ORIGINAL ARTICLE

SRI LANKAN TEACHERS' CONCERNS TOWARDS IMPLEMENTATION OF CURRICULUM REFORMS IN THE COMPETENCY BASED CURRICULUM REFORMS

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Abstract

This study was carried out in the period of 2010-2015 when the new changes were implemented in the Sri Lankan school curriculum. The purpose of this study was to evaluate teachers' concerns over the implementation of 5E model under the modernised the competency-based curriculum reforms for geography in Sri Lanka. The Concern based adoption Model (CBAM) was employed as theoretical and conceptual framework underlying the study. The respondents for quantitative approach on Stages of Concern (SoC) consisted of 311 geography teachers from secondary schools in *Kalutara* district, Sri Lanka. A total of nine (9) geography teachers who has shown their high concerns in the survey was selected for the qualitative methods on Levels of Use (LoU) and Innovation Configuration (IC). The study used adapted instruments such as Stages of Concern Questionnaire (SoCQ), basic interview protocol and innovation configuration map from the actual instruments of CBAM. The findings from analysis of SoCQ showed teachers remained at the initial SoC over the implementation of the 5E model. The results from the interviews revealed that geography teachers overall use of the innovation ranged from LoU II-preparation to LoU IVA-routine, whilst many remained at LoU II- preparation. The classroom observations showed that many teachers did not reach acceptable level of teaching in using the 5E model. The study suggested several intervening strategies to take geography teachers to the higher SoC and LoU as well as motivate teachers to practice at the ideal level of teaching using the 5E model. The results of the study are significant at a time when there is a greater attention on introducing new curriculum reforms in the country. In an any curricular reforms, teachers should be given greater attention as they are the main agents of implementation. There should be a continuous evaluation on the teachers' responses to the implementation of curriculum reforms using a good model like CBAM.

Keywords: Curriculum Reform, CBAM, Teachers' Concern, 5E Model

Introduction

The Democratic Socialist Republic of Sri Lanka is an island, known as "*Pearl of Indian ocean*", for any years (Sharifah Nor and Nawastheen 2013)[1]. Keeping in line with the global trend, Sri Lanka introduced its first school curricular reform of the new millennium in early 2007 known as Modernised Competency Based Curriculum Reform (MCBCR). The reform was based on a constructive approach and has brought several new innovations into the educational system. One of such is 5E model.

Since teachers are the critical agents in implementing changes into their classrooms, the teachers themselves should be the major focus of analysis and source of evidence to make interventions in bringing success in curriculum implementation. "Crisis leads to reform, reform to confusion"- this is the universal rule of development in many countries (Qi-quan 2006)[2]. This has been the case with implementing curricular reforms within the educational systems of many developing countries especially when stake holders are not carried along.

According to Fullan (2007)[3] the implementation is a process which put new ideas into practice as well as programmes or set of activities and structures by the people attempting create change to those who are expected to change. Policy makers come up with innovative ideas with high expectations to change the entire educational system, but in reality, there are many factors hindering the implementation process and its success. For example, Sahlberg (2005)[4] is of the opinion that implementing new curricular changes is not an easy task because certain factors influence its success. Fullan (2007)[3] identifies nine (9) factors affecting implementation of educational change process with three major characteristics namely change, local and external which are defined as "system variables" that determines the success or failure of the implementation. Even though teacher as one of Fullan's nine factors is placed under the local characteristics, the teacher is however seen as the most crucial factor that influences the success of any educational change. This is because the teacher occupies a central position where the other eight factors interact during the implementation process as asserted by Bantwini (2010)[5]. Ma et al. (2009)[6] and Flores (2005)[7] also supported the above statement by explaining that many researchers have found teachers as the significant agents and crucial elements in curriculum change. Consequently, massive effort is needed to engage teachers in both the change process (Marsh 2002)[8] and evaluating them continuously. Part of the reason why implementation of well-intentioned educational policies has resulted in less-than desirable outcomes and led to a waste of considerable resources, time, and effort is because teachers are not translated into classroom reality (Altinyelken 2010)[9].

In the context of Sri Lanka, it is vital to investigate the interests; concerns and competence of teachers towards the new curriculum reforms since there have been little or no studies focusing on teachers' role in the implementation of curriculum reform. For example, studies relating to the curriculum reforms in Sri Lanka, from early 1970s to date does not seem to adequately reflect the roles which teachers play in the implementation process. The studies of Lewin (1975)[10], Ranaweera (1976)[11], Ariyadasa (1976)[12], Peris (1976)[13], Gunawardena (1978)[14] and Wanasinghe (1982)[15] are concerned about the curriculum reforms prior to 1980's especially on 1972 curriculum reform. However, none of these studies focused on teachers' perspectives and competence in implementing curriculum reforms.

Similarly, several studies were also conducted on the curriculum reforms of 1997. Among them are Gunawardena and Lekamge (2004)[16], Gunawardena et al (2004)[17], Wijetungga and Rupasinghe (2005)[18], Gunawardena et al. (2004)[19], Little (2010)[20], and Sivanesaraja (2010)[21]. But only the study by Gunawardena et al. (2004)[17] refers to instructional process and teachers' endorsement in the implementation of curriculum reforms. Furthermore, there are few studies relating to the curriculum reforms of 2007. These include, Perera (2008)[22], Perera (2009)[23] Gunawardena (2010 A)[24] and Gunawardena (2010 B)[25]. Again, only the studies of Perera (2008 and 2009)[22,23] appear to discuss the teachers' perspectives towards changes in curriculum. These evidences have clearly showed that there have been little researches focusing on teacher's perspectives towards the implementation of curriculum reforms in Sri Lanka as opined by Perera (2008)[22] and NEC report of 2010, respectively. Furthermore, this indicates that educational system of Sri Lanka requires more researches to identify shortcomings and make necessary interventions. Therefore, the purpose of this study was to evaluate the implementation of MCBCR for the subject Geography in terms of teachers' stages of concern and level of uses of the 5E model. In order to achieve this purpose, following research questions were developed to assess teachers' concerns in executing the 5E model:

I.   What were the Stages of Concerns for geography teachers' using the 5E model in competency-based curriculum reforms of Sri Lanka?
II.   What are the teachers' Levels of Use (LoU) in employing 5E model in their teaching and learning process?
III.   To what extent geography teacher were practicing (Innovation Configuration) the 5E model in their teaching and learning process?

Concern Based Adoption Model

The Concern Based Adoption Model (CBAM) was employed as the theoretical and conceptual framework underlying the study to evaluate teachers' concerns in implementing the 5E instructional approach in Sri Lanka. CBAM is an implementation model and is widely accepted in educational studies in recent years because of its focus on individuals' reactions with the change process (Al Sharrani 2009; Patheridge 2007)[26,27]. Concern Based Adoption Model (CBAM) is an approach which has been widely used in recent times for curriculum implementation. According to the Southwest Educational Development Laboratory (SEDL) (2011), CBAM helps to understand the change process. It also gives standard-based tools to the evaluators, researchers, and school administrators for describing and measuring the components of complex initiatives.

The CBAM model was developed based on the concept of concern development of Fuller (1969)[28] after conducting several studies on her student teachers. Based on this study, Fuller discovered that teachers' concerns evolve according to their experiences and backgrounds; and was moving along the following four stages of concern in a change process: unrelated concern stage, self-concern stage, task concern stage, and impact concern stage (Hall and Hord 2011)[29]. Drawing from Fuller's concept of concern model, Hall, Wallace, and Dossett in 1973 proposed CBAM to explain the adaptation process based on the individuals involved in the change process (Hall and Hord 2011; Saraswathy 2006)[29,30].

The CBAM according to Loucks-Horsley (1996)[31] applies to policy makers, teachers, parents, and teachers or even student to examine their experience in a change process. Although,

the main argument of CBAM model is that an adaption to an innovation requires positive personal experience and a process where an individual (teacher or a student) progresses wholly at a different pace. Hall and Hord (2011) explained that it also focuses on client's differences in the implementation process in terms of their readiness to change, understanding, and skills to implement change, and fidelity to developer's vision. The CBAM consists of three major dimensions which are used to measure individual differences, such as Stages of Concern (SoC), Levels of Use (LoU) and Innovation Configuration (IC).

The SoC as the first-dimension deal with the readiness of individuals to change. It also deals with the person introducing the change and his feeling and views about the change. According to Loucks-Horsley (1996)[31] this dimension defines concern as anything that is thought or felt about the impeding change. CBAM developers identified and defined seven categories in the SoC such as Unconcerned (Stage 0) Informational (Stage 1) Personal (Stage 2), Management (Stage 3), Consequence (Stage 4), Collaboration (Stage 5) and Refocusing (Stage 6). These seven categories of concerns according to George et al. 2006; Hall and Hord 2011 are grouped into four namely: Unrelated (Unconcern), Self (Informational and Personal), Task (Management Stage 3), and Impact (Consequences, Collaboration and Refocusing). However, Hall and Hord (2011)[29] explained that the clients move through these stages only if the change is treated as a process where teachers begin with stage 0 and move through the rest of the stages according to their willingness and experiences. Table 1 shows a brief description about each stages of concern.

Table 1:
Description of Stages of Concern (SoC)

Stages		Reflection of Teachers
Stage 0	Unconcerned/ Awareness	Teachers have little knowledge about curriculum reforms. It indicates teachers are not ready to be involved in the curriculum reform process.
Stage 1	Informational	Teachers possess knowledge about the curriculum reforms and show their willingness to learn about it.
Stage 2	Personal	Teachers start to think about impact of curriculum reforms at a personal level and about their limitations related to the reforms.
Stage 3	Management	Teachers focus on processes and tasks of using the reforms. They concentrate on solving problems and difficulties related to the reforms.
Stage 4	Consequence	Teachers start to focus on how the reforms will affect their students.
Stage 5	Collaboration	Teachers begin to share ideas and observe what their peers are doing with the reforms.
Stage 6	Refocusing	Teachers concentrate on more strategies for better implementation of reforms.

Source: Sharifah Nor and Nawastheen (2013:723)[1]

Levels of Use (LoU) which is another dimension address how individuals possess understandings and skills to implement proposed changes. Thus, its focus is on developmental progression in a person's behaviours as he or she prepares for, begins, masters, and refines the use of new professional practices (Anderson 2010)[32]. This helps in monitoring what is happening in

the relation to the change process. Firstly, it determines whether individuals are non-user or user with the innovation and then identify each based on the eight classifications of practice with the innovation or change. In this case, non-users and users are classified within three levels (non-use; orientation; and preparation level of user) and five levels of use respectively (Mechanical; Routine; Refinement: Integration; and Renewal users) (Horsley and Loucks-Horsley 1998; Hall and Hord 2011)[33,29]. Bellah and Dyer (2009)[34] state that individuals in the change process gain confidence and skill in using the change bypass through these levels of uses sequence. Therefore, it is necessary to identify actual practice levels of teachers during the implementation of curriculum reform. Then developers can come out with the strategies to motivate the teachers with the practices and ensure successful implementation. Therefore, it is suggested that 75% or more of the teachers engaged in curriculum reform implementation must operate at Level IV-A routine or higher level to be able to adopt and use the change (Bellah and Dyer 2009; McKinnon and Nolan 1989)[34,35]. Table 2 shows main characteristics of different types of profile in the LoU.

Table 2:
Description of different profiles in the LoU

Main Profile	Types of Profile	Description
Non-use	Level 0: Non-use	Teacher does not take any action with regards curriculum change.
	Level I: Orientation	The teacher looks for more information about the curriculum change.
	Level I: Preparation	The teacher gets ready to practice the curriculum change for the first time at the classroom.
Use	Level III: Mechanical use	The teacher displays poorly coordinated application of curriculum reforms and only makes user-oriented changes.
	Level IVA: Routine	The teacher applies the curriculum changes with few or no changes and sticks to an established pattern of use.
	Level IVB: Refinement	The teacher makes changes to the curriculum reforms to increase outcomes.
	Level V: Integration	The teacher exerts extra effort to coordinate with other teachers regarding the application of curricular changes.
	Level VI: Renewal	The teacher looks for more effective alternatives to the established application of curricular changes.

Source: Hall (2011:236)[29]; Nawastheen et al., (2014)[1]

Innovation Configuration is the third dimension of the CBAM deals with the fidelity of individual's implementation of the change. Fidelity implementation is the adherence or integrity of individuals with the change and it is used to determine how such individual implement the changes in comparison with the original design. This is because often time actual practices of users vary from the initial planned. Furthermore, once change is introduced, confusions usually occur among the stakeholders. This confusion, therefore, allows teachers to create their own versions and implement them according to their understanding and skills. These variations among the teachers are addressed by Innovation Configuration (IC) of CBAM which focuses on differentiating what the use of innovation can look like and how it looks in operation at the classrooms (Hall and Hord 2011)[29].

5E model: The 5E model is developed based on other instructional models and supported by current research on learning. The 5E model which was firstly developed by the Biological Science curriculum study in mid-1980 is an example of instructional model based on the constructive approach. Furthermore, the model has been recognised as effective in developing 21st century skills among students (Bybee, 2009)[36]. According to Bybee et al. (2006)[37], the instructional model is based on sound educational theory and has a growing base of support for its effectiveness. They explained that the model consists of five phases: Engagement, Exploration, Explanation, Elaboration and Evaluation. Engagement is the first phase of 5E model, where teachers attempt to make connection between past and present knowledge of concept. Exploration is the second phase of 5E model, students can work in group similar to cooperative learning activities in order to gain common and concrete experiences. Under Explanation phase which s third phase of 5E model, students come forward to describe their own understating about the concepts with the evidences for supporting their answers. Elaboration is fourth phase of 5E model, students are provided opportunities to apply extend the concepts and skills in new related situations. (Goldston et al. 2009; Campbell 2006; Akar 2005)[38,39,40]. Considering the advantages of 5E model, it had been introduced as a pedagogical approach for teaching all subjects of secondary school curriculum in Sri Lanka during the period of 2007-2015.

Methodology

An explanatory mixed method design was used for this study. Questionnaires were distributed among 400 teachers using the snowball sampling technique, as there no definitive data on the distribution of geography teachers were found. A total of 311 geography teachers out of 400 teachers from secondary school in Kalutara district, Sri Lanka, participated in the first phase which employed quantitative approach to determine teachers' Stages of Concerns. In the second phase of the study, a total of nine teachers who have shown higher concerns in the survey, were selected to verify their Levels of Use and the Innovation Configuration with introduced 5E model in their teaching and learning process. The study employed adapted Stages of Concern Questionnaire (SoCQ Form 075), basic interview protocol and Innovation Configuration map. Data collected from survey was analysed using mean, standard deviation, and percentile scores. Likewise, the data collected from interview protocol and observation using IC map were analysed based on CBAM guidelines.

Findings and Discussion

RQ 1: What were the Stages of Concerns for Geography Teachers' Using The 5E model?

Based on respondents' answers to the items of SoCQ (075) the mean value and standard deviation were calculated to determine the teachers' Stages of Concern in implementing 5E model. Table 3 shows mean and standard deviation scores of the teachers' Stages of Concern in the implementation of the 5E model. The results of total highest values of mean were found at the consequences (M=5.20.SD = 0.99), collaboration (M = 5.19, SD = 1.07) personal (M = 4.94, SD = 1.21) informational (M = 4.92, SD = 1.18), refocusing (M=4.54. SD = 1.15) and awareness (M = 4.24, SD = 1.23). Lowest mean scores of respondents were found at the management (M=4.17. SD =1.12). Based on scale of intensity, teachers showed more concern at impact (SoC4-Consequence and SoC5-Collaboration), and then self (SoC1-Information and SoC2-Personal)

stages of concern. Likewise, teachers showed their relatively low concern at SoC0- Awareness stage of concern.

Table 3:
Teachers' Stages of Concern

Stage of Concern (SoC)	N	Mean	SD
SoC0 – Awareness	311	4.24	1.23
SoC1 – Information	311	4.92	1.18
SoC2 – Personal	311	4.94	1.21
SoC3 – Management	311	4.17	1.12
SoC4 – Consequence	311	5.20	0.99
SoC5 – Collaboration	311	5.19	1.07
SoC6 – Refocusing	311	4.54	1.15

However according to George et al. (2006)[41] and Hall and Hord (2011)[29] the mean values should be converted into percentiles scores as suggested by them for the purpose of interpretation Stages of Concern. However, according to George et al., (2006)[41] and Hall and Hord (2011)[29] the mean values should be converted into percentiles scores as suggested by them for interpretation of the SoC. Accordingly, the above mean values (Table 3) calculated into percentiles and illustrated in Table 4.

Table 4:
Average Percentiles scores

	SoC 0	SoC 1	SoC 2	SoC 3	SoC 4	SoC 5	SoC 6
Average Raw Score	21	25	25	21	26	26	23
Average Percentiles	99	90	85	80	59	72	77

The further analysis based on percentiles scores were shown that Geography teachers remained first three stages of concern. Highest percentile scores were found at SoC0 (awareness- 99), SoC1 (informational-90), SoC2 (personal- 85) and then SoC3 (management-80). The lowest percentile score was 59 for the SoC4 (consequence). There were relatively low percentile scores at SoC5 (collabaration-72) and SoC6 (refocusing-77) when compared to highest scores at self-concerns level. The average percentile scores according to teachers' stages of concern over the implementation of 5E model are illustrated in Figure 1.
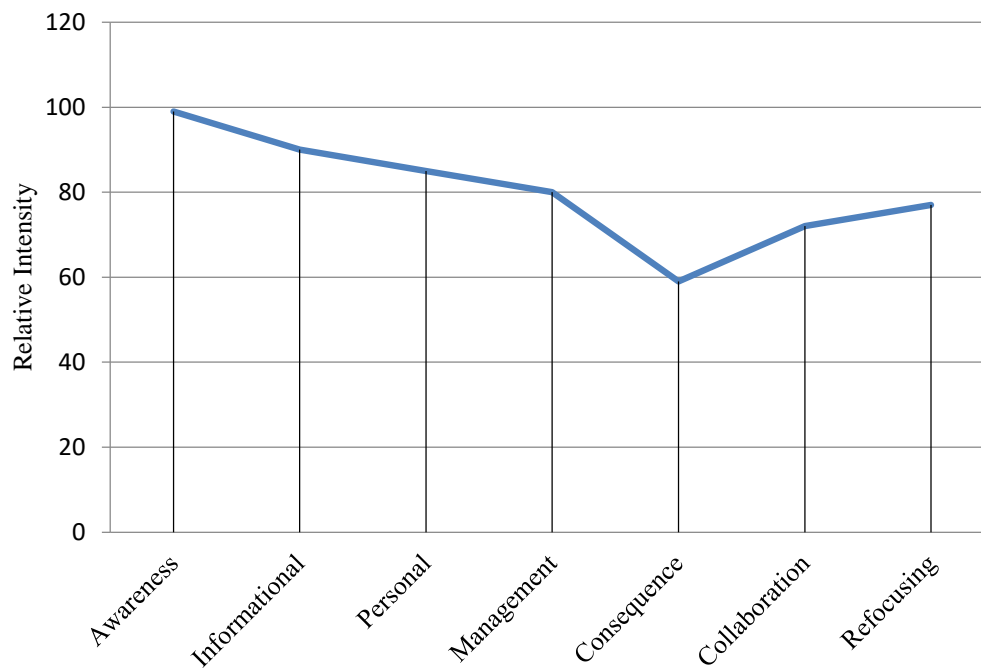
Figure 1: Group Profiles of Geography Teachers

The profile analysis is the richest and most frequently used method for interpreting data from SoCQ (George at al. 2006)[41]. In above Figure, geography teachers showed most intense concerns at first four stages and lowest at consequence concern. Relatively low scores were found in collaboration and refocusing stages. According to the descriptions of George at al. (2006)[41] the profile of geography teachers was similar look of typical *Nonuser SoCQ Profile* (George at al. 2006:37)[41]. The findings from the analysis of teachers' stages of concern based on mean percentiles score showed teachers remain at the initial stages of concern over the implementation of 5E model. Teachers displayed more concern at *Self*-concern stage (Awareness, Informational and Personal), followed by a *Task* concern stage (SoC1-Management). The primary and secondary concerns of teachers were found at the awareness and informational stage of concern. The results clearly indicated that teachers were having a non-user profile following the implementation of 5E model and did not concern themselves much about the implementation process. George et al. (2006)[41] posited, while expressing their feelings, there was a great worry exhibited by non-users when viewed at three stages; awareness, informational and personal but at other last stages of consequence, collaboration and refocusing, the expressed concern is little or insignificant. As teachers' primary concern remained at the awareness stage, Sri Lankan geography teachers showed very little concern about the use of 5E model in their teaching.

Furthermore, geography teachers were more informed about the 5E model and held personal reservations about the newly introduced innovation and its consequences. Notwithstanding, the uneasiness that these concerns of implementing 5E model might bring, the resistance displayed is insignificant (George et al. 2006)[41]. Geography teachers continued to exploit the 5E model because of the personal and informational attachment they developed (George et al. 2006)[41]. Fullan (2007)[3] opined that features such as focus on and clarity about the change of the teachers, affect the change process therefore teachers faced difficulties in translating innovation into success when they had non-clarity and less focus on the change process. The curriculum reform along with 5E model was introduced in 2007. Within five years of its

implementation, geography teachers were provided with various levels of in-service trainings. Consequently, they should have higher concern at consequence than at awareness. But they remained at initial stage clearly indicates as Ferguson (unknown date) put it they might be afraid of change or still prefer practicing the traditional ways of teaching. In describing major driving factors behind change, Fullan and St. Germain (2006)[42] stated it is important to understand the change process as driver because of its general acceptability across all elements.

The context of this study indicates that some levels of congruence exist as described by Kwerteng (2009)[43] and Lau and Shiu (2008)[44] positively related to the first three concern stages. Theory has revealed that, prior to implementation of any innovation into a curriculum; teachers would usually develop cold feet and express their feelings as self-concerns (Hall and Hord, 2001 in Lau & Shiu, 2008)[44] even though such self-concerns might not be necessary coming from the implementation process. The respondents therefore carried forward such concerns to the actual implementation.

RQ 2: What were the teachers' Levels of Use (LoU) in employing the 5E model in their teaching and learning process?

The researcher of the study selected a total of nine teachers to measure their Levels of Use (LoU) and Innovation Configuration (IC) within the 5E model. All teachers were interviewed by the researcher using the interview protocol which has given by Hall et al., (2006)[45]. Each statement obtained from the interview was studied carefully and tallied in rating sheets based on the guidelines given by Hall et al., (2006)[45]. From there the researcher determined each respondent's Levels of Use. The Overall results of the analysis from the interviews are presented in the table 5 in which displayed each respondent's Levels of Use according to the seven categories of LoU.

Table 5:
Respondents' LoU according to the categories

Case	Knowledge	Acquiring information	Sharing.	Assessing.	Planning	Status Reporting	Performing	Overall LoU
Case1	III	III	III	II	II	III	III	Mechanical Use
Case2	II	II	II	II	III	III	II	Preparation
Case3	III	II	II	II	II	II	II	Preparation
Case4	III	III	III	III	II	III	II	Mechanical Use
Case5	IVA	IVA	III	IVA	III	IVA	III	Routine
Case6	III	IVA	III	IVA	IVA	IVA	III	Routine
Case7	II	II	II	II	II	II	II	Preparation
Case8	III	II	II	II	II	II	II	Preparation
Case9	II	II	II	II	II	II	II	Preparation

Analysis of the results from the LoU protocol interview, revealed that teachers' profiles ranged from LoU II (preparation) to IVA (routine) of all the categories. At the knowledge

category, three teachers remained at LoU II, five teachers remained in LoU III (mechanical) and one teacher at LoU IVA. Teachers at knowledge category of LoU II, had clear understandings about what was 5E model and how it should be carried out. Indeed, they described about how their roles in the classrooms had been changed and the effect of the 5E model on them and their students. They complained more on limited time for preparation, and continuing activities, as well as lack of resources and materials in implementing the 5E model. Teachers who were at knowledge category of LoU III, describe the 5E model in details better than others who were at LoU II. Teacher who was at knowledge category of LoU IVA suggested both short term and long-term activities for the implementation of the model. At the stage of acquiring information five teachers were at LoU II. They involved in acquiring information about 5E model especially about the *elaboration* and *evaluation* stages of 5E. They felt that given trainings and materials such as the syllabus and teacher guides were not enough to use 5E model continuously. They sought more information and guidance from experience teachers who were in their school level. Two teachers at acquiring information for category of LoU III, looked for management related information such as how could they used 5E model within 40 minutes effectively.

Similarly, two teachers remained at acquiring information category of LoU IVA and they did not expect any more information about the 5E model as they had enough information about the model. Sharing category focuses on what kind of things could be shared among the teachers. Analysis of results showed that there were five teachers at sharing category of LoU II and four (04) teachers at LoU III. Those who were at LoU II of sharing category more interested in discussing about resources, materials and issues related time management of the 5E model with others. In addition, teachers who remained at LoU III shared with others on how they overcame issues like managing time and getting materials and resources for use in the 5E model. From the assessment category, it was how teachers could evaluate students when they were using an innovation. Analysis of results revealed that there were six teachers at LoU II of assessing category and one teacher at LoU III while two teachers remained at LoU IVA of assessing category. Those who were at LoU II of assessing category carried out informal evaluation and observations to decide how they used 5E model. In contrast, only two teachers who were at LoU IVA state that they cooperated with master teachers for formal evaluation to determine their use of 5E at the classrooms. Planning category identifies of efforts and activities for using innovation in future. A total of six teachers remained at LoU II of planning category and two were at LoU III while one teacher was at LoU IVA.

The results revealed that many teachers were at the initial use of innovation and still thought about how they could obtain resources and materials for using the 5E model. Likewise, teachers who remained at LoU III of planning category describe their planning activities in short term prospectively. Status reporting category summarised one's use of innovation and how he or she perceived his or her use of innovation. In this category, four teachers at LoU II, three teachers at LoU III and two teachers at LoU IVA were remaining. Teachers in LoU II expressed their interest in using 5E in their teaching methods, while teachers at LoU III described their difficulties in using 5E model in terms of inadequate time, resources, and materials. Likewise, teachers who were at LoU IVA described their use of innovation as they implemented the 5E model as satisfactory even though they had some managerial issues. Performing categories describes actual situations of teachers in using innovation. The results reveal that majority of teachers remained at LoU II of performing category. The teachers who were at this level stated that they engaged in understanding of materials and organising activities in using of 5E model. Only three teachers fell

on the LoU III of performing category and they were using 5E model without expecting any immediate results.

In sum, it was clearly exhibited their low level of participation in using of 5E model due to their negative attitudes, and beliefs about the 5E model. According to Fullan (2007)[3], it is not expected that all teachers will embrace the change due to their difference in feeling, attitude, interest, and perception about the change itself. It was exhibited that geography teachers still did not change toward using 5E model for 5 years later from it was introduced. Sri Lanka has top down approach in the implementation of school curricular changes. Changes originate from central authorities like Ministry of Education (MoE) and National Institute of Education (NIE), and it has almost mandatory manner. Fullan (1997)[46] points out that mandated change is unlikely to be effective. He further says "Mandates alter some things, but they don't affect what matters. When complex change is involved, people do not and cannot change by being told to do so" (p.38).

In such context Hinde (2005)[47] suggests it is often a delicate balance between mandating change and bringing teachers to believe in the need for and efficacy of the reform so that they feel a sense of ownership which make them able to enact and effective change. Donahoe (1997)[48] opined many reforms focus on the superficial aspects of schools and teachers and disregard the values, beliefs, behaviours, rules, products, signs, and symbols of teachers. Therefore, these should be understood before and during the implementing a change. Equally Bandura (1986)[49] opines outcome expectation and efficacy influence in one's cognitive behaviour. Following quotation of McGuire (2000)[50] explains it as "whatever the precise locus of the changes outlined, they do have an impact on self-perceptions, on perceived ability to act upon the environment, and on attributions regarding internally-motivated change."

Besides, teachers' levels of motivation towards the change process should also be investigated. Teacher may show resistant to the change because of their low level of motivation they have whilst motivated teachers would exhibit their willingness to involve with change process. Geography teachers' LoU in this study compared with the model of Prochaska and DiClementi (1998)[51] who mainly developed the model with a variety of stages that one can expect to go through when modifying behaviour. The CBAM model can be applied to all types of desired change (*Pacheco 2012;* McGuire 2000)[50]. According to the model, many geography teachers stayed in the use of 5E model at *contemplation stage* where the geography teachers may be aware of the changes but have not made commitment towards it (Pacheco 2012)[52]. The findings of the study contradicted with Park (2012)[53] who identified majority of Bangladesh primary teachers remained in mechanical use (LoU III) and few stayed at refining usage level (LoU IVB). Consequently, Park concluded that if teachers have appropriate facilitative assistant and time, teachers typically move to LoU IV levels of use (Hall and Hord 2006)[45]. Likewise Wang (2014)[54] suggests that it could make high user profile among teachers by evaluating teaching outcome, making changes to increase outcome, coordinating with the other teachers in the use of innovation, seeking effective alternative to establish use of innovation.

RQ3: To what extent geography teacher were practicing (Innovation Configuration) the 5E model in their teaching and learning process?

Classroom observations were carried out using Innovation Configuration (IC) map to determine selected nine teachers' performances in their teaching using 5E model. Each case observed and

rated from 1(not acceptable) to 3 (Ideal) using innovation configuration map and a check list. Table 6 illustrates overall scores of each case. The findings from the classroom observations revealed that many teachers were away from ideal levels of implementation and remained at not-acceptable stage. A few teachers were at acceptable level of teaching.

Table 6:
Overall scores at the Innovation Configuration

Case/Teacher	Overall Scores	Decision
Case1	1.6	Closed acceptable
Case2	1.52	Not acceptable
Case3	1.00	Not acceptable
Case4	1.74	Closed to acceptable
Case5	2.06	Acceptable
Case6	2.22	Acceptable
Case7	1.12	Not acceptable
Case8	1.2	Not acceptable
Case9	1.42	Not acceptable

Success of any curricular or pedagogical changes always depends on how it is translated into actual practice by teachers at their classroom level. In other words, it depends on how far teachers engage with fidelity of the curricular changes or at what extent the innovation is put into practice as intended. Fidelity refers to the degree to which someone, such as a teacher, is implementing a program or practices in accordance with the way that program or practice is designed to be used. In general, once new curricular changes are introduced, teachers are not necessarily accepted all the changes brought right away. They may have self-doubt, uncertainty, confusion over the new changes.

Consequently, Fullan (2007)[3], Hall and Hord (2006;2011)[45] advocate changes are progress. Teachers would show variations in their practicing with the new changes or would reject the changes and continue their old way of practices. Evaluating teachers' practices at the classroom using IC map or check lists will help to identify potential variations from intended in the curriculum plan. Javeri and Persichitte (2007)[55] and Fernando (2010)[56] confirmed from their studies IC map is effective in measuring variations in implementing curricular innovation.

In conjunction with the implementation of 5E model, several common sets of roles were expected from the teachers. First teachers need to draw students' attention and create their motivation towards lesson by pre-planned small activities or strategies. Then teachers give group activities that enable to provide common set of experiences related to the lesson and allow students to explore knowledge and develop skills from that followed by students are allowed to present their solution, experiences and descriptions from the given activities in their own ways. Then teachers facilitate students to understand new extended concept related to the lesson. Meanwhile teachers involve in assessing during the lesson and evaluate students at the end of the lesson whether they reach to the competency level of the lesson or not (NIE 2009; Hanuscin and Lee 2008; Bybee et al 2006; Akar 2005)[57,58,37,40].

Keeping this in mind, when looking at the results of the study based on the IC map, none of the teachers remained at the ideal stage or stayed with the fidelity of implementing of 5E model.

Many teachers demonstrated their practices at not acceptable stage. The researcher observed a common set of attributes exhibited by teachers in their classroom practices using a classroom observation checklist. These attributes are:

1) Teachers did not carry out their activity (lesson) plans during the lessons consequently they did not give any students activities and did not use any teaching materials except textbook,
2) Teachers prefer to deliver lesson using lecture methods,
3) Students were not allowed to work in groups,
4) Students were inactive in class except taking notes,
5) Teachers did not possess teacher guides and mostly rely on the textbooks,
6) Teachers showed too much worries about covering syllabus within the time period,
7) Teachers did not attempt at least one of step in the 5E model, and
8) Teachers did not carry out any evaluation at the end of the lesson.

When researcher inquired about these, the teachers informed that the new instructional changes were unsuitable as their classrooms were small and lacked in space to carry out the activities suggested. They added that they did not have enough materials and trainings to practice as well as insufficient time allocated to implement the changes. They also pointed out that one- or two-days training was not enough to understand about the new changes. Nevertheless, few teachers stayed at acceptable level in their teaching. They also faced difficulties in managing time during the lesson.

In general, it was allocated in two periods of lessons in the school timetable in which each consists of 40 minutes. Researcher was informed that the time was not adequate carrying all phases of 5E model and it was not effective continuing the activities in two different times of lesson. Therefore, they demonstrated 80 minutes lesson by using 5E model. They attempted to use all phases of 5E model during their lessons, but it was observed that they had self-doubt mostly in elaboration phase of 5E model. Intervention programmes to provide knowledge and skills on 5E model would be helpful for them to move from acceptable level to ideal level of teaching. Park (2012)[53] sampled a total of ten teachers for classroom observations to determine their practices with active learning methods and founds that majority of them were ideal implementers with the active learning methods. To this end, he recommends intervening with suitable strategies in the change process to enable these teachers to continue to improve include their ability to create a happy and healthy learning environment for their students as well as their optimistic attitude, commitment, and professional competency as primary school teachers (Park 2012)[53]. As change is a process, it should bring all non-implementers to the acceptable level of implementation and then help them all to move towards ideal implementers' status by intervening with suitable alternative solutions to the identified issues in the implementation of 5E Model.

Conclusion

At a time when there is greater focus is now on new educational reforms in the country, the results of this study are significant. Purpose of the study was to evaluate teachers' concerns towards implementation of 5E model in the curriculum reforms. As a whole, it was found that there was a gap between desired and actual practices in the implementation of 5E model in teaching geography. Such phenomenon has been portrayed by various terms for example implementation gap (Fullan 2011; Hall and Hord 2011; Balfanz et al. 2012)[59,29,60], implementation dip (Fullan

2007)[3], implementation slippage (Sharifah nor 2002)[61], chasm (Pollard 2006)[62]. CBAM as an implementation theory provide a guidance to intervene into the implementing process in the emergence of implementation gap by introducing concept of Implementation Bridge. In an implementation gap, two options are given either asking teachers to jump to other side or facilitating for teachers to move across Implementation Bridge (Hall and Hord 2011)[29]. The first option is arbitrary and ridiculous to bring desired outcomes. Facilitating for teachers is an ideal option in the emergence of implementation gap. According to Hall (2010)[63], three steps should be taken in facilitating teachers to move across the implementation gap. The steps are 1) diagnosing teachers' concern stages, levels of use and fidelity with introduced practices by using three tools of CBAM; 2) based on results from above tools determine what type of interventions would assist each implementer to bring further progress; and 3) deciding the time period for intervening programmes. Consequently, it was diagnosed teachers concerns, usage levels and fidelity with practices in the implementation of 5E model. Based on above diagnosed results, the interventions strategies should be given to translate reforms into success. Therefore, when there are any educational reforms introduced, it is important to pay special attention to the teachers who are important agents in educational reforms. it is necessary to evaluate how they implement the innovation introduced by the reforms. Therefore, models such as CBAM is ideal to evaluate them to identify teacher's status and make them to move forward to implement innovations successfully.

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