

Chapter 11

**REVIEW OF RELATED
LITERATURE**

CHAPTER-2

REVIEW OF RELATED LITERATURE:

In the words of Good, "The key to the vast store house of published literature may open doors to sources of significant problems and explanatory hypothesis, and provide helpful orientation for definition of the problem, background for selection of procedure and comparative data for interpretation of results. In order to be truly creative and original, one must read extensively and critically as a stimulus to thinking".

Whenever an individual wants to do research, keeping in mind their interest, one starts scanning journals, periodicals, year books, handbooks, and other published literature. This help in pin-pointing a research problem. This scanning of literature develops clarity about components, procedures, and different steps followed in research. It can be said 'Scanning is Reviewing". It avoids the risk of duplication of already undertaken studies. It is helpful in locating the data useful in the interpretation of results. Reviewing helps in refining and developing insight into research problem

Ostman and Parker (1985) studied what effect does education, age and consumption of environmental information from newspaper and television have on people's environmental knowledge, concerns and behaviour? Partial answers to this question are based on as 1984 telephone survey of 336 residents of Itaca, New York. Respondents' education and newspaper use led to greater effects. Television use, both for specific environmental information and in general appeared to have some negative consequences. Age did not relate to the dependent variable.

Ostman and Parker have found that there may be medium – specific audiences and medium – specific effects. Newspaper readers were more oriented towards print medium, whereas television viewers used more radio.

Educated people preferred print media as a source for environmental information, but older people preferred television.

William and Marck (1988) studied understanding and misconceptions of Biology concepts held by students of small and large high schools. Fifty students attending small high schools (enrolments less than 150 students) and fifty students attending large high schools (enrolments exceeding 900 students) were randomly selected and then evaluated on their understandings and mis-understandings of four biology concepts: diffusion, homeostasis, food production in plants, and classification of animals and plants. Students attending small high schools showed less instances of understanding and more instances of misunderstanding the concepts of diffusion and homeostasis. These differences could be related to a higher percentage of students in large schools capable of formal operations; sound understanding of diffusion and homeostasis required students to use formal operations. No difference was observed between the large and small school samples for the concepts of food production in plants and classification of plants and animals. Students in the small school sample lived in agricultural communities and their daily experiences allowed them to develop some understanding of food production in plants and prevented instances of misunderstandings from being developed. Classification of animals and plants required concrete operations to understand; therefore, students in small schools were capable of developing sound understanding as well as students from large schools.

Brody, Marion and Chipman (1988-89) assessed the level of scientific and natural resources knowledge that fourth, eighth, and eleventh grade students in Maine possess concerning acidic deposition. A representative sample of public school students (N = 175) was interviewed on twelve concept principles considered critical to a full understanding of the acidic deposition problem. These included geological, meteorological, ecological, political, and economic concepts. Student knowledge was rated for each concept principle on a scale

of complete, high partial, low partial and no understanding. Common misconceptions were also noted. Generalized correct concept statements of current student's knowledge are reported, as well as generalized missing concepts. Their conclusions have implications for teaching about acidic deposition and the design of environmental education curriculum material based upon student knowledge. According to them this information can help teachers instruct students more effectively about current environmental problems and thus help learners gain an appreciation for the complex and multi-disciplinary nature of science and the environment.

Westbroak and Marck (1991) examined VII grade life science students, 10th grade biology students and college Zoology students for their understanding about the concept of diffusion. Sample consisted of 300 students (100 students from each grade level) randomly selected from the three grades. Each student responded to a test packet consisting of a biographical questionnaire, two Piagetian like developmental tasks and a concept Evaluation Statement (CES).

The CESs were used to measure the students' understanding of the concept of diffusion. None of 300 students across the three grade level exhibited complete understanding of the concept of diffusion. There was no appreciable difference among the grade levels in sound or partial understanding, misconceptions or 'no understanding'. An analysis of the misconceptions exhibited by the college sample showed that many of the misconceptions could be traced to a mis-application of scientific terminology.

Bou Jaoude (1991) studied the nature of student's understanding about the concept of Burning. Sample consisted of 20 students of eight grade level. Students were interviewed using the "interview about 'events' technique, a variation of the Piagetian Interview technique.

Finding of this study is that students hold understandings about the concept of burning differs from the understanding accepted by the scientific community. This study showed that students understanding about burning did not constitute a well throughout explicit theory of burning; there was no evidence that all the students used their observations to formulate a coherent theory of burning. Finally, this study showed that the students used phrases such as 'chemical change' and 'physical change' without any consideration to their scientific significance.

Brody (1991) assessed 4th, 8th, and 11th grade students understanding of natural and social science concepts related to pollution. A representative sample of public school students (n = 105) in 11 Maine schools was selected, and students were interviewed on four concept principles considered critical to a full understanding of the pollution problem. The concept of pollution included the much publicized issues of solid and toxic waste as well as air soil, and water pollution. Common misconceptions were also studied.

This study considered student understanding from a human ecological perspective, which reflects a complex, integrated and multi-disciplinary conception of natural phenomena.