International Journal of Research Publication and Reviews

Effectiveness of Remote Teacher Training Program: Implication for Integration of Technology in Teachers' Professional Development

Dr Pradeep Kumar Mishra

Room to Read,NGO India

ABSTRACT

To assess the effectiveness of the remote teacher training program amid the lockdown for COVID-19, a study was commissioned by Room to Read[1] in May-June 2021 in five districts of Telangana. Training participants from each district spent 20-24 hours in training spread across 3-5 days. As part of the assessment, data was collected virtually from 200 teachers and wardens at the beginning (pre-test) and end of the training (post-test) using Google Forms. Teachers and wardens were assessed using a google form that featured 32 items from 11 life skill themes.

The findings suggested that overall, training participants' scores increased from pre-test to post-test. The average percentage of items answered correctly by participants increased from 69 percent at the pre-test to 73 percent at post-test. This change was statistically significant ($p < 0.05$). Participants' scores increased for certain life skill thematic areas, including Self, Emotions and Feelings, Gender Roles, Human Trafficking, and Scientific Temperament. For each of these themes, the percentage of items participants answered correctly increased significantly ($p < 0.05$) from pre-test to post-test and the range of increase was between four and eight percentage points. Of note, themes and which participants tended to score the highest on both the pre-test and post-test were Gender Roles, Scientific Temperament, Communication, and Critical and Creative Thinking. The lowest-scoring themes were Self-Control and Discipline and I Know My Rights. The regression analysis showed that two background variables i.e "lower age" and "qualification" of teachers have a positive correlation with the test score in the post-test. Similarly, it was seen that sufficient time spent on theoretical aspects and conceptual understanding of life skill themes during a remote teacher training session was found to have a positive correlation with better knowledge enhancement of teachers.

Key Words – Remote teacher training, Life skill, Training Effectiveness, Practice time, Training Preparation time

Introduction

The COVID-19 pandemic has affected education, and teacher education in particular, in various ways. The rapid, unexpected, and 'forced' transition from face-to-face to remote methods of learning has posed various challenges and constraints for a large segment of teachers with low digital adaptability skills (Flores and Gago 2020). Existing literature points to an 'emergency remote teaching' (Bozkurt and Sharma 2020) or 'emergency e-learning' (Murphy 2020) and difficulties associated with poor online teaching infrastructure, the inexperience of teachers, the information gap and the complex environment either at school or at the home of teachers (Zhang et al. 2020). In addition, lack of mentoring and support (Judd et al. 2020) and issues related to teachers' competencies in the use of digital instructional formats (Huber and Helm 2020) have also been identified as some of the significant contributing factors to the low success rate of technology integrated teacher training program.

As far as teacher education is concerned, many studies have indicated and clearly described how institutions and stakeholders adapted to the new scenario created by the COVID-19 pandemic (Bao 2020; Flores and Gago 2020; Quezada, Talbot, and Quezada-Parker 2020; Zhang et al. 2020). Similarly, some studies have highlighted the training strategies and innovation made by many leading organizations in teacher professional development during the COVID-19 period (Ferdig et al. 2020). While accounts of how different organizations and governments responded to the transition from face-to-face to online teaching are a relevant, more specific component of remote teacher training i.e online training transaction process, allocated time for the training session, session transaction process over online platform needs to be investigated to a great depth to answer some of the demanding questions on the effectiveness of the remote training program. The research-based evidence will help immensely to overcome the challenges of "forced online practices" and develop quality online teaching and learning that result from careful instructional design and planning (Hodges et al. 2020).

The recent development in teacher professional development as evident from the review of literature, informs about the process which is visible in the roles of trainers, competencies of teachers, and professional development approaches (Ní Shé et al. 2019). However, it is important to find out how the teachers benefit from the online learning program and to explore its implications, particularly in the current emerging remote scenario. An in-depth study in this area will provide an evidence-based perspective on what works and does not work when it comes to orienting teachers through remote means.

---

[1]

Given the above backdrop the present study was commissioned by Room to Read to understand the factors related to teacher-specific characteristics, training transaction processes in terms of practice time, preparation time, and particularly best practice in online assessment with the following research questions.

Research Questions of the Study

1. To what extent did the teachers' and wardens' knowledge regarding life skills education change because of the training?

2. To what extent did the teacher-specific variables i.e., "educational qualification", "teaching experience", "age" and "training location" affect the knowledge of teachers regarding life skill education?

3. To what extent did the training quality-related variables i.e., time given to understanding the "theoretical concept", "practice time during the session" and "preparation time" taken by resource person(s) affect the knowledge of teachers regarding life skill education?

Research Design

A pre-post training assessment design was adopted for the study using the quantitative technique of data collection. As per the methodology, all teachers/ wardens from KGBVs who participated in the state-level life skills training, organized by Room to Read in five districts of Telangana, were the selected respondents for the study.

Sample Covered

The assessment of the respondents was done at two levels – pre-training and post-training. A total of about 200 teachers/ wardens from 72 *mandals* of 5 study districts participated in the state-level training for life skills. In the pre-training assessment, 200 teachers were assessed while in the post-training evaluation, 201 teachers participated. However, for data analysis and reporting, the responses of those 200 teachers were analyzed who were present in both pre and post-training assessments. The aim was to gauge the difference in their knowledge once their training was over. The table below provides the district-wise participation of KGBV teachers in the training.

Table 1: District-wise distribution of teachers/ wardens who participated in the study

District	No. of Participants
Narayanpet	33
Wanaparthy	30
Nagarkurnool (Batch 1)	30
Nagarkurnool (Batch 1)	30
Jogulamba Gadwa	35
Mahbubnagar	42
TOTAL	**200**

Research Tool

Data for the study was collected using a structured quantitative knowledge assessment tool. The assessment tool included basic background information on the teachers/ wardens with the rest of the questions being in a multiple-choice based format for assessing teachers on their knowledge level. The life skill themes assessed are given in table 2.

The tool comprised 32 questions assessing 11 life skill themes. All the items of the tool were multiple choice-based questions having one correct answer.

Table 2: Life skills themes assessed

No.	Name
1	Self
2	Self-Control and Discipline
3	Communication
4	Critical and Creative Thinking
5	Emotions and Feelings
6	Gender Roles
7	Human Trafficking
8	Sexual and Reproductive Health
9	Relationship
10	Scientific Temperament
11	I Know My Rights

Data Collection

Data collection for this assessment study was done during the state-level virtual training (on Microsoft Teams/ Zoom) organized by Room to Read for KGBV teachers/ wardens in the month of May-June 2021, conducted separately for each of the 5 districts. Each district spent 20-24 hours in training, spreading across 3-5 days. An online link to the questionnaire was shared with the participants via the training platform *chat box* so that the questionnaire could be filled out by the teachers and the data would directly get synced to the google web portal on completion. Teachers were given an hour to complete the assessment under the supervision of a training resource person.

Analysis Technique

Data were downloaded from Google Forms into Excel. The primary aim of the data analysis was to determine whether changes in knowledge occurred among training participants (respondents) who submitted both the pre-and post-test. A change is evident if the percentage of respondents who provided the desired response was significantly higher ($p < 0.05$) on the post-test than on the pre-test.

The second aim of the data analysis was to examine the relationship between different respondent background factors (e.g., age, teaching experience, level of education, training practice time, training preparation time) and performance on the pre-and post-tests. To this end, a series of linear regression models were created using pre- and post-test knowledge scores as the dependent (i.e., outcome) variable and respondent background characteristics as independent (i.e., predictor) variables.

In this paper, the teachers/wardens' background variables (predictor/ independent variables) i.e Age (in years), Teaching experience (in years), Educational Qualification (Graduate & Post Graduate), Location (district-Narayanpet, Wanaparthy, Nagarkurnool, Jogulamba Gadwa, Mahabubnagar) and some other predictor variables related to training quality i.e Theoretical time devoted to each theme, Practice time devoted to each theme and Preparation time devoted to the theme by the resource person(s) were used for analysis.

Results

The results of the study have been arranged as per the research questions in the below section.

Research Question 1 – Change in knowledge regarding life skills because of training.

Assessing the level of Life Skills (LS) related knowledge of teachers/ wardens' at pre and post-test (Table 3), data reveals an increase in overall mean score from 21.51 on the pre-test to 22.71 on the post-test. This upward change in knowledge score by 1.20 units, which is also statistically significant, indicates towards statistically significant gain in the knowledge level of teachers following the training. All LS themes assessed also showed an increase from pre to post-test, except for the theme on 'Relationship' where the mean score remained the same. A significant increase in mean score was registered from the pre to post-test for the themes on *Self*, *Emotions and Feelings*, *Gender Roles*, *Human Trafficking*, and *Scientific Temperament*.

Table 3: Pre and Post Test Mean Scores across overall Knowledge Tool and Individual Themes

Life Skill Theme	Pre-Test Mean Score	Post-Test Mean Score	Change from Pre to Post
Overall Knowledge Tool*	21.51	22.71	1.20
Self*	1.38	1.54	0.16
Self-Control and Discipline	1.07	1.12	0.04
Communication	2.35	2.39	0.04
Critical and Creative Thinking	1.55	1.62	0.06
Emotions and Feelings*	2.74	2.90	0.16
Gender Roles*	2.62	2.76	0.14
Human Trafficking*	2.34	2.68	0.34
Sexual and Reproductive Health	1.29	1.33	0.04
Relationship	1.96	1.96	0
Scientific Temperament*	2.52	2.64	0.11
I Know My Rights	1.71	1.79	0.08

Note: Asterisks (*) indicate a statistically significant change from pre-test to post-test at the $p < 0.05$ level.

Research Question 2 - Influence of Teacher Specific variables on Knowledge regarding life skill

At post-test, background variables like the qualification of teachers and location of training influenced the overall knowledge score of teachers. However, "age" as one of the predictor variables was found to be affecting the knowledge score of teachers, especially in one of the sub-life skill themes i.e., "Relationship".

Qualification: Teachers with a post-graduate degree were positively associated with higher scores on the overall Knowledge Tool at the time of the post-test. Keeping all other background variables constant, post-graduate teachers, on average, scored 1.77 units higher on the overall Knowledge Tool as compared to graduate teachers.

District (Mahabubnagar vs Narayanpet): Teachers from Mahbubnagar district were associated with a lower score on the overall Knowledge Tool at the time of post-test, in comparison to those from Narayanpet. Controlling for other background characteristics, teachers in the Mahbubnagar district scored an average of 2.95 units lesser than those in Narayanpet.

Age: Lower age of teachers was associated with an increase in post-test scores for the theme on 'Relationship'. One unit decrease in "age" was associated with an increase of 0.03 units in knowledge score on the life skill sub-theme "relationship" while controlling for all other background variables included in the study.

Research Question 3 - Influence of Training-Related Background Variables on Knowledge Score regarding Life Skill

A summary of the district-wise average time spent across themes totally and on theory and practice sessions is produced in Table 4 below, along with the average time spent by resource person(s) while preparing for a theme. As observed, training in Narayanpet was for the longest duration of 5 days, implying much greater time spent on theory and practice sessions, as compared to other districts where training was held for 3-4 days. Statistically speaking (basis ANOVA/ Welch tests undertaken) and as observed, time spent on practice sessions and overall training was significantly higher for Narayanpet as compared to all the other remaining districts. Time spent on theory sessions was significantly higher for Narayanpet in comparison to that in Wanaparty and also Mahabubnagar. Preparation time spent by resource person(s) was significantly higher for those in Narayanpet as compared to Wanaparthy.

Table 4: Summary of average time devoted in training including preparation by resource persons(s)

District	No. of training days	Average Theoretical Time devoted across theme	Average Practice Time devoted across theme	Average Total Time devoted across theme	Average Preparation time devoted to the theme by the resource person(s)
Narayanpet	5 days	1 hour 12 minutes	54 minutes	2 hours 6 minutes	5 hours
Wanaparthy	3 days	40 minutes	24 minutes	1 hour 4 minutes	3.6 hours
Nagarkurnool	4 days	43 minutes	23 minutes	1 hour 5 minutes	5.5 hours
Jogulamba Gadwa	4 days	46 minutes	30 minutes	1 hour 16 minutes	5 hours
Mahabubnagar	4 days	40 minutes	24 minutes	1 hour 4 minutes	5.3 hours

Further, regression analysis was undertaken to assess the influence of these variables on the test outcomes. The regression analysis produced a significant model ($p=0.038$), with the variable on **the theoretical time devoted to themes** showing a statistically significant positive result ($p=0.048$).

Discussion of the Result

Generally, it has been seen in many remote teacher training programs and online classes that, videos of real classrooms and quality refection time spent on conceptual understanding were effective tools to drive teacher reflection (Bates, Phalen, and Moran 2016; Beilstein et al. 2020), obtain practical knowledge about the profession (Baran and Cagiltay 2010; Liu 2012) and connect with course content in a practical way (Lenkaitis 2020). The most time spent in practical sessions during the online training program by simulating the classroom situations (Baran and Cagiltay 2010; Bates, Phalen, and Moran 2016; Beilstein et al. 2020; Theelen et al. 2020) promoted the highest levels of teacher reflection and knowledge development.

Corroborating the findings of research studies quoted above, the key findings of the current study confirmed that more time spent on theoretical aspects of the training was associated with the higher change in mean score across themes between pre to post-test, keeping other variables constant. However, the current study findings have negated the findings of some of the research studies done on teacher professional development before the pandemic which had confirmed that the environments or instructional interventions that offered more opportunities for getting and providing more reflective practice time, peer feedback, interactive collaborations and reflection (Dooly and Sadler 2020; Gikandi and Morrow 2016; Luo, Murray, and Crompton 2017), were more likely to drive to knowledge development (Evens et al. 2017; Hong 2014; Jones 2010; Nicholas and Ng 2009). The predictor variables included in the current study i.e average preparation time devoted to the theme by the resource person(s) did not return significant results.

Further, a point of interest to note here is that, though statistically insignificant, the relation between preparation time devoted to the theme by the resource person(s) and change in mean score was found to be negative. That is, higher time spent in preparation by the resource person(s) did not lead to a higher change in mean score, but in fact, had a tendency to produce an opposite effect. As observed, the change in mean score showed an increasing trend up to 4 hours of preparation time of the resource person(s). Thereafter, the change in mean score shows a decline, rising for once at 6 hours, though not above the peak at 4 hours. It could therefore be inferred that there is a general trend towards better training outcomes when the preparation time of resource person(s) is around an optimum of 4 hours.

Recommendation

This study has made evident that some areas of research deserve further attention especially associated with the integration of technology-based solutions to remote teacher professional development programs. First, more attention needs to be paid to the construct of "quality of training" with a special focus on reflection time provided to teachers during the session. Further, a thorough observation of some of the pedagogic processes of training associated with

"how frequently teachers ask questions", and "how intensively the teachers participate in the reflection session or group activities during the sessions" in remote training programs needed to be explored in a great depth.

As evident in the current study, an approximate 4 to 5 days of training appears to be an optimum training duration for the remote teacher training program, not only allowing sufficient time for training & discussion around various training themes but also providing enough for teachers/ warden to be able to process the knowledge gained both during and after the training hours.

An approximate (cumulative) preparation time of 4 hours by resource person(s) is sufficient for them to work towards achieving desired training outcomes. An excessive amount of preparation is not always reflective of greater positive change in teachers' knowledge

References

Bao, W. 2020. "COVID-19 and Online Teaching in Higher Education: A Case Study of Peking University Human." *Behavior and Emerging Technologies* 2: 113–115. doi:10.1002/hbe2.191.

Baran, B., and K. Cagiltay. 2010. "The Dynamics of Online Communities in the Activity Theory Framework." Educational Technology & Society 13 (4): 155–166.

Bates, M. S., L. Phalen, and C. H. Moran. 2016. "If You Build It, Will They Reflect? Examining Teachers' Use of an Online Video-based Learning Website." Teaching and Teacher Education 58: 17–27. doi:10.1016/j.tate.2016.04.004.

Beilstein, S. O., G. M. Henricks, J. Victoria, P. Michelle, M. S. Bates, C. G. Moran, and J. R. Cimpian. 2020. "Teacher Voices from an Online Elementary Mathematics Community: Examining Perceptions of Professional Learning." Journal of Mathematics Teacher Education, Advance online publication.

Bozkurt, A., and R. C. Sharma. 2020. "Emergency Remote Teaching in a Time of Global Crisis Due to CoronaVirus Pandemic." *Asian Journal of Distance Education* 15 (1): i–vi. Accessed 24 July 2020. http://asianjde.org/ojs/index.php/AsianJDE/article/view/447

Carrillo, C.; Flores, M.A. COVID-19 and teacher education: A literature review of online teaching and learning practices. Eur. J. Teach. Educ. 2020, 43, 466–487. [CrossRef]

Dooly, M., and R. Sadler. 2020. "If You Don't Improve, What's the Point?' Investigating the Impact of a 'Flipped' Online Exchange in Teacher Education." ReCALL 32 (1): 4–24. doi:10.1017/S0958344019000107.

Evens, M., C. H. Larmuseau, K. Dewaele, L. V. Craesbeek, J. Elen, and F. Depaepe. 2017. "The Effects of a Systematically Designed Online Learning Environment on Preservice Teachers' Professional Knowledge." Journal of Digital Learning in Teacher Education 33 (3): 103–113. doi:10.1080/21532974.2017.1314779.

Ferdig, R. E., E. Baumgartner, R. Hartshorne, R. Kaplan-Rakowski, and C. Mouza, Eds. 2020. *Teaching, Technology, and Teacher Education during the COVID-19 Pandemic: Stories from the Field*. Association for the Advancement of Computing in Education (AACE). Accessed 15 June 2020. https://www.learntechlib.org/p/216903/

Flores, M. A., and M. Gago. 2020. "Teacher Education in Times of COVID-19 Pandemic in Portugal: National, Institutional and Pedagogical Responses." *Journal of Education for Teaching*, Advance online publication. doi:10.1080/02607476.2020.1799709.

Gikandi, J. W., and D. Morrow. 2016. "Designing and Implementing Peer Formative Feedback within Online Learning Environments." Technology, Pedagogy and Education 25 (2): 153–170.

Hodges, C., S. Moore, B. Lockee, T. Trust, and A. Bond. 2020. "The Difference between Emergency Remote Teaching and Online Learning." *EDUCAUSE Review*. Accessed 29 August 2020. https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning

Hong, H. 2014. "Exploring College Students' Perceptions of Learning and Online Performance in a Knowledge Building Environment." The Asia-Pacific Education Researcher 23: 511–522. doi:10.1007/s40299-013-0125-6.

Huber, S. G., and C. Helm. 2020. "COVID-19 and Schooling: Evaluation, Assessment and Accountability in Times of Crises—reacting Quickly to Explore Key Issues for Policy, Practice and Research with the School Barometer." *Educational Assessment, Evaluation and Accountability* 32: 237–270. doi:10.1007/s11092-020-09322-y.

Jones, P. 2010. "My Peers Have Also Been an Inspiration for Me: Developing Online Learning Opportunities to Support Teacher Engagement with Inclusive Pedagogy for Students with Severe/profound Intellectual Developmental Disabilities." International Journal of Inclusive Education 14 (7): 681–696. doi:10.1080/13603111003778452.

Judd, J., B. A. Rember, T. Pellegrini, B. Ludlow, and J. Meisner (2020). "*This is Not Teaching": The Effects of COVID-19 on Teachers*. Accessed 25 July 2020. https://www.socialpublishersfoundation.org/knowledge_base/this-is-not-teaching-the-effects-of-covid-19-on-teachers/

Lenkaitis, C. A. 2020. "Teacher Candidate Reflection: Benefits of Using a Synchronous Computer-mediated Communication-based Virtual Exchange." Teaching and Teacher Education 92: 103041. doi:10.1016/j.tate.2020.103041.

Liu, M. 2012. "Discussing Teaching Videocases Online: Perspective of Preservice and Inservice EFL Teachers in Taiwan." Computers & Education 59: 120–133. doi:10.1016/j.compedu.2011.09.004.

Luo, T., A. Murray, and H. Crompton. 2017. "Designing Authentic Learning Activities to Train Pre-service Teachers about Teaching Online." International Review of Research in Open and Distributed Learning 18: 7. doi:10.19173/irrodl.v18i7.3037.

Murphy, M. P. A. 2020. "COVID-19 and Emergency eLearning: Consequences of the Securitization of Higher Education for Post-pandemic Pedagogy." *Contemporary Security Policy* 41 (3): 492–505. doi:10.1080/13523260.2020.1761749.

Ní Shé, C., O. Farrell, J. Brunton, E. Costello, E. Donlon, S. Trevaskis, and S. Eccles. 2019. "Teaching Online Is Different: Critical Perspectives from the Literature." Project Report. Dublin: Dublin City University. doi:10.5281/zenodo.3479402.

Nicholas, H., and W. Ng. 2009. "Fostering Online Social Construction of Science Knowledge with Primary Pre-service Teachers Working in Virtual Teams." Asia-Pacific Journal of Teacher Education 37 (4): 379–398. doi:10.1080/13598660903050336.

Quezada, R. L., C. Talbot, and K. B. Quezada-Parker. 2020. "From Bricks and Mortar to Remote Teaching: A Teacher Education Programme's Response to COVID-19." *Journal of Education for Teaching*, Advance online publication. doi:10.1080/02607476.2020.1801330.

Theelen, H., M. C. Willems, A. van den Beemt, R. Conjin, and P. den Brok. 2020. "Virtual Internships in Blended Environments to Prepare Preservice Teachers for the Professional Teaching Context." British Journal of Educational Technology 51 (1): 194–210. doi:10.1111/bjet.12760.

Zhang, W., Y. Wang, L. Yang, and C. H. Wang. 2020. "Suspending Classes without Stopping Learning: China's Education Emergency Management Policy in the COVID-10 Outbreak." *Journal of Risk and Financial Management* 13 (58): 1–6. doi:10.3390/jrfm13030055.

Zhang, W., Y. Wang, L. Yang, and C. H. Wang. 2020. "Suspending Classes without Stopping Learning: China's Education Emergency Management Policy in the COVID-10 Outbreak." *Journal of Risk and Financial Management* 13 (58): 1–6. doi:10.3390/jrfm13030055.