CHAPTER 2

REVIEW OF RELATED LITERATURE

The development of scientific attitude is possible only through conscious attempts to make it happen. To achieve this, we should understand what it means (Haney R, 1964). National Focus Group position paper (2006) defines scientific attitude as a composite of a number of mental processes or tendencies to react consistently in certain ways to a novel or problematic situation. These include:

- Accuracy
- Intellectual honesty
- Open-mindedness
- Respect for evidence
- Scepticism
- Suspended judgement
- Critical thinking
- Perseverance
- Looking at true cause and effect relationship

India has distinctly accepted the development of scientific temper as one of the objectives of education. But there are limited studies in this field of research.

Singh (1990) has compiled Ph.D. research work entitled 'Scientific Temper and Education' The investigator has studied the role of education to cultivate scientific temper. According to him education plays a liberating role in changing economically determined and socially conditioned attitudes of teachers, and teacher education can cultivate, 'Scientific Temper' in the prospective teachers, despite level of development.

Dr. D N Dani in his book "Scientific Attitude and cognitive styles" (Pg. No.11) mentions that Inculcating scientific attitude and arousing interest in science are two of the major objectives of teaching science. The importance of the scientific attitude has been very well brought out by Thurber and Collete (1968 P.153) in these words: "Attitude developed by young people during their study of science can be as important as the skills they acquire and the knowledge they obtain. Scientific attitude regulate behaviour not only in classroom but in all other areas of human experience."

Dubey K.K. (1992) constructed a Scale for measuring scientific temper in his Ph.D. work on "A Study of the Scientific Temper and its Measurement" and found that all group of students & teachers manifested scientific temper. Significant differences in scientific temper were noticed between male science teacher and non-science teachers, female teacher and male teacher, rural girls and urban girls, urban boys and urban girls and finally male science students and female science students. No significant difference appeared between

female science and non-science teachers as well as science students and non-science students.

Literature is comprised of a number of researches that report scientific attitude as a correlate of learning outcomes in science subjects (Jaleel & Philip, 2017; Ahuja, 2017; Srivastava, 2015; Mukhopadhyay, 2013; Annakkodi, 2008; Bhaskar, 2001).

Ghosh (1986) also found that, while boys and girls did not differ on scientific attitude and aptitude, there was a positive relationship between scientific aptitude, attitude and academic motivation.

Sharma (2007) studied the problem-solving ability and scientific attitude as determinant of academic achievement of higher secondary students and found out there was a significantly positive correlation between scientific attitude and achievement, scientific attitude and problem-solving ability, achievement and problem-solving ability but these correlations were mild among boys in comparison to girls.

Teachers play a vital role in developing scientific attitude among students. Balaji G. (2017) studied the role of teachers in developing scientific attitude among secondary school students and found out that majority of teachers believed that teachers can help instil scientific attitude among students. They also believed that in order for a teacher to be able to inculcate scientific attitude in her students, she herself must possess it.

Scientific attitude among teachers has been a subject of research in education but it could not grow its research volume in proportion to its significance.

Saheb and Sathiyagairirajan (1979) conducted a study on the scientific attitude of college teachers and found that the science and non-science college teachers differed significantly in scientific attitude. Haladgna and Shaughnessy (1982) conducted a study on teachers' attitude towards science and established conclusion i.e., there was small difference in the attitude towards science for male and female teachers.

Studies by Gokul R. (2015), P. Ranjendran (2020), Chakraborty P. (2015) revealed from the study that there were significant differences in the level of scientific attitude among pre service teachers based on gender and subject group of the students and not significantly influenced by locality and age of the students while some studies by Gururaja (2018), Murugan (2019) reveal that there is no significant difference between the scientific attitude of male and female trainee teachers.

The above literature review shows conflicting views on the scientific attitude of pupil teachers based on gender. Also, there haven't been enough studies comparing the scientific attitude of pupil teachers enrolled in different pre-service teacher education courses which drive me to the objectives of this study.

1. To measure the scientific attitude of science pupil teachers of the following courses:

a) B.Sc.- B.Ed. program
b) B.Ed.-M.Ed. program
c) B.Ed. program

2. To compare the mean scores of scientific attitude of science pupil teachers of B.Sc.-B.Ed., B.Ed.-M.Ed. and B.Ed. programs.

3. To compare the mean scores of scientific attitude of male and female science pupil teachers.