

Chapter II

Review of Related Literature

"Any enlightened human being can be created by the teacher through providing two unique Characteristics. 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, A. P.J., 2008]

2.1 Historical Overview & Reviews

Lee S. Shulman is an educational psychologist from America and he has given very important contribution in the field of education to study teaching as well as assessment of teaching in the field of sciences. He said that science teachers must know the pedagogy of the teaching subject. He has developed first the pedagogical content knowledge concept and shown importance to pedagogical content knowledge understanding. Shulman said that subject knowledge method is very essential and teacher needs to keep command on pedagogy of his subject. He said that initially teacher must keep a knowledge of the curriculum what curriculum he is going to teach and what is the sequence of teaching that particular curriculum in that particular year. Therefore, teacher must have understanding of Curriculum knowledge as well as knowledge of education in the context of the students to the class in which they are. Ball (2000)¹⁹, says that how to teach is an essential component of teaching learning process. He said learning to teach is an important paradigm shift in the field of education. Shulman (1986) describe three areas and the first is content knowledge of subject matter, second is pedagogical knowledge of Subject-matter and third is knowledge of

• ¹⁹Ball, D. L. (2000). "Bridging practices: Intertwining content and pedagogy in teaching and learning to teach" (PDF). *Journal of Teacher Education*. **51** (3): 241–247.

Curricular. Shulman (1986) recommended that PCK is one of the essential knowledge domain required for the process of teaching. [Figure-1]

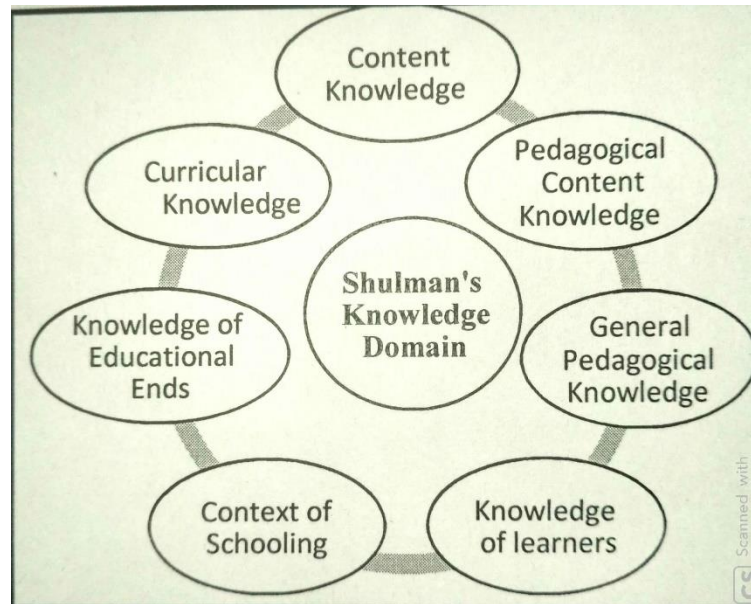


Figure 3: "Exhibiting PCK as one of seven knowledge domains as categorized by Shulman Whereas Grossman (1990) argued that PCK is derived from four knowledge domains viz. Knowledge of students' understanding, Curricular Knowledge, Knowledge of instructional strategies, Conceptions and purpose of teaching". [Figure -2]

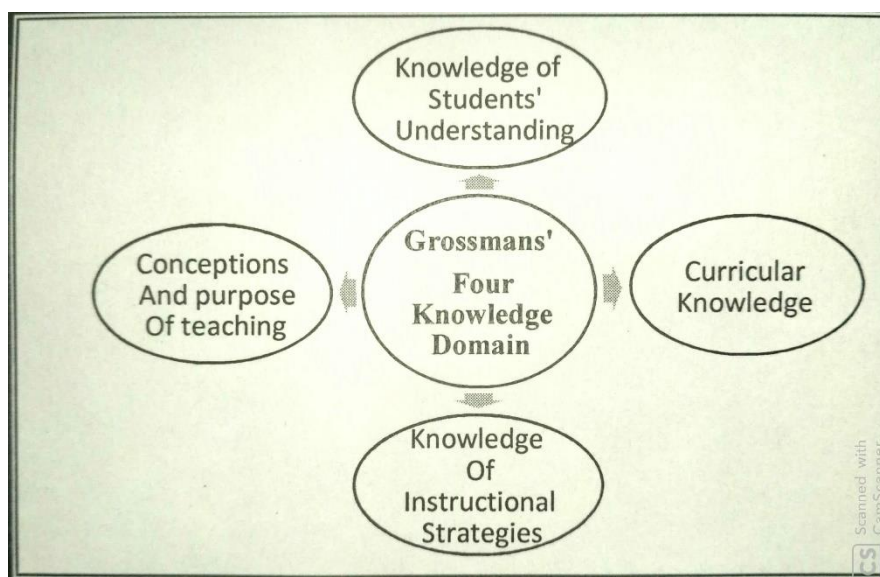


Figure 4: Exhibiting four knowledge domains of PCK as categorized by Grossman

Freeman, D. (2002)²⁰ explained in his book teacher should know how to teach and learning to teach is the main focus in his book. Anne, Hlas; Susan, Hildebrandt (28 February 2010)²¹. Had given the full example in a practice form how pedagogical content knowledge can be implement. Rowan, B.; et al. (2001)²². Stated that knowledge of pedagogy of a teacher can be measured under various dimensions. Pedagogical Content Knowledge (PCK) is a very effective tool which describe the knowledge type of teachers, teacher educator etc. (Friedrichsen, 2008). Shulman (1986) introduced very detailed concept of PCK which is very effective scope full for the teacher education and described that every person who is in teaching profession needs to keep sound knowledge of the subject and also teacher must know the technique to deliver the content in classroom effectively. Not only the subject knowledge is sufficient but also the knowledge of curriculum is essential. PCK discuss the various kinds of domains which are required for teaching and essentially known by the teacher. Magnusson et al. (1999) appreciate the idea of Shulmans' PCK model and acknowledge that PCK that it transforms several kind of knowledge for teaching which includes knowledge of subject. It also stated that it symbolizes a particular domain which is required for teachers' knowledge. On the other hand the educationist Marks (1990) said that content knowledge of pedagogical and only content knowledge was not very clearly separable the component of knowledge. Cochran et al. (1993) keeps the same view and said that

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- ²⁰Freeman, D. (2002). *"The hidden side of the work: Teacher knowledge and learning to teach"*. *Language Teaching*. 35: 1–13. [doi:10.1017/S0261444801001720](https://doi.org/10.1017/S0261444801001720).
 - ²¹"Anne, Hlas; Susan, Hildebrandt (28 February 2010). "Demonstrations of pedagogical content knowledge: Spanish Liberal Arts and Spanish Education majors' writing". *L2 Journal*. 2 (1). ISSN 1945-0222.
 - ²²Rowan, B.; et al. (2001). *"Measuring teachers' pedagogical content knowledge in surveys: An exploratory study. State College, Pennsylvania: Consortium for Policy Research in Education, Study of Instructional Improvement"*.

teacher's competency develops with the time and the more teacher teaches in class the more he becomes competent. Then teacher knows the needs and awareness of the learners. Fernandez Balboa and Stiehl (1995) said that marks should be allotted for it. Koballa et al. (1999) collected data for sciences (Chemistry) teacher from German gymnasium schools. Veal and MaKinster (1998) said that for developing PCK a hierarchy of sound knowledge needs to be maintained. The range could be from lowest to highest. Theoretically the components of PCK were studied and especially for the science subject. This can be studied for social science subject. Loughran et al. (2000) describe twelve interactive basic elements of PCK. Padilla et al. (2008) describe and investigated for science (Chemistry) teachers from four different universities. Halim and Meerah (2002) researched on a group of twelve pre service teachers which were from diverse socio-economic background. They claimed that sound content knowledge should made compulsory in the institutions. The researcher also describes for science stream. Vandriel et al. (2002) and Dejong et al. (2004) described that the workshop and seminar organized in the university gives new insight to their knowledge which helps in quality information of the subject. Geddis et al. (1993) described that teacher need extensive grade knowledge so that they can transform and impart among learners. Angell et al. (2005) describe that skills of pedagogy is essential in physics subject and his research says that there can be a pool of experts of the subject that may deliver the content with appropriate pedagogy. In India this concept is not flourished and teachers learn all the types of pedagogy and skills during pre-service training programme but do not implement in that spirit. A very less number of researches were conducted in India in the context of PCK and especially in Social Sciences. Yadav (2012) describe "SSA Inset training packages, Jagtap (1999) stated in his study Content cum Methodology

that content representation is must for empowering a teacher. Verma and Chabra (1996) found a causal relationship of pedagogical knowledge with variables skills and classroom process”.

“Pedagogical transition is considered as a rich and challenging research area in teachers education. Some reports are available for suggesting the way of efficient pedagogical transition such as Ontario Ministry of Education (Hargreaves and Earl, 1990), Community Health Systems Resource Group (Ferguson et al., 2005), Understanding India: the future of higher education and opportunities for international cooperation (Heslop, 2014). Galton et al. (2003) recognized transition as a stumbling point for most students, particularly for those who are at risk of early school leaving and concluded that tensions and pressures in school and in transition can lead pupils to implement a specific identity in relation to their learning. Crabtree and Roberts (2007) made efforts to understand the transitional problems in higher education and found that the result of their study was likely to be of interest to those involved in first year undergraduates, irrespective of subject or discipline of study. Researches revealed that transitional phase can be stressful. Tilleczek (2007) proposed that an emotional paradox occurs in transitional phase. Students are both enthusiastic and nervous, and both expectant and suspicious at the same time. Kvaslund (2000) stated that being separated from friends was *Dreaded* for students in all type of schools. In contrast, Pietarinen (2000) reported that students were hopeful to the transition to offer a societal success with fresh and enduring friendship that would relocate with them. Kirkpatrick (2004) also reported that students looked forward to a *fresh start* with greater challenges and opportunities to find new friends and studying new subjects. Akos (2004) also stated the same that a lot of students considered the transitions as comparatively easy. In India, articles

are available concerning to issues, challenges and suggestions for higher education in India(J.D. Singh, Tilak, 2012; Desai and Kulkarni, 2008, report of CABE) which focus on problems of higher education like quality, lower enrolment rate, outmoded teaching method, declining research standards etc. Position paper of NCERT on Teaching of Science (2006), Indian education report of NCEE (Cheney et al., 2005), document of UNICEF on School readiness and transition (2012) and Review paper by Biswal (2011) are also made a significant contribution for elementary and secondary schools, but review literature reflects that transition to higher education not so much focused”.

“Sarah Lewthwaite and Michelle M. Holmes, University of Southampton, The Pedagogy of Social Science Research Methods Textbooks, Scoping study research report June 2018 stated that there is a lack of pedagogic culture underpinning the teaching and learning of research methods within the social sciences. Contemporary research explores both teaching and learning practices and the pedagogical challenges of research methods teaching. As part of this, however, it is necessary to also consider the role of pedagogic resources, specifically research methods textbooks. This study aimed to explore the pedagogical devices employed in leading research methods textbooks, identify the explicit pedagogies embodied within the textbooks, and examine how textbooks foster support for experiential aspects of methods teaching and learning”.

“Dr. Sarah Lewthwaite, Ms. Michelle Holmes (2017), The pedagogy of social science research methods: a textbook case, Our findings afford new insights into cutting edge textbook pedagogies that address the mix of procedural knowledge, theoretical understanding and technical know-how that is arguably unique to building methodological expertise. In this presentation we will elucidate the pedagogies that are

both implicit and explicit within our textbook sample. We will discuss distinct pedagogical approaches articulated by different textbooks - from reference, to course-based, and hybrid forms – demonstrating diverse pedagogical approaches to managing challenges such as difficulty, methodological pluralism and inter-disciplinarily”.

Akarat Tanak, (2018), conducted a study on the topic entitled, “Designing TPACK-based course for preparing student teachers to teach science with technological pedagogical content knowledge”. It has been reflected in the study that the contemporary system of education is totally changed than earlier. Today’s education system demands more on pedagogical and technological content knowledge of the teachers. In this study attempt is made to understand that how student teachers can be prepared to teach science in the school on the basis of technological pedagogical content knowledge. In this study questionnaire based on technological pedagogical content knowledge were administered. As for the analysis is concerned “descriptive statistics and inductive analysis were used in the study were used. It was found in the study that the pedagogical knowledge component had a larger impact on student teachers' TPACK”.

2.2 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 teaches 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.