Teachers Quality Education in Tanzania: The Role of In-Service Training Programme

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Abstract

Purpose: **This research was about designing an intervention to enhance the quality of Geography teachers in Tanzania. The research was skewed in this topic because teachers' professional development is often regarded as the key factor to student achievement. With these regards, professional development through in-service training needs to be considered as an important agenda to the country as well as to researchers. The present research captured this demand, through designing the teacher professional development program named as Experience the Lacked Knowledge Content and Pedagogical Skills (EKCPS). The main aim was to provide measures to upgrade teachers' quality in teaching by experiencing them with their lacked knowledge content and pedagogical skills of practical Geography, so they use competence based approach in their teaching processes.**

Methodology: **This research employed action research approach. Then, both qualitative and quantitative approaches were employed during data collection and analysis. In this research, sampling strategies were employed. Purposive non- probability sampling was used, to select the competent experts to participate in evaluating the newly designed EKCPS material. Then, randomly probability sampling was used to select 6 secondary schools out 44 secondary schools in Morogoro Municipality to participate in the workshop training. Afterward, the purposive sampling was used too to select 3 schools from those participated on the workshop training to the final cycle of field testing the designed EKCPS programme material in the classroom setting.**

Findings: **The study revealed that the material designed and in-service training provided to teachers have positive impact to quality teaching.**

Unique contribution to theory, practice and policy: **The study recommended; the government to consider social science teachers in the programs related to teachers' professional development and improvement in case of any curriculum reforms. Team teaching should be encouraged so that teachers who are acquainted with the application of learner-centered approach could help those who are not. Furthermore, the study recommended other researchers use lessons from this study to improve teachers' knowledge and skills on the use of learner-centered approach.**

Keywords: **Teachers' Education Quality (TEQ), Designing, Knowledge content and Pedagogical skills**

I. INTRODUCTION

Teachers' professional development constitutes an important element for quality teaching. Ever since, carefully preparation of teachers is helpful in raising student achievement. It is clearly stated in the Education and Training Policy of Tanzania that professional development is compulsory in the sense that, it results to teachers' quality and professionalism (URT, 1995). With this regards, teachers' educational quality predicts the outcome of high quality human resources (Thompson, 2003), since human resources, portray the nature of the country's economy (Aminudin, 2012). Thus, education provided should replicate the national demand, development as well as the challenge of the 21st century, by producing competent and skillful graduates. Moreover, education is a strategic agent for development of the country.

Considering the significant role of education to national development, it is the concern of each country to find out initiatives and progressive programmes to make education institutions effective and efficient through professional development, teachers in particular. Schleicher (2012) portrays that many nations around the world have undertaken wide-ranging reforms of curriculum, instruction, and assessments with the intention of better preparing all children for the higher educational demands of life and work in the 21st century. In supporting this assertion, many researchers confirm that teachers' quality is one of the most important school factors, influencing students' achievement (Osaki, 2002; and McKenney, 2001).

Despite of emphasis of various researchers on the needs for teachers' education quality, there are still diminutive serious measures taken by the government of Tanzania as it has been noted by Hatfield and O-saki 2008 & Kamugisha, 2012). The government seems to concentrate much on the equity and access to education with slight efforts on quality of education. This is evident in several initiatives which were strictly meant to enhance equity and access to education sidelining education quality. Some of those initiatives include Education for All (EFA), Primary Education Development Programme (PEDP), and Secondary Education Development Programme (SEDP) and currently Big Results Now (BRN), one among the objectives is free education from kindergarten to junior secondary education. The issue of emphasizing quality of education in Tanzania remains as a blue print, with good

connotations on papers, but with a less serious implementation and follow up. Consequently, the education sector found itself in dilemma by producing unskilled graduates, resulted from being trained by unskilled and unqualified teachers in some cases. And this was noted by Muwanga-zake,(1998) and Kamugisha (2012) saying that one among the challenge of education sector in Tanzania is the availability of teachers in schools lacking in the area of knowledge of the content and pedagogical skills, resulted from curriculum changes (O-saki, 2008) and teachers being left upgraded to cope with those changes (Kideli, 2015).

Therefore, a thoughtful intervention is required to minimize the impact of this problem through designing and developing an exemplary teacher professional development programme entitled as *'Experience the Lacked Knowledge Content and Pedagogical Skills'* (EKCPS). This is also supported by Orchard (2007). She commented that the best way to help teachers to make changes is to provide necessary information, materials, and support. In so doing, they will be able to think deeply not only about their subjects, but also about how to facilitate learning and how students connect to the material. In this research, EKCPS stands as a programme aimed at empowering school teachers through in-service training to the acquisition of knowledge of content and pedagogical skills as well as ability to design instructional materials. The design focuses on the Secondary Schools Ordinary Level Geography Syllabus. The successful designing and the intervention of this programme will hopefully help Geography teachers to acquire their lacked knowledge of content and pedagogical skills wherever they are.

Statement of the Problem

The question of teachers' professional development, which basically focuses its central attention on quality of education, is a worldwide concern, especially in educational forums, wherein, it is emphasized that, it is only through teachers' quality education, the educational system can be strengthened as commented by (Trehearn, 2010), and eventually leads to the country's development. Despite the noted emphasis on teachers' quality education, still some developing, Tanzania in particular, have observed being not serious on the matter. And this is evidently from unjust and inadequate formulated teachers' education policies addressing pre and in-service training as well as entrance to the teaching profession. The formulated policies on teachers' education training seem being undermining the quality of teaching education. It is surprisingly to find low performing students entering in teaching profession, since the available policies do allow and motivate failures to join. Subsequently, the country found itself in awkward position of having a number of unqualified and unskilled teachers in schools characterized with insufficient knowledge content and pedagogical skills, Geography teachers in particular.

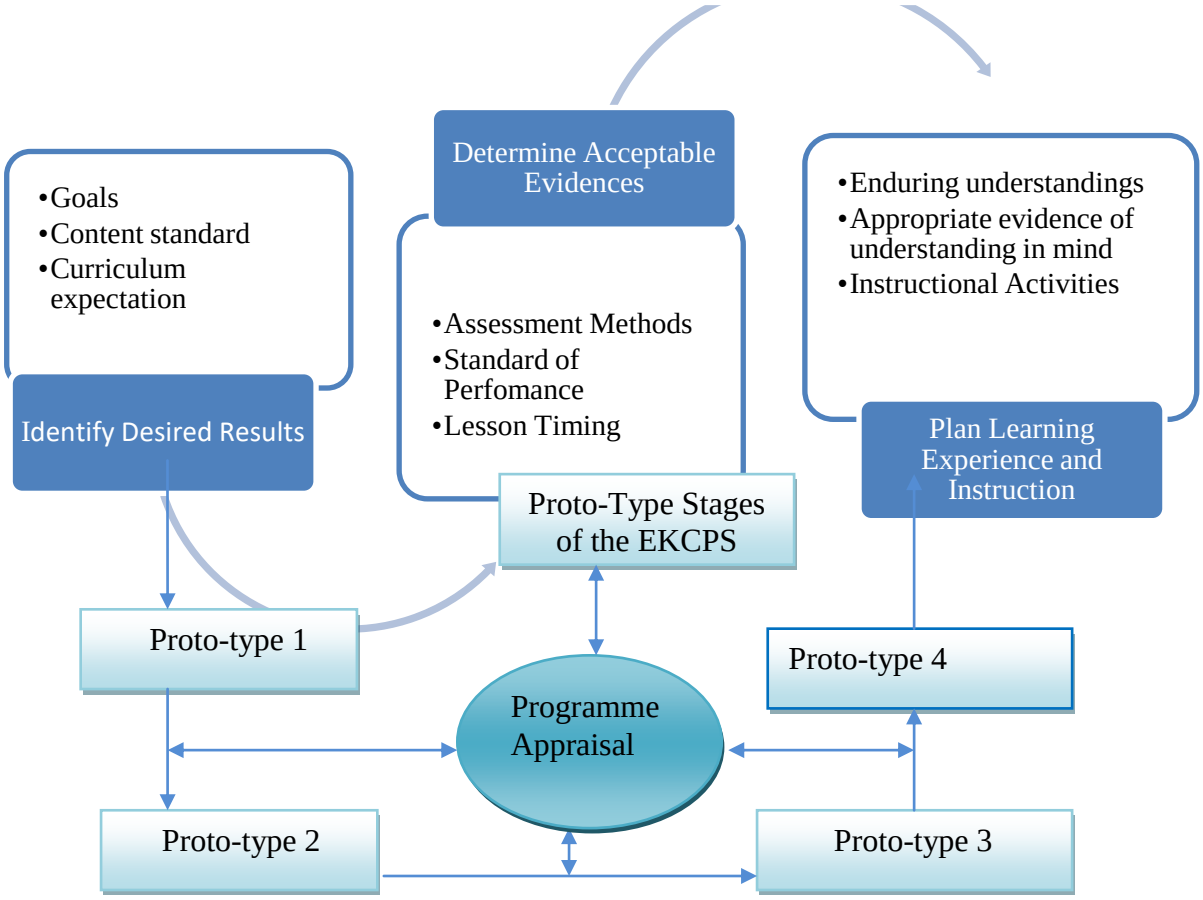
In attempting to resolve the problem, some researchers have tried to layout some solutions through researches and projects; however Social Science Subjects were sidelined in the done initiatives. The noted researches and projects done on quality education essentially biased to Natural Science and Technology subjects are Chemistry (Mafumiko, 2006; Mtaita, 2004; Kira, 2007; William, 2009 and Kaigi, 2009), Physics (Tilya, 2003), Biology (Nihuka, 2004), and Mathematics (Kitta, 2004). Little if not none has been done in the area of Social Science Subjects, despite the fact that the issue of teachers' quality improvement is addressed as a compulsory and a right to every teacher regardless his/her area of specialization in the education and training policy of 1995.

Due to minimal attention of most research and projects on improvement of teachers' quality of education to Social Science Subjects, this research engrossed its attention on bridging the gap through researching on teachers' quality education biased to Geography as one of the specialties of the Social Science Field. The subject was chosen out of other sidelined subjects of Social Science because it is the poorly performed subject after Mathematics subject in several years as reflected in Form Four National Examination results (www.necta.ac.tz). Therefore, it is thoughtful that the accomplishment of the training intervention will grab the intention of not sidelining Social Science Subjects in the field of designing, especially when it comes to teachers' education quality development through in-service training. And so, resolve the problem of quality education to Geography teachers as they experience training sessions using the designed EKCPS programme material.

II. CONCEPTUAL FRAMEWORK

The conceptual framework of this study has drawn some insights from backward approach of curriculum design by (McTighe and Wiggins, 1999). The development of prototypes in the EKCPS programme employed a backward approach of curriculum design in line with designing guidelines. The approach concentrate on designing some versions (prototypes) and trial out before the final product is constructed and fully implemented. This is because the accomplishment of one stage depends on the other (McKenney, Nieveen and Van den Akker, 2006) through that enduring understanding of the students is enclosed. The EKCPS programme material development involved four phases named as proto-types in line with the backward approach of curriculum design.

Figure 5.1: Steps in Developing EKCPS Programme



III. METHODOLOGY

This research employed action research approach. Then, data were collected by using triangulation approach as six methods are incorporated; interview, observation, questionnaire, focus group discussion, documentary review, and test. Sampling strategies were employed. Purposive non- probability sampling was used, to select the competent experts to participate in evaluating the newly designed EKCPS material. Then, randomly probability sampling was used to select 6 secondary schools out 44 secondary schools in Morogoro Municipality to participate in the workshop training. Afterward, the purposive sampling was used too to select 3 schools from those participated on the workshop training to the final cycle of field testing the designed EKCPS programme material in the classroom setting. Later on, the data were presented and analyzed by using both qualitative and quantitative techniques.

IV. RESULTS AND DISCUSSION

Prototype I

The first version of the EKCPS programme was exposed to 2 Geography tutors teaching at colleges of diploma teacher training and 2 Geography lecturers from two different universities in Tanzania. The main aim was to review the designed programme to identify its area of strengths and weaknesses on the aspects of content coverage, content organization, designing principles as well as practicability (McTighe and Wiggins, 1999). After two weeks of review, they were asked to fill the questionnaire related to content coverage, content organization and practicability of the provided material (See results below). Moreover, focus group was done with curriculum experts aiming at identifying a well-designed teacher professional programme characteristics that could enhance quality of teachers teaching Geography subject reflecting competence based approach.

Results from Questionnaire

The questionnaire responses from Geography tutors and lecturers were collected and subjected to Likert scale approach of scaling responses for analysis. The number of participants was 4; 2 Geography tutors and 2 Geography lecturers. Likert scale contained 4 scaling responses: strong agree, agree, disagree, and strongly disagree, numbered as 4, 3, 2, and 1 respectively. Analyses of the mean score by using Likert scale depends on the number of scaling responses and number of score of a certain item. The analysis of the collected responses was judged by using the scale of; 1-1.74 (strongly disagree), 1.75-2.49 (disagree), 2.50-3.24 (agree), and 3.25-4 (strongly agree). The mean score of each item was calculated, thus the grand total mean score was 2.90 which belonged to agree scaling response. This result indicated that the designed EKCPS material was positively graded by Geography tutors and lecturers. Table 2.5 summarizes the total mean score of each item which in turn helped in making review on the pointed areas of weaknesses. The noted challenges were on time distribution and topics organization. Then, the suggested areas of weakness were identified for the review to be done accordingly. For instance, formerly, the EKCPS material was organized starting with the topic of Introduction to Research followed by Application of Statistics and ended with Introduction to Map Reading and Map Interpretation, but it was revised and re-organized.

Geography tutors and lecturers filled the questionnaire and commented positively about the designed material. The questionnaire contained six items with several questions in each item. The average responses of the mean score of each item proved that teachers and tutors have positive response with the deigned EKCPS material, and the grand total mean score indicated agree responses with 2.90.The mean score of each item with agree responses are; content (3.05), organization of content (2.75), students' experience (3.0), teacher's support (2.67), students' assessment (3.13), and programme (3.13). This implies that they have appreciated the relevance of the material content to students' level, syllabus, educational goals and subject objectives. Moreover, they indicated the organization structure of the designed material support the quality of design in relation the level of students. The same responses were observed in the remaining items; 3, 4, 5 and 6. Response with agree implied that the designed EKCPS material needed minor corrections.

Despite noted responses of agree in each item, but there are some areas graded with disagree. For instance, when asked to comment if the designed material holds the quality of spiral and time distribution they responded with disagree with 2.0 and 2.25 mean score respectively. This poor responses on the noted aspects indicated that the designed EKCPS material hold weaknesses and need serious modification. Therefore, there are suggestions related to the points of weaknesses that were used in developing the proto-type II of the EKCPS programme material.

Results from Focus Group

The researcher managed to discuss with two curriculum experts instead of three as it was planned and the other one who met privately. This was influenced by the time factor and distance between them, the two involved experts were easily found in Morogoro Municipality. Therefore, the focus group questions were accomplished in the form of interview to the one expert who missed the discussion. Generally, the three experts perceived the designed material positively. They commented that the material considered curriculum design guidelines. However, they pointed some weaknesses and they suggested solutions, which were accommodated in the development of prototype II of the programme. Those suggestions are here under:

i. The lesson format should be consistent to all lessons. Doing so, would help Geography teacher to design other lesson material of the same nature in other Geography topics.
ii. The time should be revised and contents reduced in some lessons, because some lessons seemed impossible to accomplish in 80 minutes.
iii. It is important to suggest other possible methods of teaching rather than those pointed out in the designed programme lessons.
iv. At the end of each lesson, references and pages numbers should be indicated.

Prototype II

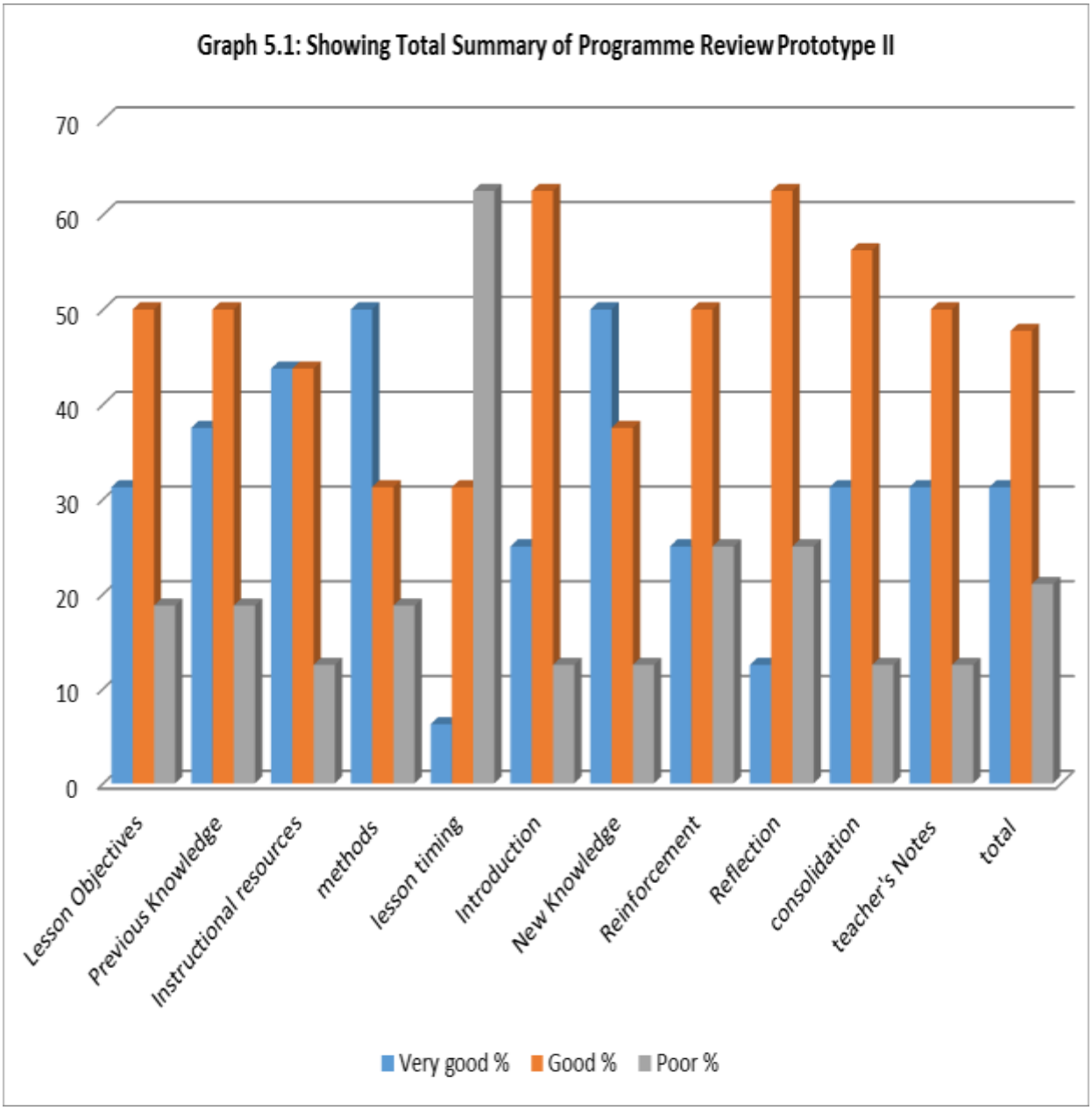
The suggestions from tutors, lecturers and curriculum experts were utilized in the development of prototype II. The prototype II was exposed to university Geography student-teachers taking Bachelor Degree of Education but specialized in Geography as their teaching subject. The aim of revealing prototype II to them was to evaluate the designed programme material in terms of content coverage, relevance, organization, evaluation and practicability in the classroom with the suggested instruction materials, method and time. In the process of evaluation three activities were done:

i. To review the programme material by using review checklist form
ii. To implement the lessons in the classroom as micro teaching activities to testify the applicability of the material in the classroom set up.
iii. To fill the questionnaire in order to identify problematic area through the micro teaching with the use of the EKCPS programme material.

Prototype II: Review Results

In evaluating the programme material of prototype II, 120 university Geography student-teachers were involved. The researcher divided them in 16 groups with 7 or/and 8 members. And group was provided with lesson to review and implement in a micro-teaching session. The same groups later on were asked to fill the questionnaire in a form of group

discussion. The review results showed the positive comments with 1.98 mean scores out of 3 of a cumulative mean score and this indicated that the EKCPS programme material met the designing standard. The comment with very good justified no need of correction while good and poor insisted on either minor or serious correction of the material. Graph 5.1, shows the summary of the reviewed area comments and Table 5.1 shows a summary review of each topic.



From the graph 5.1 indicates some areas needed minor and serious modifications. The area needed serious modification is that of time distribution ranked with poor comments equivalent of 0.63 mean score that belong to poor scale of Likert scaling table. And other many areas received the comments of minor corrections. Therefore, all area subjected to correction were well-thought-out toward developing prototype III that later on exposed to Geography teachers in term of workshop training.

Table 5.4: Summary of the Review for each Topic

T3	**Name of Topic: Application to Statistics (6 lessons)**					
Responses	Very good (3) = No correction, Good (2) = minor correction, Poor (1) = serious correction Scale: Very good (2.34 - 3), Good (1.67 – 2.33) and Poor (1.00 – 1.66)					
S. N	Lesson Format	Evaluation/Review				
		Very good	Good	Poor	Mean	Respondent overall response
1	Lesson Objectives	3	2	1	2.35	Very good
2	Previous Knowledge	2	3	1	2.33	Good
3	Instructional resources	2	2	2	2.00	Good
4	Methods	3	2	1	2.35	Very good
5	Lesson timing	0	2	4	1.33	Poor
6	Introduction	1	4	1	2.00	Good
7	New Knowledge	4	2	0	2.67	Very good
8	Reinforcement	2	3	1	2.17	Good
9	Reflection	1	4	1	2.17	Good
10	Consolidation	2	3	1	2.60	Very good
11	Teacher's Notes	3	2	1	2.40	Very good
Total mean score of application of statistics		2.22			Good	
T2	**Name of Topic: Introduction to Research (5 lessons)**					
S. N	Lesson Format	Very good	Good	Poor	Mean	Respondent overall response
1	Lesson Objectives	1	3	1	2	Good
2	Previous Knowledge	2	2	1	2.2	Good
3	Instructional resources	2	3	0	2.4	Very good
4	Methods	3	1	1	1.8	Good
5	Lesson timing	1	1	3	1.6	Poor
6	Introduction	2	3	0	2.4	Very good
7	New Knowledge	2	2	1	2.2	Good
8	Reinforcement	1	2	2	2.2	Good
9	Reflection	1	3	1	2	Good
10	Consolidation	2	3	0	2.4	Very good
11	Teacher's Notes	2	3	0	2.4	Very good
Total mean score on the topic of introduction to research		1.73			Good	
T3	**Name of Topic: Map Reading and Map Interpretation (5 Lessons)**					
S.N	Lesson Format	Very good	Good	Poor	Mean	Respondent overall response
1	Lesson Objectives	1	3	1	2	Good
2	Previous Knowledge	2	2	1	2.2	Good
3	Instructional resources	3	2	0	2.6	Very good
4	Methods	2	2	1	2.2	Good
5	Lesson timing	0	2	3	1.4	Poor
6	Introduction	1	3	1	2	Good

7	New Knowledge	2	2	1	2.2	Good
8	Reinforcement	1	3	1	2	Good
9	Reflection	0	3	2	1.6	Poor
10	Consolidation	1	3	1	2	Good
11	Teacher's Notes	0	4	1	1.8	Good
Total mean score Map Reading and Map Interpretation					2	Good
	Cumulative mean scores				**1.98**	**Good**

The table 5.1 shows the review summary of each topic. The reviewed topics of the designed ECKPS material were on; application to statistics, introduction to research, and map reading and map interpretation. The review involved eleven components; lesson objectives, previous knowledge, instructional resources, methods, lesson timing, introduction, new knowledge, reinforcement, reflection, consolidation, and teacher's notes. As indicated from the table 5.1, the response with very good implies that the area is correct and no need any correction, while the area with good implies minor correction and poor responses indicates serious correction. Back to the table above, lesson objectives, instructional resources, and consolidation in almost all topics were graded with very good which implied that no need of correct on those aspect. While the area of previous knowledge, methods, new knowledge, reinforcement, and teacher's notes were graded with good responses that implied minor correction of the EKCPS material. In the case of poor response were noted on the aspect of lesson timing in all topics and reflection on the topic of map reading and map interpretation. Therefore, the areas with minor correction were corrected respectively with the suggested comment from respondents and areas with poor responses were subjected to intensive review of reallocation of time in each lesson to make reasonably manageable on the suggested time.

Prototype II: Questionnaire Results

As it was explained before, that Geography student-teachers were divided into 16 sub-groups to review the designed programme materials, later on the same group were asked to fill the questionnaire after micro-teaching. The main focus of filling questionnaire was to testify the practicality of the EKCPS material in the process of teaching and learning in the classroom. Each group number was given a lesson to demonstrate before the class. Team teaching method was used in making every member in the group experience with the use of the material. Thereafter, each group was asked to fill the questionnaire of the entire session of micro-teaching aiming at assessing the workability of the EKCPS material and the results are summarized in table 5.2.

Table 5.2: Student-Teachers' Responses on the Applicability of the EKCPS Material

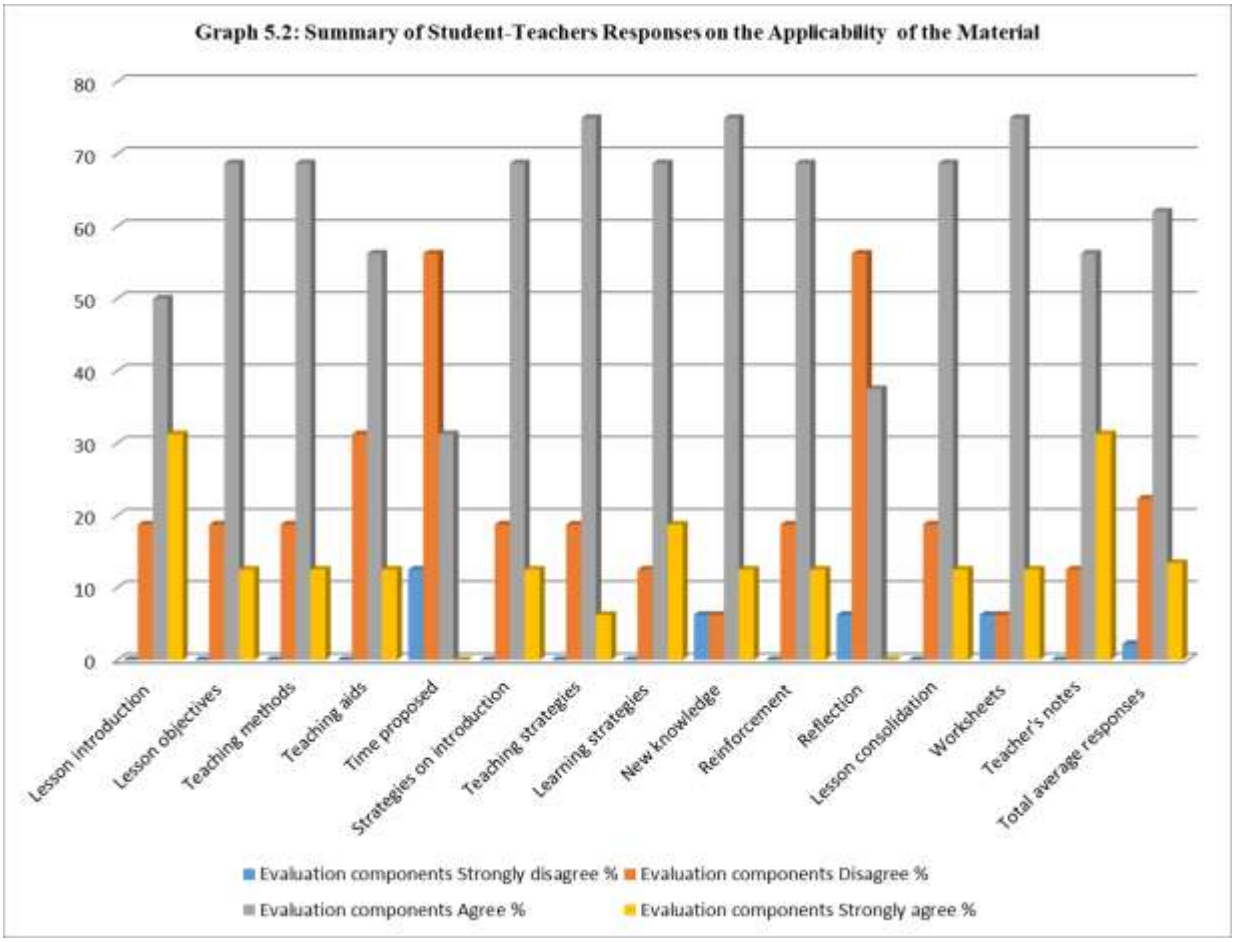
Scale: Strongly disagree (1-1.74), Disagree (1.75 – 2.49), Agree (2.50-3.24), Strongly agree (3.25 – 4.0)

S.N	**Evaluation components**	**Responses**					
		Strongly disagree	Disagree	Agree	Strongly agree	Mean	Overall response
1	Lesson introduction creates learning environment and it is simple to implement	0	3	8	5	3.13	A
2	Lesson objectives are reasonably to be covered in each lesson	0	3	11	2	2.94	A
3	Teaching methods are simple and good enough to help students learning	0	3	11	2	2.94	A
4	Teaching and learning aids are easily available and simple to use	0	5	9	2	2.81	A
5	Time proposed in each lesson is reasonable enough	2	9	5	0	2.31	D.A
6	Strategies on introduction part are effective to motivate student learning	0	3	11	2	2.94	A
7	Teaching strategies are reasonable enough and easy to implement	0	3	12	1	2.88	A
8	Learning strategies are enough & applicable towards learning	0	2	11	3	3.25	S.A
9	New knowledge in each lesson is enough and easily to implement	1	1	12	2	2.94	A
10	Reinforcement part of the lesson development is applicable in the classroom	0	3	11	2	2.94	A

11	Reflection of lesson development is easily implemented in the classroom	1	9	6	0	2.51	A
12	Lesson consolidation is good and easily implemented	0	3	11	2	2.94	A
13	Worksheets provided are easily implemented by the students	1	1	12	2	2.94	A
14	Teacher's notes are helpful in teaching and learning process	0	2	9	5	3.19	A
	Total average responses					**2.89**	**A**

KEY: S.DA-(Strongly disagree), D.A-(Disagree), A-(Agree), S.A-(Strongly Agree)

The noted evidence from Table 5.5 proves that questionnaire results from Geography student-teachers indicated that the designed material could be easily implemented in the classroom. This was due to the fact that 2.89 mean score responses believe that the programme material is workable in the classroom setting. While 1.11 mean score showed doubt on the practicality of the material in the process of teaching and learning in the classroom. The researcher took that 1.11 mean score responds of doubt as a driving force toward developing prototype III. The area of doubt is much noted on the area of time distribution with 2.31 mean score which implied disagrees. Graph 5.2 shows response summary of each item with both strong disagree, disagree, agree, and strong agree bars respectively.



Teacher Training Workshop: Tryout of the EKCPS Programme Material

To support Geography teachers by enhancing their knowledge content and pedagogical skills in the teaching of practical Geography topics, 3-weeks (15 days, weekend days excluded) were introduced. The workshop training aiming at experiencing Geography teachers to use the EKCPS programme material. See workshop time in table 5.3. Explicitly, the workshop aimed at answering research question stated as *"To what extent the knowledge contents and pedagogies of the introduced teachers' professional development programme was helpful in enhancing quality of*

teaching and learning in the competence based classroom?" And therefore, the workshop was tailed on the following objectives:

i. To enhance Geography teachers in the acquisition of the lacked knowledge content on practical Geography topics. This was done by researcher and participants to review the syllabus components on the practical Geography topics. Subsequently, group discussions were done toward acquisition of the lacked knowledge content. This is because participants learn best when they are actively involved in the process (Davis, 1993).

ii. To avail them with the use of learner-centered methods baring competence based teaching and learning. Under this objective, the researcher guided the participants to identify a number of methods under learner-centered. Thereafter, intensive explanations and demonstrations were done between researcher and participants.

iii. To assist them to acquire knowledge and skills on designing teaching-learning aids of the low cost. Even though it is hard to limit the nature of material to be used for preparing teaching aids. Anything and everything can be used if the teacher knows the secret of conveying the central idea through those teaching aids. Therefore, the training focused on giving them guidance in preparing and using low cost material to facilitate classroom teaching and thus making teaching process interesting, understandable, and easy and for retention of contents for longer period.

iv. To impart skills of classroom presentation grabbing the principle of 'No Child Left Behind'. This was done by researcher via demonstrating at least one lesson from each topic. The similar approach was employed by Kitta, 2004 and Mafumiko, 2006 and it was proved positive outcomes to participants.

v. To enhance them with knowledge and skills on designing lesson materials reflecting the format of the EKCPS material. Dillon (1976) and Robinson (2011) insist on additional training, directed specifically at making professional teachers more competent on preparing lesson materials. In due regards, designing procedures and quality of designing were discussed by using EKCPS material. Later on, each teacher was asked to develop one lesson from any topic in Geography. The developed lesson materials were revised and discussed in group to testify its quality in relation to the EKCPS material.

Table 5.3: Workshop Training Time Table

Day	**Activities**	**Time**
Day 1	Designing teaching aids of low cost material, Training on selecting and using learner centered methods and Design exemplary lesson from Geography syllabus	4 hours
Day 2	Enhancing them with knowledge content on application of statistics, demonstration on the use of EKCPS material (Lesson 1) and group discussion	4 hours
Day 3	Participants implementation (Lesson 2 and 3) and group discussion	4 hours
Day 4	Participant implementation (Lesson 4 and 5) and group discussion	4 hours
Day 5	Participant implementation (lesson 6) and group discussion	4 hours
Day 6	Enhancing them with knowledge content on the introduction to research	4 hours
Day 7	Demonstration on the use of EKCPS material (Lesson 1), group discussion	4 hours
Day 8	Participant implementation (Lesson 2 and 3) and group discussion	4 hours
Day 9	Participant implementation (Lesson 4 and 5) and group discussion	4 hours
Day 10	Knowledge content on map reading and map interpretation	4 hours
Day 11	Demonstration on the use of EKCPS material (Lesson 1), group discussion	4 hours
Day 12	Participant implementation (Lesson 2 and 3) and group discussion	4 hours
Day 13	Participant implementation (Lesson 4 and 5) and group discussion	4 hours
Day 14	Discussion of the exemplary designed lesson from teachers	4 hours
Day 15	Focus group discussion about the practicality of the EKCPS material	4 hours

Workshop Participants: Formative Evaluation of Prototype III

The second cycle of formative evaluation of the EKCPS programme material was done by presenting prototype III to 10 Geography teachers in terms of workshop training from 6 secondary schools; public and private (see Table 5.7, showing participants details and schools). It has being insisted on the trial of the educative material before final intervention (Buczynski and Hansen, 2010). Moreover, the trial aimed at exploring the practicality of the material, that is, to see whether teachers would be able to use the materials as intended (Nieveen, 1997). These six secondary schools were selected out of 44 secondary schools in Morogoro Municipality due to their proximity, thus become easily accessible to the participants to meet on the training sessions. One school which was considered to be the center of proximity and easily reachable to the most participants was selected for training sessions.

Table 5.4: Showing Detailed Information of Participating Schools and Teachers

School details			**Teacher's Details**				
School	Sex	Day/Boarding	Owned	Teacher	Level	Experience	Sex
School A	Girls	Boarding	Public	Teacher 1	Degree	5	Female
				Teacher 2	Degree	8	Female
School B	Co-education	Day	Public	Teacher 3	Master	5	Female
				Teacher 4	Degree	3	Male
				Teacher 5	Degree	5	Female
School C	Co-education	Day	Private	Teacher 6	Degree	6	Male
School D	Girls	Boarding	Private	Teacher 7	Diploma	4	Male
				Teacher 8	Masters	6	Female
School E	Co-education	Day	Private	Teacher 9	Degree	2	Male
				Teacher 10	Degree	5	Male
School F	Co-education	Boarding	Private	Teacher 1	Degree	7	Male

Participants' Reactions about the Workshop

This section presents the results of the formative evaluation of prototype III concerning participants' reactions to the workshop and the EKCPS programme material used. For that matter, the findings were categorized reflecting the workshop aims, definitely on the following areas: participants' general impressions about the workshop and participants' perceived benefits of the EKCPS workshop in enhancing their knowledge content and pedagogical skills toward effective teaching of the practical Geography topics. Also in the section, the presentation was made on the participants' perceived benefits of the workshop toward developing teaching aids of the low cost. Moreover, the discussion was done on the participants' reaction on designing lesson material of a similar format with EKCPS material and its implementation in the classroom.

General Impressions about the EKCPS Programme Workshop

The Results from Questionnaire

To get general impressions of the workshop, 10 teachers participated on the workshop were asked to fill the questionnaire. The questionnaire has different items aiming at determining whether the workshop was useful toward meeting their expectations. Generally, all teachers graded the workshop benefits at a high rank. This was realized after subjecting the results to Likert scale table and analyzed on the bases of interval scale between the mean score of either very useful, useful or not useful. See Table 5.5 showing a summary of each response.

Table 5.5: Summary of Teachers' Responses about the Workshop

Scale: Very Useful (2.34 - 3), Useful (1.67 – 2.33) and Not Useful (1 – 1.66)

S.N	Evaluation Item	Responses			Mean	Overall response
		Very useful	Useful	Not useful		
1	General opinion about workshop	4	6	0	2.4	Very useful
2	General opinion about training on the developing the low cost teaching aids	3	6	1	2.2	Useful
3	Opinion about the acquisition of knowledge content	6	4	0	2.6	Very useful
4	Opinion on training the designing lesson of material of a similar format with EKCPS material	2	7	1	2.1	Useful
5	Training towards enhancing your pedagogical skills	3	5	2	2.1	Useful
6	Training on enhancing your presentation skills	4	4	2	2.2	Useful
7	General opinion about the facilitator	7	3	0	2.7	Very useful
8	Teachers ability to demonstrate the exemplary lessons	2	7	1	2.1	Useful
9	Workshop on the improved teachers' confidence of teaching Practical Geography topics	3	5	2	2.1	Useful
10	Teacher's notes as a guidelines enhanced teachers knowledge content of practical Geography topics	6	4	0	2.6	Very useful
Total Mean Scores					**2.31**	**Useful**

The results observed on the Table 5.5 justify that the workshop organization and implementation was good enough toward the accomplishment of the intended objectives. The results showed a mean score of 2.31 which belong to useful category of Likert Scale table of judging the usefulness of the item or programme. Therefore, it was concluded that all workshop component activities were justifiable toward resolving the problem of teachers' quality education. For instance, when asked about the usefulness of training for their acquisition of knowledge content and pedagogical skills, teachers said that they had benefited in terms of subject matter knowledge with 2.4 mean score responses of very useful and on the aspect of pedagogical skills, they responded with 2.6 of a mean score responses. The responses of very useful and useful were resulted from good arrangement and activities of the workshop. Also, they asserted that facilitator explanation as well as discussion done after each lesson implementation helped enough in enhancing their knowledge and pedagogical skills. Moreover, workshop participants were observed during demonstration of the model lessons after facilitator demonstration, they responded with 2.1 mean score which implied useful meaning that teachers managed to implement the asked lessons. It was noted that teachers found difficult for the first time but the improvement was noted in the preceding lesson implementation. Meanwhile, each teacher implemented slightly 2 lessons. Therefore, the noted weakness on the first implementation was somehow corrected in the second and third implementation.

The workshop also, aimed at training teachers in designing teaching aids of low cost and developing lesson material reflecting competence based approach. Each trainee was asked to design a lesson from any Geography topic and present it in the panel discussion. The results showed that it was only 8 out 10 teachers submitted their designed lessons. When asked for failure to submit no tangible reason was given. Later on the designed model lessons were presented in the panel discussion. The panel discussion review noticed that most of the designed lessons reflected the provided criteria of effective designing. However, few mistakes were noted on the side of development of worksheets, teaching aids and evaluation, particularly in the lesson consolidation. The researcher explained to them how to correct those observed mistakes and requested them to re-develop their exemplary lessons. Table 5.6 below shows the lesson-topics designed by teachers.

Table 5.6: Teachers Designed Lesson-Topics from Workshop Training

Teacher	Topic	Lesson topic	Lesson time
Teacher 1	Photography Reading and Interpretation	Types of photography	80 minutes
Teacher 2	Measure Features of the Earth Surface	Lake bodies in Tanzania	40 minutes
Teacher 3	Human Activities	Small scale agriculture	80 minutes
Teacher 4	Sustainable Use of Forestry Resources	Types of forestry resources	40 minutes
Teacher 5	Elementary Survey	The importance of survey.	40 minutes
Teacher 6	Elementary Survey	Types of survey	40 minutes
Teacher 7	Photography Reading and Interpretation	Identify natural and man-made features in the fore, middle and background of photograph	80 minutes
Teacher 8	Photography Reading and Interpretation	Read features presented on photographs	40 minutes

Despite the noted results from table 5.5 which were extracted from the closed ended questionnaire, there were also results noted from the open-ended questionnaire about the workshop, especially on the facts of strengths and weaknesses. Among the noted strengths of the workshop were time of training and positive interaction between researcher and participants. The observed strength is in line with Mafumiko (2006) and Kitta (2004) who noted that, positive interaction between the participants and facilitator to be a chief factor for the success of the intervention. Similar to the present research the interaction was counted as one of the strengths of the workshop as it was commented from one teacher saying that:

> *"In general the workshop training was good because it helped us to learn a new system of teaching Geography in a practical and competence based way. Good interaction received from the facilitator enabled us, to understand different strategies of using leaner-centered methods in the classroom setting. Moreover, it has developed our confidence toward teaching practical Geography topics"*

Moreover, the teachers were asked to point out weaknesses of the workshop. The most noted weakness was unpunctuality of some participants. The workshop time table started at 9:30 a.m, but few participants reach at the training center 40 to 60 minutes after the fixed time. This led the workshop to delay to start on time. And this was proved from one teacher's comment saying that:

> *"The noted weakness on this workshop was on the issue of seriousness. This led to the failure to reach the intended objectives of the workshop in some days. Other participants came late about 30 minutes and others 60 minutes after the fixed time"*

Results from Focus Group Discussion

However, teachers participated in the workshop training aimed at enhancing their knowledge content and pedagogical skills; later on thus were asked to involve in focus group discussion at the end of workshop training. The aim was to assess the quality of the designed EKCPS material specifically: the content coverage, organization of content, time distribution, usability and practicality of the methods and teaching aids. In general, the discussion brought positive comments on the designed material. They said that designed material covered all contents of the O-Level Secondary School Geography Syllabus. In due regards, no suggestion was provided for the addition or omission of any content of the designed EKCPS material.

Similar positive comments were given on the issues of content organization and usability of the teaching aids. They pointed out that the content organization easy to be implemented and evaluated in the classroom setting as the topics are organized from simple to complex. In the case of teaching aids, they said the teaching aids easily available in the local setting. Also, they anticipate that the approach of using worksheet would make students to be critical thinkers on the presented lesson in the classroom. Furthermore, they commented that the worksheet will motivate students to master the practical Geography topics, since it gives them full autonomy of exercising the provided tasks in the classroom. Additionally, they said that the used format on designing the material was good, since it motives teachers to involve in lesson plan development before the lesson, because the available reference shows that teachers are reluctant in preparing lesson plans (McTighe and Wiggins; 1999). Therefore, with the use of EKCPS material format teachers will be automatically motivated, since the EKCPS material was designed in the form of lesson plans.

Despite the positive comments noted from teachers' focus group discussion, weaknesses were also indicated. They said that methods of teaching suggested are not enough to exhibit what we so call competence based teaching and learning. They suggested the addition of other methods like; guest speaker, jig-saw fit, dialogue, think pair share and field study. Also, they suggested that, the time allocated in each subtopic is inadequate because the methods employed give students much time to do things in their own. Thereafter, the participant teachers were asked to give an alternative to overcome the challenge, they suggested that, addition time should be added to each topic. They recommended that each topic to contain 8 lessons instead of 6 and 5 lessons as being suggested in the EKCPS material.

Conclusions and Implications for Final Prototype

This chapter dealt with prototype design and development of EKCPS programme material aimed at enhancing quality of teaching to O-level Geography teachers in Tanzanian secondary schools. Thereafter, the chapter concentrated on the formative evaluation of EKCPS material by checking its practicality in the process of teaching and learning. Several stages were done; one was to introduce the designed material to Geography and curriculum experts. The aim was to assess if the designed material was relevant in term of content coverage, students' level, subject objectives, coherence and designing quality. With this exercise of evaluation, prototype II of the EKCPS programme material was developed considering the comments from Geography tutors, lecturers and curriculum experts.

Then, the prototype II was presented to the university Geography student-teachers as a second cycle of formative evaluation. At this stage three activities were done; review the EKCPS material, micro-teaching by using model lessons from EKCPS material, and filling the questionnaire to assess the practicality of the EKCPS programme material. The review contributed a lot in the development of the prototype III, since all lessons were reviewed by using the provided review checklist. All points of weaknesses noted were accommodated in developing the prototype III, that later were used in the third cycle of formative evaluation. Also with the micro-teaching, the noted challenges on the use of the material were observed and dealt with in the development of prototype III.

The third cycle of formative evaluation of the EKCPS programme material was done by introducing the prototype III to Geography teachers in the form of workshop training. The aim of workshop was to enhance Geography teachers toward acquisition of knowledge content and pedagogical skills. The workshop was also aimed at enabling Geography teachers to acquire knowledge and skills on designing instructional materials reflecting competence based approach. Later on, teachers were asked to involve in focus group discussion aimed at assessing the usability and practicality of the EKCPS programme material. They commented with high rank on the usability and practicality of the material with few weaknesses. Those weaknesses were dealt with in developing the final programme as prototype IV.

The Results and Discussion of the Field

The results of the field test of the EKCPS programme material were collected through observation checklist, interview and test. The number of participants at this final cycle of evaluating the EKCPS programme material was: 7 Geography teachers and 170 form four Geography students from 3 secondary schools. The researcher's role was to fill the observation checklists as noted from teachers' lesson implementation and students' involvement in classroom setting. The collected observation checklist results were presented mainly into two categories with sub-headings: results from teachers and results from students.

The Results from Teachers

The implementation of the EKCPS programme material in the classroom aimed at evaluating teachers' change toward quality teaching reflecting competence based approach. Therefore, each teacher was asked to implement at least two to four lessons from different topics of the EKCPS material. Later on they were requested to answer interview questions by identifying teachers' attitude toward teaching practical Geography topics. The results in this section were presented and organized as teachers' change in the process of teaching and learning, teachers' opinion on the usability of the EKCPS programme material and teachers' attitude toward teaching Practical Geography topics.

Teachers' Change in the Process of Teaching and Learning

Guskey (1986) describes the change of components as change in the classroom practices of teachers, change in teacher's beliefs and attitudes, and change in the students learning. In this regards, classroom observations were conducted to assess teachers' change toward quality of teaching by using EKCPS material in the classroom setting. The observation aimed at answering the research question; *"what are the positive impacts shown by both Geography teachers and students as a result of the EKCPS programme implementation."* In general results from observation checklists showed positive changes in all participants, than teachers and students. As for the teachers, it was noted that the training helped them to change from being reluctant teacher-centered approach to learner-centered approach of teaching exhibiting competence based teaching. Even though, each participant implemented at least three lessons in his/her Geography classroom, the researcher picked randomly one observation checklist from each teacher, which later was subjected to Likert scale table of analysis to assess teachers' changes toward quality of teaching. The results showed that teachers have changed after being experienced with EKCPS programme

Teachers' Opinion on the Usability of the EKCPS Programme Material

Despite the results obtained by observing teachers implementation of the lesson, teachers were asked to give their opinions on the EKCPS programme material. The results from the interviews showed positive comments on the usability of the EKCPS material in the classroom setting. For instance, when they asked if the designed material is helpful in preparing competent students, they responded with positive comment saying that:

> *"The way the material is designed allows students fully involved in discovering the new knowledge in their own, since teacher acts as a facilitator" also, they commented that the methods and teaching aids suggested are common to users. Moreover, they concentrated on the good arrangement of the material from simple to complex, and so resulted in students understanding.*

Moreover, teachers were asked if the material and lesson notes have helped them to teach reflecting competence based teaching. They responded with strongly agree by commenting that the material and lesson notes have some guidelines that helped them to prepare the lesson plan and resulting impact of effective teaching in the classroom. Furthermore, when asked to comment on the usability of the worksheets employed, they responded by saying that worksheets were marvelous in making teaching and learning effective and students' achievement in the process of learning.

Teachers' Attitude towards Teaching Practical Geography Topics

Through interviews, all participant teachers showed a positive attitude toward teaching the Practical Geography topics. Previously it was noted that teachers were hesitant in teaching practical Geography topics (Kamugisha, 2012), because for them, the topics were too practical involving Mathematical knowledge and skills. They commented that, previously they missed a concrete knowledge and skills of teaching those topics but with the introduced EKCPS programme, the needed knowledge and skills were acquired. In addition, they promised to be ambassador of teaching others the required knowledge and skills on the competence based approach of teaching.

Students' Perception of their Teachers

Through interviews, the students in their respective schools gave positive comments about their teachers on the implementation of the EKCPS programme. They said that their teachers managed to teach them using the new approach of being facilitators and left them with full autonomy of discovering the new knowledge. Also, they argued that before being experienced to the programme material they used much of the lesson time writing notes on the blackboard. But currently they seemed to change, most of the time used in supervising students' activities and making clarifications in case students face any challenge. In addition, they said that their teachers have changed from being dictators to democratic in and outside the classroom.

The Students' Attitude on Practical Geography Topics

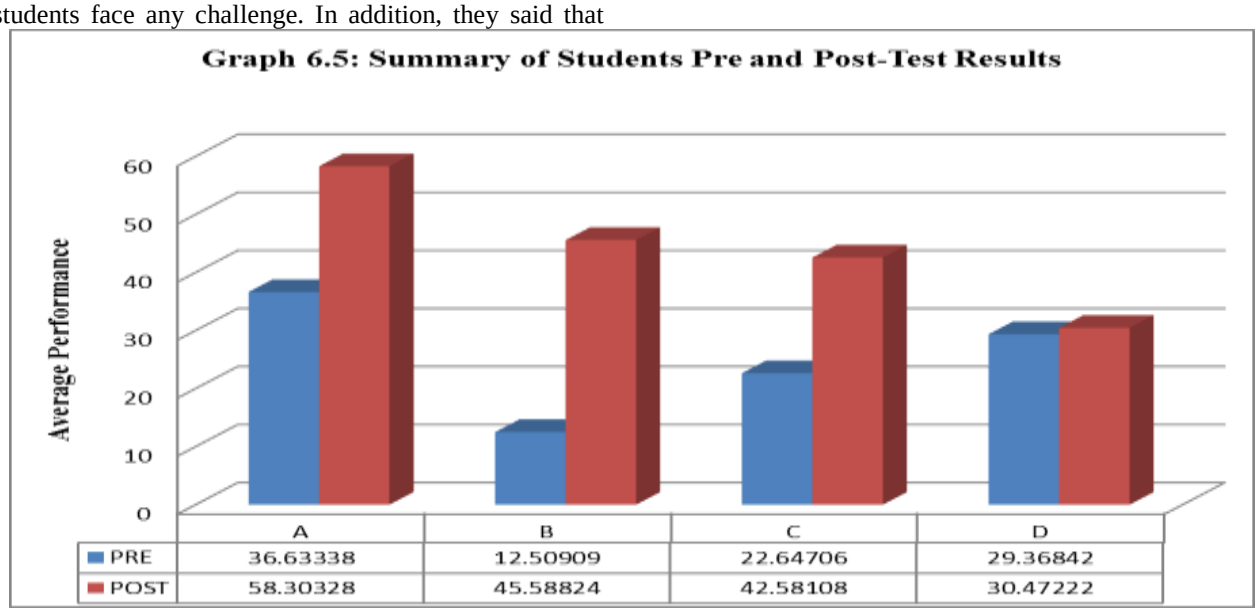
Furthermore, through interview the research aimed to determine students' attitudes toward Practical Geography topics. The interview on assessing students' attitude was done because the available evidences indicate that students are very afraid of the Practical Geography topics (Kamugisha, 2012). The results from interviews showed that students' attitudes toward Practical Geography topics have changed from having negative attitudes to positive attitudes. For instance, one of the students responded by saying:

> "*Before this intervention, I hated Practical Geography topics, but now I like them and I am so confident to answer all questions of Practical Geography in my final national exam, and I think I would be among the best performing students in Geography National Exam".*

The Students' Achievements Reflected from Test

Total number of 170 students did the same test before and after the implementation of the EKCPS programme material in the classroom. Seven secondary schools were involved in the pre-test. While in the post-test, just four secondary schools involved, three of them were participant schools which were involved in the field test of EKCPS programme material. The other one, was treated as controlled school, teachers and students were not involved in any intervention. Purposely, the researcher decided to include one school which was not involved in any intervention aiming at making comparison on students' achievement between those experienced with the EKCPS material and those who were not. The three schools involved in the intervention are labeled as school A, B and C while a controlled school is labeled as school D. Graph 6.5 shows the overall performance for all four secondary schools.

Graph 6.5: Summary of Students Pre and Post-Test Results



From Graph 6.5 we get a general picture of students' performance of both participants and non-participant schools. Students in school A scored average of 36.63 in pre-test and 58.30 in post-test with an increment of 21.67 while school B, average score was 12.51 pre-test and 45.59 post-test with an increment of 33.08. Also, the graph shows that school C pre-test score was 22.65 and 42.58 post-test with an increase of 19.93 and school D pre-test result was 29.37 pre-test and 30.47 with an increment of 1.1. With these results it is justifiable to conclude that the EKCPS programme was helpful toward enhancing teachers' quality of teaching that resulted to students' achievement. Also poor improvement of school D continues to justify that teachers who did not attend in the workshop are still reluctant to use of teacher centered approaches. Another noted shocking result was the tremendous improvement of school B from being last ranked school in the pre-test to the second position in the post-test with highest score improvement. This resulted from team teaching approach since all 3 teachers attended in the workshop training, again were involved in the field test in the classroom.

V. CONCLUSION AND RECOMMENDATION

Conclusion

The results of this research were basically presented in-line with research objectives and research questions and hypotheses. Researcher started by identifying the existing challenges of teaching and learning of Geography, Practical Geography topics in particular. The results showed that Geography teachers lacked knowledge contents and pedagogical skills, and so they tend to escape teaching Practical Geography topics. With this situation, the students seemed to perform poorly in Geography especially Practical Geography questions resulted from being taught by unskilled teachers. This shocking scenario motivated the researcher to design Teachers' Professional Development Programme titled: *"Experience the Lacked Knowledge Contents and Pedagogical Skills (EKCPS)"* as a solution for enhancing Geography teachers to acquire the lacked knowledge content and pedagogical skills, and so they can teach in accordance with the competence based approach.

The designed material was presented to Geography tutors, lecturers and curriculum experts aiming at assessing if the designed material exhibited the designing principles, subject goals and students' levels. The results generally showed positive comment with 76.8 averages about the EKCPS programme particularly on content coverage as well as the suggested methods of teaching. The noted challenges were on time distribution and topics organization, which later were revised before the starting the second cycle of the intervention.

Thereafter, the revised programme material was introduced to Geography student-teachers at the university and asked to involve in micro-teaching and review the designed material. The review results showed that 31 comments graded the material very good, 48 good and 2 poor of averages. The poor comments were captured by re-designing the material before being introduced in the workshop training. Moreover, the results from workshop training showed that the EKCPS programme material was much useful toward their acquisition of knowledge content and pedagogical skills. All ten teachers said that they had benefited in terms of subject matter knowledge with 36.40 useful and 54.5 average responses and on the aspect of pedagogical skills, they responded with 81.80 useful and 18.20 averages.

Finally, the results from field test also revealed positive changes of teachers toward quality teaching in the classroom. In the case of attitude, the results showed that both teachers and students have positive attitudes toward Geography subject, Practical Geography in particular. For the case of students' achievements, convincing improvements of students score in the post test was noted from those schools attending the EKCPS programme implementation in the classroom.

Recommendation

The results of this research have proved that a well-designed material and intervention of teachers' professional development programme tend to enhance teachers' quality of teaching, in accordance with the competence based approach. The result also, proved that students taught by competent teachers always have positive achievement compared to those taught by unskilled teachers. With these results the researcher recommended the following:

- The government should consider social science teachers in the programme related to teachers' improvement in terms of in-service training.
- The government should think again of the available policies of teachers training, since it was observed that the existing challenge of unskilled teachers resulted from poor policies of teachers training.
- The government should initiate many projects as much as possible to all subjects to enhance teachers' quality of teaching using competence based approach by making in-service training compulsory to every teacher after every 3 years.
- The responsible organs of teachers' quality control under the NACTE and TCU should make intensive review of the used educative materials to teachers. And, if possible, it is better to have a centralized curriculum to all universities and institutions responsible for teacher training.

Suggestions for Further Research

This research focused on enhancing teachers' quality of teaching in the form of in-service training, Geography teachers in particular. The results showed that offering quality education to teachers is vital, through in-service training. Otherwise, many gifts and talent students can fade away because of their unskillfulness. Since, the qualified generations are the products of the qualified and competent

teachers. Those students taught by unskilled and unqualified teachers always turn into unskilled and weak personalities. Therefore, the issue of teachers' professional development through in-service training should not be an optional but compulsory in the national agenda. Despite the noted success, this research confronted with unforeseen limitations; education politics, teachers' unwillingness, time constraint, and financial constrain.

The present research solely focused on Geography teachers and in three Practical Geography topics out of five, it is therefore advisable for other researchers to consider the named limitations and then:

- Carry-out the similar research on the two remaining Practical Geography topics.
- Carry-out the similar researches in other secondary schools allocated in rural area so as to have a comparative perspective with that done in the urban secondary schools.
- Design and implement teachers' professional development programme in other Geography subject topics.
- Do the similar researches in other social science, language and business subjects.
- The similar research should be done through projects so as to enhance the greater impacts to both students and teachers country wise.

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