

# A Study of Epistemological Belief of Senior Secondary Students

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## ABSTRACT

*Epistemological beliefs, which are explained in relation to the constructivist learning theory and accepted as important components of self regulation based learning, have received considerable interest in the studies on the students' success. The present study is a descriptive one. The main purpose of the study is to find out the differences in epistemological beliefs of senior secondary students with respect to their gender. The investigator has taken 600 senior secondary students from six different districts of Jammu and Kashmir state by using simple random sampling technique. For collection of data the investigator has used Epistemological Belief Questionnaire (EBQ) constructed and standardized by the investigator from the adoption of Schommer. For analyses independent sample t-test was used. The results revealed that no significant differences were found among senior secondary students in terms of gender on Certain Knowledge, Quick Learning and Innate Ability dimensions of epistemological belief. But they differ significantly on Simple Knowledge dimension. Male teacher trainees possess mature beliefs as compared to female teacher trainees on Simple Knowledge dimension of epistemological belief.*

**Keywords:** *Epistemological Belief, Senior Secondary Students*

## I. INTRODUCTION

The term Epistemology was coined by Scottish philosopher James Frederick Ferrier. It is a branch of philosophy which is concerned with the questions: like what is knowledge? What are its sources? How it is acquired? What is its structure, and what are its limits? As human beings, we hold implicit beliefs about knowledge and knowing, which are termed as epistemological beliefs or personal epistemology. Such set of beliefs are subjective, remains idiosyncratic to that person and does not necessary reflect the actual nature of knowledge. The study of such personal conceptions of knowledge is commonly referred as personal epistemology or epistemological beliefs. Students' personal epistemologies-their beliefs about the nature of knowledge influences his learning and performance. Psychologically and educationally, personal epistemology beliefs are "how individuals come to know, the theories and beliefs they hold about knowing, and the manner in which such epistemological premises influence the cognitive processes of thinking and reasoning. General epistemological beliefs have been empirically linked to learners' outcomes including study strategy use, text comprehension, and achievement test performance. Research also supports the notion that teachers directly influence the development of epistemological beliefs through instructional practice, which is influenced by their own epistemological beliefs. Epistemological beliefs of both students and teachers play a significant

role in the successful implementation of standard based curriculum. The levels of beliefs held by individuals range from naive, where the thinking is black and white to sophisticated, where the thinking is relativistic. These beliefs are linked to cognitive processes such as reading comprehension, and learning in complex, and ill-structured domains. In other words, epistemological beliefs are about how individuals come to know and construct knowledge in [1]. The paper [2] reported that students' epistemological beliefs play a critical role in determining learning strategies in general and higher-order thinking and problem solving in particular. More specifically, sophisticated epistemological beliefs have been associated with more sophisticated thinking, problem-solving skills, higher motivation, and persistence. On the other hand, students with simple (naive) epistemological beliefs have difficulty with their learning. Anne in [3] examined the change in epistemological beliefs over time and role do gender, ethnicity, socioeconomic status and achievement play in their development and reported that students become more sophisticated in their beliefs about the source and certainty of knowledge over time and there were no main or moderating effects of gender or ethnicity but main effects of socioeconomic status and achievement. Low socioeconomic status and low achieving children had less sophisticated beliefs in comparison to average socioeconomic status and high achieving children.

Epistemological belief of learners is associated with his academic performance. Schommer in [4] examined the influence of epistemological beliefs on overall academic performance. She conducted analyses in which students' grand point averages (GPAs) were regressed on the four epistemological factor scores. Results of analyses revealed that the less students believed in quick learning, simple knowledge, certain knowledge, and fixed ability, the better were their GPAs. The [5], paper investigated preservice teachers' views about teaching and the relation of those views to epistemological beliefs, gender and found that preservice teachers preferred constructivist teaching views more than traditional teaching views and this correlated with their epistemological beliefs. Also found that male participants preferred constructivist teaching views significantly more than female participants did.

Research in epistemological beliefs is based on the theoretical assumption that learners have identifiable conceptions and beliefs about the nature and development of knowledge and these conceptions and beliefs actually affect the interpretation of learning tasks, the engagement in particular learning activities, and even more strongly, epistemological beliefs affect comprehension in important ways. Michael in [6] reported that students with more sophisticated beliefs about the nature of knowledge and learning were more likely than their peers to use educationally productive cognitive and behavioral strategies in their learning. They also reported that although a student's belief about the stability of knowledge by itself had a statistically significant effect on only one learning strategy. Ken in [7] found that epistemological beliefs in fixed and quick ability to learn, simple knowledge and certain knowledge differed significantly as a function of gender, school orientation and level of academic achievement. It was also reported that belief in simple knowledge significantly predicted overall performance and reflective judgement scores on the ill-structured task but not on the well-structured task. The [8], paper studied undergraduate students to know their beliefs about knowledge and achievement values relative to history and mathematics and participated in domain learning tasks and found that students with more sophisticated belief profile had higher levels of motivation

and task performance.

Learning builds and alters the memories of the learner. These memories serve as foundations for beliefs held implicitly or explicitly by the learner. These beliefs then act as filters through which incoming information is sorted and used to either alter or reinforce current beliefs, or are discarded as contradictory or dangerous to current beliefs in [9]. Regardless of the subject, a learner's prior beliefs determine the ability of that learner to acquire new knowledge. Understanding how beliefs are modified is crucial for understanding how learning occurs Kuhn in[10]. The more mature or complex the beliefs, the more likely it is for higher-order thinking to be employed in [11].

Epistemology as a system of beliefs is composed of more than one belief, and the beliefs within the system are more or less independent in the paper [12]. There is a clear link between one's possession of the ability to consistently engage in higher-order thinking and the exhibition of a more mature or complex personal epistemology. Understanding the relationship between personal epistemology and learning is vital if the goal of developing higher-order thinking in students is to be achieved. Not only will such exploration benefit "education as a whole" a better understanding of how epistemological thinking developments will benefit society as a whole. A failure to explore further this relationship would be to ignore empirical evidence and neglect a proven tool for increasing higher order thinking. Epistemological beliefs become mature with time. Francisco in[13] reported that throughout secondary education epistemological beliefs undergo change, become more realistic and complex, and deep approach scores decline significantly. Also the epistemological beliefs influenced academic achievement directly and also indirectly via students' learning approaches.

## **II.NEED OF THE STUDY**

Epistemological beliefs are those concerning the nature of knowledge and knowing. These beliefs actually affect interpretation of learning tasks and comprehension. In the field of education, epistemological belief is an important construct, and is frequently used to predict achievement of the students. Epistemological beliefs are considered to be a lens through which individuals interpret information, set standards, and decide on an appropriate course of action. There is an increased need to recognize the students' beliefs about knowledge that influences their behaviour and academic achievements through cognitive, self-regulated learning strategies and decision making skills. Teachers with developed epistemological beliefs are able to apply their plan for instruction based on students' level of epistemology. These beliefs are likely to influence how students learn, how teachers instruct and subsequently how teachers modify students' epistemological beliefs. Various studies have highlighted the importance of motivation, reinforcement, intelligence and interest in teaching learning process. However, evidence with regard to the significance of concepts like epistemological belief in educational system is scant.

## **III.STATEMENT OF THE PROBLEM**

"A Study of Epistemological Beliefs of Senior Secondary Students"

#### IV. OPERATIONAL DEFINITIONS OF THE TERMS USED

**Epistemological Beliefs:** Individuals' subjective beliefs about what knowledge is and how knowing and learning happens.

**Senior Secondary Students:** Students studying in class 11<sup>th</sup> and 12<sup>th</sup>.

#### V. OBJECTIVES

1. To study levels of epistemological beliefs of Senior Secondary Students.
2. To explore the differences in epistemological beliefs of Senior Secondary Students in terms of their gender.

#### VI. HYPOTHESIS

Male and female Senior Secondary Students do not differ significantly with each other in their epistemological beliefs.

#### VII. DELIMITATIONS OF THE STUDY

The study was delimited to:

1. Senior secondary students of Kashmir Valley
2. Six hundred Senior Secondary Students.
3. Two districts each from South Kashmir, Central Kashmir and North Kashmir.

#### VIII. DESIGN OF THE STUDY

##### 1 Sample

A sample of 600 senior secondary students was drawn from different higher secondary schools by random sampling technique.

##### 2 Tool Used

Epistemological Belief Questionnaire (EBQ): constructed and standardized by investigator in 2011 from the adaptation of Marlene-Aikins Schommer's Questionnaire.

#### IX. RESULTS

##### Levels of Epistemological Belief of Senior Secondary Students

Table 1

S. No.	Levels of Epistemological Belief	Percentage
1.	Mature	21%
2.	Moderate	62%
3.	Naive	17%
Total		100%

Table no1 reveals that majority (62%) students were identified as having moderate epistemological belief, 21% students were identified as possessing mature epistemological beliefs and 17% possess naive epistemological belief.

**Epistemological Beliefs of Senior Secondary Students in terms of gender**

Table 2

Difference in epistemological beliefs of senior secondary students in terms of gender

Dimensions of Epistemological Belief	Male N=320		Female N=280		SEd	t-Value	Significance
	Mean	SD	Mean	SD			
Simple Knowledge	72.33	6.03	69.21	4.95	0.44	6.95	P<0.01
Certain Knowledge	22.34	3.45	21.98	3.40	0.28	1.28	NS
Quick Learning	16.04	2.10	15.89	1.98	0.16	0.89	NS
Innate Ability	14.57	3.09	14.40	2.89	0.24	0.69	NS

(t-ratio at 0.05 and 0.01 Levels of Significance are 1.97 and 2.59 respectively, NS=Not Significant)

The table 2 reveals that the calculated t-ratio of simple knowledge of male and female senior secondary students is 2.93 which is significant at both the levels. Therefore it can be interpreted that male and female senior secondary students differ significantly on simple knowledge dimension of epistemological belief. While comparing the mean scores of male and female senior secondary students on Simple Knowledge, male students possess mature beliefs as compared to female counter parts.

The table also shows that male and female senior secondary students don't differ with respect to certain knowledge, quick learning and innate ability dimensions of epistemological belief.

**X.CONCLUSIONS**

There exists a significant difference on simple knowledge among male and female senior secondary students. Male students possess more mature beliefs as compared to female students. The reason may be that the female students believe that knowledge is a series of unrelated facts on the other hand male counter parts may believe that knowledge consists of interrelated ideas and facts. With respect to certain knowledge dimension of epistemological belief, both male and female senior secondary students may be of the opinion that truth is ever changing, each day new ideas or scientific knowledge emerges and what is true today, tomorrow that may be delusive. So far as the quick learning dimension is concerned both may be perceiving that learning process is something that is gradual. On innate ability dimension of epistemological belief, male and female senior secondary students believe that ability to learn is not fixed at birth.

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