teachers' Levels of Use, the result indicated that the female teachers had a higher mean than the males. This finding revealed that females were actively engaged with the innovation in the schools and they made adaptations in managing time, materials, and other logistics to master the use of the innovation (Hall & Hord, 2001).

It appears that the findings of this study match the results of some research carried out by other researchers. For example, Blackwood (2001) found that the females had significantly higher Level of Use of the innovation than did the males. On the other hand, some studies indicated no significant differences between males and females regarding their Levels of Use in the adoption of the innovation (Marcinkiewicz, 1994; Law, 2002). For example, Marcinkiewicz (1994) in the study titled "Computers and Teachers: Factors Influencing Computer Use in the Classroom" the findings in the Levels of Use showed no significant differences between males and females. In addition, Law (2002)

reported that there was no relationship between gender and Level of Use. His report indicated no significant differences between males and females regarding their Levels of Use in the adoption of the innovation.

In the area of Levels of Use findings, why did females have higher Level of Use than males in the adoption of student-centered teaching methods? It is possible in the researcher's view, to say that this is because the females had higher concerns toward the S-CTM than the males. Also, female teachers are very concerned about the supervisors' and principles' visits reports and they try to do their best in their use of S-CTM. In addition, descriptive statistics showed that the majority of females teach in moderate sized schools which include between 500 to 1000 students while the majority of males teach in schools which involve more than 1000 students.

Conclusion and recommendations:

The findings of this study indicate that the use of S-CTM in social studies teaching and learning in the Basic Education schools has not widely occurred. The participating schools were slow in taking up the use of S-CTM recently installed and were still at a non-user to early user in the adoption of innovation. At such level, any future staff development activities facilitating innovation adoption must be directed to address the non-user levels of teachers as priority.

The implementation of S-CTM innovation involved a complex process of change for the participants and the organization. It required planning and commitment, as well as time and money. It was expected that school principals and the social studies teachers should bring concerted efforts, with different ongoing expertise, support and resources, to enhance the use of S-CTM in social studies teaching and learning. To ensure success, Yuen et al. (2003) concluded that it was not simply a case of innovation adoption, but rather a process of innovation, which required both financial and training support for schools, as well as cooperation between teachers and school leadership.

To better understand the developmental process and progress of teachers involved in implementing the student-centered teaching methods, longitudinal studies of varying scales, ranging from school level scale to educational region wide scale, following the CBAM are recommended. Such studies may yield more information to build up a

fuller picture concerning the implementation of S-CTM. Additionally, further research should be done to determine the most effective methods available to move social studies teachers from the non-user levels of the innovation into user levels, to achieve beginning and more highly sophisticated use.

درجة استخدام معلمي الدراسات الاجتماعية لطرائق التعليم المتمركزة حول المتعلم في سلطنة عمان

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الملخص

تهدف الدراسة إلى التعرف على درجة استخدام معلمي الدراسات الاجتماعية لطرائق التعليم المتمركزة حول المتعلم في سلطنة عمان. وقد طور الباحث أداتي الدراسة وهما استمارة التقويم الذاتي واستمارة مقابلة لتحديد درجات الاستخدام بالإفادة من نموذج التبني القائم على الاهتمامات (CBAM) Concerns-Based Adoption Model. وقد تكون مجتمع الدراسة من جميع معلمي الدراسات الاجتماعية في التعليم الأساسي، واختار الباحث عينة عشوائية طبقية قوامها (٥٢٥) معلماً من (١٧٠) مدرسة طبقت عليهم استمارة التقويم الذاتي، كما اختار (١٣) معلماً ومعلمة لإجراء المقابلات. وتوصلت الدراسة إلى أن معلمي الدراسات الاجتماعية في المستوى الثالث (الاستخدام الآلي) والمستوى الرابع (الاستخدام الروتيني) في استخدامهم للمدخل، كما أشارت نتائج الدراسة إلى وجود فروق دالة إحصائية تعزى لمتغير الجنس تظهر أن المعلمات أعلى درجة استخدام مقارنة بالمعلمين. وقد أوصت الدراسة بضرورة العمل على تطوير عملية استخدام المعلمين لطرائق التعليم المتمركزة حول المتعلم، كما قدمت الدراسة عدة مقترحات بإجراء مجموعة من البحوث والدراسات كما اقترحت إمكانية استخدام أداتي الدراسة في إجراء دراسات تربوية أخرى لبرامج تطويرية.

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Appendix
Levels of Use Self-Assessment Questionnaire

Dear Social Studies teacher

The purpose of this questionnaire is to find out your level of use of Student-Centered Teaching Methods (S-CTM) in social studies Teaching and learning. The items were developed from typical responses of teachers who ranged from non-use at all about Using S-CTM in social studies teaching and learning to many years experience using them. Please read all statements related to the adoption of (S-CTM) in (SST&L) below. Choose one statement that best describes you. Remember, there is no right or wrong answer and make sure of that your responses will be confidentially and it is only for the purposes of the study.

Thank you for taking time to complete this task.

Researcher:
Dr. Saif Al-Aghbari

Part one: Demographic information

- 1 - Gender: () Male. () Female.
- 2 - Teaching experience in basic education:
() 1-3 years. () 4-6 years. () 7-9 years
- 3 - **School enrolment:** _____ students.
- **What training have you attended related to student-centered teaching methods? (.....)**

Part two: Levels of Use items:

*(S-CTM): Student-Centered Teaching Methods.

Levels of Use	Description	Choose your level
0 Non-Use	I have little or no knowledge of S-CTM, no involvement with it and I am doing nothing toward becoming involved.	
I Orientation	I am seeking or acquiring information about S-CTM.	
II Preparation	I am preparing for the first use of S-CTM.	
III Mechanical Use	I focus most effort on the short term, day-to-day use of S-CTM with little time for reflection. My effort is primarily directed toward mastering tasks required using S-CTM.	
I V A Routine	I vary the use of S-CTM. However, I am putting forth little effort and thought to improve using S-CTM or its consequences.	
IVB Refinement	I vary the use of S-CTM to increase the expected benefits within the classroom. I am working on using S-CTM to maximize the effects with my students.	
V Integration	I am combining my own efforts in using S-CTM with related activities of other colleagues to achieve impact in the classroom.	
VI Renewal	I re-evaluate the quality of using S-CTM, seek major modifications or alternatives, present innovation to achieve increased impact, examine new developments in the field, and explore new goals for myself and my school or society.	

Levels of Use Interview Schedule

Demographic information:

Interviewee number: _____ Date of interview: _____ Time of interview: _____
Teacher's name: _____ school name: _____ educational region: _____

Interview Questions:

- 1 - I need to know if you are using student-centered teaching methods in Social Studies teaching and learning. (measures non-use or use)

If the person answers yes, then proceed with these questions...

- 2 - Can you describe the student-centered teaching methods as you see it? (knowledge)
- 3 - What do you see as strengths and weaknesses of the student-centered teaching methods? Have you made any attempt to address weaknesses? (assessing and knowledge categories)
- 4 - Are you currently looking for any information about the student-centered teaching methods? What kind? For what purpose? (acquiring information category).
- 5 - Do you ever talk to others about the student-centered teaching methods? What do you tell them? (Sharing category).
- 6 - What do you see as being the effects of student-centered teaching methods? In what way have you determined this? Are you doing any evaluating, either formally or informally, of your use of student-centered teaching methods? Have you received any feedback from students? What have you done with this information you get? (assessing category).
- 7 - Have you made any changes recently in how you use the student-centered teaching methods? What? Why? How recently? Are you considering making any changes? (status reporting and performing categories)
- 8 - As you look ahead to later this year, what plans do you have in relation to your use of the student-centered teaching methods? (planning and status reporting)

- 9 - Are you working with others (outside of anyone you may have worked with from the beginning) in your use of the student-centered teaching methods? Have you made any changes in your use of the student-centered teaching methods based on this coordination? (integration)
- 10- Are you considering or planning to make major modifications or to replace the student-centered teaching methods at this time? (Renewal).
- 11- How do you work together? How frequently? (integration).
- 12- What do you see as the strengths and weaknesses of this collaboration? (integration).
- 13- Are you looking for any particular kind of information in relation to this collaboration? (integration).
- 14- When you talk to others about your collaboration, what do you share with them? (integration).
- 15- Have you done any formal or informal evaluation of how your collaboration is working? (integration).
- 16- What plans do you have for this collaborative effort in the future? (integration)

If the person answers no to use of student-centered teaching methods in Social Studies teaching and learning, then ask these questions...

- 17- Have you made a decision to use the student-centered teaching methods in the future? If so, when? (status reporting, performing).
- 18- Can you describe the student-centered teaching methods for me as you see it? (knowledge category).
- 19- Are you currently looking for any information about the student-centered teaching methods? What kinds? For what purposes? (acquiring information category).
- 20- What do you see as the strengths and weaknesses of the student-centered teaching methods from your situation? (assessing).

- 21 - At this point in time, what kinds of questions are you asking about the student-centered teaching methods? Give examples if possible. (assessing, sharing and status reporting).
- 22 - Do you ever talk with others and share information about the student-centered teaching methods? What do you share? (sharing category).
- 23 - What are you planning with respect to the student-centered teaching methods? Can you tell me about any preparation or plans you have been making for the use of the student-centered teaching methods? (planning category).
- 24 - Can you summarize for me where you see yourself right now in relation to the use of the student-centered teaching methods? (get a picture of use and non-use).

Levels of Use Rating Scale

Scale Point Definitions of LoU of the Innovation		Knowledge	Acquiring Information	Sharing	Assessing	Planning	Status Reporting	Performing
0 Non-Use	The user has no interest, is taking no action.							
I Orientation	The user is taking the initiative to learn more about the innovation.							
II Preparation	The user has definite plans to begin using the innovation.							
III Mechanical Use	The user is making changes to better organize use of the innovation.							
IVA Routine Use	The user is making few or no more changes and has an established pattern of use.							
IVB Refinement	The user is making changes to increase outcomes.							
V Integration	The user is making deliberate efforts to co-ordinate with others in using the innovation.							
VI Renewal	The user is seeking more effective alternatives to the established use of the innovation.							

Overall LoU Assessment: _____

Definitions of LoU of the Innovation by Categories

<i>LoU</i>	<i>Knowl- edge</i>	<i>Acquiring informa- tion</i>	<i>Sharing</i>	<i>Assessing</i>	<i>Planning</i>	<i>Status Reporting</i>	<i>Perform- ing</i>
0	Knows nothing about this or similar innovations or has only very limited general knowledge of efforts to develop innovations in the area.	Takes little or no action to solicit information beyond reviewing descriptive information about this or similar innovations when it happens to come to personal attention.	Is not communicating with others about the innovation beyond possibly acknowledging that the innovation exists.	Takes no action to analyze the innovation, its characteristics, possible use, or consequences of use	Schedules no time & specifies no steps for the study or use of the innovation.	Reports little or no personal involvement with the innovation.	Takes no discernible action toward learning about or using the innovation. The innovation &/or its accomplishments are not present or in use.
I	Knows general information about the innovation such as origin, characteristics & implementation requirements	Seeks descriptive material about the innovation. Seeks opinions & knowledge of others through discussions, visits or workshops	Discusses the innovation in general terms &/or exchanges descriptive information, materials or ideas the innovation & possible implications of its use.	Analyzes & compares materials, content, requirements for use, evaluation reports, potential outcomes, strengths & weakness for purpose of making a decision about use of the innovation.	Plans to gather necessary information & resources as needed to make a decision for or against use of the innovation.	Reports presently orienting self to what the innovation is & is not.	Explores the innovation & requirements for its use by taking to others about it, reviewing descriptive information & sample materials, attending orientation sessions & observing others using it.
II	Knows logistical requirements, necessary resources and timing for initial use of the innovation & details of initial experiences for clients.	Seeks information & resources specifically related to preparation for use of the innovation in own setting.	Discusses resources needed for initial use of the innovation. Joins others in pre-use training & in planning for resources, logistics, schedules, etc., in preparation for first use.	Analyzes detailed requirements & available resources for initial use of the innovation.	Identifies steps and procedures entailed in obtaining resources & organizing activities & events for initial use of the innovation.	Reports preparing self for initial use of the innovation.	Studies reference materials in depth, organizes resources & logistics, schedules & receives skill training in preparation for initial use.

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III	Knows on a day-to-day basis the requirements for using the innovation. Is more knowledgeable about short-term activities & effects of use of the innovation.	Solicits management information about such things as logistics, scheduling techniques & ideas for reducing amount of time & work required of user.	Discusses management & logistical issues related to use of the innovation. Resources & materials are shared for purposes of reducing management, flow & logistical problems related to use of the innovation.	Examines own use of the innovation with respect to problems of logistics, management, time, schedules, resources and general reactions of clients.	Plans for organizing & managing resources, activities & events related primarily to immediate ongoing use of the innovation. Planned-for changes address managerial or logistical issues with a short-term perspective.	Reports that logistics, time, management, resources organization, etc., are the focus of most personal efforts to use the innovation.	Manages innovation with varying degrees of efficiency. Often lacks anticipation of immediate consequences. The flow of actions in the user & clients is often disjointed, uneven & uncertain. When changes are made, they are primarily in response to logistical & organizational problems.
VA	Knows both short- & long-term requirements for use & how to use the innovation with minimum effort or stress.	Makes no special efforts to seek information as a part of ongoing use of the innovation.	Describes current use of the innovation with little or no reference to ways of changing use.	Assesses use of the innovation in global terms without reference to making changes. Specific evaluation activities are limited to those that are administratively required with little attention paid to findings for the purpose of changing use.	Plans intermediate & long-range actions with little projected variation in how the innovation will be used. Planning focuses on routine use of resources, personnel, etc.	Reports that personal use of the innovation is going along satisfactorily with few if any problems.	Uses the innovation smoothly with minimal management problems; over time, there is little variation in pattern of use.

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IVB	Knows cognitive & affective effects of the innovation on teachers & ways for increasing impact on clients.	Solicits information & materials that focus specifically on changing use of the innovation to affect client outcomes.	Discusses own methods of modifying use of the innovation to change client outcomes.	Assesses use of the innovation for the purpose of changing current practices to improve client outcomes.	Develops intermediate & long-range plans that anticipate possible & needed steps, resources & events designed to enhance client outcomes.	Reports varying use of the innovation in order to change client outcomes.	Explores & experiments with alternative combinations of the innovation with existing practices to maximize client involvement & to optimize teacher outcomes.
V	Knows how to coordinate own use of the innovation with colleagues to provide a collective impact on clients.	Solicits information & opinions for the purpose of collaborating with others in use of the innovation.	Discusses efforts to increase client impact through collaboration with others on personal use of the innovation.	Appraises collaborative use of the innovation in terms of client outcomes & strengths & weaknesses of the integrated effort.	Plans specific actions to coordinate own use of the innovation with others to achieve increased impact on clients.	Reports spending time & energy collaborating with others about integrating own use of the innovation.	Collaborates with others in use of the innovation as a means for expanding the innovation's impact on clients. Changes in use are made in coordination with others.
VI	Knows of alternatives that could be used to change or replace the present innovation that would improve the quality of outcomes of its use.	Seeks information & materials about other innovations as alternatives to the present innovation or for making major adaptations in the innovation.	Focuses discussion on identification of major alternatives or replacements for the current innovation.	Analyzes advantages & disadvantages of major modifications or alternatives to the present innovation.	Plans activities that involve pursuit of alternatives to enhance or replace the innovation.	Reports considering major modifications of or alternative to present use of the innovation.	Explores other innovations that could be used in combination with or in place of the present innovation in an attempt to develop more effective means of achieving client outcomes.