The Teaching Interplay for honing analytical, critical, and creative thinking skills - Instructing to Learn with In-service and Pre-service Teachers

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INTRODUCTION

Teachers play a chief role in providing quality education for all. Forbye, as envisioned in Sustainable Development Goal (SDG) Number 4, Target 4.c, "By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small-island developing States", it is imperative to train teachers. More so, the task of training demands interplay of the pre-service teachers and in-service teachers in order to enable them to continue developing their knowledge and skills like critical, creative & analytical to keep pace with the perpetual changes coming in the field of education in the wake of Industry 4.0.

Linking pre-service and in-service teachers further gives an opportunity to explore what lies beyond the existing practices and methodologies of teaching and to aid in their mutual skill enhancement. This collaborative effort allows novice and experienced teachers to be active learners and mutually learn from each other, interpret, and ultimately reform the learning experience of the students.

The present chapter deals with the pedagogical tool **"The Teaching Interplay- Instructing to Learn with In-service and Pre-service Teachers"**, which was designed by Chitkara College of Education, Chitkara University, Punjab

(CCE) and Chitkara International School (CIS) and the tool is duly assessed and approved by the Internal Quality Team of the university and was found to foster analytical, critical and creative thinking skills among the pre-service and in-service teachers. The tool fosters a strategic approach that ensures synergetic relation between a beginner and experienced teacher to allow the meaningful learning to emerge and overhaul the established pedagogies. Consequently, it provides a framework of training in-service teachers and pre-service teachers through mutual partnership wherein they learn about teaching and teach about learning.

THEORETICAL BACKGROUND

Researches done in the field of student achievement clearly emphasise the role of trained teachers for the success in the field of education. As iterated by Agbo (2003), to enhance the professional development of pre-service teachers, there should exist a collaboration between learning community and professional development community and this collaboration must facilitate "learning about teaching and teaching about learning". This mutual sharing of learning is only possible when one of them is an experienced teacher/mentor or Teacher educator. According to Aitken and Mildon (1992), the pre-service teachers must talk to more experienced teachers during the process of becoming qualified teachers. Further, National Education Policy (2020) lays due stress on the training of the in-service teachers for enhancing their skills and learning the latest innovations and advances in the profession. The policy also recommends that in-service teachers must dedicatedly devote 50 hours on their professional development.

Correspondingly, the tool "The Teaching Interplay- Instructing to Learn with In-service and Pre-service Teachers" was conceived by Chitkara College of Education in collaboration with Chitkara International School and it functions as one of the most important tools which provides a combined platform for training of both in-service and pre-service teachers in a most natural setting, to ensure quality teaching- learning experience in the classrooms.

LITERATURE REVIEW

EL-Deghaidy, Mansour & Alshamrani (2015) in their study have provided a framework for the professional development of the science teachers which is based on the socio-constructivist approach and tries to find answer to 2 important questions i.e. "How does a teacher learn effectively?" and "What does a teacher need to learn?". This further emphasises on the learning of the teacher which takes place during social interaction and in social context which is dominated by action. In another study conducted by Elliot & Campbell (2015), a positive impact of using andragogical model for training the teachers during

Continuous Professional Development (CPD), has been well established. This study posits the fundamental role of the universities for providing lifelong learning to the teachers. It also suggests the partnership between school and university to support the everlasting learning. In "Learning to improve or improving learning: the dilemma of teacher continuing professional development" Sachs (2007) has proposed four essential elements of the CPD viz. retooling, remodelling, revitalising and reimagining in order to achieve two interrelated objectives i.e., to achieve improvement in the student's learning and to support a strong autonomous teaching profession.

Another study conducted by Weibenrieder, Roesken-Winter & Schueler (2015) titled, "Scaling CPD through professional learning communities: development of teachers' self-efficacy in relation to collaboration" reported a dire need to initiate the collaboration in professional learning communities (PLCs) and explicitly support the teachers to actively engage in professional learning communities.

Gelfuso, Andrea, Dennis, Danielle, Parker & Audra (2015) in their work titled, 'Turning Teacher Education Upside Down: Enacting the Inversion of Teacher Preparation through the Symbiotic Relationship of Theory and Practice' report that teacher education must work on the reflection practices of the pre-service teachers and should also be supported by Vygotsky's theory of more knowledgeable other. Pratt (2014) conducted a study titled, "Achieving symbiosis: Working through challenges found in co-teaching to achieve effective co-teaching relationships" which emphatically provides strategies for co-teaching and for preparing students for collaborative partnership during practice.

EXPLANATION OF THE TOOL

"The Teaching Interplay - Instructing to Learn with In-service and Pre-service Teachers" is a pedagogical tool which is an integral part of the teachers' training at pre-service level and in-service level. This tool is important and is needed to train both in-service and pre-service teachers to upskills them and to help them learn new pedagogies and strategies emerging in teaching, learning and assessments in light of Industry 4.0.

The tool also provides opportunity to both in-service and pre-service teachers to learn from each other as collaborative team members, wherein pre-service teachers learn from the experienced teachers for example the techniques of handling children in a class or ways and methods to assess students. The in-service teachers can upskill themselves in the areas related to technology or innovations in pedagogy as pre-service teachers are being trained keeping in mind the needs of z-generation and Alpha generation learners.

A. Aim of the Tool:

- To empower the pre-service teachers to develop conceptual and practical understandings of teaching in actual school environment;
- To enable pre-service and in-service teachers to instil positive attitude towards constructive criticism;
- To assist in-service teachers and pre-service teachers to collaboratively gain hands on experience of learning;
- To foster symbiotic relation between in-service teachers and pre-service teachers, where one learns from the other and
- To keep in-service teachers abreast with evolving pedagogies.

B. Expected Outcomes:

The pre-service teacher will be able to:
- implement and develop the specific strategies to engage the learners in the class catering to all the three domains of learning;
- work independently in tandem with the school counsellor for implementing strategies for the inclusive classrooms and sessions;
- enhance their critical and creative thinking skills by adopting multi level teaching and evaluation;
- prepare the students for intra school and inter school competitions and events;
- plan and execute activities related to global exchange, international collaborations;
- learn to function as a teacher under the guidance of an experienced teacher;
- gain practical exposure of all the activities that are to be conducted under the guidance of experienced teacher and
- facilitate the staff members in maintaining different school records.

The in-service teacher will be able to:
- implement latest pedagogies;
- enhance their critical and creative thinking skills by adopting multi level teaching and evaluation and integrate technology into their respective subjects and focus on learner centred and collaborative learning.

C. Role of In-service and Pre-service Teachers

For the effective implementation of 'The Teaching Interplay- Instructing

to Learn with In-service and Pre-service', pre-service and in-service teachers need to follow an operative and structured model of training which ensures hands-on experience. The in-service and pre-service teachers play the role of both the students and facilitator. While one shares his/ her expertise, the hat of facilitator is being worn. On the other hand, while learning from the other the hat of student is being worn. Proper hand holding should also be ensured at all times by the pre-service teachers and in-service teachers. The success of 'The Teaching Interplay' is directly related to the active engagement of the pre-service teachers and in-service teachers and mutually working on each other's feedback.

D. Steps to Use the Tool

"The Teaching Interplay - Instructing to Learn with In-service and Pre-service Teachers" is implemented in four stages, which have been premised on the Socio-Cultural Theory, proposed by Lev Semyonovich Vygotsky. It firmly upholds Vygotsky's views on students' learning in school setting that can be associated with the in-service teachers' continual professional development and pre-service teachers' internship experience. The pedagogical tool hence includes the following 4 steps:

Step 1: Explain

Step 2: Model

Step 3: Scaffold

Step 4: Demonstrate

Step 1: Explain

"Explain" constitutes the introductory stage of Teaching Interplay, wherein the in-service teacher meets his/her teaching counterpart i.e., pre-service teacher. In this step, the teachers get acquainted with each other and thereafter share their experiences and teaching beliefs. While the in-service teacher may share the "most effective way of ensuring discipline in class" or "the most interactive way of instructing students in a traditional classroom setup", the pre-service teacher may apprise his/her partner of the innovations and latest advancements in the sectors of teaching, learning and assessment, respectively.

Step 2: Model

This step comprises the demonstration of tasks/methods by the pre-service and the in-service teacher, which were discussed by them with each other under Step 1. Correspondingly, the pre-service teacher makes observations of different lessons being delivered or methods being employed

by the in-service teacher. On the other hand, the in-service teacher amasses knowledge of the latest teaching practices or tools from her lesser experienced counterpart. In this regard, the pre-service teacher showcases the proper employment of all of these tools to his/her Interplay partner.

Step 3: Scaffold

After effective explanation and demonstration, the pre-service and in-service teachers help one another enter and explore their Zone of Proximal Development (ZPD). It is at this step that the "guided role-reversal" takes place, wherein the pre-service teacher practises the methodology of the in-service teacher, and the in-service teacher employs the latest tools and techniques as suggested to her by the pre-service teacher. The undertaking of these strategies by the pre-service teacher or the in-service teacher occurs under the guidance and supervision of his/her Interplay partner.

Step 4: Demonstrate

The ultimate step of the Teaching Interplay comprises demonstrating performances at the end of the in-service teacher and the pre-service teacher, wherein each of them leverages a healthy balance of the "methods learnt" and the "methods shared" to improve his/ her teaching effectiveness with the chief goal of augmenting the learning experience of students.

Example of Zone of Proximal Development (ZPD) being conducted at each stage

Step 1: Explain

Role of In-Service Teacher: In- service teacher shares her experience of teaching students. These examples can be related to stages of childhood mapped to various school stages, explaining about the guidelines issued by the governing bodies from time to time, explanation about the role of the counsellor, the assessment techniques being used, various co-curricular activities conducted in the school etc.

Role of Pre-Service Teacher: Pre- service teacher shares her theoretical knowledge related to different stages of childhood, discusses the role, responsibility of the counsellor, the latest techniques in teaching, learning and assessments, discusses about the synchronisation of curricular and co-curricular, the innovations in the tools and techniques for teaching, learning and assessments, need of collecting the evidence for shaping their portfolios etc.

Step 2: Model

Role of In-service Teacher: At this stage the experiences shared by the In-service teacher are being directly observed by the pre-service teacher during class

observations. The pre-service teacher observes and reflects upon the mapping of school stages as per the stages of child development and develops insight related to the aspect of individual differences that exists within the class, based on the individual differences how the In-service teacher uses various teaching strategies in order to cater to diverse group of students. Pre-service teacher also observes how the compliance of the norms of the governing bodies are being taken care by school and are implemented in the classes.

Role of Pre- service Teacher: The pre-service teacher shares her observation with the In-service teacher and then both reflect and with mutual discussion propose some strategies which can be improvised upon with the help of knowledge and skill of Pre-service teacher. Pre-service teacher observes the In-service teacher implementing specific strategies to engage the learners, observes the In-service teacher while she is drafting the question paper etc.

Step 3: Scaffold

Role of In-Service Teacher and Pre-Service Teacher: They work as a team and jointly work on the planning stage to implementation stage of lesson delivery, keeping in mind the inputs from both in-service and pre-service teacher. Pre-service teacher assist the In-service teacher in implementing the specific strategies to engage the learners in the class by maximising the use of IT tools and techniques. They jointly frame the rubrics to assess the students based on the latest techniques of assessment etc.

Step 4: Demonstrate

Role of In-service teacher and Pre-service Teacher: Both In-service teacher and Pre-service Teacher demonstrate the skills learnt from each other. Pre-service teacher handles the class independently, she teaches the students on her own and even assess them as per the norms of the governing bodies. Whereas In- Service teacher is able to develop her evidence-based portfolio, she starts making use of IT more often in order to supplement her teaching material.

Assessment

Assessment means to gauge the worth of an individual with the aim of giving him/her job or a more advanced level of a study course. It is the proper amalgamation of all inclinations, responses, and capacities of the learner (Kapoor & Natarajan, 2014). Since the present pedagogical tool aims to hone the skills of the practitioners of learning, it focuses on evaluating the various aspects of a fruitful content delivery or lecture. It is the formal presentation of the subject matter by the subject expert, for ensuing learning and recollection in the examination by the learner (Sood & Dutt, 2017).

In this context, "The Teaching Interplay - Instructing to Learn with In-service and Pre-service Teachers" allows the members of the Interplay (pairs of pre-service and in-service teachers) to not only learn beneficial methods from one another but also contribute to the elevation of their partners' method of teaching through timely assessment and prompt feedback. Thus, an "Observation Sheet" for the pre-service teacher and the in-service teacher is to be maintained by the Coordinators/ Supervisors on the basis of which, the effectiveness of the movement of pre-service and in-service teachers from Novice to an Expert level can be gauged.

Rubrics for the Assessment of Pre-service / In-service Teacher (Stagewise)

Stage ➡ Level ⬇	EXPLAIN	MODEL	SCAFFOLD	Demonstrate
Novice	The Pre-service/ In-service Teacher is able to remember the concept (pedagogy/ tools of ICT) introduced	The Pre-service/ In-service Teacher is unable to identify, highlight the concept (pedagogy/ tools of ICT) introduced	The Pre-service/ In-service Teacher is unable to categorize, correlate, deduce, illustrate the concept (pedagogy/ tools of ICT) introduced	The Pre-service/ In-service Teacher is unable to execute the concept (pedagogy/ tools of ICT) introduced
Competent	The Pre-service/ In-service Teacher is able to remember and somewhat explain the concept (pedagogy/ tools of ICT) introduced	The Pre-service/In-service Teacher is somewhat able to identify, highlight the concept (pedagogy/ tools of ICT) introduced	The Pre-service/ In-service Teacher is somewhat able to categorize, correlate, deduce, illustrate able to remember the concept (pedagogy/ tools of ICT) introduced	The Pre-service/ In-service Teacher is somewhat able to execute the concept (pedagogy/ tools of ICT) introduced
Expert	The Pre-Service/ In-service Teacher is able to remember and explain the concept (pedagogy/ tools of ICT) introduced	The Pre-service/ In-service Teacher is able to identify, highlight the concept (pedagogy/ tools of ICT) introduced	The Pre-service/ In-service Teacher is able to categorize, correlate, deduce, illustrate the concept (pedagogy/ tools of ICT) introduced	The Pre-service/ In-service Teacher is able to execute the concept (pedagogy/ tools of ICT) introduced

Source: Chitkara College of Education, Chitkara University, Punjab

E. Learners' Feedback

Many schools realise the significance of creating effective performance enhancement plans for educators, but only a handful are able to devise such plans or measures, and thereafter use the same for everyone's betterment (Chitkara, 2021).

For the purpose of establishing the effectiveness of the tool, a sample of 50 teachers (both in-service and pre-service) was taken from Chitkara College of Education, Chitkara University, Punjab, India and Chitkara International School, Chandigarh, India, and their feedback was collected on "Did Teaching Interplay enhance your teaching knowledge / effectiveness?"
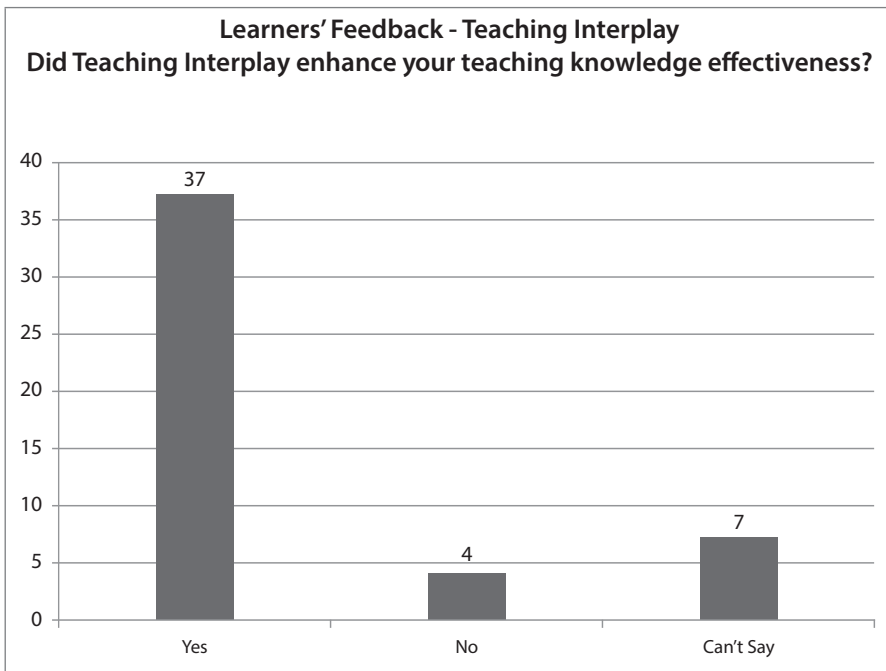
Source: College of Education, Chitkara University and Chitkara International School, Chandigarh, India

Graph 1 Interpretation: About 76% of the teachers found "Teaching Interplay" to be effective, whereas 8% and 16% of the teachers did not gain from the tool or were unsure of its effectiveness, respectively.

Source: College of Education, Chitkara University and Chitkara International School, Chandigarh, India

Qualitative Assessment

F. Visualized Examples

The pedagogical tool 'The Teaching Interplay-Instructing to learn with In-service and Pre-service Teachers' is extremely important tool as it helps both inservice teachers and pre-service teachers to mutually benefit from each other. At Chitkara College of Education, Chitkara University, Punjab, India this tool is extensively used in order to train Pre-service and In-service teachers.

The following illustrations relate to the stage-wise assessment record of pre-service teachers.

Source: Chitkara College of Education, Chitkara University, Punjab, India
Picture 1 - Sample of the Stage - wise Pre-service Teacher Assessment

Number of Pre-Service and In-Service Teachers at Scaffolding Stage as per the level
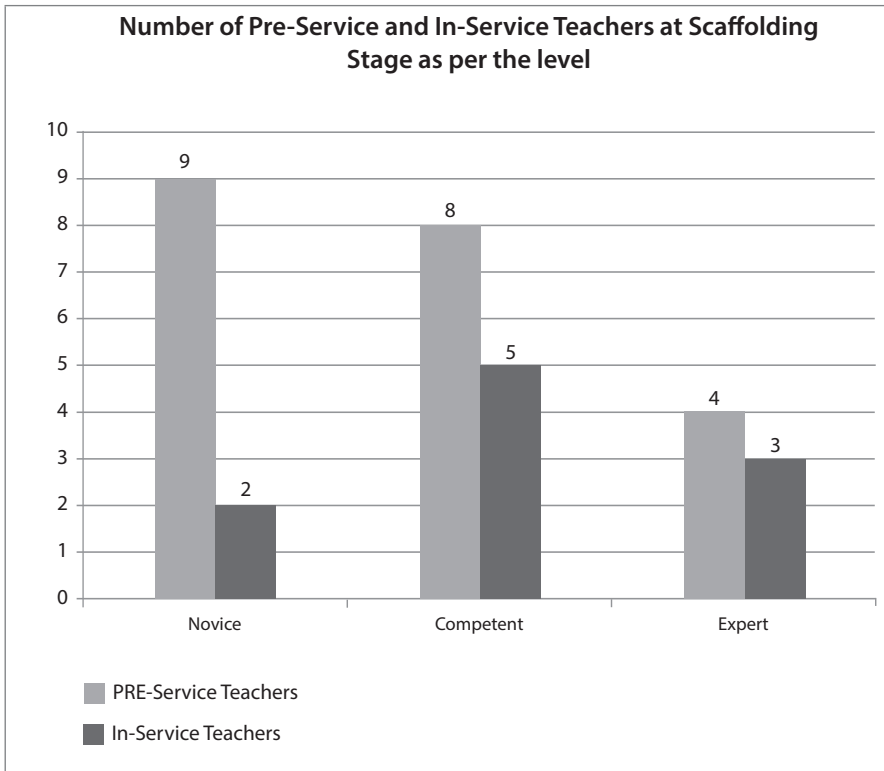
Source: *Chitkara College of Education, Chitkara University, Punjab, India*
Graph 2 (Interpretation): 9 Pre-service Teachers and 2 In-service Teachers are at Novice Level, 8 Pre-service Teachers and 5 In-service Teachers are at Competent Level and 4 Pre-service and 3 In-service Teachers are at Expert level.

CONCLUSION

It has become important to widen the scope of teaching, from mere relaying of facts to understanding the epistemological domains of the same. Educational reform requires making a clean break from viewing teaching as a mere conduit and putting the act itself under the microscope. "The Teaching Interplay-Instructing to Learn with In-service and Pre-service Teachers" stresses on imparting of their sustained experience of classroom teaching by the experienced teachers to the beginners and sharing of the evolving pedagogies by beginners to experienced, to enable both the parties to gauge effective patterns in diverse classroom settings. To be critically and creatively trained to use and devise teaching strategies that brings the highest good of the greatest number, represents the best amalgamation of long-standing wisdom and the enterprise of the new.

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