Perceptions of Science Teachers Regarding Capacity Building Teachers Training Programme in Khyber Pakhtunkhwa

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Abstract

The purpose of this study was to analyze the perceptions of science teachers regarding Capacity Building Science Teachers Training Programme (CBSTTP) conducted in Khyber Pakhtunkhwa, its content, methodology and usability of the course with reference to real classroom working environment. Objectives of the study were to find out efficacy of the programme as per requirements of teaching science syllabus, usability of the knowledge and skills learned in the course, and to know views of the course participants regarding the importance of the course contents and teaching methodologies. Design of the study was descriptive in nature. Sample of the study consisted of the 50 teachers who had attended two week science teacher's capacity building training in May 2009 in District Nowshera. A self-developed questionnaire was used for the collection of data. The responses were tabulated and analyzed by using the Chi-square test. Findings indicated that course participants were satisfied with the standard of course; standard of teaching methodology in the course, objectives of the course, providing awareness to teachers and removing content related teaching difficulties. The study recommended that Capacity Building Science Teachers Training Programme may be conducted regularly on quarterly basis. The contents of the Training Programme may be enriched. More teachers may be detailed for the training programme.

Keywords**:** *Science Teachers, Capacity Building, Teachers Training Programme, Teachers' Perceptions*

1. Introduction

Teaching is a complex activity and involves two types of teacher training i.e. pre-service (imparted before joining the profession) and in-service (focuses on refresher courses etc.). The in-service teacher training is not related to any

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specific group of teachers and is not concerned whether the teacher is new or old to a school system. The school that does not conduct in-service teacher training programme soon lags behind (Khan, 1992). To improve the quality of our education system, we must improve the standard of our teachers by providing them with continuous training during their entire career. For that purpose, capacity building of the teachers plays an important role in strengthening the whole structure of our education system. It deeply depends upon the competent, capabilities and capacity building programme (Shulman, 1986; Driver, et al., 1994)

From the Pakistani perspective, the quality of education is considered as the responsibility of the teachers. The quality of education depends upon the quality of teachers. It is estimated that more than 1.35 million teachers are striving hard for the quality education at all levels (from primary to higher education). Furthermore, to provide training to this work force, Provincial Institutes of Teacher Education (PITEs) are made responsible. Since establishment, these institutes have been taking initiatives to train in-service teachers having a special focus on the science teachers. Most of those have been financially supported by the government, donors and NGOs, and carried out in isolation. The main focus of these training program reforms has been to have a more realistic and need-based science education, in view of the rapid changes in educational field. Realizing the importance of such teacher training and making it to improve the standard of elementary teachers in science subjects, the development committee in the Directorate of curriculum and teacher education, Abbottabad in KP, decided to develop a program on scientific principles. Therefore, a comprehensive field research study was launched and training was given to the in-service teachers of the new scientific based curricula of science subjects. "In service teacher training in science shall be based on real life situations, use of science kits and provision of science kits to all primary and middle schools" (Ministry of Education, 2009).

The purpose of this study was to analyze the perceptions of science teachers regarding the Capacity Building Science Teachers Training Programme (CBSTT); its content, methodology and usability of the course with regard to real classroom working environment. The Capacity Building of Elementary Science Teachers Training Programme was funded by CIDA and conducted by Directorate of Curriculum and Teacher Education Abbottabad, Khyber Pakhtunkhwa, Pakistan.

1.1 Statement of the Problem

Teacher Training Programmes enable the professional development of the teachers for effective teaching. For this, the teacher training programmes

need to be effective and usable in real classroom environment. Teachers' views about the efficacy of a training programmes have worth to be considered by the researchers. Hence, this study took views of science teachers regarding the efficacy of CBSTT Programme conducted by the Directorate of Curriculum and Teacher Education Abbottabad in Khyber Pakhtunkhwa.

1.2 Objective of the Study

The major purpose of the study was;

1. To analyze the perceptions of science teachers regarding CBSTT Programme conducted by the Directorate of Curriculum and Teacher Education Abbottabad, Khyber Pakhtunkhwa.

1.3 Research Questions

The following questions led this study:

1. How much the teachers are satisfied with standard and content of course?
2. To what extent is the usability of the knowledge and skills learned during the course?
3. To what extent the participants learnt to find shortcomings and mistakes in the course?
4. What are the new ideas/improvement in teaching generated by the course?
5. What is the level of learning of the participants regarding application of course outcomes?

2. Literature Review

Shahid (2006) stated that in the education system the role of teacher is very vital, because his/her direct involvement in many activities beyond the classroom, such as curriculum development, text book writing, examination, etc. (Kerr, 1996). Teaching of science is considered as the best when learned through hands-on activities, and students involvements in deciding the method of learning are surely the indictors of constructivist-compatible beliefs (Mahmood, 2007). Science teachers generally do not have a completely accurate view of the subject matter they are teaching, and their performance is less than wholly satisfactory in the science classroom or laboratory (Shaheen & Kayani, 2017). Worthwhile training of teachers requires sound teacher training programmes but, if the teacher training programmes in the country are more theoretical than practical, they will limit graduating teachers' competences to apply the ideas they have gained in their training. A trained teacher will come to realize that what they have learnt in the training is not easily applicable in the classroom. This is because of the teacher training programme have been planned without keeping in mind the problems and difficulties faced by the teachers in the classroom (Iqbal, 2006).

Shafqatullah (2009) stated that all those things that can be observed, experienced and experimented through systematic process are the major concerns of science. Knowing more about teachers' perceptions in science has become increasingly recognized as essential prerequisite to teach students more effectively (Azam, 2001).

The World Customs Organization (WCO) defines capacity building as "activities which strengthen the knowledge, skills, abilities and behavior of individuals and improve institutional structures and processes such that the organization can efficiently meet its mission and goals in a sustainable way" (Diamond, 2006). Capacity building training aims to develop a greater pedagogic and subject-knowledge awareness in science teachers and enables them to implement science as a basic component of the elementary school curriculum. Capacity building brings effective improvements and development in schools (Serumola, 2005; Harris, 2001).

The programme of science teacher training was conducted by the Directorate of Curriculum and Teacher Education Abbottabad in Khyber Pakhtunkhwa. The duration of this training was from 1st of May, 2009 to 12th of May, 2009. The programme was supported by UNICEF and funded by CIDA (Canadian International Development Agency). The objectives of the programme were as follows:

- To conduct training in the light of the objectives of General Science as given in the National Curriculum for Elementary Classes in 2006.
- To provide awareness to teachers regarding the objectives of the Curriculum.
- To remove content related teaching difficulties of the teachers.
- To improve the teaching skills of the teachers.
- To help teachers perk up understanding of the subject matter.
- To motivate teachers through active participation in teaching learning process.
- To bring improvement in the standard of education through inculcating positive attitudes in teachers.
- To introduce teachers to the teaching aids which are available in daily life.

3. Research Methodology

3.1 Research Design

This study was descriptive in nature and a cross sectional survey was used for the collection of data.

3.2 Population and Sample

The population of the study constituted of all the teachers who had attended the 12 day in-service science teacher's capacity building training, in

May 2009, in the District Nowshera. The total numbers of teachers attended the course was 60. Researchers selected 50 teachers as the sample of the study using random sampling technique.

3.3 Instrumentation

A self-developed questionnaire consisted of 26 items regarding the content, methodology and usability of the programme was developed for the collection of data, using 3-point Likert scale i.e. Yes, No, To some extent.

3.4 Data Collection

The questionnaire was delivered to respondents in person. As the researchers met the respondents in person all 50 respondents responded to the questionnaire. They were asked to feel free to respond as their responses were anonymous and their names were not revealed at any stage during or after the study.

4. Data Analysis & Interpretation

The responses were tabulated and analyzed using the statistical technique Chi-square and its significance was determined at degree freedom 2 at 0.05 level of significance. The table value of chi-square is 5.991. Analysis of the data is given in the following tables.

Table 4.1

Responses of course participants regarding standard and content of course

S#	Items	Yes	No	To some extent	χ^2
1.	I am satisfied with overall standard of capacity building science teachers training programme conducted by directorate of curriculum and teacher education Abbottabad.	44	1	5	68
2.	I am satisfied with the overall standard of teaching of your instructor during the training.	36	4	10	34
3.	The objectives of the training programme are in line with the contents of elementary general science.	42	5	3	58
4.	The training programme is helpful in providing awareness to teachers regarding the objectives of the curriculum.	46	2	2	77.7
5.	The training programme is helpful in removing content related teaching difficulties of the teachers.	46	3	1	77.8

Table 4.1 shows that Chi- square value with reference to all the questions was significant. It means that course participants were satisfied with the standard

of course; standard of teaching, objectives of the course, providing awareness to teachers and removing content related teaching difficulties.

Table 4.2

Response of course participants regarding teaching skills and subject matter

S#	Items	Yes	No	To some extent	χ^2
1.	The training programme is helpful in improving teaching skills of the teachers.	48	1	1	88.5
2.	The training programme is helpful in understanding subject matter of general science.	47	0	3	83.3
3.	The training programme is helpful in using audio visual training aids for teaching of general science.	44	2	4	67.6
4.	The knowledge and skills provided in the training programme are usable in actual classroom teaching.	26	4	20	27.78
5.	The training programme is helpful in inculcating positive attitudes in the teachers.	44	4	2	67.6

Table 4.2 shows that Chi- square value with respect to all the questions was significant. It means course participants agreed that the course was helpful in improving teaching skills, understanding subject matter, using AV aids, and inculcating positive attitudes in teachers.

Table 4.3

Responses of course participants regarding shortcomings and books mistakes

S#	Items	Yes	No	To some extent	χ^2
1.	I feel shortcomings in this programme.	24	24	2	19.24
2.	I notice mistakes in the manual book.	10	40	0	51.4
3.	I notice mistakes in the work book.	4	46	0	78.2
4.	This programme should be conducted regularly on annual basis.	48	1	1	58.5

Table 4.3 shows that Chi-square value with reference to all the questions was significant. It means course participants agreed that they did not feel any shortcomings in the course, mistake in the manual / work book and the course should be conducted regularly.

Table 4.4
Responses of course participants regarding new ideas /improvement in teaching

S#	Items	Yes	No	To some extent	χ^2
1.	I get new ideas which will help me in teaching of general science in classroom.	46	2	2	77.7
2.	This training has improved my science teaching capacity.	47	2	1	83.1
3.	This training programme has covered all the course content of general science.	32	14	4	24.24
4.	I am satisfied with the procedure and timing of the programme.	40	8	2	49.47
5.	This training programme has broadened my vision for understanding the general science.	44	4	2	67.6

Table 4.4 shows that Chi-square value with reference to all the questions was significant. It means course participants agreed that the course had improved their teaching capacity and broadened their vision in understanding general science and the course covered the contents of general science.

Table 4.5
Responses of course participants regarding application of course outcomes

S#	Items	Yes	No	To some extent	χ^2
1.	I am applying the outcomes of this training programme in actual classroom situation.	20	10	20	4
2.	I am satisfied that students are more comfortably understanding the science concepts after the programme I attended.	44	2	4	67.6
3.	I feel that duration of this programme was sufficient.	8	30	12	16.52
4.	I want to participate in such type of programme whenever it organized again.	48	2	0	88.74

Table 4.5 shows that Chi-square value with regard to all the questions was significant except the first one. It means course participants were satisfied with the understanding of science concepts, duration of the course and participation in the course. However course participants thought that they were not applying the outcomes of the training programme in actual classroom situation.

5. Discussion

The purpose of this study was to analyze the perceptions of science teachers regarding an in-service Science Teacher Training Programme as to the content, methodology and usability of the course with respect to preparing teachers for working in their real classroom working environment. To improve the quality of our education system we must improve the standard of our teachers by providing them with continuous training during their entire career. For that purpose capacity building of the teachers plays an important role. In strengthening the whole structure of our education system it deeply depends upon the capabilities and capacity building programmes. This CBSTT Programme was funded by CIDA and conducted by the Directorate of Curriculum and Teacher Education Abbottabad, KP.

In many publications, science is reported as an essential component of human activity; from the stone age to modern times. Science is a part of human activity and as old as the existence of human being. In a study, Isife (2009) examined the constraints to capacity building programmes established by the Rivers State Government, Southern Nigeria, in order to improve self-employment skills of her rural citizenry. The research concluded that such trainings are necessary for capacity building of the teachers. Adrienne (2008) recommended that Science education training programs should pay more attention to the learning of science in social and technological contexts. This conclusion has a strong link with the objective of this study as it provides opportunity to use new/innovative resources for teaching general science. Mustafa's (2010) study concludes that Science teachers are the curriculum implementer in the classroom and therefore play an important role for policy implementation through their arrangement of science classrooms, offering experiences on the Nature of Science and building the scientific understanding of students. Kotter (2007) conducted a similar study on the perceptions of pre-service science teachers regarding effective science teaching strategies. The main finding of the study was that pre-service science teachers believed that pedagogical skills of professional science teachers should take precedence at first over the improvement of their theoretical knowledge on their subject matter. Hence the findings of this study that the training improved teachers' content knowledge and skills match to the study conducted by Kotter (2007).

A study by Tohit et al. (2006) was conducted on the effects of concept maps on meaningful learning of Biology in Turkey. The control group was taught through traditional methods and experimental group through concept maps. The results of the study showed that the experimental group was more successful than the control group. Therefore, the study has recommended use of concept maps

teaching in science subjects (Tohit et. al., 2006). In Pakistan, A project on "Capacity Building of District Education Officers" was run by UNESCO (Niazi, 2006) with pre-service teachers. The main objectives of the project were to enable the trainees to meet new challenges, effective planning and implementing Education For All initiatives in their jurisdiction, and mobilize local communities for the active participation of the trainees in educational decision making. It was found that the participants benefitted a great deal from the project in their decision making in different areas (Niazi, 2006).

The above mentioned studies supported the finding of this study which revealed that course participants were satisfied with the standard of a course underpinned by principles of capacity building. They commended the standard of teaching methodology in the course, the objectives of the course, how it provided awareness to teachers and removed content-related teaching difficulties. The course participants agreed that the course was helpful in improving teaching skills, understanding subject matter, using A.V aids, and inculcating positive attitudes in teachers. The course participants also agreed that they did not feel any shortcomings in the course, mistakes in the manual book and work book. They felt that the course should be conducted regularly because it had helped in improving their teaching capacity and broadening their vision in understanding general science. The course participants were satisfied with the understanding of science concepts, duration of the course and participation in the course. However, course participants were divided regarding the application of course outcomes in actual classroom situation, yet more teachers had supported it.

6. Conclusions

On the basis of analysis of data it was concluded that the course participants were satisfied with the standard of course; the standard of teaching, objectives of the course, providing awareness to teachers and removing content related teaching difficulties. They also agreed that the course was helpful in improving teaching skills, understanding subject matter, using A.V aids, and inculcating positive attitudes in teachers. They also agreed that they did not feel any shortcomings in the course, mistakes in the manual/work book. The participants also felt that the course be conducted regularly. The course participants agreed that the course has improved their teaching capacity and broadened their vision in understanding general science. They also agreed that course covered the contents of general science. The course participants were also satisfied with the understanding of science concepts, duration of the course and participation in the course. However, course participants were divided regarding the application of course outcomes in actual classroom situation, yet more teachers had supported it.

7. Recommendations

1. The study recommends that the Capacity Building Science Teachers Training Programme should be conducted regularly on quarterly basis.
2. The contents of the Training Programme should be enriched so that the teachers may apply the learning during the training course in real classroom environment.
3. Moreover, more teachers should be identified to benefit from and supported to attend the training programme.
4. Furthermore, such capacity building in-service training programmes should also be run for other subjects.

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