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Effectiveness Of Online Professional Development Programmeon Teachers' Sense Of Efficacy In Relation To Their Attitude Towards Technology

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Abstract: The purpose of the present study was to find the effectiveness of online professional development programme on teachers' Sense of Efficacy in relation to their attitude towards technology. The sample for the study selected from the rural schools in-service school teachers working in rural area in CBSE affiliated schools of Bathinda District in Punjab.The in-service teachers selected through simple random sampling technique.Teachers' Sense of Efficacy scale standardized by (Tschannen - Moran and Woolfolk Hoy2001) and Attitude towards information technology for teachers developed by Dr Nasrin and Dr Fatima Islahi(2012) was administered to collect the data. The study was Experimental in nature .2x2 Facorial Design was emolyed in the study to collect the data.Descriptive and inferential statistics was applied and collected data was analyzed by using mean,median, mode standard deviation and t-test .The results of the study indicated that the participant teachers attended five days online professional development had higher teachers' sense of efficacy in relation to their attitude towards technology than the teachers attended traditional professional development. Further the findings of the study revealed significant difference in the in-service teachers' Sense of efficacy in relation to their attitude towards technology afterattending online professional development programme.

Keywords: Online Professional Development, In-service Teachers, Teachers' Sense of Efficacy, Attitude towards Technology.

I.Introduction:

Education plays an important role in shaping, molding and reconstructing any progressive society from time to time. It is the foundation of the society. Education in 21st century is more complexand has taken a drastic shift due to covid-19. Its aim is not only to provide knowledge and skill but to impart the values, beliefs and confidence and holistic development of the child. According to NCF 2020 teachers will be given continuous opportunities for self- improvement and to learn the latest innovations and advances in their profession.In Indian education system, teachers play a pivot andpervasine role in development of the new generation.Teachers have the potential to enhance the quality of education, to inspire the students, their commitment and ability to do work . Teachers' Sense of efficacy contributes to achievement as teacher with high efficacy are effective in teaching -learning process,usemultilple strategies to meet the need of all types of students. Teachers efficacy consititutes a set of expectations that contribute to student- achievement (Ross & Regan, 1993; Ross, Bruce, &

Hogaboam-Gray, 2006; Mascall, 2003; Muijs & Reynolds, 2001)(Bruce & Ross, 2008),

As teachers are the integral part of educations system.Education institutes are required to provide the support, facilities, resources and training to in-service teachers.As The new demands of the society and change in the education system creates the requirement of the skilled trained teachers with high efficacy and ability to help the students in learning.Teachers who believe they will be successful, set higher goalsfor themselves and their students and and try hard to achieve and persist through obstacles. (Ross & Bruce, 2007).

In the field of teacher efficacy , Both Rotters' and Bandura's work investigated, expanded and enriched the concept of teacher efficacy.Moran and Hoy examined in their study meaning and measureof teacher efficacyand various measures to assess the teacher efficacy. Tschannen –Moran and Hoy(2001) developed teachers' Sense of efficacy scale with two versions 24 items long version and 12 items short versioninstrument to assess the teachers' sense of efficacy at three dimensions instructional strategies,motivational strategies and behavioural management strategies.The concept of teachers' sense of efficacy is usually describes as"the extent to which the teacher believes he or she has the capability to affect students' performance and has close link between teacher efficacy and contextual variable(Bandura, 1977; Tschannen-Moran & Woolfolk Hoy, 2001)(Yoo, 2016),even for the students who are unmotivated or difficult(Armoretal.1976; Guskey and Passaro, 1994).Teachers' sense of efficacy has been connected to many educational variables such as students achieveme,teachers attitude towards teaching, willingness to implement innovationetc.Researchers in education documented that teachers' sense of efficacy has strong impact on various aspects of teaching –learning (Lee2009). Chamundeswari 2018 explored that Training adds to the confidence of the teachers, help teachers to maintain better discipline in the class and improve their teaching methods and interaction with students.

The integration of information technology in the education is relatively new change in the education in teaching learning process. To enhance the teachers' sense of efficacy in schools including the other factors integration of technology by using various tools and techniques during teaching learning process enhance the efficacy of the in-service teacher.Globally there is a over whelming concerns over the quality of education.Today in-service teachers are facing new challenges as they are pushed towards the environment where not only the integration but usage of IT is required .Nowdays globally teaching learning process is totally based on IT utilization. In the current scenario the attitude of the in-service teachers towards technology is major factor that can contribute the impact in pedagogical aspects. Researches in the education done to know the attitude of teachers towards technology(Choudhary 2018) and use of computer in teaching learning process. It provides the help and support to in-service teachers and support highly effective teachers have right attitude towards technology and prvide opportunities for students to learn to operate in an information age (Habib 2018; Kaur and Yadav, 2021b)

To prepare and train the 21stcentury generation in-service teachers are expected to update themselves and aware of new tools ,techniques,methodologies, strategies to be used in the teaching- learning process according to the demand and need of the time and society.so Professional training programmes are provided to the in-service teachers to update their knowledge and skills over a period of time. Professional Development

programmes are the integral part of every educational institutes that enables in-service teachers to broaden their knowledge and skills to meet the challenges and face the problems and provide the opportunity(Kaur and Yadav,2021c).Professional Development is important in modern education and a critical and ongoing need for a school faculty (Tyner & Jenkins Henry, 2018).
It helps to enhance their confidence and efficacy . The training programs and workshops may have more impact on teachers' sense of efficacy (Bray-Clarks & Bates, 2003)(Jakhaia, 2018). Professional development are provided by two ways online professional development and traditional professional development.Both ways have the source to enrich in-service teachers.Professional development provides ongoing opportunities for educators to continue to improve their knowledge and skills so that they can help students achieve(Mizell 2014).The covid -19 pandemic has hastened the construction of, participationin, and need for online courses and programs (Hartshorne et al., 2020)(Lay, Allman, Cutri, & Kimmons, 2020).The in-service teachers find new ways to teach the students using technology and progress significantly with the online prodessional development programme depending upon their own availability of time and interest. As online professional development has become a source to enhance the efficacy of in-service teachers as a new way to update themselves professionally.

II.Significance of the study:
In the 21st century world is changing very fast. Due to globalization life has become more international, interconnected and multicultured. There is a demand of the hour and push from the society to prepare the students that are able to face the challenges of life and enable to survive in life. In Indian education system teachers play a pivot role in achieving the desired aim of education . Teachers have the ability and potential to affect the performance,beliefs and confidence of the students.To meet the demands of 21st century there is a need to train the teachers by conducting professional development programmes to update the teachers efficacy and integrate the technology in their classroom teaching –learning process. The global adoption of technology in education has increased the potential of in-service teachers . The online professional development programmes has revolutionized the outmoded education system. Researchers in the education showed that teachers' sense of efficacy is very important and teachers with high efficacy has belief andcapability to affect students(Bandura, 1977; Tschannen-Moran & Woolfolk Hoy, 2001)(Yoo, 2016),, set higher goals for themselves and their students and and try hard to achieve and persist through obstacles. (Ross & Bruce, 2007),need for online courses and programs (Hartshorne et al., 2020)(Lay, Allman, Cutri, & Kimmons, 2020).To bring the quality in education system , there is need for online professional development programme to increase the efficacy of the teachers.Therefore, the researcher choose to develop an online professional development programme to incease the spirit of teachers' sense of efficacy in relation to their attitude towards technology.The findings of the present study can be used by administrators, teacher trainers, education policy makers to enhance teachers' Sense of efficacy.

III.Statement of the problem:
"Effectiveness of Online Professional Development Programme on Teachers' Sense of Efficacy in relation to their Attitude towards Technology ".

IV.Operational Definition of Variables:

1) **Online professional Development:** For thepresent study,online professional development refers to short duration virtual course on website prepared by investigator for rural school in-service teachers containing various modules including videos and practice exercises.

2) **In-service Teachers**:Refers to the teachers teaching in CBSE affiliated English medium.

3) **Teachers' Sense of Efficacy**: In the study, teachers' sense of efficacy refers toteachersbelief that he or she has the abilility to affect student performance.

4) **Attitude towards Technology**: Refers to teachers behaviour and dependencefor using technology in classroom in teaching process.

V. Objectives of Study:

The objectives of the present study are:

1. To assess the levels of attitude towards information technology of in-service school teachers of experimental and control group.
2. The study the significant difference in the mean gain scores on teachers' sense of efficacy of group trained through online professional development programme and traditional professional development programme.

VI. Hypotheses:

The hypothesis of the present study is:

1. There is significant difference in the mean gain score of teachers' sense of efficacy of group trained through online professional development and traditional professional development programme.

VII. Delimitations of the study:

The present study was delimited to the following aspects:

1)The study was delimited to in-service rural school teachers.

2)The study was delimited to CBSE affiliated private English medium schools of Bathinda district in Punjab.

3) The analysis of data was delimited to teachers having highattitude and low attitude towards technology.

VIII. Research Methodology:

8.1 Design:

The study was Experimental in nature. In this present study 2x2 factorial design was employed.The teachers were randomly assigned in Experimental and control group.The pre-test and post-test was employed to144 in-service teachers i.e. 72 each in experimental and control groups.

The two main stages were adopted in this present study. These stages were:

Stage I: Selection of sample

Stage II: Procedure of the study

8.2 Sample

A simple random sampling technique was employed by the researcher to select a sample of in-service teachers teaching in CBSE affiliated English medium schools of Bathinda district in Punjab.

8.3 Procedure of the study:

The Experiment was conducted in following phases stated below:

Phase I:Administration of attitude towatds technology scale
Phase II: Administration of pre- test : Teachers' sense of efficacy scale administrated as pre –test
Phase III: Implementation of professional development training programmes: Experimental group trained through online professional development and control group trained through traditional professional development programme.
Phase IV: Administration of post –test: Teachers' Sense of efficacy were administrated as post-test.
Phase V: Scoring

8.4 Tools Used:

The standardized tests were employed for obtaining the valid and reliable data. The tools used for data collection in present study are listed below:

1) Teachers' Sense of Efficacy scale (TSES)developed by Tschannen Moran and Woolfolk Hoy(2001)
2) Attitude Scale towards Information Technology for Teachers (ASTITT-NI) developed by Dr. Nasrin and Dr. Fatima Islahi (2012)

8.5 Data Analysis and Interpretation:

Toanalyse the data descriptive statistic percentage ,mean,median,mode were used to ascertain the normality of distribution of the scores .

t-test was employed to find out the significance of the difference between mean related to different groups. . The statistical analysis of the details present in the followingtables:

IX. Results of the study:

9.1:To assess the levels of attitude towards the information technology of in-service school teachers

In order to find out the levels of attitude of in-service rural school teachers towards information technology, their scores on the attitude towards information technology scale were divided into three groups using the norms from the manuals of the scale. Random sampling technique was employed to divide the 144 in-service teachers into experimental and control group. 72 teachers allotted in experimental group and 72 in-service teachers were in control group. Further, The groups comprising of the in-service teachers having:i) High attitude towards technology ii) Moderate attitude towards technologyiii) Low attitude towards technology.Distribution of in-service teachers in experimental group is shown in Table 1 and control group in Table 2.

Table 1 Percentage distribution of in-service school teachers in three different groups on the variable attitude towards information technology (ATIT) in Experimental group

Levels of attitude towards information technology	Score limit	Number of Teachers	Percentage
High attitude towards technology	109 and above	25	34.72%
Moderate attitude towards technology	85-108	30	41.66%
Low attitude towards technology	84 and below	17	23.61%

Table 1 showed that in experimental group (34.72%) in-service teachers are having high attitude towards technology and 41.66% teachers are having moderate attitude towards technology maximum percentage. The in-service teachers having low attitude towards technology is 23.61%.
Further the percentage distribution of in-service teachers as per their levels of attitude towards information technologyin experimental group is depicted in Figure 1.

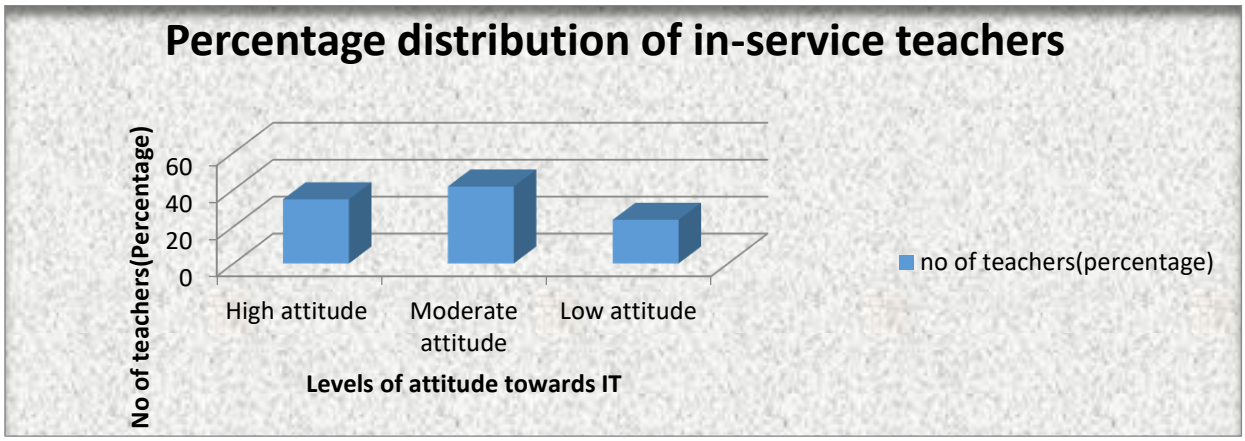


Figure 1:Percentage wise distribution of in-service teachers as per their level of attitude towards technology in experimental group

Table 2 Percentage distribution of in-service teachers in three different groups on the variable attitude towards information technology(ATIT) in control group

Levels of attitude towards information technology	Score limit	Number of teachers	Percentage
High attitude towards technology	109 and above	23	31.94%
Moderate attitude towards technology	85-108	32	44.44%

Low attitude towards technology	84 and below	16	22.22%

Further the percentage distribution of in-service teachers as per their levels of attitude towards information technology is depicted in figure 2

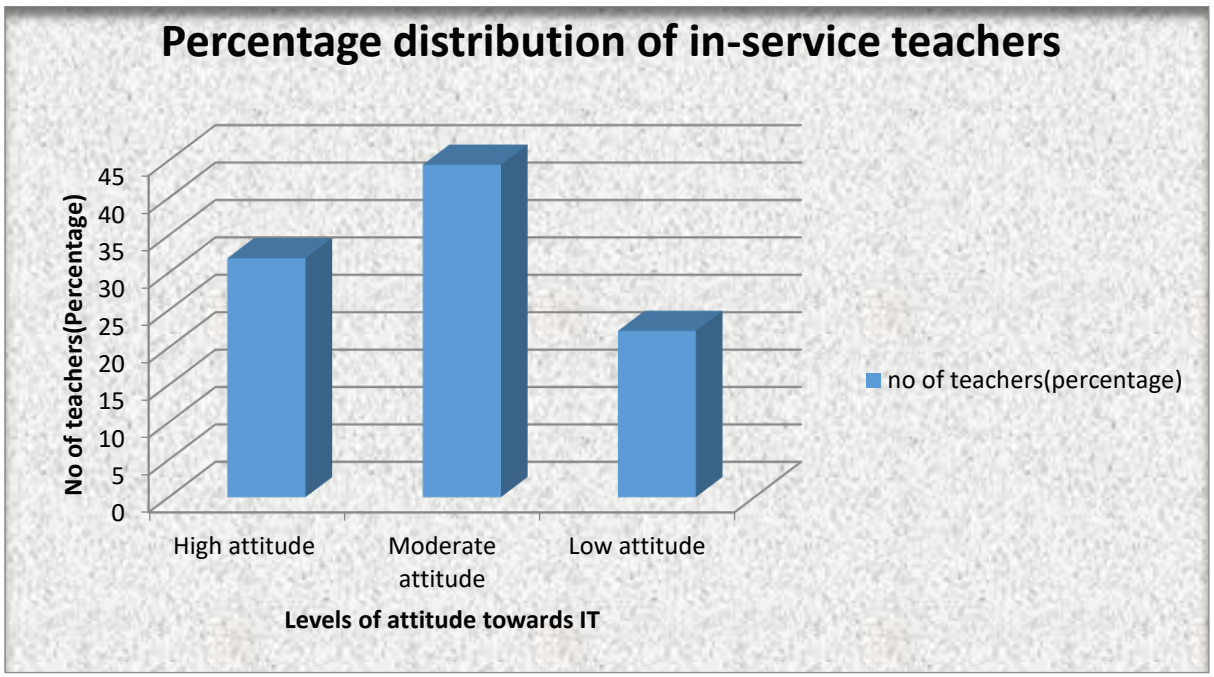


Figure 2: Percentage wise distribution of in-service teachers as per their level of attitude towards information technology

9.2: To study the significant difference in the mean gain scores on teachers' Sense of efficacy of group trained through online professional development and traditional professional development programme.

Hypothesis : There is significant difference in the mean gain score of teachers' Sense of efficacy of group trained through online professional development and traditional professional development programme.

For testing this hypothesis the mean gain scores was measured by the difference of post test and pre test scores of experimnental and control group . The compared scores given in table 3.

Table 3 Showing Mean Gain Scores of Teachers' Sense of efficacy for Experimental and control Group

Group	N	Pre Test	Post test	Mean Gain
Experimental Group	42	152.92	186.79	33.86
Control Group	39	144.59	168.25	23.10

Table 3 showed that the pre test, post test and mean gain scores of experimental group were 152.92,186.79 and 33.86 respectively. The pre test ,post test and mean gain scores of control group were 144.59,168.25 and 23.10 respectively.

It showed that the mean gain scores 33.86 of experimental group was higher than the mean gain scores 23.10 of control group. Hence, it concluded that the rural schools in-service teachers in experimental group trained through online professional development programme gained more efficacy than that of in-service teachers in control group trained through traditional development training programme.

To compare the significance of difference in teachers' Sense of efficacy of in-service school teachers of experimental group trained through online professional development and control group trained through traditional professional development with having high and low attitude were analyzed using t-test.

Table 4 Showing the Significance difference in Teachers' sense of efficacy of rural schools in-service teachers trained through online and Traditional professional development programme.

Variables	Number of in-service teachers	Mean	Standard Deviation	Degree of Freedom	t-value	Critical Value	Significant Level
Experimental group trained through online PD	42	33.86	27.149	79	2.316	1.99	0.05
Control group trained through traditional PD	39	23.10	10.533				

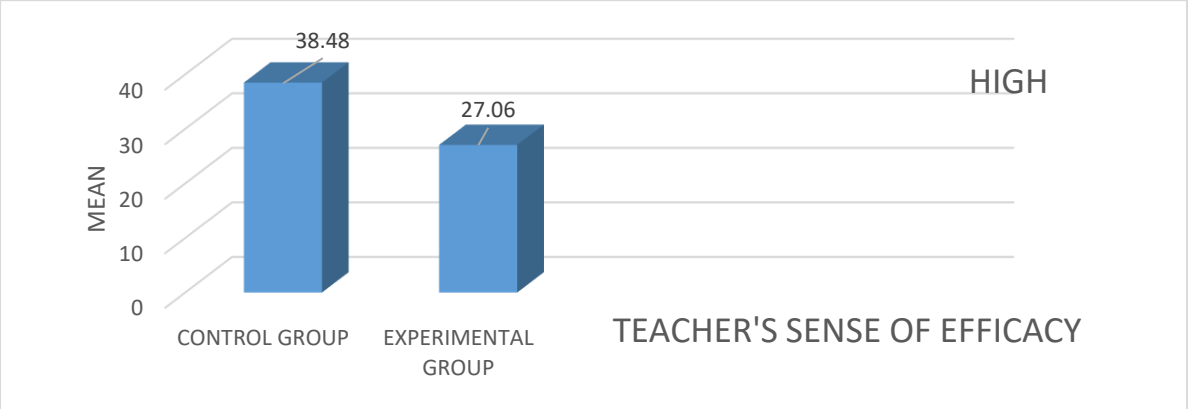
Table 4 showed that mean and standard deviation of in-service teachers trained through online professional development on teachers' Sense of efficacy were found to be 33.86 and 27.149 respectively. The mean and standard deviation of in-service teachers trainded through traditional professional development found 23.10 and 10.533.The computed t-valuecame out to be 2.316 which is greater than the table value (1.99) at 0.05 level of significance for 79df.

In order to stastistically test the hypotheses the directional hypotheses were converted into null hypotheses,which are presented as " there is no significant difference in the teachers' sense of efficacy of group trained through online professional development and traditional development programme. As the t-value 2.316 is greater than the table value 1.99. Therefore, the Null hypothese was rejected and the alternate hypotheses i.e. the mean gain score of teachers' sense of efficacy of group trained through online professional developmentprogramme will be significantly higher than the group trained through traditional development programme was accepted.

Therefore, the findings suggests that the online professional development program has significant positive effect on the sense of efficacy of teachers. Similarly it is found that the professional development programs has positive effect on the teaching effectivness of the teachers (Kaur & Yadav, 2021a). Therefore it can be sid that such kind of programs are very helpful for teachers to enhance their professional growth.

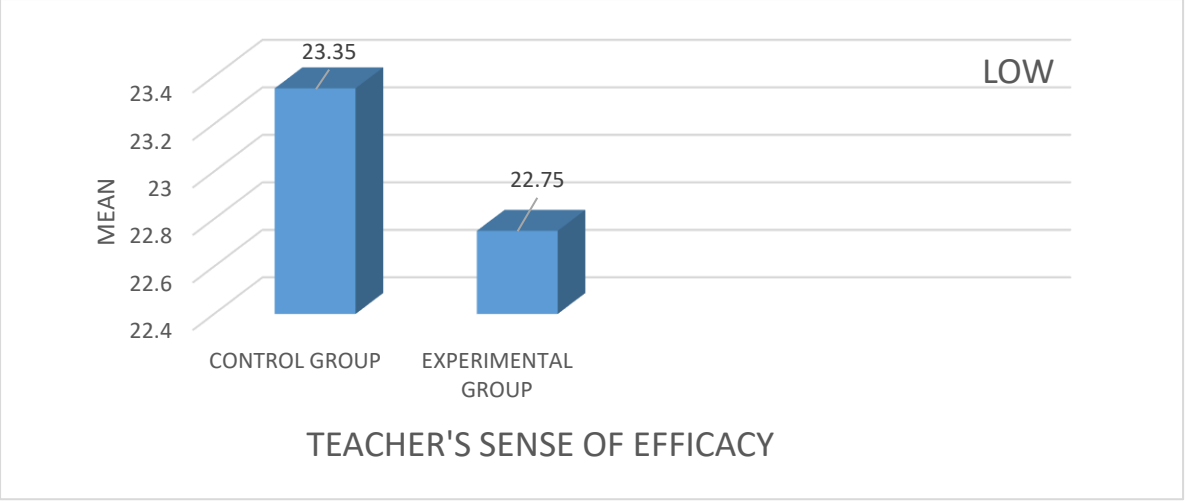
Further the significant difference in number of teachers in both groups according to level of attitude is depicted in Figure3

Figure 3 Bar graph showing the comparisonin mean Gain scores of experimental and control group on Teachers' Sense of efficacy of rural schools in-service teachers in relation to their high attitude towards technology.



The significant difference in the mean gain score of two groups of in-service teachers is depicted in figure 4

Figure 4 Bar graph showing the comparison in the mean gain score of experimental and control group on teachers' sense of efficacy of rural schools in-service teachers in relation to their low attitude towards technology.



Conclusions:

The major findings of the study:

1) Out of the sample of 72 in-service teachers in experimental group ;34.72% teachers had high attitude towards information technology, 41.66% of teachers had moderate level of attitude toeards information technology and 23.61 % had low level of attitude toewards information technology.

2) Out of the sample of 72 in-service teachers in control group31.94 % had high attitude towards information technology,44.44% had moderate attitude and 22.22% had low level of attitude towards information technology.
3) The mean gain score33.86 of teachers in group trained through online professional development havesignificantly higher than 23.10 that of group trained through traditional professional development programme.
4) Online professional development has a significant influence on teachers' sense of efficacy of in-service rural school teachers. There is significant difference in teacher efficacy ofmale and female teachers, in govt and private school teachers in the mean scores of professional development(Amulla and Aruna 2014) professional development showed positive impact on teacher efficacy(Ross and Bruce 2007) study showed that teachers participated in the professional development improved in their sense of efficacy(Bennett2007)

   In India teachers play an important role in education system.To meet the demand of 21st century society, in-service teachers has huge responsibility to prepare and train the next generation and enable them to face the challenges and to live and survive successfully in future life.The online professional development programmes plays a significant role in enhancing the in-service teachers teachers' sense of efficacy. In this current scenario during Covid -19 the integration and usage of the technology in the teaching –learning process by the in-service teachers enhance efficacy that is based on the attitude of in-service teachers towards technology and help to enhance the efficacy .The findings of the study indicated that online professional development programme has a significant effect on improving the teachers' sense of efficacy of in-service teachers . The findings of the study also indicated that most of the in-service teachers had moderate attitude towards information technology.

Educational Implications:

The study reveals the effectiveness of online professional development programme on Teachers' sense of efficacy of rural schools in-service teachers in relation to their attitude towards technology . It will help the government, educational policy makers, teacher trainers , administrators, teacher leaders to use this information to construct the professional development programmes to improve the efficacy of in-service teachers. This type of research is important for in-service teachers to create aware about their level of attitude towards technology and build confidence that they can enhance their abilities and efficacy.

REFERENCES

Bruce, C. D., & Ross, J. A. (2008). A model for increasing reform implementation and teacher efficacy: Teacher peer coaching in grades 3 and 6 mathematics. Canadian Journal of Education, 31(2), 346–370.

Chamundeswari, S. (2018). Attitude towards Teaching , Efficacy of In- Service Training Programmes and Performance of Teachers at the Secondary Level, 5(1), 16–26.

Choudhury, M. (2018). ATTITUDE TOWARDS THE USE OF INFORMATION TECHNOLOGY IN TEACHING Received : 05 Oct 2018 ABSTRACT Accepted : 26 Nov 2018, 6(11), 297–304.

Development, R. (2020). National Education Policy 2020 Government of India.

Habib, H. (2018). Teacher Effectiveness of Senior Secondary School Teachers in relation to their Attitude towards Information Technology, (2004), 67–76.

Jakhaia, N. (2018). L2 Teachers' Efficacy: The Impact of Professional Development. ProQuest Dissertations and Theses, 172. Retrieved from http://210.48.222.80/proxy.pac/docview/2063147593?accountid=44024

Kaur, A.S. And Yadav, A. (2021. (2021a). Effectiveness Of Online Professional Development Programme On Teaching Effectiveness In Relation To Their Attitude Towards Technology In Rural School Teachers In Punjab. Kalyan Bharti, 36(0976), 110–117.

Kaur, A.S. And Yadav, A. (2021. (2021b). Role Of Technology In Online Professional Development Of School Teachers. Jounal Of Interdisciplinary Cycle Research, Xiii(Vi), 1878–1884.

Kaur, A.S. And Yadav, A. (2021. (2021c). Role Of Online Professional Development Programme To Empower 21st Century In-Service School Teachers. Swadeshi Research Foundation A Monthly Journal Of Multidisciplinary Research International Peer Reviewed, Refereed,8,N0.-5(March 2021), 17–22.

Lay, C. D., Allman, B., Cutri, R. M., & Kimmons, R. (2020). Examining a Decade of Research in Online Teacher Professional Development. Frontiers in Education, 5(September). https://doi.org/10.3389/feduc.2020.573129

Lee, J.-A. (2009). Teachers' sense of efficacy in teaching English, perceived English language proficiency, and attitudes toward the English language: A case of Korean public elementary school teachers. ProQuest Dissertations and Theses, 491-n/a. Retrieved from http://ezproxy.library.usyd.edu.au/login?url=http://search.proquest.com/docview/231498586?accountid=14757

Ma, K., Trevethan, R., & Lu, S. (2020). Correction to: Measuring Teacher Sense of Efficacy: Insights and Recommendations Concerning Scale Design and Data Analysis from Research with Preservice and Inservice Teachers in China (Frontiers of Education in China, (2019), 14, 4, (612-686), 10.1007/s11516-019-0029-1). Frontiers of Education in China, 15(1), 185. https://doi.org/10.1007/s11516-020-0009-5

Mizell, H. (2014). Why Professional Development Matters. Journal of Contemporary Criminal Justice, 30(4), 360–361. https://doi.org/10.1177/1043986214541602

Ross, J., & Bruce, C. (2007). Professional development effects on teacher efficacy: Results of randomized field trial. Journal of Educational Research, 101(1), 50–60. https://doi.org/10.3200/JOER.101.1.50-60

Tyner, K. C., & Jenkins Henry, T. (2018). The Effect of Professional Development o Integration: An Action Research Study.

Yoo, J. H. (2016). The effect of professional development on teacher efficacy and teachers' self-analysis of their efficacy change. Journal of Teacher Education for Sustainability, 18(1), 84–94. https://doi.org/10.1515/jtes-2016-0007

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