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Article Title
Effectiveness of Continuous Professional Development Teachers-Training Programmes: From Trainee Teachers' Perspectives

Abstract

This study seeks to determine the effectiveness of continuous professional development (CPD) programs from trainee teachers' perspectives in the Malakand division. The researchers used a quantitative research approach to test hypotheses. A self-constructed questionnaire based on the opinion of trainee teachers was administered before and after the intervention (CPD). Data were collected from 266 trainee teachers in training centers in three districts of the Malakand division. The results revealed significant differences in the opinion of trainee teachers regarding content knowledge, instructional roles, ethics and professionalism, classroom management skills, and pedagogical knowledge. They perceived that after the training a significant increase took place in their perceptions regarding five constructs. The study recommended that trainee teachers as well as in-service teachers be provided ample chances to enhance their content, pedagogical, and content pedagogical skills. The government must provide a handsome amount for the conduction of CPD for teachers to equip them with modern teaching methods and skills.

Keywords: Continuous Professional Development Programme, Trainee Teachers, Content Knowledge, Instructional Roles, Classroom Management, Pedagogical Knowledge

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Title

Effectiveness of Continuous Professional Development Teachers-Training Programmes: From Trainee Teachers' Perspectives

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Contents

Abstract

This study seeks to determine the effectiveness of continuous professional development (CPD) programs from trainee teachers' perspectives in the Malakand division. The researchers used a quantitative research approach to test hypotheses. A self-constructed questionnaire based on the opinion of trainee teachers was administered before and after the intervention (CPD). Data were collected from 266 trainee teachers in training centers in three districts of the Malakand division. The results revealed significant differences in the opinion of trainee teachers regarding content knowledge, instructional roles, ethics and professionalism, classroom management skills, and pedagogical knowledge. They perceived that after the training a significant increase took place in their perceptions regarding five constructs. The study recommended that trainee teachers as well as in-service teachers be provided ample chances to enhance their content, pedagogical, and content pedagogical skills. The government must provide a handsome amount for the conduction of CPD for teachers to equip them with modern teaching methods and skills.

Introduction

Teachers are the bedrock of any educational system (Nkundabakura, *et al.,* 2023). Therefore, it is necessary to equip them well with subject knowledge, pedagogical knowledge, innovative teaching methodologies, and the use of Instructional Communication Technology (ICT) during the teaching-learning process in the classroom (Tallvid, 2014). They teach well when they are constantly engaged in

updating their content knowledge, pedagogical knowledge, pedagogical content knowledge, and technological knowledge through training programs such as continuous professional development programs (CPD). The importance of teachers' professional development is well documented as it enhances the quality of instruction at all levels (Pedder & Opfer, 2010). Previous research studies have found that teachers' professional development training has a positive impact on the instructional process and school improvement (Borko, 2004; Bunane & Abraham, 2024; Serkan, 2017). CPD is an organized process in which employees strive to develop themselves through learning, training, and developing their careers in the organization. The professional development of a teacher is the process or activity, that is executed to improve the professional knowledge, skills, and attitude of a teacher by which he/she may bring a positive change in student behavior (Guskey, 2003; Ucan, 2016). Jiandani *et al.,* (2015) defined CPD as "a process in which individual practitioners identify their own learning needs, make a plan to meet those objectives, and finally evaluate the effectiveness of the plan" (p. 106). Armstrong (2003) stated that it is essential for an organization to plan and execute training for its employees. Providing ample chances for training programs to employees maximize the output of the organization. It is very important that employees must be involved in planning and formulating training objectives and also in developing and selecting content and activities for the training to enhance their capacities (Boudreau, et al., 2001; Kaynak, 2019; Lessing & De Witt, 2007; Taylor & Davies, 2004; Tsaur & Lin, 2004). Previous studies found that teachers perform better in those professional development programs of which they are part (Luneta, 2012). The role of training has been realized in the recent era due to the industrial revolution, social needs of the society, population growth, and economic demands. The learning has been diverted to a new drift (Hudson-Ross, 2001). The teacher training process is continued till the teacher works in the institution (Smith & Desimone, 2003). It is a lifelong process. A CPD program will be more effective if trainee teachers play an active role from its inception to implementation and then to evaluation. Such training programs must be based on teachers' needs in content and pedagogical knowledge, enhance teaching-learning outcomes, and also use appropriate instructional materials during instruction. Previous research studies found that CPD training programs must be aligned with educational goals, subject content, pedagogical knowledge, pedagogical content knowledge, assessment policy, effective instructional

approaches, reflection and collaboration among teachers, follow-up process, and continuous feedback as these are the effective characteristics of CPD training program (Darling-Hammond *et al.,* 2009; Luneta, 2012). The major purpose of CPD is to enhance the subject matter knowledge and teaching skills of the teachers to better equip them to teach their subjects effectively and efficiently (Arifin *et al.,* 2024). Saleem, Gul, and Dogar (2021) concluded that primary school teachers had a positive attitude toward CPD programs because these programs can fulfill academic needs, enhance their subject content knowledge, improve teaching skills, advance classroom management skills, and develop formative assessment skills, and communication skills of teachers. Memon (2007) mentioned that CPD programs improve teaching skills, and enhance teachers' academic abilities, and the rich research skills of educators. Nassereddine and Nassreddine (2024) declared that engineering students recognized the importance of CPD programs as they increased their learning outcomes, technical skills, public speaking skills, and teamwork skills. They believed that CPD activities may increase their probability of securing employment within a short period after graduation. Nkundabakura *et al.,* (2023) found that CPD training activities have positively improved the performance of science teachers. Moreover, the study also found a significant difference between male and female teachers' performance in the subjects of Mathematics, Chemistry, Biology, and Physics. They recommended that further research studies may be conducted to investigate the effect of CPD training programs on pedagogical changes and the technological contribution of teachers in the teaching-learning process. Bray-Clark and Bates (2003) argued that teachers must have profound subject content knowledge, pedagogical knowledge, pedagogical content knowledge, collaborative, creative, and supportive skills in order to plan and organize what and how to teach effectively in the classroom to equip students with 21st-century skills. All these teachers' skills and competencies have a positive effect on the performance and interest of students in any subject (Blazar & Kraft, 2017; Hill et al., 2008; Keller *et al.,* 2016). The studies show a significant association among the content knowledge of a subject, pedagogical knowledge related to the subject, pedagogical content knowledge of the subject, and technology content knowledge of the subject. Content knowledge of a subject refers to the understanding level of the teachers of the subject matter to be taught. Subject matter knowledge is a prerequisite for every teacher. Pedagogical knowledge is related to the methodology used for

instruction by the teacher. It is related to how to teach effectively. Teachers must have knowledge of various innovative pedagogical knowledge. Similarly, pedagogical content knowledge refers to the teaching of a particular subject content by applying appropriate teaching methodology to teach effectively in a concrete specific situation. To teach subject content effectively, a teacher must have pedagogical knowledge and to teach subject content effectively in a particular situation, the teacher must be able to combine the subject and pedagogical knowledge through pedagogical content knowledge. Along with these knowledge and skills, a teacher must be able to have technology content knowledge. It is associated with the appreciation of how content and technology are interconnected, influence, and constraint one another (Blazar & Kraft, 2017; Keller *et al.,* 2016; Koehler *et al.,* 2009; Nkundabakura *et al.*, 2024; Nsabayezu *et al.,* 2023). Afzal (2024) declared that CPD can aid teachers in expanding their subject knowledge, changing their pedagogy, increasing their involvement in media, uses of ICT, enactment of policies and schemes, and meeting the demands of society and nation.

Statement of the Problem

The new appointment policy for government school teachers introduced by the Government in Khyber Pakhtunkhwa province has created numerous problems. The teachers are appointed on the basis of their subject content knowledge but pedagogical knowledge, pedagogical content knowledge, and other important and innovative skills have been ignored at the time of appointment. Due to this quality of education and the quality of the teaching-learning process are badly affected. The government first hires the teachers based on the mentioned criteria and then they are provided in-service training which is known as Continuous Professional Development (CPD). The appointed teachers go through a series of various models of CPD training programs in which they are updated on content knowledge, pedagogical knowledge, pedagogical content knowledge, and technology content knowledge. These CPD training programs are arranged for the purpose of cultivating teachers' knowledge, teaching methodologies, and other innovative skills. Previous research studies have found that teachers must be provided ample chances with more effective professional support to update and improve their content knowledge. As teachers' content and pedagogical knowledge have become vital aspects as these aspects have a positive effect on students'

understanding and performance (Chapman, 2013; Podkhodoya et al., 2020). Therefore, the current study aims to investigate the effect of these CPD training programs on trainee teachers' performance in the Malakand division.

Objectives of the Study

The following objectives have been formulated for this study:

1. To determine the effectiveness of CPD training programs related to content knowledge from trainee teachers' perspectives
2. To determine the effectiveness of CPD training programs related to pedagogical knowledge from trainee teachers' perspectives
3. To determine the effectiveness of CPD training programs related to instructional roles from trainee teachers' perspectives
4. To determine the effectiveness of CPD training programs related to ethics and professionalism from trainee teachers' perspectives
5. To determine the effectiveness of CPD training programs related to classroom management skills from trainee teachers' perspectives

Hypotheses of the Study

The following hypotheses were formulated to achieve the objectives of the study:

1. There is no statistically significant difference in trainee teachers' perceptions related to content knowledge before and after the CPD training program.
2. There is no statistically significant difference in trainee teachers' perceptions related to pedagogical knowledge before and after the CPD training program.
3. There is no statistically significant difference in trainee teachers' perceptions related to instructional roles before and after the CPD training program.
4. To determine the effectiveness of CPD training programs related to ethics and professionalism from trainee teachers' perspectives
5. To determine the effectiveness of CPD training programs related to classroom management skills from trainee teachers' perspectives

Research Methodology

This study used a descriptive (survey) design. It used quantitative methods to collect data from the trainee teachers,

including pre and post-questionnaires to assess the views of the trainee teachers regarding the effect of CPD training programs in three districts of Malakand division. The study population was 3054 CPD trainee teachers in three selected districts (Malakand, Dir Lower, and Swat) during the academic year 2023-24. Because the government provided equal opportunity to all the newly appointed teachers in all districts. By using a proportionate stratified random sampling method 369 CPD trainee teachers were selected from three sampled districts. A self-developed questionnaire consisting of 36 items based on a rating scale was used to collect data from the respondents. The scale was further divided into five constructs namely content knowledge, pedagogical knowledge, instructional skills, ethics and professionalism, and classroom management skills. The number of items in each construct varies. The responses range from 0 to 4 in which 0 indicates the absence of effectiveness of the CPD training program while 4 indicates the most effectiveness of CPD. The questionnaire has two parts, the first part consisted of demographic information of the respondents while the second part consisted of 36 rating scale items.

The validity and reliability of the questionnaire were established first before administering the instrument for data collection. The face and content validity of the questionnaire was established through a panel of five experts who had PhD degrees and had sufficient experience in teaching and in training. Two experts were from foreign countries and three experts were from Pakistan. These experts had developed training manuals for teachers of various levels. Initially, a pool of fifty items was developed and then these experts were requested to critically analyze the questionnaire. They were requested to check the wording, ambiguity, and sentence structure of the questionnaire. They provided enough feedback to improve the questionnaire and also asked the researchers to delete some items as they were repeated or double-barrelled items. The final refined questionnaire consisted of 36 rating-type items. The final draft of the questionnaire was piloted to a training center of thirty trainee teachers who were not included in the sample. They were requested to fill out the questionnaire and also identify the difficulties and ambiguities in the questionnaire. All the respondents filled out the questionnaire and found no difficulty in filling the questionnaire. The reliability of the questionnaire was established through the inter-item consistency method (Cronbach's alpha value). The researchers calculated Cronbach's alpha values for all the constructs and also for the whole questionnaire. The Cronbach's alpha values were (.84, .86, .91, .93, .89, and .94) for content knowledge, pedagogical knowledge, instructional skills, ethics and professionalism, classroom management skills, and for the complete questionnaire respectively.

The researchers first prepared a survey packet consisting of a consent letter, a cover letter, and a questionnaire. Initially, 369 survey pickets were prepared and distributed among the respondents in three training centers in the sampled districts. The researchers have to collect from the respondents twice (two times) once at the starting time of the training and the other after completion of the training. Initially, the researchers distributed 369 survey packets among the trainee teachers. The researchers requested the participants to fill out a questionnaire about how much they consider this CPD training program for their professional development. The trainee teachers filled out the questionnaires and collected 100% data from the Again the researchers distributed 369 survey packets among the same sampled respondents. However, this time researchers succeeded in collecting 266 usable questionnaires. So the data were analysed on the basis of 266 completely filled questionnaires.

Results

Out of 266 respondents' data, the average age of participants was 36 years, the average number of times attempted CPD training programs was 4, and the highest qualification of trainee teachers ranged from BA/BSc to PhD.

Table 1

Differences in Content Knowledge before and after CPD Training Programme of Trainee Teachers

Statements	n	Mean Before	Mean After	Diff. of Mean	Diff. of SD	t-stat	p
Competency in content knowledge	266	2.45	3.53	1.083	0.890	19.78	$p<.05$
Clear about rubrics of content	266	2.37	3.45	1.083	.761	23.14	$p<.05$

Statements	n	Mean Before	Mean After	Diff. of Mean	Diff. of SD	t-stat	p
Clear about the goals	266	2.22	3.24	1.026	.826	20.26	*p*<.05
Overall Effectiveness	266	2.34	3.40	1.064	.825	21.06	*p*<.05

The above table shows the differences in the views of trainee teachers before and after the CPD training programs regarding content knowledge. The values of t-statistics for different items were found to be significant as the value of p was found to be less than that of the value of the level of significance .05 (*p*<.05). Thus a significant difference was found before and after CPD training programs regarding instructional roles. Therefore, it was concluded that a significant difference was found between pre and post-views of trainee teachers regarding instructional roles.

Table 2

Differences in Instructional Roles before and after CPD Training Programme of Trainee Teachers

Statements	n	Mean Before	Mean After	Diff. of Mean	Diff. of SD	t-stat	p
Use of appropriate A.V aids	266	2.05	3.18	1.126	0.874	20.81	*p*<.05
Promote oral communication	266	2.22	3.27	1.053	0.728	23.51	*p*<.05
Promote critical thinking	266	2.14	3.23	1.090	0.742	23.97	*p*<.05
Collaborative	266	2.28	3.4	1.106	0.736	24.45	*p*<.05
Promote curiosity	266	2.16	3.29	1.128	0.721	25.52	*p*<.05
Promote group work	266	2.2	3.44	1.239	0.818	24.60	*p*<.05
Use reinforcement	266	2.15	3.36	1.212	0.766	25.73	*p*<.05
competent in technology	266	2.2	3.38	1.180	0.898	21.66	*p*<.05
Overall comparison	266	2.17	2.17	1.141	0.785	23.78	*p*<.05

The above table shows the differences in the views of trainee teachers before and after the CPD training programs regarding instructional roles. The values of t-statistics for different items were found to be significant as the value of p was found to be less than that of the value of the level of significance .05 (*p*<.05). Thus a significant difference was found before and after CPD training programs regarding instructional roles. Therefore, it was concluded that a significant difference was found between pre and post-views of trainee teachers regarding instructional roles.

Table 3

Differences in Pedagogical Knowledge before and after CPD Training Programme of Trainee Teachers

Statements	n	Mean Before	Mean After	Diff. of Mean	Diff. of SD	t-stat	p
competent in pedagogy	266	2.18	3.29	1.117	0.818	22.26	*p*<.05
Can Use technology	266	1.83	2.86	1.034	0.777	21.63	*p*<.05
Aware individual differences	266	2.3	3.35	1.049	1.350	12.67	*p*<.05
Provide guidance to students	266	2.24	3.41	1.169	0.814	23.44	*p*<.05
Care principles of gradations	266	2.27	3.45	1.178	0.762	25.12	*p*<.05
Connect previous knowledge	266	2.36	3.49	1.136	0.778	23.74	*p*<.05
Overall comparison		2.19	3.30	1.1138	0.8831	21.47	*p*<.05

The above table shows the differences in the views of trainee teachers before and after the CPD training programs regarding pedagogical knowledge. The values of t-statistics for different items were found to be significant as the value of p was found to be less than that of the value of the level of significance .05 (*p*<.05). Thus a significant difference was found before and after CPD training programs regarding pedagogical knowledge. Therefore, it was concluded that a significant difference was found between pre and post-views of trainee teachers regarding pedagogical knowledge.

Table 4

Differences in Pedagogical Knowledge before and after CPD Training Programme of Trainee Teachers

Statements	n	Mean Before	Mean After	Diff. of Mean	Diff. of SD	t-stat	p
Plan before class	266	2.33	3.30	0.970	0.860	18.14	p<.05
Ensure the participation	266	2.40	3.4	1.000	0.824	19.79	p<.05
Give challenging activities	266	2.08	3.22	1.147	0.777	24.04	p<.05
Care time duration	266	2.27	3.44	1.700	0.801	23.78	p<.05
Arrange the class to the needs	266	2.31	3.4	1.094	0.725	24.58	p<.05
Plans activities outside	266	1.97	3.16	1.186	0.770	25.02	p<.05
Maintain discipline	266	2.38	3.44	1.057	0.790	21.74	p<.05
Create interest in teaching	266	2.33	3.45	1.121	0.793	22.99	p<.05
Assign homework	266	2.32	3.44	1.113	0.759	23.91	p<.05
Overall comparison	266	2.26	3.36	1.154	0.788	22.66	p<.05

The above table shows the differences in the views of trainee teachers before and after the CPD training programs regarding classroom management. The values of t-statistics for different items were found to be significant as the value of p was found to be less than that of the value of the level of significance .05 (*p*<.05). Thus a significant difference was found before and after CPD training programs regarding classroom management. Therefore, it was concluded that a significant difference was found between pre and post-views of trainee teachers regarding classroom management.

Table 5

Differences in Ethics and Professionalism Before and after the CPD Training Programme of Trainee Teachers

Statements	n	Mean Before	Mean After	Diff. of Mean	Diff. of SD	t-stat	p
competent in pedagogy	266	2.23	3.28	1.050	0.671	25.60	*p*<.05
Can Use technology	266	2.31	3.38	1.060	0.724	23.88	*p*<.05
Aware individual differences	266	2.2	3.36	1.160	0.835	22.66	*p*<.05
Provide guidance to students	266	2.36	3.48	1.120	0.773	23.65	*p*<.05
Care principles of gradations	266	2.19	3.37	1.17	0.767	24.96	*p*<.05
Connect previous knowledge	266	2.19	3.32	1.122	0.834	21.82	*p*<.05
Overall comparison	266	2.24	3.36	1.115	0.767	23.76	*p*<.05

The above table shows the differences in the views of trainee teachers before and after the CPD training programs regarding ethics and professionalism. The values of t-statistics for different items were found to be significant as the value of p was found to be less than that of the value of the level of significance .05 (*p*<.05). Thus a significant difference

was found before and after CPD training programs regarding ethics and professionalism. Therefore, it was concluded that a significant difference was found between pre and post-views of trainee teachers regarding ethics and professionalism.

Discussion

The study found that CPD training programs have a significant effect on trainee teachers' content knowledge, pedagogical knowledge, instructional roles, classroom management skills, and ethics and professionalism. CPD training programs are worthwhile to enhance teachers' subject knowledge, pedagogical knowledge, innovative teaching methodologies, and use of Instructional Communication Technology (ICT) during the teaching-learning process in the classroom (Tallvid, 2014). Arifin et al., (2024) stated that the major purpose of CPD is to enhance subject matter knowledge and teaching skills of the teachers to better equip them to teach their subject effectively and efficiently. Most of the findings of previous research studies are in line with the findings of this study. A number of studies have found that teachers' professional development training has a positive impact on the instructional process and school improvement (Borko, 2004; Bunane & Abraham, 2024; Serkan, 2017). However, it is worth statement that CPD training programs must be aligned with educational goals, subject content, pedagogical knowledge, pedagogical content knowledge, assessment policy, effective instructional approaches, reflection and collaboration among teachers, the follow-up process, and continuous feedback as these are the effective characteristics of CPD training program (Darling-Hammond, Wei, Andree, Richardson & Orphanos 2009; Luneta, 2012). Saleem et al., (2021) concluded that primary school teachers had a positive attitude toward the CPD program because these programs can fulfill academic needs, enhance their subject content knowledge, improve teaching skills, advance classroom management skills, and develop formative assessment skills and communication skills of teachers. Memon (2007) mentioned that CPD programs improve teaching skills, enhance teachers' academic abilities, and rich the research skills of educators. Bray-Clark and Bates

(2003) argued that teachers must have profound subject content knowledge, pedagogical knowledge, pedagogical content knowledge, collaborative, creative, and supportive skills in order to plan and organize what and how to teach effectively in the classroom to equip students with 21st-century skills. Therefore, CPD training programs must be arranged for teachers on a regular basis to update teachers' knowledge, skills, and understanding.

Conclusions

The study concluded that CPD training programs have a significant effect on content knowledge, pedagogical knowledge, instructional role, classroom management, and ethics and professionalism of trainee teachers. Trainee teachers perceived that CPD training has been significantly effective in enhancing their content knowledge, pedagogical knowledge, instructional role, classroom management ethics, and professionalism. Therefore, the null hypotheses Ho_1, Ho_2, Ho_3, Ho_4, and Ho_5 were rejected and the alternate hypotheses HI_1, HI_2, HI_3, HI_4 and HI_5 were accepted.

Recommendations

The study recommended that CPD training programs be arranged at regular intervals for teachers of all levels. The training may be provided to enrich teachers' content knowledge. They may also be given training to equip them with modern innovative teaching methodologies. Teachers may also be provided training in technology content knowledge, so that they may use a variety of online resources to increase students' learning outcomes. The government may provide enough funds and resources to arrange training for teachers to fulfill their academic needs, enhance their subject content knowledge, improve teaching skills, advance classroom management skills, and develop formative assessment skills and communication skills of teachers. It is also recommended that training be provided by a well-qualified, knowledgeable, and renowned personality who has enough experience in providing training and has a good reputation at provincial and national levels.

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