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Comparative Analysis of the Effectiveness of Pre-Service Trained Teachers and Induction Training Program Trained Teachers: From School Heads' Perspectives

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Abstract

This study aimed to compare the perceptions of pre-service trained teachers with induction programme trained teachers regarding content knowledge, organization of instruction, relation with students, teaching methods, lesson presentation, classroom management, ethical considerations, teachers' role in learning, teachers' personality, and school management. The study also compared the overall perceptions regarding the performance of pre-service trained teachers and induction training program trained teachers. The data were collected from 220 school heads through a highly validated and reliable questionnaire consisted of 42 Likert type items. The study found significant differences in the effectiveness of the performance of pre-service trained teachers and induction training program regarding content knowledge, relation with students, and ethical consideration. On other hand no significant differences were found in the effectiveness of the performance of pre-service trained teachers and induction training program regarding organization of instruction, teaching methods, lesson presentation, classroom management, role in learning, teachers' personality and school management. No significant difference was found in the overall effectiveness of the pre-service trained teachers and induction training program trained teachers. The study recommended that both pre-service trained teachers training programmes and induction training programmes may be enriched through provision of sufficient funds and ensure the effective delivery of these training programmes.

Keywords: Effectiveness of Training Programmes, Pre-service Training, Induction Training programmes, School Heads

Introduction

The veracity that has been perceived in the last twenty years in the literature that professional learning is the only way to success in education for those which are keen to develop their educational system (Darling-Hammond, 2010; Garet, Porter, Desimone, Birman, & Yoon, 2001; Wenger, 1998). Fast economic revolution brought change in the role of teaching profession,

therefore the teacher should adopt himself to the emerging condition accordingly (Apple, 2000; Fullan, 2007). Villegas-Reimers (2003) evaluated the dynamic role of teacher in different societies of the world contributing and bringing reforms for the welfare of people in the world. Almost all the nations of the world in this new era, have a deep concern about the educational reforms and professional development of the teachers. Techer, not only play his role in improving educational system but also can seek a better and affluent society. This trend has been valued in past few decades and marked the teacher as an agent and responsible for bringing positive change in the society. In recent era, the curricula are unable to fulfill the needs of a teacher in educational system to be a professional teacher (Borko, Jacobs, & Koellner, 2010; Cohen & Hill, 1998; McDiarmid & Corcoran, 2000). Therefor different programs, activities, conferences, and teacher trainings programs are arranged by the stakeholders to improve the professional growth of teachers (Antoniou, Creemers, & Kyriakides, 2009; Cohen & Ball, 1999). Despite the reputation and urgency of the fact, many teacher are not willing to adopt high standards of teaching in their practices (Cohen & Ball, 1999; Elmore & Burney, 1997). There is a need of convincing teacher to accept the changing role of teaching profession through different programs (Fullan, 2007; Putnam & Borko, 1997; Spillane, 1999). As there is insufficient research work on teacher professional development, therefor, there is intense need of substitute approaches to improve the professional development of teachers (Bransford, Brophy, & Williams, 2000; Garet et al., 2001). Cochran-Smith (2004) explained three systems of professional development of teacher including, knowledge for practices, knowledge of practices and knowledge in practices. In knowledge for practices, the teacher is motivated to apply different research theories in his teaching learning process of formal authors and researchers. Here, the teacher is passive and incorporate theories in action. In knowledge of practices, the teacher enhances his knowledge through direct experience from the environment and incorporate these in his teaching. Knowledge in practice emancipate personal and transformational reproduction of teacher both inside and outside of the classroom. Andorra, the country with 100% and highest literacy rate in the world, where the government run their teacher training program known as Dual training system with the consultation of Spanish government. This program equips the trainee teacher with advanced teaching paradigms and the stakeholders are encouraged to apply these in practices (Bruno-Jofré, 2014). Finland, the 2nd country in highly literacy rate in the world boosted their education system in the country with a growing curricula, content and professional development of teacher in the country. Teachers are equipped with both theoretical and practical knowledge as well as their practices in classrooms in different teacher training programs run by the Finish government. Research in teacher training institution is being valued and appreciated. Here the government, research organization, students and parents contributes their shares to support teacher learning environment (Mikkilä-Erdmann, Warinowski, & Iiskala, 2019). Stephens*, Egil tønnessen, and Kyriacou (2004) compared teacher training programs in two developed countries, England and Norway organized by the governments of these two countries. Findings showed that England's government focus on the practical aspects of teacher training as well as content-based objectives, skills for classroom management for teachers and the activities exercised in classrooms while teacher training in Norway, the teachers and students are equipped with the theories and practices of subject matter, enhancing leadership skills among students, develop cultural norms and professional development of trainee teachers.

After 18th amendment (2010) of the constitution of Pakistan, educational responsibilities were shifted to the four provinces in the country. Every province is now empowered to devise education plans and policies in their respective provinces (Rauf, Ahmad, Bibi, Khan, & Naseer, 2022). In consort with, imparting teacher training is also become the sole responsibility of provincial governments in the country. Distinct in-service teacher training programs are conducted by all these provincial governments to improve the professional standard in the respective province. The

organization, structure, content, activities, time duration and administration is slightly different among the provinces (Akhtar, Shah, & Din, 2011; Junejo, Sarwar, & Ahmed, 2018; Kumar, 2019; Memon, Lalwani, & Meher, 2006; Mughal, 2017; Qaisra & Haider, 2023; Ullah, Farooq, & Memon, 2008).

Statement of the Problem

Teachers is a person who imparts knowledge and transmits information. 'Effectiveness' is the quality of being success in producing an intended result (Collins Dictionary). Competence plays an important role for the success of an organization. Teacher competencies consist of knowledge, skills, and behaviours. These competencies particularly affect the learning in schools to produce quality education (Khatoon, Azeem, & Akhtar, 2011; Passos, 2009; Wachidi, 2010). Teaching competencies comprise of knowledge, skills and behaviours which need to be unified with each other. Many competencies are indispensable to enhance the quality of the teachers; it is only possible if the competencies are developed through CPD. In Khyber Pakhtunkhwa province, Directorate of professional development (DPD) provide in-service teacher training for the professional development of teachers during their service and induction trainings after the recruitment of newly appointed teachers. Different colleges and universities provide training and awards degrees and certificates in terms of ADE, B. ED, BS, M.Phil. and Ph.D. in education as pre-service. Under the DPD, regional colleges (RDC) at divisional level, collaborate with DPD in imparting training programs in providing pre-service and in-service teacher training programs in the province. After induction policy2017, the institute only provides IP training for newly inducted teachers before they start their job. Pre-service degree is not compulsory according to this policy. (Butt, Khan, & Malik, 2020; Idris & Saeed, 2021; Jamil, Razak, Raju, & Mohamed, 2011). Although the information on the performance of pre-service trained and IP-trained teachers is crucial, training is not imparted based on performance of the training by the Directorate of Professional Development in Malakand Division. In this study the performance of pre-service trained and IP-trained teachers (trained through IP) was compared in the perceptions of school's heads.

Objectives of the Study

1. To compare the performance of pre-service trained teachers and IP-trained teachers in content knowledge, organization of instruction, relation with students, teaching methods, and lesson presentation
2. To compare, the performance of pre-service trained teachers and IP-trained teachers in classroom management, ethical considerations, teachers' role in learning, teachers' personality, school management
3. To compare, overall performance of pre-service trained teachers and IP-trained teachers

Research Questions

1. Is there any significant differences between the performance of pre-service trained teachers and IP-trained teachers in content knowledge, organization of instruction, relation with students, teaching methods, and lesson presentation?
2. Is there any significant differences between the performance of pre-service trained teachers and IP-trained teachers in classroom management, ethical considerations, teachers' role in learning, teachers' personality, school management?
3. Is there any significant difference in overall performance of pre-service trained teachers and IP-trained teachers?

Research Methodology

The study is quantitative in nature in which descriptive survey design was used as Head of schools can better evaluate the performance of teachers in their respective schools. The population of the study consisted of 2385 heads of schools in selected districts of Malakand division. Among these heads, 1878 were male Primary School Headteachers, 187 were male middle school headmasters, 199 were male high school headmasters and 125 were male higher secondary school principals. By random sampling techniques and proportionate sampling, a sample of 220 respondents were allocated according to the population of the selected districts. To evaluate the performance of pre-service trained teacher with IP-trained teachers in the perceptions of heads of schools, a questionnaire was developed considering the National Professional Standards for Teachers in Pakistan, (2009) covering maximum aspects of a professional teacher in a Likert type scale from o to 4. Pre-service trained and IP-trained teachers were evaluated in content knowledge, organization of instructions, relation with student, teaching methodology, lesson presentation, classroom management, ethical consideration, role in learning, personality, school management and in overall performance in the perceptions of heads of schools. Validity of the questionnaire was ensured through two experts from Pakistan and two from foreign. Their suggestions were incorporated and removed some items. Construct validity was ensured through exploratory factor analysis to simplify the complex variables and to reduce the large number of items in small numbers of construct. KMO was used for adequacy and Bartlett's Test of Sphericity for suitability of the data to check the reliability, Cronbach's Alpha coefficient and by using inter items consistency. The final refined questionnaire was distributed among the respondents after pilot testing on 30 respondents and those respondents were not included in the final surrey.

Table 01 *Reliability of the comparison of pre-service trained teacher's vs IP-IP trained teachers*

Variables	No. of items	Cronbach's Alpha value
Content knowledge	3	0.884
Organization of instruction	6	0.94
Relation with students	4	0.907
Teaching methodologies	4	0.888
Lesson presentation	5	0.914
Classroom management	4	0.904
Ethical considerations	2	0.909
Role in learning	5	0.865
Personality	3	0.845
School management	6	0.832

Data was collected through questionnaires by visiting all the schools and at training centres personally in the area. Data was analysed through statistical tools like, descriptive statistics, and statistical indices like performance index and t-test were used. SPSS was used to analyse and interpret the data. To compare the performance of pre-service and IP trained teachers, performance index was used. The paired t-test was used to check the statistical difference in the knowledge of these two groups i.e. pre-service and in-service teacher. Besides, for some responses obtained the following performance index for pre-service and in-service teacher was also calculated:

$$\textbf{Performance Index (P.I)} = \frac{\text{SCLi}\times\text{fi}}{\text{Total No.of Observations}} \quad 0 < \text{PI} < 4$$

Scale of Performance (SCLi)

TABLE 2

SCALE OF PERFORMANCE LEVEL (SCLI)

Poor performance				*Excellent performance*
0	1	2	3	4

In Table 2, the scale value of 0 indicate poor performance and 4 show excellent performance.

Results

Descriptive Statistics of head of school Post held in school

TABLE 3

Descriptive Statistics of head of school Post held in school

Type of School	*Frequency*	*Percent*
Primary school head teacher	173	78.6%
Middle school headmaster	17	7.8%
High Headmaster	18	8.3%
Higher secondary school Principal	12	5.2%
Total	220	

The survey contained a total of 220 heads of schools. Among 220 there were 173 primary school head teachers, 17 were middle school headmasters, 18 were high school headmasters and 12 were higher secondary school principals with 78.6%, 7.8%, 8.3% and 5.2% respectively (Table 3).

Number of pre-service trained and IP-trained teachers' teachers

TABLE 4

STATISTICS OF HEAD OF SCHOOL NO. OF PRE-SERVICE TRAINED AND IP-TRAINED TEACHERS'

Respondents	**N**	**Professional/IP trained**	**Percent**
No. of professional teachers	220	721	65%
No. of IP trained teachers	220	379	35%

Number of pre-service trained teacher, those appointed through professional degrees and number of IP-trained teachers', those appointed through no professional degree but through NTS (National Testing Agency) and receive their induction training after their appointment in education department and before starting their service, working with these heads of schools in their institutions were 721 and 379 respectively, with 65% and 35% respectively (Table 4).

Content knowledge of Pre-service Trained Teacher's vs IP Trained Teachers

TABLE 5

CONTENT KNOWLEDGE OF PRE-SERVICE TRAINED TEACHER'S VS IP TRAINED TEACHERS

Content knowledge of pre-service trained teacher's vs IP trained teachers							
Statements	***n***	***Mean of Prof***	***Mean of IP***	***Diff of mean***	***Diff of STD***	***t-stat***	***Sig***
Clear about the goals	220	3.30	2.70	0.595	1.193	4.289	*P<.001*
Clear ideas about the rubrics	220	3.08	2.54	0.541	1.445	3.218	*p>.001*
Confident in content knowledge	220	2.95	3.16	-0.216	1.397	-1.331	*p>.001*
Overall comparison	220	2.33	3.41	-1.072	.58234	-29.81	*P<.001*

Mean of pre-service trained teachers (Mean of Prof) while in-service trained through IP (Mean of IP), difference of standard deviation (Diff of STD), T-statistics (t-stat) and significance at 0.001 (Sig)

To compare the performance of pre-service trained teacher with IP-trained teacher performance index was used and to show the statistically significant difference independent sample t-test was conducted to compare the performance of pre-service trained teacher in the perception of school's head. There was significant difference in score for pre-service trained teacher M= 3.30 and un-trained teacher M= 2.70 with difference of Standard divination, 1.193 regarding the awareness of the goal of instruction. The value of difference in the mean, Mean difference= 0.595, with 95%, confidence interval. t-statistics shows the significance of scores, hence hypothesis 3 is accepted. The results show that the difference between the awareness of the goal of instruction is statistically significant supporting the hypothesis that the performance of pre-service trained teacher is better as compared to IP trained teachers in the study area. This is also evident from the difference in the average scores before and after the training for the awareness of the goal of instruction (Table 5). During the survey, pre-service trained teacher was found more responsible as compare those IP trained teachers regarding clear idea of rubrics of the instructions, professional trained teachers consider and outline the expectations from students to be achieved after instructions. There was significant difference in score for pre-service trained teacher M= 3.08 and IP trained teachers M=2.54 with difference of Standard divination, 1.445. The value of difference in the mean, Mean difference= 0.541, with 95% confidence interval. T-statistics 3.218 shows the significance of scores (Table 5).

During the survey, IP trained teachers were found more competent as compared to pre-service trained teacher, regarding content knowledge. There was significant difference in score for pre-service trained teacher M= 2.95 and IP trained teachers M=3.16 with difference of Standard divination, 1.397. The value of difference in the mean, Mean difference=-0.216, with the 95% confidence interval. T-statistics -1.331 shows the significance of scores (Table 5). Overall mean of pre-service trained teacher and IP trained teachers regarding content knowledge was of pre-service trained teacher 2.33 and IP trained teachers 3.41 M=3.41 with difference of Standard divination, -1.072. The value of difference in the mean, Mean difference= .58234, with 95% confidence interval. t-stat -29.81 shows the significance of scores (Table 5).

ORGANIZATION OF INSTRUCTIONS FOR PRE-SERVICE TRAINED VS IP-TRAINED TEACHERS

TABLE 6

Organization of instructions of pre-service trained teacher's vs IP trained teachers							
Statements	***n***	***Mean of PROF***	***Mean of IP***	***Diff of mean***	***Diff of STD***	***t-stat***	***Sig.***
Plan before attending the class	220	3.09	2.51	0.581	1.462	3.419	*P<.001*
Exercise activities that relate student's real life	220	2.82	2.66	0.162	1.471	0.948	*p>.001*
Encourage to apply knowledge in daily life	220	3.05	2.80	0.257	1.25	1.767	*p>.001*
Present challenging activities	220	2.38	3.47	-1.082	5.071	1.82	*p>.001*
Follow school syllabus	220	3.39	2.76	0.635	1.234	4.428	*P<.001*
Assign homework to students	220	2.84	2.99	-0.149	1.611	0.79	*p>.001*
Overall comparison	220	2.92	2.865	0.067	2.017	1.325	*p>.001* 0.155

***Mean of pre-service trained teachers (Mean of Prof) while** IP trained teachers trained (Mean of IP)*

An independent sample t-test was conducted to compare the performance of pre-service trained teacher and IP trained teachers in the perception of school's heads regarding planning before and after attending the class. There was significant difference in score for pre-service trained teacher M= 3.09 and IP trained teachers M= 2.51 with difference of Standard divination, 1.462. The value of difference in the mean, Mean difference= 1.462, with 95%, confidence interval. t-statistics shows the significance of scores. hence hypothesis 3 is accepted. The results show that the difference between planning before and after attending the class is statistically significant supporting the hypothesis that the performance of pre-service trained teachers is better as compared to IP trained teachers in the study area for properly planning before attending the classes. This is also evident from the difference in the average scores before and after the training for planning attending their classes (Table 6). Experiential learning is a participatory teaching, where teacher involve students in "learn by doing", reflects on the experiences of the students. These contain, experimentations, internships, workshops, field exercises, study tours, assignments etc. In terms of exercise activities that relates to real life, there was significant difference in score for pre-service trained teachers M= 2.82 and IP trained teachers M= 2.66 with difference of Standard divination, 1.471. The value of difference in the mean, Mean difference= 0.162, with 95%, confidence interval. t-stat 0.948 shows the significance of scores (Table 6). To develop long-lasting learning which provides students with the expertise, knowledge, values and attitudes that can be exercised to overcome issues in new situation or discover problems in innovative ways pre-service trained teachers was reported as more competent as compared to those IP trained teachers. In terms of encouraging students to apply knowledge in their real life, there was significant difference in score for professional trained teacher M= 3.05 and IP trained teachers M= 2.80 with difference of Standard divination, 1.25. The value of difference in the mean, Mean difference= 0.257, with 95% Confidence interval. T-statistics (1.767) shows the significance of scores (Table 6). During the survey school's heads reported that pre-service trained teachers assign more challenging activities to students to develop leadership, confidence and independence, as compared to those IP trained teachers. There was significant difference in score for pre-service trained teachers M= 2.38 and IP trained teachers M=3.47 with difference of Standard Divination

,5.07. The value of difference in the mean, Mean difference, 1.082, with 95% confidence interval. t-statistics -1.823 shows the significance of scores (Table 6).

Pre-service trained teachers were found more responsible as compare those IP trained teachers who appointed newly, regarding the revision of their school syllabus. There was significant difference in score for pre-service trained teachers and M= 3.14 and IP trained teachers M=2.81 with difference of Standard divination, 1.13. The value of difference in the mean, Mean difference, 0.329, with 95% confidence interval. t-stat 2.483 shows the significance of scores (Table 6). During the survey pre-service trained teachers were found more responsible as compare those IP trained teachers, regarding assigning homework to students on regular bases. There was significant difference in score for professional trained teacher M= 2.84 and IP trained teachers M=2.99 with difference of Standard divination, 1.61. The value of difference in the mean, Mean difference= -0.149, with 95% confidence interval. t-stat-0.794 shows the significance of scores (Table 6). Overall mean of pre-service trained teachers regarding Organization of instructions was M= 2.92) and IP trained teachers M=2,86 with difference of Standard divination, -0.0673. The value of difference in the mean, Mean difference= 2.016, with 95% Confidence interval. T-stat -29.81 shows the significance of scores (Table 6).

Relation with students of pre-service trained teacher's vs IP trained teachers

TABLE 7

Relation with students of pre-service trained teacher's vs IP trained teachers

Statements	***n***	***Mean of PROF***	***Mean of IP***	***Diff of mean***	***Diff of STD***	***t-stat***	***Sig***
Aware about the individual differences of the students	220	3.27	2.23	1.041	1.512	5.920	*P<.001*
Provide guidance and counselling to students	220	3.26	2.73	0.527	1.397	3.246	*p>.001*
Encourage students to interact each other	220	3.17	2.72	0.455	1.482	2.589	*p>.001*
Care about the preference of the students	220	3.15	2.70	0.446	1.10	3.488	*P<.001*
Overall comparison	220	3.21	2.60	0.62	1.37	3.81	*P<.001*

Mean of pre-service trained teachers (Mean of Prof) while in-service trained through IP (Mean of IP)

Individual differences in terms of gender, customs, learning styles, previous knowledge of student and past experience with content, approaches, and the use of technology pre-service trained teachers showed high level satisfaction in the perceptions of school's heads as compared to those IP trained teachers. In terms of aware about individual differences of students, there was significant difference in score for pre-service trained teachers M= 3.27 and IP trained teachers M= 2.23 with difference of Standard divination, 1.51. The value of difference in the mean, Mean difference= 1.041, with 95%, Confidence interval. T-stat 5.920 shows the significance of scores (Table 7). The teacher provides personalized guidance to effectively provide for the diversity of students all over their instruction pre-service trained teachers showed high level satisfaction in the perceptions of school's heads as compared to those IP trained teachers. In terms of provide guidance to students, there was significant difference in score for pre-service trained teachers M= 3.26 and IP trained teachers M= 2.73 with difference of Standard divination, 1.397. The value of difference in the mean, Mean difference= 0.527, with 95%, Confidence interval. T-stat 3.246 shows the significance

of scores. (Table 7). Peer tutoring where students learn from each other more effectively involve peers, groups and projects to be completed with the collaboration and interaction of student. The school heads reported pre-service trained teachers more responsible as compared to those IP trained teachers. In terms of engage students to communicate each other, there was significant difference in score for professional trained teacher M= 3.19 and un-trained teacher M= 2.220 with difference of Standard divination, 1.482. The value of difference in the mean, Mean difference= 0.446, with 95%, Confidence interval. T-stat 2.589 shows the significance of scores (Table 7). Every student when join the school brings their own educational background. They have different learning style, experiences, interest future plans and priorities. School heads reported that pre-service trained teachers seek more to care preferences of students, as compared to those IP trained teachers. There was significant difference in score for professional trained teacher M= 3.15 and un-trained teacher M=2.70 with difference of Standard divination, 1.10. The value of difference in the mean, Mean difference= 0.446, with 95% Confidence interval. T-stat 3.488 shows the significance of scores (Table 7). Overall mean of pre-service trained teachers regarding relation with students was M= 3.27 and IP trained teachers M=2.23 with difference of Standard divination, -1.041. The value of difference in the mean, Mean difference=. 1.512, with 95% Confidence interval. T-statistics 5.920 shows the significance of scores (Table 7).

Teaching Methods of pre-service trained teacher's vs IP trained teachers

TABLE 8

Teaching Methods of pre-service trained teacher's vs IP trained teachers

Statements	***n***	***Mean of PROF***	***Mean of IP***	***Diff of mean***	***Diff of STD***	***t-stat***	***Sig***
Confident in pedagogical knowledge	220	3.28	2.32	0.959	1.642	5.026	*P<.001*
Confident about technological knowledge	220	2.81	2.51	0.581	1.462	3.419	*P<.001*
Use reinforcement and rewards	220	3.00	2.220	0.257	1.405	1.572	*p>.001*
Create interest in teaching	220	3.34	2.78	0.554	1.563	3.050	*p>.001*
Overall comparison		3.11	2.59	0.59	1.52	3.27	*p>.001*

Mean of pre-service trained teachers (Mean of Prof) while in-service trained through IP (Mean of IP)

In terms pedagogical knowledge which involves theoretical knowledge of perspective of education, philosophies of education, educational psychology, educational management, educational measurement and evaluation, classroom organization etc pre-service trained teachers were found more competent as compare those IP trained teachers there was significant difference in score for professional trained teacher M= 3.28 and un-trained teacher M=2.32 with difference of Standard divination, 1.642). The value of difference in the mean, Mean difference=0.959, with the 95% confidence interval. T-statistics 5.026 shows the significance of scores (Table 8). In terms of using technology in education like computers, videos tape, audio tape, projectors etc. there was significant difference in score for pre-service trained teachers M= 2.81 and IP trained teachers M=2.51 with difference of Standard divination, 1.462. The value of difference in the mean, Mean difference=0.581, with the 95% Confidence interval. T-statistics 3.419 shows the significance of scores (Table 8).

In terms of using reinforcement and reward in the class to enhance learning, there was significant difference in score for pre-service trained teachers M= 3.00 and IP trained teachers M=2.220 with difference of Standard divination, 1.405. The value of difference in the mean, Mean difference=0.257, with the 95% Confidence interval. T-statistics 3.419 shows the significance of scores (Table 8). To motivate students, develop positive attitude, discovery and to encourage the students to ask questions freely pre-service trained teachers were found more responsible as compare those IP trained teachers, regarding in terms of create in interest in teaching. There was significant difference in score for pre-service trained teachers M= 3.34 and IP trained teachers M=2.78 with difference of Standard divination, 1.563. The value of difference in the mean, Mean difference=0.554, with 95% Confidence interval. T-statistics 3.050 shows the significance of scores (Table 8). Overall mean of pre-service trained teachers regarding Teaching Methods was M= 3.10 and IP trained teachers M=2.58 with difference of Standard divination, -0.587. The value of difference in the mean, Mean difference= 1.518, with 95% Confidence interval. T-statistics 3.266 shows the significance of scores (Table 8).

Lesson presentation of pre-service trained teacher's vs IP trained teachers

TABLE 9

Lesson Presentation of pre-service trained teacher's vs IP trained teachers

Statements	***n***	***Mean of PROF***	***Mean of IP***	***Diff of mean***	***Diff of STD***	***t-stat***	***Sig***
Use A.V aids in classroom	220	2.66	2.70	-0.041	1.708	-0.20	*p>.001*
Use computers and technologies	220	1.73	3.08	-1.351	1.349	-8.61	*P<.001*
Promote curiosity and imagination	220	2.86	2.69	0.176	1.328	1.138	*p>.001*
Care principles of gradation	220	3.14	2.62	0.514	1.367	3.231	*p>.001*
Revise course syllabus	220	3.14	2.81	0.329	1.131	2.483	*p>.001*
Overall comparison	220	2.71	2.78	-0.07	1.38	-0.39	*p>.001*

Mean of pre-service trained teachers (Mean of Prof) while in-service trained through IP (Mean of IP)

In terms of using A.V Aids in the class, pre-service trained teachers use A.V aids to support instructional process while un-trained teacher ignores its importance. There was significant difference in score for professional trained teacher M= 2.66 and IP trained teachers M= 2.70 with difference of Standard divination, 1.708. The value of difference in the mean, Mean difference= -0.041, with 95%, Confidence interval. T-statistics -0.204 shows the significance of scores (Table 9). Most of the pre-service trained teachers has lack of computer literacy and non-competency of instructional technology in the classroom as compared to IP trained teachers. There was significant difference in score for professional trained teacher M= 1.73 and un-trained teacher M= 3.08 with difference of Standard divination, 1.1.349. The value of difference in the mean, Mean difference= -1.351, with 95% Confidence interval. T-statistics -8.617 shows the significance of scores. Hence hypothesis 3 is rejected (Table 9). To enhance learning and motivation pre-service trained teachers showed better performance in promoting curiosity among students as compared to those IP trained teachers. There was significant difference in score for pre-service trained teachers M= 2.86 and IP

trained teachers M= 2.69 with difference of Standard divination, 1.328. The value of difference in the mean, Mean difference= 0.176, with 95%, Confidence interval. T-statistics 1.138 shows the significance of scores (Table 9). Teaching maxim is based on principle of gradations in teaching, like from known to unknown, simple to complex, from concrete to abstract and from particular to general etc. there was significant difference in score for pre-service trained teachers M= 3.14 and IP trained teachers M=2.62 with difference of Standard divination, 1.367. The value of difference in the mean, Mean difference= 0.514, with 95% Confidence interval. T-statistics 3.231 shows the significance of scores (Table 9). During the survey pre-service trained teachers were found more responsible as compare those IP trained teachers, regarding the revision of their school syllabus. There was significant difference in score for professional trained teacher M= 3.14 and un-trained teacher M=2.81 with difference of Standard divination, 1.131. The value of difference in the mean, Mean difference=0.329, with 95% Confidence interval. T-statistics 2.483 shows the significance of scores. (Table 9). Overall mean of pre-service trained teachers regarding Lesson Presentation was M= 2.71 and IP trained teachers M=2.78 with difference of Standard divination, -0.0220. The value of difference in the mean, Mean difference= 1.376, with 95% Confidence interval. T-statistics -0.391 shows the significance of scores (Table 9).

Classroom Management of pre-service trained vs IP trained teachers

TABLE 10

Classroom Management of pre-service trained teacher's vs IP trained teachers

Statements	***n***	***Mean of PROF***	***Mean of NTS***	***Diff of mean***	***Diff of STD***	***t-stat***	***Sig***
Ensure the participation of all the students	220	3.28	2.82	0.459	1.149	3.440	*P<.001*
Encourage group work	220	3.20	2.91	0.297	1.45	1.764	*p>.001*
Care about class duration	220	3.24	2.84	0.405	1.413	2.467	*p>.001*
Arrange the class according to the needs of students	220	3.15	2.88	0.270	1.242	1.872	*p>.001*
Overall comparison	220	3.21	2.863	0.358	1.31	2.386	*p>.001*

Mean of pre-service trained teachers (Mean of Prof) while in-service trained through IP (Mean of IP)

In terms of ensure the participation of all students, pre-service trained teachers involve all students to work in the class while IP trained teachers do not take into account all the students in the class. There was significant difference in score for pre-service trained teachers M= 3.28 and IP trained teachers M= 2.82 with difference of Standard divination, 1.149. The value of difference in the mean, Mean difference= 0.581, with 95%, Confidence interval. T-statistics 3.419 shows the significance of scores (Table 10). Peer tutoring where students learn from each other more effectively involve peers, groups and projects to be completed with the collaboration and interaction of student. The school heads reported pre-service trained teachers more responsible as compared to those IP trained teachers. In terms of Engage students to communicate each other, there was significant difference in score pre-service trained teachers M= 3.19 and un-trained teacher M= 2.220 with difference of Standard divination, 1.482. The value of difference in the

mean, Mean difference= 0.446, with 95%, Confidence interval. T-statistics 2.589 shows the significance of scores (Table 10). Time management regarding, planning of activities and classroom organization, pre-service trained teachers were found more responsible as compare those IP trained teachers. In terms of Care duration of time in class, there was significant difference in score for professional trained teacher M= 3.24 and un-trained teacher M=2.84 with difference of Standard divination, 1.413. The value of difference in the mean, Mean difference =0.405, with 95% Confidence interval. T-statistics 2.467 shows the significance of scores (Table 10). During the survey school's heads reported that pre-service trained teachers assign more challenging activities to students to develop leadership, confidence and independence, as compared to IP trained teachers. There was significant difference in score for pre-service trained teachers M= 2.38 and IP trained teachers M=3.47 with difference of Standard divination, 5.071. The value of difference in the mean, Mean difference= -1.082, with 95% confidence interval. T-statistics -1.823 shows the significance of scores (Table 10). To develop positive behaviours and effective learning, pre-service trained teachers were found more responsible as compare those IP trained teachers, regarding arranging the class according to the needs of students in terms of seating arrangement, the availability of space among students, temperature and air flow, there was significant difference in score for professional trained teacher M= 3.15 and un-trained teacher M=2.88 with difference of Standard divination, 1.242. The value of difference in the mean, Mean difference=0.270, with 95% Confidence interval. T-statistics 1.872 shows the significance of scores (Table 10).
Overall mean of pre-service trained teachers regarding Classroom Management was M= 3.21 and IP trained teachers M=2.86 with difference of Standard divination, -0.35. The value of difference in the mean, Mean difference= 1.31, with 95% Confidence interval. T-statistics 2.385 shows the significance of scores (Table 10).

Ethical Consideration of pre-service trained vs IP trained teachers

TABLE 11

Ethical Consideration teacher's vs IP trained teachers of pre-service trained

Statements	***n***	***Mean of PROF***	***Mean of NTS***	***Diff of mean***	***Diff of STD***	***t-stat***	***Sig***
Value more role of student as compared to himself	220	3.04	2.46	0.581	1.462	3.419	*P<.001*
Care about the beliefs, cultural norms	220	3.15	2.54	0.608	1.469	3.560	*P<.001*
Overall comparison	220	3.09	2.5	0.59	1.465	3.489	*P<.001*

Mean of pre-service trained teachers (Mean of Prof) while in-service trained through IP (Mean of IP)

School's heads reported pre-service trained teachers more concerned about student's importance as compared to himself there was significant difference in pre-service trained teachers showed M= 3.04 and IP trained teachers M= 2.46 with difference of Standard Divination ,1.462. The value of difference in the mean, Mean difference= 0.581, with 95%, confidence interval. T-statistics 3.419 shows the significance of scores (Table 11). Pursuing certain norms of family, friends, society and life experiences in teaching learning process pre-service trained teachers showed high level satisfaction in the perceptions of school's heads as compared to those IP trained teachers. There was significant difference in score for pre-service trained teachers M= 3.15 and IP trained teachers M= 2.54 with difference of Standard Divination ,1.469. The value of difference in the mean,

Mean difference= 0.608, with 95%, Confidence interval. T-statistics 3.560 shows the significance of scores (Table 11).
Overall mean of pre-service trained teachers regarding Ethical Consideration was M= 3.09 and IP trained teachers M=2.54 with difference of Standard divination, -0.59. The value of difference in the mean, Mean difference=1.465, with 95% Confidence interval. T-statistics 3.489 shows the significance of scores (Table 11).

Role in learning pre-service trained teacher's vs IP trained teachers

TABLE 12

Role in learning of pre-service trained teacher's vs IP trained teachers

Statements	***n***	***Mean of PROF***	***Mean of NTS***	***Diff of mean***	***Diff of STD***	***t-stat***	***Sig***
Plan the activities both inside and outside of the class	220	2.59	2.66	-0.068	1.511	-0.38	*p>.001*
Provide opportunities in developing communication	220	2.97	2.72	0.257	1.536	1.438	*p>.001*
Promote problem-solving skills	220	2.97	2.53	0.446	1.406	2.729	*p>.001*
Use to connect previous knowledge in new learning	220	3.34	2.76	0.581	1.355	3.689	*P<.001*
Evaluate students on regular basis knowledge	220	2.97	2.70	0.270	1.417	1.641	*p>.001*
Overall comparison	220	2.96	2.67	0.297	1.445	1.823	*p>.001*

Mean of pre-service trained teachers (Mean of Prof) while in-service trained through IP (Mean of IP)

In terms of developing mental health, natural connection and better academic performance, pre-service trained teachers were found more responsible as compare those IP trained teachers, regarding arranging the activities outside the class. There was significant difference in score for pre-service trained teachers M= 2.59 and those IP trained teachers M=2.66 with difference of Standard divination, 1.511. The value of difference in the mean, Mean difference=-0.068, with 95% Confidence interval. T-statistics -0.385 shows the significance of scores (Table 12). To promote social and emotional development pre-service trained teachers provide opportunities for oral communication as compared to IP trained teachers. There was significant difference in score for pre-service trained teachers M= 2.97 and IP trained teachers, M= 2.72 with difference of Standard divination, 1.536. The value of difference in the mean, Mean difference= 1.536, with 95%, Confidence interval. T-statistics 1.438 shows the significance of scores (Table 12). To develop quality of thinking, self-determination, clarity and precision pre-service trained teachers provide opportunities for critical thinking among student as compared to those IP trained teachers. There was significant difference in score for pre-service trained teachers M= 2.97 and IP trained teachers M= 2.53 with difference of Standard divination, 1.406. The value of difference in the mean, Mean difference= 0.446, with 95%, Confidence interval. T-statistics 2.729 shows the significance of scores (Table 12). During the survey, pre-service trained teachers was found more responsible as compare those IP trained teachers regarding connecting previous knowledge to new learning to build the base for effective and meaningful learning. In terms of Connect previous knowledge to new learning, there was significant difference in score for pre-service trained teachers M= 3.34 and IP trained teachers M=2.76 with difference of Standard divination, 1.355.

The value of difference in the mean, Mean difference= 0.581, with 95% Confidence interval. T-statistics 3.689 shows the significance of scores (Table 12). To evaluate students on regular bases, in terms of their performance regarding their academic, personality, achievement, attitudes and aptitudes. There was significant difference in score for pre-service trained teachers M= 2.97 and IP trained teachers M=2.70 with difference of Standard divination, 1.417. The value of difference in the mean, Mean difference= 0.270, with 95% Confidence interval. T-statistics 1.641 shows the significance of scores (Table 12). Overall mean of pre-service trained teachers regarding Role in learning was (M= 3.34) and IP trained teachers M=2.76 with difference of Standard divination, 0.58. The value of difference in the mean, Mean difference= 1.35, with 95% Confidence interval. T-statistics -3.689 shows the significance of scores (Table 12).

Personality of pre-service trained teacher's vs IP trained teachers

TABLE 13

Personality of pre-service trained teacher's vs IP trained teachers

Statements	***n***	***Mean of PROF***	***Mean of NTS***	***Diff of mean***	***Diff of STD***	***t-stat***	***Sig***
Collaborative in the class	220	3.16	2.64	0.527	1.436	3.158	*p>.001*
Initiative to do things	220	2.68	2.86	-0.189	1.331	-1.223	*p>.001*
Interact community for the welfare of students	220	3.19	2.220	0.446	1.482	2.589	*p>.001*
Overall comparison	220	3.01	2.220	0.261	1.416	1.508	*p>.001*

Mean of pre-service trained teachers (Mean of Prof) while in-service trained through IP (Mean of IP)

To develop higher level thinking and self-management skills, pre-service trained teachers were more collaborative in the class as compared to IP-trained teachers. There was significant difference in score for pre-service trained teachers M= 3.16 and IP trained teachers M= 2.64 with difference of Standard divination, 1.436. The value of difference in the mean, Mean difference= 0.527, with 95%, Confidence interval. T-statistics 3.158 shows the significance of scores (Table 13). The quality of what need to be done and the decision to finish the task with self-determination, the teacher, school's heads reported pre-service trained teachers more initiative in the class, as compared to those IP trained teachers., There was significant difference in score for pre-service trained teachers M= 2.68 and IP trained teachers M= 2.86 with difference of Standard Divination, 1.338. The value of difference in the mean, Mean difference= -0.189, with 95%, Confidence interval. T-statistics -1.223 shows the significance of scores (Table 13). To manage the feelings, reflection of understanding, and to locate space in way of thinking of the students' needs to interact with community. During the survey school heads reported that for pre-service trained teachers enhance interaction with community to seek cooperation more as compared to those IP trained teachers., there was significant difference in score for pre-service trained teachers M= 3.18 and IP trained teachers M= 2.42 with difference of Standard divination ,1.56. The value of difference in the mean, Mean difference= 0.757, with 95% Confidence interval. T-statistics 4.173 shows the significance of scores (Table 13). Overall mean of pre-service trained teachers regarding Personality was M= 3.01 and IP trained teachers M=2.220 with difference of Standard divination, -1.416. The value of difference in the mean, Mean difference= 0.26, with 95% Confidence interval. T-statistics 1.508 shows the significance of scores (Table 13).

School Managements of pre-service trained vs IP trained teachers

TABLE 14

School Managements of pre-service trained teacher's vs IP trained teachers

Statements	***n***	***Mean of PROF***	***Mean of IP***	***Diff of mean***	***Diff of STD***	***t-stat***	***Sig***
Encourage co-curricular activities in school	220	2.68	2.89	-0.21	1.264	-1.472	*p>.001*
Aware the registers used in school	220	3.49	1.96	1.52	1.416	9.2220	*P<.001*
Cooperative in Management	220	3.39	2.68	0.71	1.40	4.401	*P<.001*
Aware about the dynamic role in education	220	3.14	2.70	0.59	1.193	4.289	*P<.001*
Active in resolving conflict	220	3.43	2.30	1.13	1.358	7.190	*P<.001*
Maintain discipline	220	3.51	2.72	0.79	1.499	4.576	*P<.001*
Overall comparison	220	3.27	2.54	0.75	1.355	4.709	*p>.001*

Mean of pre-service trained teachers (Mean of Prof) while in-service trained through IP (Mean of IP)

During the survey, school heads reported the pre-service trained teachers as more responsible as compared to those IP trained teachers regarding to encourage the students for co-curricular activities to develop Self Confidence, Specialized Skills, and to identify their potentialities. There was significant difference in score for pre-service trained teachers M= 2.68 IP trained teachers M=2.89 with difference of Standard divination, 1.264. The value of difference in the mean, Mean difference=-0.216, with 95% Confidence interval. T-statistics -1.472 shows the significance of scores (Table 14). Pre-service trained teachers were found more competent as compared to those IP trained teachers regarding the use of registers used in school, there was significant difference in score for pre-service trained teachers M= 3.49 and IP trained teachers M=1.96 with difference of Standard divination, 1.416. The value of difference in the mean, Mean difference=1.527, with 95% Confidence interval. T-statistics 9.2220 shows the significance of scores (Table 14). In terms pedagogical knowledge which involves theoretical knowledge of perspective of education, philosophies of education, educational psychology, educational management, educational measurement and evaluation, classroom organization etc., pre-service trained teachers were found more competent as compare those IP trained teachers there was significant difference in score for pre-service trained teachers M= 3.28 and IP trained teachers M=2.32 with difference of Standard divination, 1.642. The value of difference in the mean, Mean difference=0.959, with the 95% Confidence interval. T-statistics 5.026 shows the significance of scores (Table 14). During the survey pre-service trained teachers showed more awareness as compare those IP trained teachers regarding Constant change, adaptation, and innovation in education in the perspective of dynamic role of education. There was significant difference in score for pre-service trained teachers M= 3.05 and IP trained teachers M=2.82 with difference of Standard divination, 1.149. The value of difference in the mean, Mean difference=0.459, with the 95% Confidence interval. T-statistics 3.440 shows the significance of scores (Table 14). For long-term relationships, and to provide pleasant and friendly environment to support teaching learning process, pre-service trained teachers were found were found more competent as compare IP trained teachers in terms of active in resolving conflicts in school, there was significant difference in score for pre-service trained teachers M= 3.43 and IP trained teachers M=2.30 with difference of Standard divination, 1.358. The value of difference in the mean, Mean difference=1.135, with the 95% Confidence interval. T-statistics 7.190 shows the significance of scores (Table 14).

During the survey, pre-service trained teachers was found more responsible as compare those IP trained teachers regarding to maintain the discipline in the class for smooth flow of activities. There was significant difference in score for pre-service trained teachers M= 3.51 and IP trained teachers M=2.72 with difference of Standard divination, 1.499. The value of difference in the mean, Mean difference=0.797, with 95% Confidence interval. T-statistics 4.576 shows the significance of scores (Table 14). Overall mean of pre-service trained teachers regarding School Managements was M= 3.27 and IP trained teachers M=2.54 with difference of Standard divination, 0.75. The value of difference in the mean, Mean difference= 1.355, with 95% Confidence interval. T-statistics 4.709 shows the significance of scores (Table 14).

Overall Comparison of the performance of pre-service trained vs IP trained teachers

Table 15

Overall Comparison of pre-service trained vs IP trained teachers related to Performance

Statements	***n***	***Mean of PROF***	***Mean of IP***	***Diff of mean***	***Diff of STD***	***t-stat***	***Sig***
Content knowledge	220	2.33	3.41	-1.07	.58234	-29.81	P > 0.001
Organization of instructions	220	2.92	2.86	0.06	2.01	1.325	P > 0.001
Relation with student	220	3.21	2.60	0.62	1.37	3.81	P < 0.001
Teaching Methodology	220	3.11	2.59	0.59	1.52	3.27	P < 0.001
Lesson Presentation	220	2.71	2.78	-0.07	1.38	-0.39	P > 0.001
Classroom Management	220	3.21	2.863	0.35	1.31	2.386	P < 0.001
Ethical Consideration	220	3.09	2.5	0.59	1.465	3.489	P < 0.001
Role in learning	220	2.96	2.67	0.29	1.445	1.823	P > 0.001
Personality	220	3.01	2.220	0.26	1.416	1.508	P > 0.001
School Managements	220	3.27	2.54	0.75	1.355	4.709	P < 0.001
Overall comparison	220	2.98	2.75	0.23	0.523	1.371	P > 0.001

Mean of pre-service trained teachers (Mean of Prof) while in-service trained through IP (Mean of IP)

It is evident from the results that pre-service trained teachers showed better performance significantly in overall performance with difference of mean 0.23 (Table 14).

Discussion

This study supports the idea that teacher with professional insight have more understanding about curriculum, content knowledge and pedagogical knowledge and professionalism is a great source of enhancing knowledge about teaching (Shulman, 1986). Professional teacher affects quality of education and student's learning positively (Darling-Hammond, 2010; Guskey, 2002a; Joyce & Showers, 2002; B. M. Taylor, Pearson, Peterson, & Rodriguez, 2005). To compare of pre-service professional trained teacher with IP trained teacher, the perceptions of school head devoted better performance to pre-service professional trained teacher in content knowledge as compared to non-professional trained teacher (trained through IP). pre-service professional trained teacher also showed better performance in, organization of instructions, relation with students, teaching methods, classroom management, lesion presentation, ethical consideration, role in learning, personality and role in school management while non-professional trained teacher (trained through

IP) showed better performance in use of technology in classroom. Khan and ud Din (2023) concluded that the elimination of the professional qualification condition may impact the overall quality of teachers entering the education system. There is concern for long-term negative effects on teacher education and student learning which is supported by this study. Supported the study of (Ahmad, Shaheen, & Hussain, 2022).

Conclusions

To compare the performance of pre-service trained teacher with trained teachers through IP, newly recruited trained teachers through IP were found to be more competent as compared to pre-service trained teacher in content knowledge and technological knowledge while pre-service trained teacher showed better performance as compared to newly recruited trained teachers through IP in organization of instructions, relation with students, teaching methods, lesson presentation, classroom management, ethical consideration, role in learning, personality and school managements.

Recommendations

IP-trained teachers have low overall performance as compared to pre-service trained teachers while the performance of professional trained teachers was worse as compared to IP-trained teachers in content knowledge and technological knowledge which affect teaching learning process and student's performance. Therefor the government should initiate a series of training programs which enhance the capacity building and professional development of the teachers. Special sessions should be arranged for senior teachers to develop their computer literacy. For the recruitment of new teachers' professional degree should be made compulsory.

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