

## Summary

"Any enlightened human being can be created by the teacher through providing a unique characteristic. One is building capacities among the students to inquire, to innovate, be creative and moral leadership; second is the development of social value system". (Kalam, 2008)<sup>24</sup>

The above quotation of Dr. Kalam put forth the whole scenario of process of education including aims of education, dimensions of education and role of the teachers. Here, the emphasis is given on social development and role of teacher. It also explores the interdependence between individual and social development and role of a teacher as a catalyst in this process, and this relationship between society and education is also explained in the report of UNESCO.

The report says - "Education is a social experience through which children learn about themselves, develop interpersonal skills and acquire basic knowledge and skills. This experience should begin in early childhood in different forms depending on the situations but always with involvement of families and local communities". (Delors, 1996)<sup>25</sup>

The report claims education as social practice through knowledge and skills. With relation to this quotation report also emphasize that – "Education is at the heart of personal and community development, it's mission is to enable each of us, without

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<sup>24</sup> "Youth power can transform India: Kalam, Former president A.P.J. Abdul Kalam says the great challenge of transforming India can be achieved through youth which has got the power of ideas, ambition and ability".

<sup>25</sup> The Delors Report (1996) "Learning – The Treasure Within reaffirms the view of Education Commission (1964 – 66) when it visualizes learning"

exception, to develop all talents to the full and realize our creative potential, including responsibility for our own lives and achievements of personal aims". (Delors, 1996)<sup>26</sup>

Both the arguments made by Delors Commission are with different perspective, the first one highlights the role and significance of society for education and the other focuses the vitality of education for individual as well as social development. These two arguments are complimentary to each other but the relationship between them is not simple and easy to manipulate.

Education has uplifted mankind from status of animal to human being. It has driven human desire from Stone Age to contemporary age of technology to know the world and create new things for his development. Education has initiated a new process of evolution on the social, cultural, psychic, scientific level. It has produced significance in human life. It's role in the individual and social development is beyond the debate but the debate on meaning of aims, curriculum and methodology is ongoing. The meaning, goals and functions of education have been changed in the context of philosophy of Education. There are many schools of educational philosophy developed in Eastern and Western countries. In India, Sankhya, Vedanta, Yoga, Nyaya, Buddhism, Jainism, Charvaka etc. are the most popular schools; Idealism, naturalism, realism, pragmatism and existentialism are popular western schools. They have proposed objectives of education, curriculum, teaching methods etc. with their own views. The different opinions on educational issues among the various schools have enriched education in many ways. The plurality in views, approaches and methodology broaden the educational horizons. It has given opportunity to include diversified people in the process of Education. Now a day, education is not purely scholastic as it was in

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<sup>26</sup>The Delors Report (1996) "*Learning – The Treasure Within reaffirms the view of Education Commission (1964 – 66) when it visualizes learning*"

ancient or medieval period. It is being global process in all dimensions. In the conventional education pupils are made to learn from a fixed syllabi of courses, it is subject centered and it leads to greater use of memory than of other mental processes. Reasoning, creativity and originality. So conventional nature of education is insufficient and unable to fulfill the needs of pupils in the modern world. Due to the conventional nature of education is being vanished and new form of education is coming into appearance through the efforts initiated by all sides.

### **Goals of Education and their Vitality**

Goals produces meaning and significance in the education, they provides direction to curriculum, teachers, students, society and all the elements of educational system. The goals of education are emerged from the needs and context of the society. They reflect the ideology of the society since the long history of development of society. The goals of education are changed in accordance of philosophy of society, geographical, socio-economic political context of the society. Many times the contradictory goals were set by education in same period due to different philosophical perspective. The whole process of Education is based on three foundations; Philosophical, Sociological and Psychological Foundation. The goals of Education emerged on this backdrop. These goals determined the directions in which the society moves and moulds. Generally these goals are classified with the following perspectives.

- a) Cognitive
- b) Affective
- c) Social

## **General Objectives of School Education**

Perspective of teacher education emerges from the objectives of school education which reflect concerns for fulfillment of individual's potential in harmony with collective human aspirations. To this end the NCFSE-2000 presents a comprehensive set of educational objectives. Cultivating proper respect and care for the aged. These objectives focus on the continuous development of an individual and individuals' growth as Indians in the twenty first century. Hence, teachers need a thorough understanding of the emerging social, cultural and economic contexts and also the sensitivity and social concerns while imparting education by considering man as a social animal.

## **Agencies of Education**

Society has developed a number of specialized institutions to carry out the functions of education. Some of these agencies are formal set up more or less deliberately by society. Such agencies have been specifically created with the objective of carrying out the various functions of education. Informal agencies include institutions which diffuse and transmit culture and knowledge from one generation to another in an informal, unorganized manner. The family, the play group and the community are some of the informal agencies.

There is always a relation between nature, needs of society and educational system because there are specific expectations of the society from education. Besides the goals, needs and culture of a complex society changes over a period of time. As a result, in the same society, the functions of education may be different at different times. For e.g. in Agricultural Society, the main function of educational system was the socialization of the new generation by transmission of the cultural heritage and maintenance of stability and continuity by conforming them to the social traditions.

After independence, the functions of the educational system have been greatly diversified and enlarged. Besides the socialization of the new generation, it has to perform several new functions of preparing it for social change, providing them diversified education and training for varied occupations, selecting and allocating the trained personnel for different positions in society, providing social mobility to them. Due to changing nature of society all type of development of child is pressured on Educational system.

**According to National Knowledge Commission (2007)** "NKC believes that providing universal access to quality school education is a corner stone of development and a minimum necessary condition for any progress towards making India a knowledge society".

Again, NKC in their reports of year 2008 and 2009 emphasized the access, affordability, equity and excellence in the field of education as necessary condition of development. In the developmental child 'Intelligence' is one of the part of development and this concept have a wider sense in new era of world.

### **Objective of Secondary School Teaching in India**

In India, various education omission reports and educational policies have formulated different objectives of secondary school teaching since independence as follows:

#### 9. The Secondary Education Commission (1952-53)<sup>27</sup>:

The commission constituted to find out the various problems and its solutions for secondary system of education and it gave a large number of results for the remedial

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<sup>27</sup>"The secondary education known as Mudaliar Commission appointed by the government of India in term of their Resolution number F 9-5/52 B-1 dated 23".

measures. The commission stated the following important objectives for secondary school teaching as:

- (vi) Education for democratic value.
- (vii) Education for developing democratic citizenship.
- (viii) Education for improving vocational efficiency.
- (ix) Education for development of personality and
- (x) Education for developing good leadership.

10. Kothari Education Commission (1964-66)<sup>28</sup>:

The Kothari Education Commission stated the following educational objectives:

- (xii) Economic growth and full employment.
- (xiii) Social and national integration.
- (xiv) Development of human resources.
- (xv) Education for social change.
- (xvi) Relating education to life, needs and aspirations of the people.
- (xvii) Education for productivity.
- (xviii) Vocational education.
- (xix) Education for modernization.
- (xx) Education for social, moral and spiritual values.
- (xxi) Maintaining secularism and religion and
- (xxii) Education for democratic values.

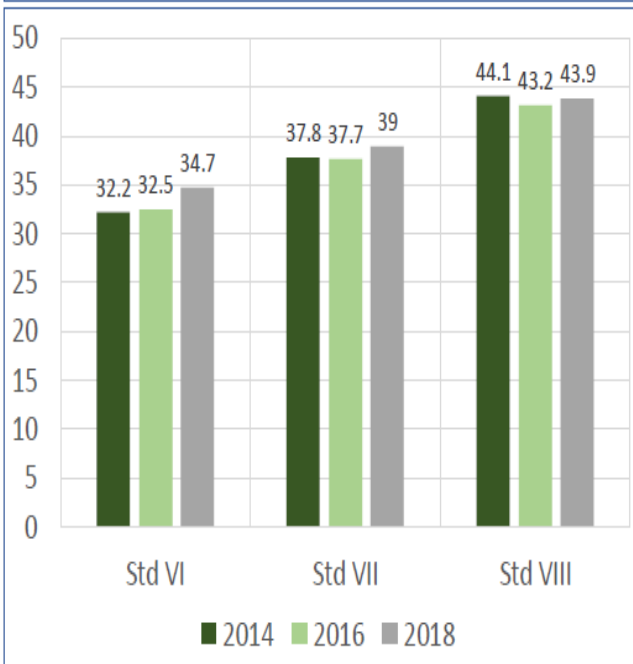
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<sup>28</sup> "National Education Commission (1964-1966), popularly known as Kothari Commission, was an ad hoc commission set up by the Government of India to examine all aspects of the educational sector in India, *Education and National Development: Report of the Education Commission, 1964-66 - Vol I: General Problems*".

The recent report of the survey ASER 2014-2018 reflects the enrolment chart of upper primary level and said that out of four; one child is leaving school in class VIII having no competency in reading skills. They do not have foundation skills in them and this shows that there may be required a drastic changes in the teaching methods.

## Std VI-VIII: Hardly any increase in learning levels in upper primary

% Children who can correctly solve numerical division problems in different grades:  
All India (rural) All children over time 2014-2018



Three clear national trends:

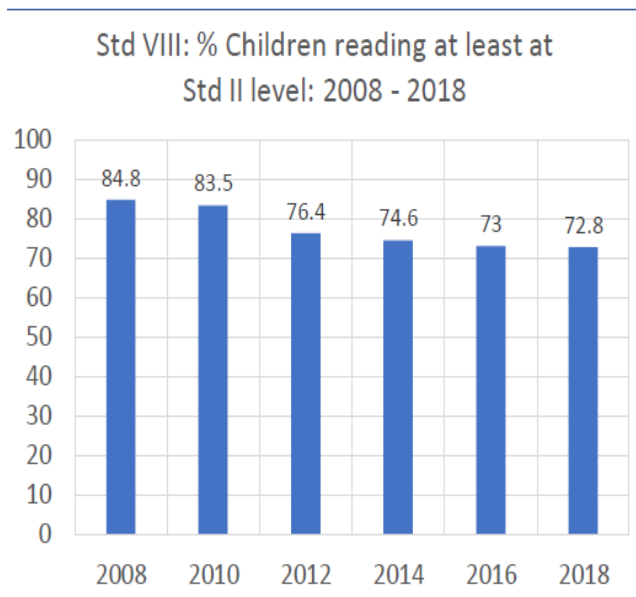
- Basic math levels remain low. In Std VIII, more than half of all children are still struggling with division
- Additional 'value added' in terms of math skills for each year of schooling is low
- Experiences of each subsequent cohort is unchanged over time

Without strong foundational skills it is difficult for children to cope with what is expected of them in upper primary grades. Need to provide them this help & opportunity.

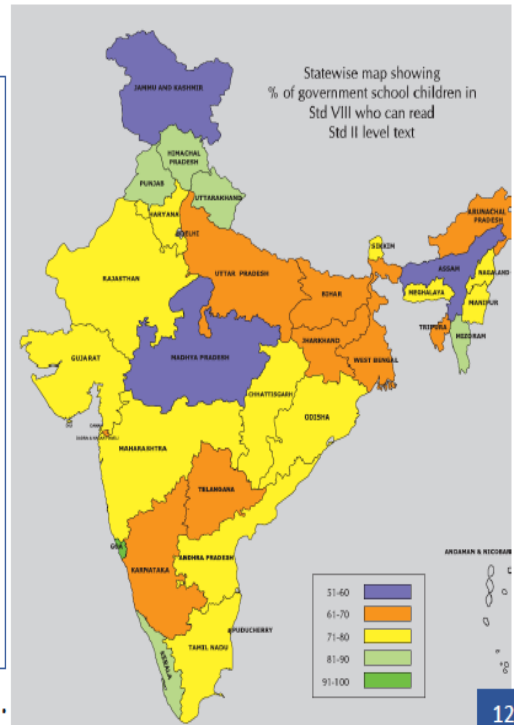
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<sup>29</sup> ASER report 2018

## 1 out of 4 children leaving Std VIII without basic reading skills



All India figures continue to show decline over time.



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### Need of the Study

Education is just like the backbone of our society and every individual has the right to get an education. Elementary education is the base of all education systems, where every individual has get foundation for further education. The overall development of a child is possible only by strong foundation of elementary education. Proper elementary education leads one within the direction of achieving his goals.

Learning is a process through which we acquire new modes of behavior or modify the existing modes of behavior. Human behavior is classified into three domains: cognitive (thinking), affective (feeling), and psychomotor (doing). Teaching is a purposeful activity done to facilitate learning. Teaching is an activity done to facilitate the students to acquire (factual) knowledge, to form (desirable) attitudes and to develop (required) skills. Learning is a process of information processing. It involves reception, selective



perception, semantic encoding, storing in long term memory and retrieving whenever necessary. Teaching should be arranged so as to enable the process of learning. In the Fourth Survey of Research in Education (Buch, 1992) published and approximate twenty research studies were reviewed which was related to teaching. The 5<sup>th</sup> survey of research in education which was published in the year 1997, the forty-four studies were reviewed on teaching and placed in a proper way. This shows that the research in teaching is an initiative. This helps in the society for the required changes.

Thus, regarding the betterment of our respective child, we want to give good and quality elementary education. With the help of good pedagogy, we fulfil our goal. Pedagogy plays an important role in process of teaching at any level of education but elementary level of education it has more importance. Pedagogy involves teaching-learning process, aim of study, objectives, preparation of lesson plan, preparation and handling of teaching aids, classroom interaction, skill development, learning environment, evaluation process, etc. So there is need to make effective pedagogical aspect for better learning outcomes in elementary education.

Annual status of Education Report (ASER) also says about continuous weak performance of our students on primary level. According to 2014 report, 13.4% students of class second do not distinguish words in 2010, and now that ratio is 32.5%. Only 48.1% Class fifth students read lesson of second class. In class eighth, 25.4 student do not read properly second class lesson. Teacher performance is also a big problem. In recently held central teacher's eligibility test(CTET) for determining the eligibility to join teaching, the result was too dismal as 99% of the aspirants failed the test. So the researcher wants to conduct the study on pedagogical aspect and learning outcomes of elementary school teachers and students.

In contemporary world, educationists and psychologists highly recommend on the integration of latest technologies and pedagogies in order to improve the efficiency of teaching-learning process. The latest pedagogies of Connectivism and Constructivism have changed the role of teachers in their classrooms a lot. From mere information providers, teachers are required to provide a constructive environment to students where they can construct their own knowledge. In this regard, teachers should hold sound knowledge not only about the content or teaching subject but also about the latest digital technological tools and pedagogies. One more important aspect of today's teachers teaching profession focuses on their knowledge about integration of the technology and pedagogy in classrooms. The researcher has designed the study to assess the knowledge of elementary teachers about the integration of latest technologies and pedagogies, and more importantly to associate their knowledge with the learning outcome of students.

### **Statement of the problem**

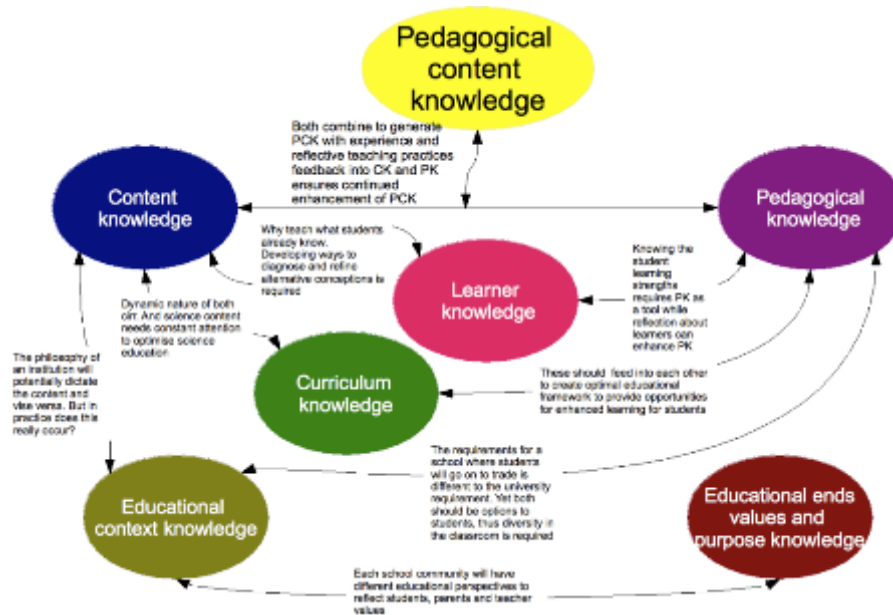
*“Study of Learning Outcome of Students in Relation to Pedagogical Content Knowledge of Elementary Teachers”.*

### **Definition of the key terms**

- **Learning Outcome:** In this research work the learning out comes is the academic scores which student achieve at the end of the year. This reflects that students are able to understand the concept of the subject, can apply the theory into practice, can analysis the output and can have an understanding of re use of the concept. It is measured in the form of numeric values in the schools. The more marks a student gets mean the more concepts are fully developed. The less marks reflects that student is not able to understand the concept completely.

Learning outcomes is depending on various factors like attention by parents, appropriate pedagogy used by the teacher, environment of schools etc.

- Pedagogical Content Knowledge<sup>30</sup>:** Teaching of social science is a highly cognitive and complex activity which involves various domains. It is an amalgam of content and pedagogical knowledge of social science subject at elementary subject. Pedagogical content knowledge means the various teaching methods, teaching techniques, teaching skills and teaching aids which includes technology driven teaching incorporated in the subject matter during teaching in the class. Using all these methods when a teacher deliver lecture in the classroom than it can be said that content is well defined and well presented.



## Knowledge Domains of PCK

Shulman (1986) suggested that PCK is one of seven knowledge domain needed for the process of teaching.

<sup>30</sup>Sources:

- <http://tltjc.blogspot.com/2011/04/shulman-1987-knowledge-and-teaching-pck.html>
- <http://punya.educ.msu.edu/research/tpck/>
- <http://people.ucsc.edu/~ktellez/shulman.pdf>
- Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge by Punya Mishra & Matthew J. Koehler (Michigan State University)*

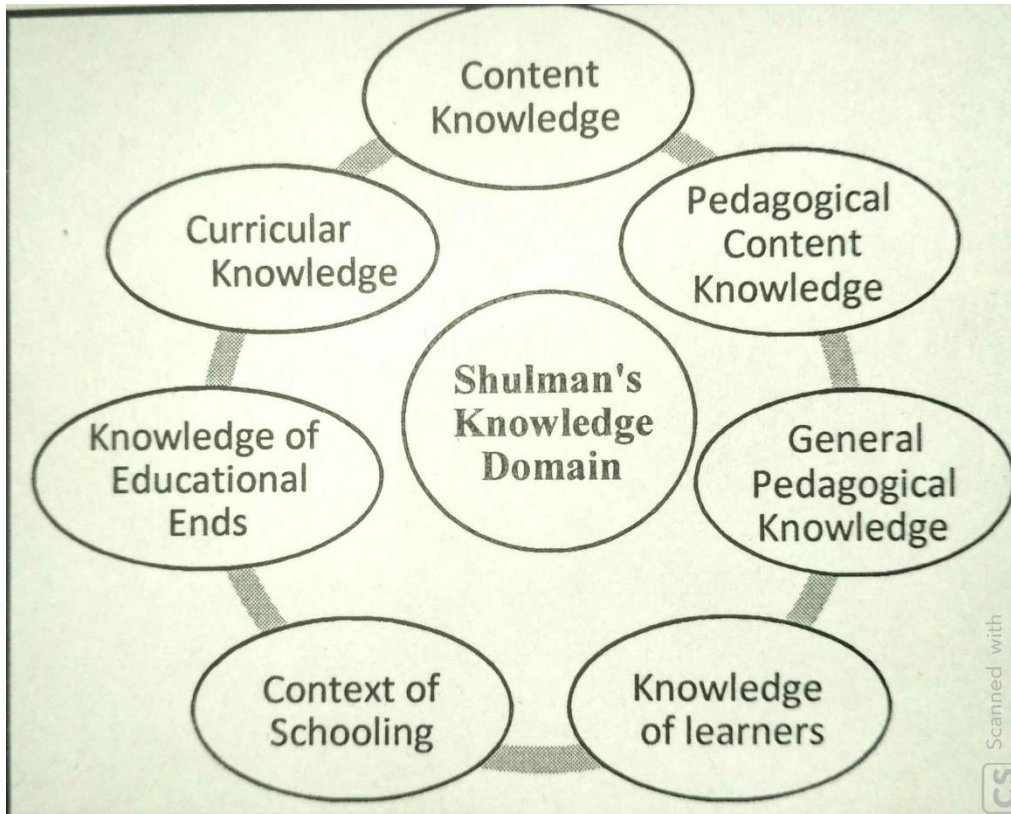


Figure 3: "Exhibiting PCK as one of seven knowledge domains as categorized by Shulman Whereas Grossman (1990) argued that PCK is derived from four knowledge domains viz. Knowledge of students' understanding, Curricular Knowledge, Knowledge of instructional strategies, Conceptions and purpose of teaching".

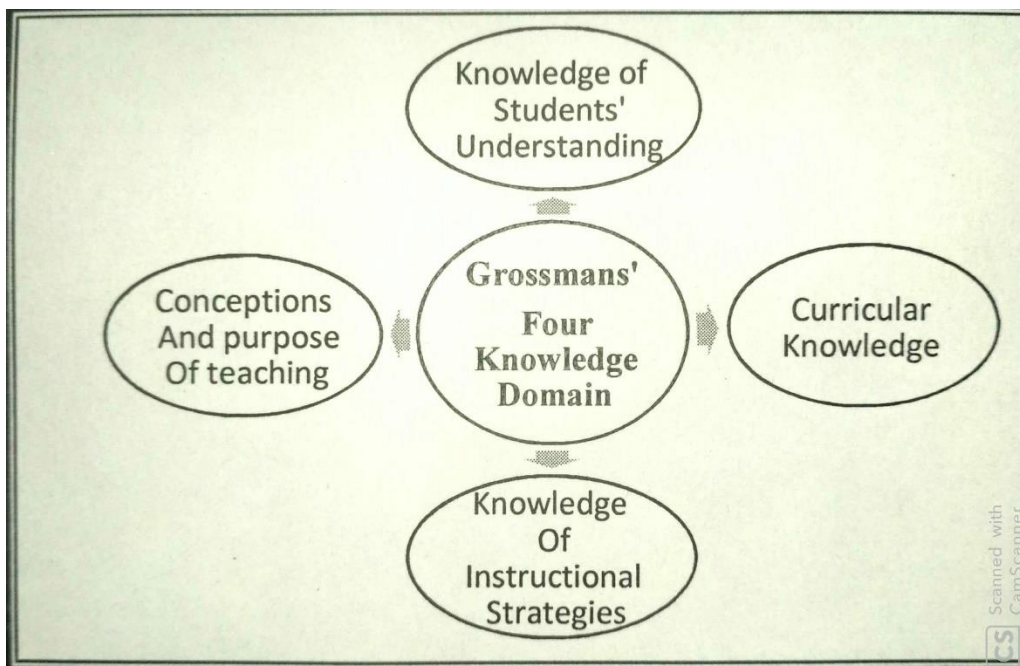


Figure: Exhibiting four knowledge domains of PCK as categorized by Grossman

- **Elementary Teacher:** In this study the elementary teacher means teachers of secondary schools who can teach up to class 8<sup>th</sup> standard.

### **Modalities of the problem:**

The present research work has two major parts which are (a) theoretical and (b) operative. The theoretical part was the review of related literature which was explored from various sources like researches conducts, research papers, articles, concept papers and many more. The operative part of the research has been conducted in two hundred seventy-six schools located in Mahendergarh district. There are five blocks where all the blocks were taken for the data collection. In these schools the elementary teachers teaching social studies experiences were noted so as to collect the data.

### **Objectives**

1. To study the learning outcomes of students in relation to pedagogical content knowledge of social science teachers in elementary schools.
2. To study the learning outcomes of students in relation to technological knowledge of social science teachers in elementary schools.
3. To study the learning outcomes of students in relation to pedagogical knowledge of social science teachers in elementary schools.
4. To study the learning outcomes of students in relation to content knowledge of social science teachers in elementary schools.
5. To study the learning outcomes of students in relation to technological pedagogical knowledge of social science teachers in elementary schools.
6. To study the learning outcomes of students in relation to technological content knowledge of social science teachers in elementary schools.
7. To study the learning outcomes of students in relation to technological, pedagogical and content knowledge of social science teachers in elementary schools.

8. To study the learning outcomes of students in relation to technological, pedagogical and content knowledge of social science teachers in elementary schools of block Ateli.
9. To study the learning outcomes of students in relation to technological, pedagogical and content knowledge of social science teachers in elementary schools of block Narnaul.
10. To study the learning outcomes of students in relation to technological, pedagogical and content knowledge of social science teachers in elementary schools of block Nangal Chaudhary.
11. To study the learning outcomes of students in relation to technological, pedagogical and content knowledge of social science teachers in elementary schools of block Kanina.
- 12.** To study the learning outcomes of students in relation to technological, pedagogical and content knowledge of social science teachers in elementary schools of block Mahendergarh”.

### **Hypotheses**

1. There is no significant difference between the learning outcomes of students in relation to pedagogical content knowledge of social science teachers of elementary schools.
2. To study the learning outcomes of students in relation to technological knowledge of social science teachers of elementary schools.
3. To study the learning outcomes of students in relation to pedagogical knowledge of social science teachers in elementary schools.
4. To study the learning outcomes of students in relation to content knowledge of social science teachers in elementary schools.

5. To study the learning outcomes of students in relation to technological pedagogical knowledge of social science teachers in elementary schools.
6. To study the learning outcomes of students in relation to technological content knowledge of social science teachers in elementary schools.
7. To study the learning outcomes of students in relation to technological, pedagogical and content knowledge of social science teachers in elementary schools.
8. To study the learning outcomes of students in relation to technological, pedagogical and content knowledge of social science teachers in elementary schools of block Ateli.
9. To study the learning outcomes of students in relation to technological, pedagogical and content knowledge of social science teachers in elementary schools of block Narnaul.
10. To study the learning outcomes of students in relation to technological, pedagogical and content knowledge of social science teachers in elementary schools of block Nangal Chaudhary.
11. To study the learning outcomes of students in relation to technological, pedagogical and content knowledge of social science teachers in elementary schools of block Kanina.
12. To study the learning outcomes of students in relation to technological, pedagogical and content knowledge of social science teachers in elementary schools of block Mahendergarh”.

**Delimitation:**

The present study is delimited to

5. Five blocks of District Mahendergarh of Haryana (Ateli, Narnaul, Kanina, Nangal Chaudhary, Mahendergarh)
6. Two hundred seventy-six elementary teachers of social studies of Government Schools
7. Two hundred seventy-six Schools were finally identified for the data collection
8. The present study is delimited only to the Technological, Pedagogical and Content Knowledge of elementary teachers along with pedagogy and teaching learning process.

**Research Gap**

After studying various research studies and reports researcher found that teachers approach to teach certain topic does not categorize before delivering into the class and they are least concern about the appropriate pedagogy related to the content. Although they teach in the full spirit keeping the latest knowledge and teachers use the latest technology in the classroom. This PCK is considered as sub category of the domains of teaching. If we go to decades back than it can be seen that partially PCK was emphasizing while training to the teacher trainees. There was a difference in the opinion of the experts to introduce formally it as a special domain of teaching. Some educationist said that it is implied in the contemporary changes in the teaching learning process. There was a lack of clarity in conceptualization for the development of the



components of PCK. Teachers incorporate their experiential knowledge which is also a part of PCK. The following specifications may be taken into consideration:

1. PCK is a combination of personal experiential knowledge
2. PCK is a combination of Private knowledge
3. The pedagogical decisions were taken at the pre active stage of teaching and reviewed at the post active stage of teaching. It was the decision of a teacher to adopt the kind of skills, methods and related teaching aids.
4. PCK is a combination of latest technology by the theories teaching since traditional ways.
5. It is a result of the interaction among teachers and students.
6. PCK is the constructive collection of knowledge.
7. PCK needs proper planning during pre-active and post-active stage of teaching.
8. Pedagogical construction is a combination of both event based generalization and story-telling. It could be in any form like comprehension or visit to historical place.

Many researches were conducted on pedagogical content knowledge of science teachers where as a very few researches were conducted for social science teachers. On another component is incorporation of technology in the construction of content knowledge. Now a day's technology plays an important role in delivering the lectures in the classroom. Government of India has taken an initiative of digitalization in every sector. Online learning, e learning, learning through MOOC, and use of various electronic devices during teaching. After rigorous readings the researcher is of the view that pedagogical content knowledge with an incorporation of technology is essential now a day at secondary school level. Learners of secondary level are very advance in

the use of technology. They come prepared with the subject which is going to teach in the class. Learners have all type of facilities provided by their parents. Single device mobile phone is sufficient to surfing any of the literature. Even practical, demonstration and description of historical places are very effectively found in the Internet. Teacher is accepted to come prepare with all type of subject related literature into the classroom while transacting curriculum. In this present research study, the researcher had collected the data and analysis the data quantitatively and qualitatively. Therefore, researcher was of the view that the study on teachers may be conducted to find out that how many are aware of the technology, how many teachers were acquainting with the latest development of their subject and do they come prepare for the chapter which they are going to deliver in the class. To study on these area, the researcher had selected five blocks of Mahendergarh district. Researcher conducted this study in two hundred seventy-six teachers of secondary government schools.

## **Research Methodology**

### **Introduction**

The present study aims at examining the Learning Outcome of Students in Relation to Pedagogical Content Knowledge of Elementary Teachers. It may be easy to find out the learning outcomes but is very difficult to assess whether the teachers are using the correct pedagogy to teach in the classroom. Also, another difficult task is to know by which pedagogy the teacher is using during teaching-learning process. The researcher tried to find out both the items in this research. The questionnaire was administered to know/ identify the actual methodology used in the classroom.

## Research Methodology

The methodology used in the present research has been explained under the following steps: -

*Step I: Research design*

*Step II: Sample design*

*Step III: Tools*

*Step IV: Data collection*

*Step V: Statistical techniques*

### **STEP I: - Research Design**

*Best and Kahn (1989) states, "Descriptive research is concerned with all the hypothesis formulation and testing, the analysis of the relationship between non-manipulated variables and the development of generalization. In descriptive research variables that exist or have already occurred are selected and observed".* One standardized test on "Teachers' Technological Pedagogical and Content Knowledge Scale" and one questionnaire on "Pedagogy and Teaching Learning Process at Elementary Level" were used to collect data.

### **STEP II: -Sample Design**

To serve the purpose of the present study, Purposive sampling technique was used. A total number of 276 elementary school teachers constituted the sample of the study. The samples were drawn from 276 elementary schools from five blocks of Mahendergarh district of Haryana. Distribution of samples has been depicted in table 3....

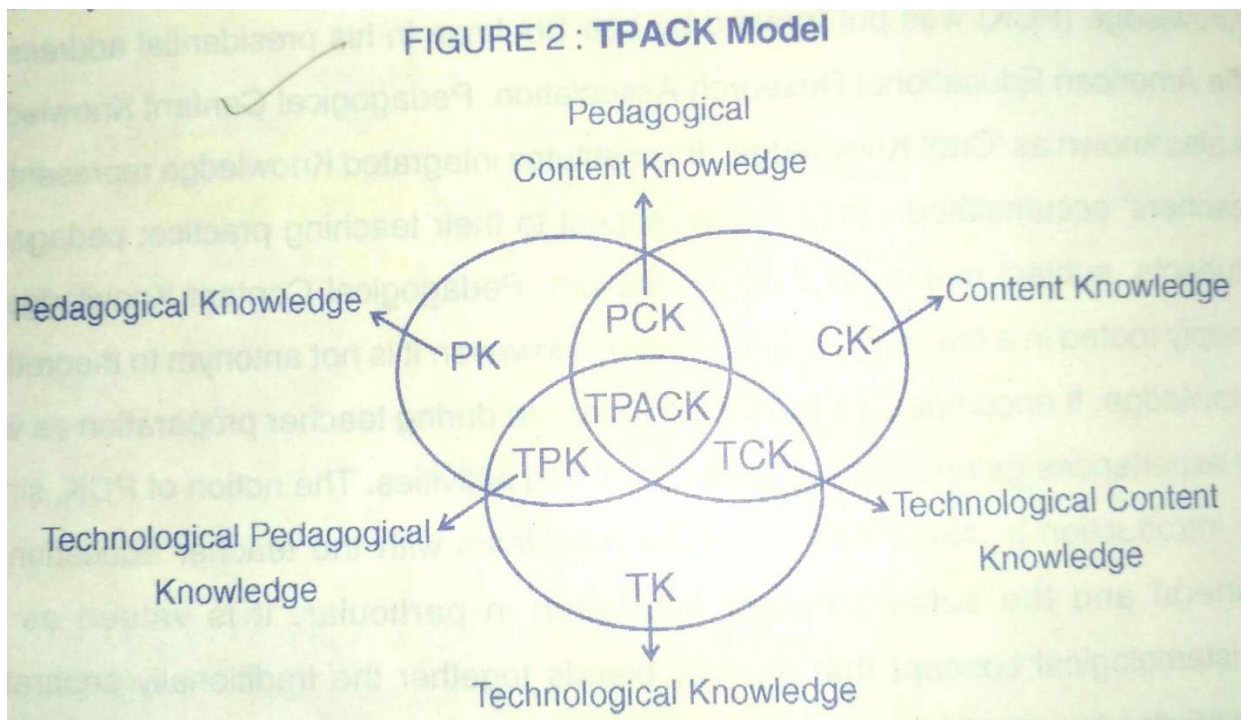
Table 3..... Distribution of Samples

District Mahendergarh				
Block Ateli	Block Narnaul	Block Kanina	Block Nangal Chaudhary	Block Mahendergarh
50	48	55	51	72
Total No. of Schools = 276				
Total No. of teachers teaching Social Science= 276				

**STEP III: -Tools**

1. The researcher used standardized tool collecting the data. The tools used for the present study were: -

**“Teachers’ Technological Pedagogical and Content Knowledge Scale (TTPACKS-SHSL) by Prof. Hemant Lata Sharma and Ms. Leena Sharma”.**



## **Components of TPACK**

1. **Technological Knowledge** – Technological Knowledge (TK) is oriented to various technologies and their use. Technology is used to support the teacher while giving the content to the students, to support the dialog between the teacher and the student, or for presenting the content to the students.
2. **Pedagogical Knowledge** – Pedagogical Knowledge (PK) is knowledge that includes the strategies and principles of classroom management and organization in education. It is the knowledge of learning-teaching processes, applications or methods. It is the knowledge that is oriented to general classroom management skills, lesson planning, student assessment and knowing the learning styles of student and the practice of teaching accordingly.
3. **Content Knowledge** – Content Knowledge (CK) is the amount of the actual knowledge and organization in the mind of the teacher. Content Knowledge (CK) is knowledge about the subject matter that is to be learned or taught, including, for example, middle school science, high school history, undergraduate art history, or graduate-level astrophysics. Knowledge and the nature of the inquiry differ greatly among content areas, and it is critically important that teachers understand the disciplinary “habits of mind” appropriate to the subject matter that they teach.
4. **Technological Pedagogical Knowledge** - Technological Pedagogical Knowledge (TPK) is an understanding of how teaching and learning change when particular technologies are used. This includes knowing the pedagogical affordances and constraints of a range of technological tools and resources as

they relate to disciplinary and developmentally appropriate pedagogical designs and strategies.

5. Technological Content Knowledge - Technological Content knowledge (TCK) is the knowledge of the presentation of technology and subject matter. This knowledge provides for the flexibility of use of the appropriate technologies for educational purposes. Technological Content Knowledge (TCK) includes and understanding of the manner in which technology and content influence and constraints one another. In planning for instruction, content and technology are often considered separately.
6. Pedagogical Content Knowledge - Pedagogical Content Knowledge (PCK) includes the understanding that provides the learning of both tough and easy subjects. It is the knowledge of different teaching methods for different subjects. It is the blending of pedagogy and content within the understanding of the presenting of certain subjects and dealing with the problems in education, the way of organizing, representing and adapting different student interests and skills.
7. Technological, Pedagogical and Content Knowledge - Technological, Pedagogical and content knowledge (TPACK) is the knowledge of the use of technology in various subjects and practicing teaching methods. This knowledge makes the learning of the subject for the student easier with appropriate pedagogy and technology. TPACK is the base for effective teaching with technology which includes an understanding of how to present concepts with technology, how to use pedagogical techniques that use technology in teaching the content indirectly, the knowledge of the concept which makes learning easier or harder, the knowledge of how the technology

will be helpful for learning, the knowledge of the students' Previous knowledge and the knowledge of epistemological theories, the knowledge of how to use technology in building new information onto existing knowledge and which also includes the development of new epistemologies, or strengthening the old ones.

**Exploratory Factor Analysis (EFA) of Technological, Pedagogical and Content Knowledge (TPACK) Scale:** With factor analysis, the construct validity of questionnaire can be tested. The Kaiser-Meyer-Okin measure of sampling adequacy (KMO) fall within the last category (KMO=0.967) which means the data set is superb for factor extraction. The data set was then subjected to Barlett's test in order to determine whether the data set was suitable for the EFA or not. Barlett's test yielded a significant result ( $X^2$ : 16098.568;  $p < 0.01$ ), suggesting that the data set was suitable for exploratory factor analysis. Promax with Kaiser Normalization-Principal axis factoring was performed with these 58 items. It was found that there was no item whose factor loading was below the range (0.30). So, only 3 items were rejected due to joint consideration of item- Total Correlation and EFA. The final Technological, Pedagogical and Content Knowledge Scale now contained 55 items.

With the final set of 55 items once again Promax-rotated principal axis factoring analysis was done. The factor loading for the final 55 items varied between 0.847 (Items 34) and 0.372 (Item 48). The scale accounted for 52.904% of the total variance. This suggests that the amount of variance accounted for in the present study (52.9%) was sufficiently good. It is essential to know the technology competency of a teacher.

**Table: Dimensions of TPACK**

	Dimensions	Nature of Items	Item No.	Total
1	Technological Knowledge	Positive	1 to 5	5
2	Pedagogical Knowledge	Positive	6 to 13	8
3	Content Knowledge	Positive	14 to 21	8
4	Technological Pedagogical Knowledge	Positive	22 to 32	11
5	Technological Content Knowledge	Positive	33 to 38	6
6	Pedagogical Content Knowledge	Positive	39 to 45	7
7	Technological, Pedagogical and Content Knowledge	Positive	46 to 55	10
	Total			55

**2. Questionnaire (Self Constructed) Pedagogy and Teaching Learning Process at Elementary Level**

This questionnaire is consisting of eight questions and every questions has some items.

- Q.1 How Teaching of Social studies subject is helpful in Developing Values?
- Q.2. what is the Principles of Curriculum Construction/ Curriculum preparation in your school? Do you participate in Curriculum designing?
- Q.3. Which Self-Instructional Modules do you use while teaching Social Studies?
- Q.4 What is the need and importance of Self Instructional Material in Social Studies?
- Q.5 What are the methods of teaching social studies?
- Q.6 What is the skills in teaching social studies?
- Q.7 What procedure do you adopt in planning the lesson?
- Q.8 What do you think about the importance of Evaluation?



#### ***Step IV: Data collection***

The data were collected from 276 elementary school teachers of five blocks of Mahendergarh district. In each school there is a single teacher of social studies subject. Initially researcher had taken permission from the department for the data collection and then he went to each school for data collection. There researcher had interacted teacher of social science for reporting the views.

#### ***Step V: Statistical techniques***

##### **1. Quantitative Analysis (Teachers' Technological pedagogical and content knowledge)**

Mean and Product Moment Coefficient of Correlation were used.

- **Mean**

The formula for the calculation of mean is

$$M = \frac{\sum X}{N}$$

Where,

**M = Mean**

**X = Sum of Mean**

**N = no of measures in the series**

- **Coefficient of Correlation**

**Karl Person's coefficient of correlation (r)-**

$$r = \frac{\sum xy}{n\sigma x\sigma y}$$

Where,

- $x = (x_1 - \bar{x})$
- $y = (y_1 - \bar{y})$
- $\sigma x = S.D. of x$
- $\sigma y = S.D. of y$
- N= Number of pair observations

##### **2. Quantitative analysis (Pedagogy and Teaching Learning Process at Elementary Level)**

For Quantitative Analysis of Pedagogy and Teaching Learning Process at Elementary Level samples were taken through self-constructed questionnaire. After obtaining the responses from the respondents, the responses were subjected to quantitative analysis.

**Category of the Data:** Interaction with teachers on the various areas the components of social science subject is essential and the objective of its teaching like developing values, principle of curriculum construction, instructional strategies, instructional material, instructional methods, teaching skills, lesson planning and the ways of evaluation and its importance.

***Q.1 How Teaching of Social studies subject is helpful in Developing Values?***

The analysis was based on the following components: Knowledge Structure, Development of Competence in Problem Solving, Relevant Understanding, Development of Desirable Attitudes, Provides Training in Co-Operation, Development of Character, Development of Thinking and Reasoning Power, Development of Global Understanding, Development of Socio cultural Understanding, Development of Habits of Adjustability and Flexibility, Development of Skill in Responsible Group Participation, Development of Healthy Teacher Pupil Relationship, Development of Skill in Enquiry and Decision Making, Development of Skills of Tolerance and Openness, Development of Skills in Studying and Learning Provides Basis for Specialization

***Q.2. what is the Principles of Curriculum Construction/ Curriculum preparation in your school? Do you participate in Curriculum designing?***

The analysis was based on the following components: Child centeredness, Community centeredness, Flexibility, Integration, Keeping aims and objectives in view, Utility, Development of democratic values, Principle of creativity, Being tentative rather than final Conservation of culture, Forward looking, Studying current affairs, Developing

ideals and loyalties, Based on actual experience of the student, Sensitivity to changing needs and values, Achievement of wholesome behavior pattern, Principle of readiness

***Q.3. Which Self-Instructional Modules do you use while teaching Social Studies?***

The analysis was based on the following components: Individualized Instructional Modules (Programmed Instruction, Computer assisted instruction, Project, Assignment etc.) and Group-Directed Instruction Modules (Discussion, Debate, Symposium, Panel discussion, Brain Storming).

***Q.4 What is the need and importance of Self Instructional Material in Social Studies?***

The analysis was based on the following components: Clarity of the subject, To make the subject interesting, Based on maxim of teaching, Saving of time and energy, Development of scientific attitude, Provide motivation, Effective for slow learners, Develop friendly relation between pupils and teacher, Supply new experiences and new energy, Helps in the association of ideas, Provision of sensory experience, Substitutes for direct experiences, Help making learning Permanent, Meet the requirement of individual differences, Provide opportunities for activities and Help in increasing the vocabulary of the students.

***Q.5 What are the methods of teaching social studies?***

The analysis was based on the following components: Story telling method, Lecture method, Project method, Unit method, Problem solving method, Discussion method, socialized recitation method, supervised study method, Inductive and Deductive method, Text book method, and Laboratory method.

***Q.6 What is the skills in teaching social studies?***

The analysis was based on the following components: Skill of Introduction, Skill of Questioning, Skill of Explaining, Skill of Illustration with examples, Skill of Stimulus

variation, Skill of Map reading, Skill of Reinforcement, Skill of Class room management, Skill of Narration, Skill of Presentation, Skill of using black board, Skill of increasing pupil's participation, Skill of Team teaching, Skill of role playing and Skill of silence and non-verbal clues.

***Q.7 What procedure do you adopt in planning the lesson?***

The analysis was based on the following components: Aims and objectives (General objectives, Subject objectives, Unit objectives and The specific objectives of the daily lesson), Selecting and arranging the subject matter and Determining the methods of teaching.

***Q.8 What do you think about the importance of Evaluation?***

The analysis was based on the following components: Knowledge about the progress of the student, helps in clarifying objectives, helps in classification of the student, Basis of admission, Basis of planning of education, Basis of guidance, helps in testing the efficiency of the teacher, Promotion of better learning, helps in bringing change in curriculum, and Help in awarding scholars.

**Result and Discussion**

As per the result the knowledge/cognitive domain of Bloom's taxonomy which is consisted of six hierarchical levels of learning is creating, evaluating, analyzing, applying, understand and remembering. While we, as researcher/ educators, strive for students to reach the highest levels of learning at the top of the pyramid, all levels of learning depend on a solid foundation of those that come below.

The analysis of the data reflects that the teacher must keep the pedagogical content knowledge of the subject which must have finally the learner shall be able to create the new knowledge and correlate the older one. The following is table shows that how learners moves from lowest to highest i.e. remember, understand, apply

analyze, evaluate and then create. The ultimate aim of teaching is to educate child, child and earn his livelihood and child can live in society.

The NCERT Position Paper of teaching of social science also reflects that there is a need to make learning of social science more effective, innovative and enjoyable. Learners may asked to explore the facts from their local surroundings and then give a different outlook. In this way they can create a new knowledge. Here are various examples given in this picture which are suggestive for the teacher even at elementary level.

### **National Importance of the Study**

The present research work “study of learning outcome of students in relation to pedagogical content knowledge of elementary” has an importance at national level. The incorporation of technology at every stage is important. Government has taken initiative for digitization. Every school must computer lab and every teacher must acquaint with the digitalization. The impact of technology is seen now a days in teaching learning process. This is the initial stage of use of technology in classroom. The study helps in understanding the concept at national level and academic leaders that pedagogy content knowledge incorporating technology is showing good results. It helps in school practices in assessment for learning. It can be helpful in designing the education policy at school level. It also help at micro level teaching learning process where lesson planning is an essential component.

### **Suggestion for the Further Research**

Every research has some delimitation and therefore there are always few suggestions for the further research to make at least some of the dimensions complete. These suggestions are based on the views collected during data collection. The competency of a teacher is always on stake. The competency of a teacher is judged by the learning

outcomes of the child. But there are various factors which are responsible for the success of the child. Child is not living in school only. Child is not taught by single teacher. Child is not attended by teacher all the time. Therefore learning outcome of a child is not only depends on the classroom teaching but also other external influencing factors. Here the influencing factors could be parents, their socio-economic status, their educational background, living in a joint family or single family, single child or other siblings, teaching by parents or by private coaching and many more. In the same way peer group, society, and individual differences. Role of technology plays a major time in understanding/ capturing the thoughts of a child. These factors can be taken into consideration while conducting the further research. Every teacher is competent; keeping in mind the parents have blind trust on teachers and handover their child's future in their hand. Parents do not even question on the competency level of the teacher in terms of teaching, in terms of handling/ dealing with child, and not even parents think of the partial behavior of the teacher. Parents keep a very high value for teachers. One very important factor can be taken into consideration for further research that whether teachers ward is studying in the same school where there are teaching. Teacher knows the teaching style of their fellow teachers and then they decide to admit their child in the same school or the other school.