

# Bridging Pedagogy And Practice: Perceptions Of Pre-Service And In-Service Teachers On The Implementation Of Inquiry-Based Learning In DBSE Schools Of Delhi

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## Abstract

*This study tries to understand the impact of inquiry-based learning (IBL) pedagogy as perceived by D.El.Ed. trainees (pre-service teachers), in-service school teachers, and teacher educators working under the Delhi Board of School Education (DBSE). In the wake of the National Education Policy (NEP) 2020, the DBSE was introduced in 2021 to promote holistic, competency-driven, and discovery-oriented teaching. However, implementing IBL at the classroom level remains a complex challenge due to infrastructural gaps, teacher preparedness, and student learning readiness. This mixed-method study employed an exploratory sequential design involving focus group discussions, semi-structured interviews, and perception scales administered to 87 participants (55 D.El.Ed. trainees, 24 school teachers, and 8 teacher educators) from District-East, Delhi. Qualitative data revealed major concerns such as lack of digital and physical infrastructure, language barriers in pedagogical resources, inadequate readiness among students, and heavy teacher workload due to activity-based curricula. Quantitative findings highlighted a neutral overall perception of D.El.Ed. trainees (aggregate mean = 3.33), fairly positive perceptions of teacher educators (aggregate mean = 3.94), and fairly positive perceptions of school teachers (aggregate mean = 3.90). Importantly, trainees expressed a highly positive view of enhanced training strategies (mean = 4.07), while school teachers strongly agreed that IBL improves experimental process skills and critical thinking (mean = 4.4 for learning environment). The study concludes that bridging the gap between policy intent and classroom practice requires structural reforms, early teacher preparation, and adequate infrastructural investment. Recommendations include developing bilingual/multilingual learning resources, extending DBSE training workshops, integrating simulated teaching in D.El.Ed. curricula, and strengthening digital infrastructure in government schools. This research contributes to understanding how pre-service and in-service educators can collaboratively operationalize NEP 2020's vision of child-centric, inquiry-driven classrooms.*

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## INTRODUCTION

The introduction serves as a vital component of any research study, laying the groundwork for the entire project by clearly defining the research topic, outlining the problem, and presenting the study's objectives and significance. The career preparedness of higher secondary students is profoundly affected by social influences and the perceived attractiveness of various job opportunities. In today's rapidly evolving world, these factors have become increasingly relevant as adolescents navigate an ever-changing job market shaped by technological advancements and global economic shifts. Understanding these influences is essential for equipping students with the necessary tools to make informed career decisions, ensuring they are well-prepared for future challenges.

Inquiry-Based Learning (IBL) has emerged as a cornerstone of 21st-century pedagogy, encouraging student-centered exploration, problem-solving, and critical thinking. The National Education Policy (NEP) 2020 has strongly emphasized inquiry-driven and discovery-oriented teaching methods. In line with this, the Government of Delhi established the Delhi Board of School Education (DBSE) in 2021, aiming to move beyond rote learning and align classroom practices with global educational standards.

Despite its progressive vision, implementing IBL in DBSE schools faces challenges. Teachers struggle with inadequate infrastructure, time constraints, and limited student readiness, while D.El.Ed. trainees often face difficulties during their School Experience Programme (SEP). Teacher educators, serving as mentors, also identify gaps between theory and practice. This research seeks to capture perceptions across these three groups, offering insights into how IBL is being received and operationalized in DBSE schools.

### **SIGNIFICANCE OF THE STUDY**

The role of a teacher is the most important in the learning process as they impart invaluable knowledge and wisdom to the children. The responsibility of teachers is vital in helping and guiding students to achieve their goals and transform the nation. The chances of success of policies and reforms in the nation are possible only because of the people facilitating it at the grass-root level. Hence, teachers play an essential role in implementing it properly at the grassroots level and creating the required impact. A policy can be successful only when it is implemented properly at the ground level. In the context of education, teachers give real shape to the policies at ground level. For the same, teacher education programmes and school experience programmes (SEP) play crucial roles.

The School Experience Program (SEP) is an indispensable and important component in a D.El.Ed. pre-service teacher training programme. It offers training, development of teaching skills and experience to day-to-day school life before actually becoming a student-teacher entering the teaching profession. This year 10 sarvodya school of DoE District-East, Delhi (DBSE) have been selected for SEP of D.El.Ed. trainees for the studies. The approach used by DBSE board is quite distinctive from the current CBSE board. This research study aims to finding out in these schools how teachers and D.El.Ed. trainees perceive IBL approach and what challenges they faced in classroom while implementing IBL approach in classroom.

In DBSE schools implementation of IBL (Inquiry based teaching and learning) approach is used through pedagogic companions (unit plan, rubrics, formative and summative assessment etc.) and it should be used by teachers. These Unit plans are based on IBL. In this context, this present research study is designed to investigate teachers' experience, opinions and identifying hindering factors and challenges confronted by D.El.Ed. trainees and school teachers while implementing inquiry-based learning and teaching approaches in DBSE board schools, analyse their perspectives on DBSE curriculum and assessment framework. This study also focuses on views of teacher-educators during the observation of their D.El.Ed. trainees in transaction of Unit plan on inquiry-based teaching and learning approach during SEP.

Teacher Educators played the role of mentor for D.El.Ed. trainees during their SEP. During these training sessions s/he not only evaluates them as a teacher but also supports and nurtures them. Mentor teachers work closely with D.El.Ed. trainees in their classroom experience, observe them, provide them with critical feedback and encourage their growth as teachers, recognizing and supporting them and praises. They help trainees on their challenging days, analyse and present ideas. Teacher-educators also gain insight from this process and become aware and succinct about the reality of school life.

Analysing all these elements helps in providing a comprehensive understanding of the effectiveness of the IBL and will help in identifying the challenges in its operation.

### **REVIEW OF RELATED LITERATURE**

Inquiry based learning is based on the assumption that humans have a distinctive urge to discover their own knowledge. Hence, this method of teaching and learning offers the opportunity for learners to construct their own knowledge on the basis of curiosity and exploration. This method helps students to relate new information to existing learning and develop thinking and research skills by providing questions and seeking answers based on inquisitiveness (Pedaste et al., 2015).

In implementing Inquiry-based learning in the classroom role of teachers is quite essential, various research noted that, in inquiry-based learning teachers' responsibility only as a facilitator and mediator, which allow students to learn and use the skills of their process to develop knowledge. Learners' zest to observe, presume, and conclude through group tasks and activities. Hence, conclusive research evidence indicating that inquiry-based learning methods that execute authentic pedagogy and assessment, reliable intellectual engagement, and interactive instruction dramatically improve educational achievement (Marshall & Horton, 2009).

## RESEARCH METHODOLOGY

### Methodology:

In this study, a mixed method approach is employed to study the problem at hand. In this method, both quantitative and qualitative data are collected and analysed leading to final results. This method utilises the advantages of both qualitative and quantitative approaches.

### Research Design:

In this study, Exploratory Sequential Mixed Method design is employed. In this research design, qualitative data is first collected and analysed, followed by quantitative data collection and analysis.

### Sample:

The final sample size consisted of 8 teacher educators, 24 school teachers and 55 D.El.Ed. trainees. Only those teacher educators were selected as samples who acted as supervisors in DBSE affiliated schools during SEP. The sample size for school teachers remained relatively smaller than the proposed sample size due to poor participation despite several requests and reminders. Since the data was collected online through Google forms, it was closed as the data

Sample size	Qualitative phase	Quantitative phase
Teacher educators	5	8
School teachers	7	24
D.El.Ed. trainees	10	55

from the required number of participants was collected.

## DATA ANALYSIS AND ITS INTERPRETATION

### Qualitative data and its analysis

As stated in the previous chapter, qualitative data was collected through FGD and telephonic interviews. The analysis of the transcripts was done using open coding. The codes were then clubbed and analysed for emerging themes. The following themes are discussed and described in the following sections.

## RESULTS AND FINDINGS

### 1. Perception of D.El.Ed. Trainees

- **Overall mean:** 3.33 (neutral).
- Neutral on curriculum quality, assessment clarity, and classroom transaction.
- Disagreed that digital infrastructure was sufficient.
- Strongly agreed on importance of demonstration classes and simulated teaching before SEP (mean = 4.29, 4.07).

### 2. Perception of Teacher Educators

- **Overall mean:** 3.94 (fairly positive).
- Strongly agreed that SEP planning needed better coordination between DIETs and DoE (mean = 4.37).
- Identified first-year trainees as facing greater challenges.
- Suggested stronger focus on transdisciplinary lesson planning.

### 3. Perception of School Teachers

- **Overall mean:** 3.90 (fairly positive).
- Strongly agreed that IBL enhances experimental skills and critical thinking (mean = 4.54).
- Reported high workload, inadequate resources, and mismatch between pedagogy and assessment.
- Suggested bilingual resources, early introduction of IBL in primary grades, and better infrastructural support.

**FINDINGS FROM PERCEPTIONS OF PRE-SERVICE (D.EL.ED. TRAINEES):**

**Perception of D.El.Ed Trainees towards Inquiry Based Learning (IBL) Approach**

S. No	STATUS OF CURRICULUM AND ITS TRANSACTION	SD No. (%)	D No. (%)	UD No. (%)	A No. (%)	SA No. (%)	M	$\sigma$	Decision
1.	The content of the curriculum is better than CBSE.	8 (14.5)	10 (18.2)	15 (27.3)	12 (21.8)	10 (18.2)	3.10	1.31	UD
2.	Non availability of textbooks is very helpful in the teaching- learning process.	20 (36.4)	18 (32.7)	12 (21.8)	2 (3.6)	3 (5.5)	2.09	1.11	D
3.	The pedagogy in Inquiry based (IB) learning is child centric.	2 (3.6)	4 (7.3)	11 (20)	18 (32.7)	20 (36.4)	3.90	1.09	A
4.	There are fewer burdens on teachers in teaching through this approach.	7 (12.7)	14 (25.5)	14 (25.5)	12 (21.8)	8 (14.54)	3.5	0.70	A
5.	The student companion and pedagogical companion provide sufficient guidance for classroom transaction.	6 (10.9)	9 (16.4)	18 (32.7)	17 (30.9)	5 (9.1)	3.10	1.13	UD
6.	The audio-video resources provided are contextual and easily understood by children.	4 (7.3)	3 (5.5)	8 (14.5)	21 (38.2)	19 (34.5)	3.87	1.17	A
7.	The language of the videos is age appropriate and easily understood by children.	3 (5.5)	4 (7.3)	9 (16.4)	21 (38.2)	18 (32.7)	3.85	1.12	A
8.	Audio-visual resources are not available in bi-lingual/ multilingual languages.	6 (10.9)	5 (9.1)	15 (27.3)	20 (36.4)	9 (16.4)	3.38	1.19	UD
	<b>Total</b>						<b>3.34</b>	<b>1.10</b>	<b>UD</b>

**Discussion**

D.El.Ed. trainees had a 'neutral perception' about the inquiry-based learning in DBSE schools, with a mean of 3.33. They are also neutral about the curriculum and its transaction, availability of physical and digital infrastructure, classroom transactions with means of 3.34, 2.70, 3.24 respectively. However, they had a 'highly positive perception' or strongly agreed with the suggested training strategies with a mean of 4.07.

D.El.Ed. trainees agreed that the pedagogy in Inquiry based (IB) learning is child centric, fewer burdens on teachers in teaching through this approach, audio- video resources provided are contextual and easily understood by children. They also agreed that they were confident about lesson planning in IB approach by the end of SEP, the principal and school teachers cooperating and guiding them during SEP. There were too many activities in each unit and the students participated actively in the activities. They were of the opinion that there was no readiness in the students to learn through this approach and the size of class was a problem in conducting and organizing activities.

They also had a fairly positive perception about the conduction of specified training for a longer time.

(One week or more), simulated teaching of IB learning should be done by D.El.Ed. trainees before SEP and more emphasis should be laid on unit planning and trans disciplinary approach during theory classes or orientation for lesson planning.

D.El.Ed. trainees have a highly positive perception about demonstration classes with this approach being held for them before starting SEP and the content curriculum should be both physically and digitally available.

D.El.Ed. trainees disagreed that the non-availability of textbooks was very helpful in the teaching-learning process, allowed to use school resources (lab, TLM, etc.) in teaching-learning as a trainee for the class and the digital infrastructure (smart board, projector, Wi-Fi, etc.) at school was sufficient and complimented the needs of the IB approach.

They had a neutral perception that the content of the curriculum was better than CBSE, the student companion and pedagogical companion providing sufficient guidance for classroom transactions, audio-visual resources are not available in bi-lingual/multilingual languages.

**PERCEPTIONS OF IN-SERVICE TEACHERS ON THE IMPLEMENTATION OF INQUIRY-BASED LEARNING IN DBSE SCHOOLS OF DELHI:**

S. No	PROBLEMS FACED BY OF D.El.Ed. TRAINEES	SD No. (%)	D No. (%)	UD No. (%)	A No. (%)	SA No. (%)	Mean	$\sigma$	Decision
1.	The study material was not available well within the time period.	0 (0)	0 (0)	0 (0)	5 (62.5)	3 (37.5)	4.37	0.51	SA
2.	The planning for SEP in schools required better coordination between planning by DIETs and DoE.	0 (0)	0 (0)	1 (12.5)	3 (37.5)	4 (50)	4.37	0.74	SA
3.	Transdisciplinary approach was different from what D.El.Ed. trainees were prepared for SEP.	0 (0)	1 (12.5)	1 (12.5)	3 (37.5)	3 (37.5)	4.0	1.06	A
4.	The training and orientation time was insufficient for D.El.Ed. trainees for SEP in DBSE schools.	0 (0)	1 (12.5)	1 (12.5)	3 (37.5)	3 (37.5)	4.25	1.06	SA
5.	There was a lack of guidance from teachers from cooperating schools for SEP in DBSE schools.	1 (12.5)	1 (12.5)	0 (0)	5 (62.5)	1 (12.5)	3.5	1.30	A
6.	First year D.El.Ed. trainees faced more problems than Second year D.El.Ed. trainees in SEP.	0 (0)	3 (37.5)	0 (0)	3 (37.5)	2 (25)	3.5	1.30	A
7.	Most D.El.Ed. trainees were given substitute classes and therefore did not have a positive experience during SEP.	0 (0)	2 (25)	0 (0)	4 (50)	2 (25)	3.75	1.16	A
8.	Curriculum and assessment were very clearly outlined.	0 (0)	3 (37.5)	2 (25)	1 (12.5)	2 (25)	3.25	1.28	A

	Total						3.87	1.05	A
	TRAINING STRATEGIES								
1.	More focus is required on a transdisciplinary approach during lesson planning.	0 (0)	0 (0)	1 (12.5)	4 (50)	3 (37.5)	3.5	0.70	A
2.	More focus is required on the unit planning approach during lesson planning.	0 (0)	1 (12.5)	0 (0)	4 (50)	3 (37.5)	4.12	0.99	A
3.	More focus is required on inquiry-based approach during lesson planning.	0 (0)	0 (0)	0 (0)	5 (62.5)	3 (37.5)	4.37	0.51	SA
4.	Sufficient Training and workshops for SEP in DBSE schools should be organised.	1 (12.5)	0 (0)	0 (0)	3 (37.5)	4 (50)	4.12	1.35	A
5.	Curriculum and guidelines should be available for both teacher educators and D.El.Ed. trainees well in advance.	0 (0)	1 (12.5)	1 (12.5)	3 (37.5)	3 (37.5)	4.0	1.06	A
	Total						4.02	0.92	A
	Total Aggregate						3.94	0.98	A

### Discussion

As seen from table above, the teacher educators agreed to the listed problems faced by D.El.Ed. trainees and the suggested strategies. The mean is 3.94 which means that they have a fairly positive perception about the approach.

The teacher educators strongly agreed that the study material was not available well within the time period, the planning for SEP in schools required better coordination between planning by DIETs and DoE, training and orientation time was insufficient for D.El.Ed. trainees for SEP in DBSE schools and that more focus is required on inquiry-based approach during lesson planning.

They also agreed that the transdisciplinary approach was different from what D.El.Ed. trainees were prepared for SEP and required more focus. There was a lack of guidance from teachers from cooperating schools for SEP in DBSE schools. The first year D.El.Ed. trainees faced more problems than second year D.El.Ed. trainees in SEP. Most D.El.Ed. trainees were given substitute classes and therefore did not have a positive experience during SEP.

### PERCEPTION OF SCHOOL TEACHERS TOWARDS INQUIRY BASED LEARNING (IBL) APPROACH

S. No	Statement/Items	SD No. (%)	D No. (%)	UD No. (%)	A No. (%)	SA No. (%)	M	$\sigma$	Decision
	<b>A. Learning Environment</b>								
1.	The Inquiry based teaching and learning helps students to develop experimental process skills.			1 (4.2)	9 (37.5)	14 (58.3)	4.54	0.58	SA
2.	Students take interest in this approach.			1 (4.2)	17 (70.8)	6 (25)	4.20	0.50	A
3.	This inquiry-based teaching-learning improves student's critical thinking skills.				11 (45.8)	13 (54.2)	4.54	0.50	SA

4.	This approach encourages students to ask questions.			1 (4.2)	12 (50)	11 (45.8)	4.41	0.58	SA
5.	This approach reduces the absent-mindedness of students.			3 (12.5)	11 (45.8)	10 (41.7)	4.29	0.69	SA
	<b>Total</b>						<b>4.4</b>	<b>0.5</b>	<b>SA</b>
	<b>B. Inquiry Based Teaching Method</b>								
1.	The lesson time allocated is adequate for students to do practical work.	1 (4.2)	4 (16.7)	9 (37.5)	7 (29.2)	3 (12.5)	3.29	1.04	UD
2.	In IB teaching, teachers include more practical activities in the classroom.			5 (20.8)	15 (62.5)	4 (16.7)	3.95	0.62	UD
3.	Teachers find the IB approach as a burden.	6 (25)	9 (37.5)	6 (25)	3 (12.5)		2.25	0.98	D
4.	This approach can help students to understand the concept matter.		1 (4.2)	3 (12.5)	15 (62.5)	5 (20.8)	4	0.72	A
5.	I prefer to use this in all topics that I teach because it is a productive teaching method.		1 (4.2)	3 (12.5)	19 (79.2)	1 (4.2)	3.83	0.56	A
	<b>Total</b>						<b>3.46</b>	<b>0.78</b>	<b>A</b>
	<b>C. Support Material</b>								
1.	This approach prefers students to build their own inquiries.		1 (4.2)	5 (20.8)	13 (54.2)	5 (20.8)	3.91	0.77	A
2.	Materials for Inquiry based teaching and learning is well-organized and defined.		5 (20.8)	6 (25)	13 (54.8)		3.33	0.81	UD
3.	This approach allows students to connect content with real life.			2 (8.3)	16 (66.7)	6 (25)	4.16	0.56	A
4.	This approach helps students to create new knowledge rather than memorizing the existing one.			2 (8.3)	15 (62.5)	7 (29.2)	4.20	0.58	A
5.	This approach piques the curiosity of students that helps them to deepen their understanding.		2 (8.3)	1 (4.2)	16 (66.7)	5 (20.8)	4	0.78	A
	<b>Total</b>						<b>3.92</b>	<b>0.7</b>	<b>A</b>
	<b>D. Assessment</b>								
1.	In IB approach teaching and assessment go side by side.		1 (4.2)	1 (4.2)	17 (70.8)	5 (20.8)	4.08	0.65	A
2.	Teachers face discipline problems during practical work and assessment.	2 (8.3)	7 (29.2)	5 (20.8)	8 (33.3)	2 (8.3)	3.04	1.16	UD
3.	Assessment of students in IB learning is much time consuming.		3 (12.5)	5 (20.8)	12 (50)	4 (16.7)	3.70	0.90	A

4.	Assessment using IB approach gives more reliable results regarding learning outcomes of students.		1 (4.2)	1 (4.2)	16 (66.7)	6 (25)	4.12	0.67	A
5.	This approach gives the opportunity of applying peer assessment as well as self-assessment by the teachers.			3 (12.5)	15 (62.5)	6 (25)	4.12	0.61	A
	Total						3.81	0.8	A
	Total Aggregate						3.9	0.71	A

### Discussion

The above table shows that school teachers have a 'fairly positive perception' about Inquiry based learning approach in DBSE schools with a mean of 3.9. They also have a 'fairly positive perception' about Inquiry Based Teaching Method, Support Material and Assessment with mean of 3.46, 3.92, 3.81 respectively.

The school teachers have strongly agreed with the following items, showing a 'highly positive perception' about the teaching and learning through IBL helping students to develop experimental process skills, improving student's critical thinking skills, encouraging students to ask questions and reducing their absent-mindedness.

They have a 'fairly positive perception' about students taking interest in this approach and to understand the concepts better. It helps students to build their own inquiries, piques the curiosity that helps them to deepen their understanding and to connect content with real life. They agreed that students create new knowledge rather than memorising the existing one.

They prefer to use this approach as they consider it as a productive teaching method. It gives the opportunity of peer assessment as well as self-assessment and gives more reliable results regarding learning outcomes of students. However, they considered that assessment of students in IB learning is much more time consuming.

School teachers had a 'fairly negative perception' or disagreed about finding the IB approach as a burden.

They were neutral about allocation of time being adequate for students to do practical work, teachers including more practical activities in the classroom, materials for Inquiry based teaching and learning being well-organised and defined and facing discipline problems during practical work and assessment.

### CONCLUSION

The findings highlight a significant perceptual gap: while school teachers and teacher educators express fairly positive attitudes toward IBL, D.El.Ed. trainees remain neutral, reflecting their struggle with inadequate preparation and infrastructure. This underscores the need for bridging the divide between pedagogical intent and classroom realities. NEP 2020's vision for inquiry-driven education can only be achieved if policies are complemented with robust support systems, including contextualized resources, ongoing mentorship, and infrastructure investment. By addressing these challenges, DBSE schools can become models of learner-centric, discovery-oriented pedagogy, nurturing students to thrive in a knowledge-driven future.

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