

# PEDAGOGICAL CONTENT KNOWLEDGE AND ACADEMIC ACHIEVEMENT OF B.Ed. TRAINEES

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## *Abstract*

*This study examined the link between pedagogical content knowledge and academic achievement of B.Ed. trainees. Participants included 120 B.Ed. trainees, among these 47mentrainees, and 73womentrainees from three colleges of education located in rural and urban area of Tiruchirappalli district. The results indicated that womentrainees are better pedagogical content knowledge compared to their counterparts. But there is no significant difference between men and women trainees in their academic achievement. Also the study reported that there was significant positiverelationship found between pedagogical content knowledge and academic achievement of B.Ed. trainees.*

## **1. Introduction**

Teacher education is the process of providing teachers and potential teachers with the skills and knowledge necessary to teach effectively in a classroom environment or outside the classroom environment. It is the professional preparation, in pedagogy, of those who want to enter the profession of teaching. This may be traditional and closed type with objectivist orientation which focuses on the product of learning or may be progressive and open type with an orientation of subjectivity of the pupils focusing on the process of learning. Teacher education derives its theoretical support from a basic philosophy of education, the historical and sociological forces shaping education and psychological view points on how human beings learn. The different theoretical viewpoints of psychology regarding the understanding of human behaviour and its modification, especially as they influence teacher education practices, are of greater relevance. For quite some time, now, the behaviorist model which analyses teaching and learning to a series of sequentially arranged specific tasks; skills and competencies, influenced teacher education leading to the adoption of innovative practices.

## **2. Pedagogical Content Knowledge**

Pedagogical Content Knowledge is a type of functional learning that is utilized by educators to direct their activities in exceptionally contextualized classroom settings. This type information involves, in addition to other things: (a) Knowledge of how to structure and speak to academic content for direct instructions to learners; (b) learning of the regular conceptions, misguided judgments, and challenges that learners experience when learning specific content; and (c) information of the particular teaching methods that can be utilized to address learners' adapting needs specifically in classroom conditions. In the perspective of Shulman, Pedagogical content knowledge expands on different types of expert information, and is along these lines a basic and maybe even the vital constitutive component in the knowledge base of teaching (Rowan et al., 2001).

### 3. Academic Achievement

Academic achievement refers to the level of success or proficiency attained in some specific areas concerning scholastic or academic work. Concise Dictionary of Education (1982) explained academic achievement as successful accomplishment or performances; in particular subjects, areas, or courses usually by reasons of skill, hard work and interest typically summarized in various types of grades, marks, scores, or descriptive commentary. Generally, academic achievement is the scores obtained in the examinations. A normal achiever is one who accomplishes what may generally be expected of him /her for his or her age. On the other hand, over-achiever is one who accomplishes more than his or her abilities would seem to justify and under-achiever is one who accomplishes less than his or her abilities. Thus, there are various aspects of the concept of academic achievement, which has a great bearing on the personality of the student.

### 4. Need and Significance of the Study

Pedagogical Content Knowledge incorporates the understanding that gives the learning of both tough and simple subjects. It is the information of various teaching methods for various subjects (Koehler et al., 2007; Schmidt et al., 2009; Shulman, 1986). It is the mixing of teaching method and content with the understanding of managing the issues in education, the method for arranging, representing and adopting diverse student interests and abilities (Shulman, 1987). Pedagogical content knowledge is the convergence and connection of instructional method and content learning. It covers fundamental information of teaching and learning content-based curriculum, and additionally evaluation and reporting of that learning. An attention to learners' earlier learning, elective teaching techniques in a specific field, regular content related misguided judgments, how to forge connections and associations among various content based thoughts, and the flexibility that originates from investigating different teaching methods for taking a gander at a similar thought or issue, and that's only the tip of the iceberg, are for the most part articulations of academic substance information and are fundamental to successful teaching. In particular, as per Shulman (1986), this change happens as the educator translates the topic, finds different approaches to teach content, and adjusts and tailors the instructional materials to elective originations and learners' earlier information.

Academic Achievement plays a very important role in the attainment of the idea of harmonious development of the child. In this rapidly changing world and with the growing advancement in Science and Technology, the place of education has become so vital that every parent today sets high goals for his/her child. Today at the time of admission, for entrance in jobs, for scholarship, for further studies good academic record is the major yardstick. Whatever one's interest, attitude may be one cannot undermine academic record. In recent years, Academic Achievement has come to occupy the central position. Sound development in academic front can be well matched with pillars on which entire future structure of personality stands.

Based on the above discussion, the Investigator proposes to gain valuable insight into the relationship that exists among the above mentioned variables and to find out the relationship of pedagogical content knowledge and academic achievement of B.Ed. trainees.

### **5. Statement of the Problem**

Pedagogical content knowledge covers teaching, learning, educational programs, evaluation, and reporting, for example, the conditions that advance learning and the connections among educational modules, appraisal, and teaching method. The assessment of academic achievement has long been a routine part of educational process. It has two purposes namely specifying and verifying problems and making decisions about students. It aims to assist professionals in making decisions about referral, screening, classification, instructional planning, and student progress. Against this background, the Researcher proposes to find out the relationship of pedagogical content knowledge and academic achievement of B.Ed. trainees.

### **6. Title of the Study**

The title of the study is precisely stated below:

***“Pedagogical Content Knowledge and Academic Achievement of B.Ed. Trainees”***

### **7. Method of the Study**

The investigator has adopted survey method of research to study the “Pedagogical Content Knowledge of B.Ed. Trainees”.

### **8. Population of the study**

The population of the present study consists of the B.Ed. trainees who are studying in colleges of education in Tiruchirappalli District of Tamil Nadu State, South India.

### **9. Sample of the study**

The investigator used stratified random sampling technique for selecting the sample from the population. The stratification was done on the basis of teachers' Gender, Marital Status, Subject studying, Medium of Instruction and Locality. The sample consists of 120 B.Ed. trainees.

### **10. Tools Used in the Study**

1. Pedagogical Content Knowledge Questionnaire was developed by Michael Leo (2013)
2. Academic Achievement. The investigator collected the academic achievement score of the first year B.Ed trainees university marks.

## 11. Statistical Measures of the Study

In the present study, 't' test and Karl Pearson's Product Moment Co-efficient of Correlation are the statistical techniques used for analyzing the data.

## 12. Objectives of the Study

1. To find out whether there is any significant difference between the B.Ed. trainees in their pedagogical content knowledge with regard to men and women, married and unmarried, studying arts and science subjects, Tamil medium and English medium, rural and urban residence.
2. To find out whether there is any significant difference between the B.Ed. trainees in their pedagogical content knowledge with regard to men and women, married and unmarried, studying arts and science subjects, Tamil medium and English medium, rural and urban residence.
3. To find out whether there is any significant relationship between the B.Ed. trainees in their pedagogical content knowledge and academic achievement.

## 13. Hypotheses of the Study

1. There is no significant difference between the B.Ed. trainees in their pedagogical content knowledge with regard to men and women, married and unmarried, studying arts and science subjects, Tamil medium and English medium, rural and urban residence.
2. There is no significant difference between the B.Ed. trainees in their pedagogical content knowledge with regard to men and women, married and unmarried, studying arts and science subjects, Tamil medium and English medium, rural and urban residence.
3. There is no significant relationship between the B.Ed. trainees in their pedagogical content knowledge and academic achievement.

## 14. Analysis of the Study

### (a) Differential Analysis

#### Hypothesis – 1a

There is no significant difference between the men and women B.Ed. trainees in their pedagogical content knowledge.

**Table-1**  
**MEAN SCORE DIFFERENCE BETWEEN MEN AND WOMEN B.Ed.**  
**TRAINEES IN THEIR PEDAGOGICAL CONTENT KNOWLEDGE.**

Variable	Gender	Mean	SD	't' Value	Remarks at 5% Level
Pedagogical Content Knowledge	Men	94.80	9.81	3.21	S
	Women	104.99	11.56		

The calculated t-value (3.21), which is significant at 5% level of significance, it confirms that there is significant difference in pedagogical content knowledge with regard to men and women B.Ed. trainees.

While comparing the mean scores women B.Ed. trainees are higher in their level of pedagogical content knowledge compares to men counterparts. Hence the stated hypothesis 1a is rejected.

#### Hypothesis – 1b

There is no significant difference between the married and unmarried B.Ed. trainees in their pedagogical content knowledge.

**Table-2**  
**MEAN SCORE DIFFERENCE BETWEEN MARRIED AND UNMARRIED B.Ed. TRAINEES IN THEIR PEDAGOGICAL CONTENT KNOWLEDGE.**

Variable	Marital Status	Mean	SD	't' Value	Remarks at 5% Level
Pedagogical Content Knowledge	Married	88.69	8.28	1.62	NS
	Unmarried	94.37	8.94		

The calculated t-value (1.62), which is not significant at 5% level of significance, it confirms that there is no significant difference in pedagogical content knowledge with regard to married and unmarried B.Ed. trainees. Hence the stated hypothesis 1b is accepted.

#### Hypothesis – 1c

There is no significant difference between the arts and science B.Ed. trainees in their pedagogical content knowledge.

**Table-3**  
**MEAN SCORE DIFFERENCE BETWEEN ARTS AND SCIENCE B.Ed. TRAINEES IN THEIR PEDAGOGICAL CONTENT KNOWLEDGE.**

Variable	Subject	Mean	SD	't' Value	Remarks at 5% Level
Pedagogical Content Knowledge	Arts	99.78	8.93	2.08	S
	Science	111.46	10.84		

The calculated t-value (2.08), which is significant at 5% level of significance, it confirms that there is significant difference in pedagogical content knowledge with regard to arts and science B.Ed. trainees. While comparing the mean scores science B.Ed. trainees are higher in their level of pedagogical content knowledge compared to the arts counterparts. Hence the stated hypothesis 1c is rejected.

#### Hypothesis – 1d

There is no significant difference between the Tamil medium and English medium B.Ed. trainees in their pedagogical content knowledge.

**Table-4**

**MEAN SCORE DIFFERENCE BETWEEN TAMIL MEDIUM AND ENGLISH MEDIUM B.Ed. TRAINEES IN THEIR PEDAGOGICAL CONTENT KNOWLEDGE.**

Variable	Medium	Mean	SD	't' Value	Remarks at 5% Level
Pedagogical Content Knowledge	Tamil	90.11	7.54	0.97	NS
	English	90.65	7.29		

The calculated t-value (0.97), which is not significant at 5% level of significance, it confirms that there is no significant difference in pedagogical content knowledge with regard to Tamil and English medium studying B.Ed. trainees. Hence the stated hypothesis 1d is accepted.

**Hypothesis – 1e**

There is no significant difference between the rural and urban B.Ed. trainees in their pedagogical content knowledge.

**Table-5**  
**MEAN SCORE DIFFERENCE BETWEEN RURAL AND URBAN B.Ed. TRAINEES IN THEIR PEDAGOGICAL CONTENT KNOWLEDGE.**

Variable	Residence	Mean	SD	't' Value	Remarks at 5% Level
Pedagogical Content Knowledge	Rural	94.31	9.06	1.28	NS
	Urban	96.02	9.23		

The calculated t-value (1.28), which is not significant at 5% level of significance, it confirms that there is no significant difference in pedagogical content knowledge with regard to rural and urban B.Ed. trainees. Hence the stated hypothesis 1e is accepted.

**Hypothesis – 2a**

There is no significant difference between the men and women B.Ed. trainees in their academic achievement.

**Table-6**  
**MEAN SCORE DIFFERENCE BETWEEN MEN AND WOMEN B.Ed. TRAINEES IN THEIR ACADEMIC ACHIEVEMENT.**

Variable	Gender	Mean	SD	't' Value	Remarks at 5% Level
Academic Achievement	Men	74.46	6.58	0.81	NS
	Women	75.20	5.85		

The calculated t-value (0.81), which is not significant at 5% level of significance, it confirms that there is no significant difference in academic achievement of B.Ed. trainees on the basis of their gender. Hence the stated hypothesis 2a is accepted.

**Hypothesis – 2b**

There is no significant difference between the married and unmarried B.Ed. trainees in their academic achievement.

**Table-7**

**MEAN SCORE DIFFERENCE BETWEEN MARRIED AND UNMARRIED B.Ed. TRAINEES IN THEIR ACADEMIC ACHIEVEMENT.**

Variable	Marital Status	Mean	SD	't' Value	Remarks at 5% Level
Academic Achievement	Married	74.89	6.41	0.38	NS
	Unmarried	74.96	5.36		

The calculated t-value (0.38), which is not significant at 5% level of significance, it confirms that there is no significant difference in academic achievement of B.Ed. trainees on the basis of their marital status. Hence the stated hypothesis 2b is accepted.

**Hypothesis – 2c**

There is no significant difference between the arts and science B.Ed. trainees in their academic achievement.

**Table-8**

**MEAN SCORE DIFFERENCE BETWEEN ARTS AND SCIENCE B.Ed. TRAINEES IN THEIR ACADEMIC ACHIEVEMENT.**

Variable	Subject	Mean	SD	't' Value	Remarks at 5% Level
Academic Achievement	Arts	81.23	7.23	2.01	S
	Science	89.58	7.97		

The calculated 't' value (2.01), which is significant at 5% level of significance, it confirms that there is significant difference in academic achievement of B.Ed. trainees on the basis of their subject studying. While comparing the mean scores the science subject studying B.Ed. trainees are higher in their academic achievement than their arts counterparts. Hence the stated hypothesis 2c is rejected.

**Hypothesis – 2d**

There is no significant difference between the Tamil medium and English medium B.Ed. trainees in their academic achievement.

**Table-9**

**MEAN SCORE DIFFERENCE BETWEEN TAMIL MEDIUM AND ENGLISH MEDIUM B.Ed. TRAINEES IN THEIR ACADEMIC ACHIEVEMENT.**

Variable	Medium	Mean	SD	't' Value	Remarks at 5% Level
Academic Achievement	Tamil	86.24	7.27	1.92	NS
	English	80.28	7.03		

The calculated 't' value (1.92), which is not significant at 5% level of significance, it confirms that there is no significant difference in academic achievement of B.Ed. trainees on the basis of their medium of instruction. Hence the stated hypothesis 2d is accepted.

#### Hypothesis – 2e

There is no significant difference between the rural and urban B.Ed. trainees in their academic achievement.

**Table-10**  
**MEAN SCORE DIFFERENCE BETWEEN RURAL AND URBAN B.Ed. TRAINEES IN THEIR ACADEMIC ACHIEVEMENT.**

Variable	Residence	Mean	SD	't' Value	Remarks at 5% Level
Academic Achievement	Rural	96.34	6.97	0.98	NS
	Urban	89.28	7.03		

The calculated 't' value (0.98), which is not significant at 5% level of significance, it confirms that there is no significant difference in academic achievement of B.Ed. trainees on the basis of their locality. Hence the stated hypothesis 2e is accepted.

#### (b) Correlational Analysis

#### Hypothesis – 3

There is no significant relationship between the B.Ed. trainees in their pedagogical content knowledge and academic achievement.

**Table-11**  
**RELATIONSHIP BETWEEN PEDAGOGICAL CONTENT KNOWLEDGE AND ACADEMIC ACHIEVEMENT**

Variables	Pedagogical Content Knowledge	Remarks at 5% Level
Academic Achievement	0.489	S

From the table it is inferred that there is significant positive relationship between pedagogical content knowledge and academic achievement of B.Ed. trainees, as the calculated ' $\gamma$ ' value 0.489 are significant at 5% level.

### 15. Major Findings of the Study

1. There is significant difference in pedagogical content knowledge with regard to men and women B.Ed. trainees.



2. There is no significant difference in pedagogical content knowledge with regard to married and unmarried B.Ed. trainees.
3. There is significant difference in pedagogical content knowledge with regard to arts and science B.Ed. trainees.
4. There is no significant difference in pedagogical content knowledge with regard to Tamil and English medium studying B.Ed. trainees.
5. There is no significant difference in pedagogical content knowledge with regard to rural and urban B.Ed. trainees.
6. There is no significant difference in academic achievement of B.Ed. trainees on the basis of their gender.
7. There is no significant difference in academic achievement of B.Ed. trainees on the basis of their marital status.
8. There is significant difference in academic achievement of B.Ed. trainees on the basis of their subject studying.
9. There is no significant difference in academic achievement of B.Ed. trainees on the basis of their medium of instruction.
10. There is no significant difference in academic achievement of B.Ed. trainees on the basis of their locality.
11. There is significant positive relationship between pedagogical content knowledge and academic achievement of B.Ed. trainees

## 16. Conclusion

With the progression of technology it is very hard to teach learners according to their standards. Keeping in mind the end goal to meet these objective, educators ought to have authority over the topic. The imaginative thoughts of learners ought to be associated over the fields and everyday life by the educators. These are the establishment stones of pedagogical content knowledge. It is basic, nonetheless, that pedagogical content knowledge be subject particular. So, pedagogical content knowledge covers the centre business of teaching, learning, educational programs, evaluation, and reporting, for example, the conditions that advance learning and the connections among educational modules, appraisal, and teaching method. An attention to normal misguided judgments and methods for taking a gander at them, the significance of fashioning associations among various content based thoughts, learners' earlier information, alternate teaching techniques, and the adaptability that originates from investigating elective methods for taking a gander at a similar thought or issue are on the whole basic for effective teaching.

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