

CHAPTER 2
REVIEW OF RELATED LITERATURE

Review of literature is an extensive study in a particular field of knowledge. This involves thorough learning and understanding of the past work done in a field of study too understand the course of study and progress made in a particular domain. Most importantly it paves way for the researcher to dwell deep into his/her subject interest and find interesting works done in the past. A thorough investigation of research studies even guides the researcher to know what is still left to explore and researched upon. Thus, literature review altogether supports a piece of research study by discussing all the potential works done and focusses on the importance of the present research taken.

In this chapter, the researcher presents extensive empirical evidence from global and national perspectives to outline the understanding of attitude of pre-service teachers towards environment. The chapter even explains the topic under different parameters of gender, academic qualification and the behavioral response towards various environmental behaviors.

Therefore, this chapter conveniently reviews literature of international and national studies and arranges them under following categories:

- Exploratory studies based on attitude towards environment.
- Exploratory studies based on importance of environment education.

2.1 Research based on attitude towards environment

(Koc & Kuvac, 2016) conducted a study on 197 pre-service teachers attitudes towards environment and derived comparative differences based on gender and grade levels by utilizing the Environmental Attitudes Inventory (EAI) tool developed by Milfont and Duckitt(2006).Research founding demonstrated females to be pro sensitive towards environment movement activism, environmental threat, support for population growth policies dimensions of EAI along with significant population from senior pre-service teachers in comparison to junior pre-service teachers.

(Uyanık, 2017)in a similar study of attitudes of prospective teachers towards environment issues using survey model on 405 teacher candidates of Faculty of Education of Katamonu University, found that prospective teachers have a positive

attitude towards environment and this behavioral changed enhanced in the individuals who opted for Environment Education course at University. On similar grounds it was seen that science prospective teachers have a better knowledge level than other university students. Thus, the need of environment education course was emphasized to be included at undergraduate programs of the universities.

In further exploration of the study, (Merritt et al., 2018) conducted attitudinal pre and post course survey on student teachers which revealed a positive attitude towards sustainable studies thereby emphasizing the need of EfS course for educators in United States.

To analyze and assess environmental competencies of primary education of pre-service teachers among two universities (Álvarez-García et al., 2015) found that pre-service teachers irrespective of insufficient environmental knowledge showed quite positive and responsible attitudes towards environmental issues and moderate pro-active environmental actions. The paper focusses on the concern that not all training programs adequately address environment education.

With a national level investigation of school teacher's environment literacy in Spain (Liu et al., 2015) found in-service teachers possessing decent knowledge of environment awareness, attitudes and knowledge. However, there were limitations in their environment action. This study created a path to explore the aspect of attitude towards environment in primary teachers and high school teachers.

Future implications of this study emphasized to seek teacher professional development programs and school environmental education policy to be progressed forward. In direction of further investigation, it was proposed to see whether pre-service teachers and climate change were on a stalemate to which (Boon, 2016) presented that pre-service teacher were consistently favorable towards environment and environment education. A need for the environment education was emphasized after seeing a positive attitudinal behavior towards environment.

Such explorative studies demonstrated that the pre-service teachers and in-service teachers were positive towards environment and environment education. However environmental literacy needs to be investigated among students and such a study on Madeira Island (Portugal) among 9th grade students from Eco-schools and ordinary schools by (Spínola, 2015) showed that no appreciable efficiency seen in terms of

environment attitude and knowledge in students from Eco-schools as compared to ordinary school's students. The researcher points out that Eco-schools are not an effective as an alternative environment education strategy as compared to alternate strategies adopted in ordinary schools. However, students who are more knowledgeable about environment have strong sensitivity and attitudes towards environment. This means that science curriculum and instruction are successful in these grade levels in terms of imparting the knowledge, but a need was felt to achieve highest degree of environmental knowledge and positive environmental attitudes and sensitivity (Nunez & Clores, 2017).

2.2 Research based on importance of environment education

In order to ascertain the understanding of environmental sustainability in higher education (Christie et al., 2015) evaluated the viewpoints of 6% of entire university teaching workforce of Australia. and concluded that academicians are supportive of EfS for all university students. However, still research ensured that there was a need to implement EFs are discipline specific and this need their disciplinary worldviews.

Recent trends in Environment Education talks about general education works in bringing socially and ecologically transformative goals. Using Foucauldian lens to explore environment education as a disciplinary subject was analyzed to understand how critical ecological discourse is important for promoting ecological traditions (Gruenewald, 2004).

With a vision to understand how environmental studies can be developed as a subject of discussion using teacher's perceptions over effectiveness of a tool named Content Representation (CoRe) using pedagogical content knowledge in a school setting on an environmental action taking for 16–17-year-old students. Data study emphasized CoRe as a general guide that proved beneficial to discuss the need of an effective environment education (Eames & Birdsall, 2019).

(Kumar Pradhan, 2014.), beautifully emphasized on the need of essential knowledge and information of environment in educational institutions to make them aware about

environment's ambient conditions and their role in solving local environmental problems by focusing how conventional educational methods are no longer adequate for tomorrow's needs and thus emphasizes a generic outline syllabus essential to be introduced in schools and undergraduate student in college level.

Escape Rooms as an Environmental Education Tool has focused on the need of environment education pedagogy to build the gap between environmental values and behavioral actions. In this direction researcher utilized escape rooms as an effective pedagogical tool to promote sustainable consumption habits (Chang, 2019.).

One can experiment with different themed rooms as an environment education tool tested among different age groups. However, one can ensure whether education resources are effective resources for context-based environment education and it was seen that an effectively utilized educational tool can be used to identify the lacunae in a resource writer intent and provide a space for a teacher to use the resource as per their need, context and learning objectives (Birdsall & France, 2018).

With technological advancement and global hit of pandemic has made us all take the help of ICT and this is even necessary to promote the use of ICT in environment education. the research concerning integration of environment education and Information and communication technologies (ICT). Multidisciplinary nature of environment education stresses upon integrated learning and project-based learning through activities like hands-on-experience. Even though there are many ICT and digital tools present in space yet there is scanty research that explores their fit with and implications for student learning. There is a need to develop learning and teaching tools that harness ICT tools to meet the goals and objectives of environment education in changing sphere of twenty-first century.

Most important with the game-based learning, environment education can be made to be integrated in student's life in a fun and interesting way. Game as a Learning Tool in Environmental Education", theoretically establish a relationship between environment education and entertainment using games as a learning tool. Thus, a game can be used to entertain as well as educate about education and thus promote socialization a core

belief of environment education. Edu-orienting influences positively influences the attitude of participants on outdoor activities (Loukas & Ioannis, 2018).

2.2.1 SUMMARY

When we look at the attitude of males and females towards environment, for most of the cases the females are highly sensitive towards environment when compared to that of males. This is very well reflected in their participation in various environmental movements and activism movements. With a greater understanding of environment the prospective teachers had high hopes for introducing environment education as courses in University Education. For most of the teachers belonging to science background had a more understanding as compared to other subject teachers and this focusses more on inclusion of environment education at universities. This is not specific to Indian subcontinent but similar intervention is even demanded in developed nations like United States. However, it cannot be completely said that all training programmes and educational programmes are the only source to impart environment education, but what is indeed interesting is the fact that pro-active environmental actions are a result of pro-active participation in community level participations. It is also not necessary that mere introduction of environmental courses at university level would solve the environmental problems of global world. Sometimes activism is still not inculcated irrespective of good information about environment. Thus, it can be widely understood that pre-service teachers and in-service teachers both were equally motivated to include and teach environment education at universities and college level. Still the prospects of environmental literacy among these teachers and school students still needs to be investigated. Eco-schools are an effective alternative to bring the basic level of environmental literacy, but it cannot be stated true in all respects that it will aid a good result for imparting a wholesome environment education. A higher degree of environment knowledge has shown positive sensitivity towards environment.

Round the globe, the demand to implement environment education courses is emphasized pointing to all round development of students in order to have sustainable education. Thus ecological discourse is important to promote ecological traditions. Environment education is crucial to bring socially and ecologically transformative goals in individual and in world altogether. Studies have even emphasized how CoRe

has proved as a guiding principle for promoting the environment education in students of age 16–17-year-old. In view of this, an essential knowledge and information transfer was emphasized and it was seen that proper curricular intervention is needed in schools and colleges to make them equally sensitive and conscious towards environment. Curricular interventions promote “Escape rooms” as *Environmental Education Tools* to bridge the gaps between environmental values and behavioral actions. This has proved an excellent tool to provide context-based environment education in classroom spaces. With technology dominating 21st century, project-based learning and integrated learning is providing an opportunity of hands-on-experience. This has enabled proper harnessing of ICT to meet environment education goals. Today game-based learning is making learners aware about environment in a fun and interesting way. Gamification of any teaching topics enables entertainment and education to happen together. Gamification of environmental issues promotes socialization as a core belief of environmental education.