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Analysis of Environmental Knowledge, Attitude and Behaviour of School Students in District Multan, Pakistan

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Abstract

Environmental issues are becoming increasingly critical, necessitating a comprehensive understanding of environmental knowledge, attitudes, and behaviors among students. This study analyzes the environmental awareness, perceptions, and actions of school students in District Multan, Pakistan. Using a structured survey, data was collected from a representative sample of students to assess their level of environmental knowledge, their attitudes toward sustainability, and their behavioral practices regarding environmental conservation. The findings reveal significant gaps in environmental awareness and highlight the influence of educational background, socioeconomic status, and access to environmental education on students' attitudes and behaviors. The study underscores the need for enhanced environmental education programs to foster responsible ecological practices among students. These insights can guide policymakers, educators, and curriculum developers in designing effective strategies to promote environmental stewardship among young learners.

Keywords: Environmental knowledge, student attitudes, environmental behavior, sustainability education, school students, Multan, Pakistan

1. Introduction

Today, environmental problems become an important discourse of people's life besides its social, political and economic aspects. The environmental crisis, like global warming, massive flood, food impairment billions due to industrial contamination, endangering animals, plants and vegetation, and the shrinking of the ozone layer have strike all people throughout the world retrieving their interest and worrying more or less. Though these problems are covert huge in some countries like in Pakistan, where the substantial contours of problems remain dormant, creating bigger problems in future. The intensity of rice of air and water pollution vortex the cities of Pakistan particularly in larger metropolitan cities. Oil spillage and emission of the poisonous gases into the atmosphere emitting from old vehicles tend the air quality to dangerous level that welcomes various respiratory and dermatological diseases

amongst the dwellers of the city. Similarly, Water Resources of this country slowly are coming to points where the provision of drinking water for the inhabitants going to seem to an uphill task (Alma, 2017).

Since Pakistan is an agitation black country, in which the primary consequences of environmental degradation and contamination huddle the masses pertaining to mental and physical health. In this context the concern emerges for the International agencies regarding environmental education to be implemented so as to ensure the purity of biophysical circumstances. However, it is the global issue beyond national boundaries. In this prospect some debates emerged among the international scholars and literates regarding cost effectiveness and its applicability in third world countries. In a safer side, is assumed, if its importance is not acknowledged, intact, exemplary environmental behaviors can be inculcated amongst populations, which in turn measure the deterioration rate and alleviates the unexpected problems. The International literatures show a direct positive relationship between education and environmental friendly behaviors.

Keeping in view the above assumptions, the present study was academic inquiry of the environmental education at the primary level about the acquisition of environmental cognitive knowledge, instigating environmental attitude and observing environment friendly behaviors of school children confined at the Government primary schools in District Multan.

1.1. Background of the Study

Human beings for their survival and development are constantly modifying their environment. With the advent of the industrial revolution and industrialization there has been rapid change in the environment. The environmental problems whether it is pollution of air, water and sound, destruction of vegetation, ozone layer depletion, depletion of energy sources and global warming are now a concern of all organised and civilized societies. The concept of environmental education emerged in the United States of America in 1969 followed by the Stockholm Conference in 1972. But in Pakistan the program of environmental education was first time launched in May, 1976.

The main objectives of environmental education are, the overall thrust of the National Environmental Policy of Pakistan is to bring about an awareness among all the people about the issues associated with the environment, particularly the students at all level of education as the influential element of the society, so that they can play a positive role in providing guiding principles for the wise management and conservation of resources and environmental sustainability. This can be facilitated by improving their knowledge, attitude and practices with the help of education and by incorporating environmental education in the curriculum of the schools. Therefore, every effort should be made for modifying appropriate strategies to address the environmental problems with the help of educational process. The problem of environmental pollution is very vital not only because it is a single problem but it also possesses compulsive effects on other environmental components as well as on the health and welfare of not only human beings but also animals, plants and the very image of the society. Efforts have been made all over the international community to create public awareness about the environmental issues.

1.2. Significance of the Study

A range of interlinked environmental issues including rapid deforestation, air, land and water pollution and waste management problems have unfolded in Pakistan. There have been increasing reports that young people, including children, are concerned with environmental problems, and also specifically, their school environment.

A number of studies have explored the environmental knowledge, attitudes, concerns, and behavior of youth in different countries. However, there is very little empirical evidence of the environmental knowledge, attitude or behavior of Pakistani youth, in comparison to some other countries. Specifically no studies were identified in Pakistan concerning students in the younger age groups, even though considerable emphasis is placed on the study of science in Pakistan's schools. In broad terms, the present study aims to investigate the environmental knowledge, attitude and behavior of secondary school students in Pakistan. The focus is on the younger age groups; students at a range of key stages in the secondary education system. It is anticipated that preliminary data collection will improve understanding of youth environmental education in Pakistan, and will help to shape future research examining the environmental education and knowledge, attitudes and behaviors associated with other age groups and in different educational contexts.

1.3. Research Objectives

The study was conducted with the following objectives:

1. To examine students' level of knowledge regarding environmental issues at the school level.
2. To analyze students' attitudes towards the environment at the school level.
3. To evaluate students' behaviors in relation to the environment at the school level.
4. To compare the knowledge, attitudes, and behaviors towards the environment between male and female students at the school level.
5. To compare the knowledge, attitudes, and behaviors regarding the environment between elementary and secondary school students.
6. To investigate the relationship between parents' educational status and students' knowledge, attitudes, and behaviors about the environment.
7. To explore the relationship between parents' professions and students' knowledge, attitudes, and behaviors concerning the environment.

Additionally, the study will also explore the correlation between students' environmental knowledge and attitudes, as well as their behaviors, while taking into account the differences between urban and rural school settings.

1.4. Research Questions

To assess school students' understanding of environmental issues, it is crucial to investigate various aspects of their knowledge, attitudes, and behaviors related to the environment. Specifically, we aim to explore the following research questions:

1. What is the level of knowledge that school students possess regarding environmental topics such as air, water, plants, wildlife, insects, noise, and population dynamics? This includes their familiarity with terms such as air pollution, acid rain, water pollution, sea pollution, tsunamis, hurricanes, floods, droughts, plant transplantation, reforestation, and climate change.
2. What is the attitude of school students toward environmental issues? We will evaluate their perceptions regarding the importance of environmental conservation and the consequences of environmental degradation on their lives and future.
3. What is the behavior of school students with respect to environmental protection? This will encompass their actions and practices that reflect their understanding and attitudes toward environmental conservation. Additionally, we will delve into the differences in knowledge, attitudes, and behaviors between male and female students, as well as between elementary and secondary school students. Further, it will be important to investigate the relationship between parents' educational status and their children's environmental knowledge, attitudes, and behaviors, alongside the potential influence of parents' professions.

To achieve a comprehensive evaluation, we will formulate specific questions aimed at understanding students' awareness and conceptual understanding. For example, we may ask: What do you think about learning the subject of air composition and its associated harms? Do you perceive the air around you as clean or polluted? Have you noticed any changes in the air quality, such as smoke or other pollutants? Are you aware of harmful substances present in the atmosphere? By addressing these queries, we can gather valuable insights into the overall environmental awareness and engagement of school students. (Nazneen & Asghar, 2018)

2. Literature Review

Awareness of environmental issues and impacts is a new trend in human life. Environmental education and environmental awareness in the developing country, like Pakistan, is not on the level which is supposed to achieve. Educational activities are most common in all parts of the world to get awareness in human beings, some new trends are selecting by the environmental activists at the regional, national and international level. Nationally, educational activities by schools and college students can be fruitful and ground-changing activities. The main focus of this study is the multidimensionality of environmental awareness among school students at the district level (Hock Lim et al., 2013). District Multan was chosen as the study area. Student awareness in the district of Multan will be discussed in different forms like knowledge, attitudes and habitual changes.

There are some other results of multidimensionality environmental awareness, recent studies showed that many factors always have a great effect on the mind of humans, but the role of parental modeling in environmental knowledge, attitude, and habitual changes (Nazneen & Asghar, 2018) is significant. Normally, the students never learn coming to school regularly at the beginning stages but get awareness of it because normally his parent follow it

and trained them. Secondly, the habit of cleanliness is developed due to some other externalities factors but most prominent is the parental modeling of these habitual changes in early age.

2.1. Concept of Environmental Knowledge, Attitude, and Behavior

In literature, different terms have been used including 'informing', 'dissemination of information', 'awareness raising', 'education' and very recently crafted terms such as environmental literacy, cultivating a new ecological consciousness and capacity building for sustainable development. Environmental education, as defined by formally or informally in scholastic institutions ultimately affects the world people live in and the way they perceive the world. Environmental education as formal modules or extra-curricular activities in schools or colleges aims to build knowledge, values, skill, expertise, awareness and a moral sense of responsibility on the environment and environmental attributes. This knowledge is used as a stepping stone to ameliorate environmental conditions such as clean green practices, plantation drives, waste elimination and water related hygiene campaigns. In contemporary international social cognition there is an enhanced interest in behavioral aspects of knowledge and attitude on various issues of societal importance. School students with varying durations of gratuitous knowledge impacts behavioral components resulting in a statistically significant role. In the same vein, environmental education in Pakistani institutions needs to evaluate its inner most efficacy and take corrective measures to incentivize and boost a positive environmental approach (Wang & Zhang, 2021).

In view of the foreshadowing this study is undertaken because the State of Pakistan faces challenges related to air quality degradation, land degradation, water related issues, ozone layer depletion and irregular climate variations. Coupled with these factors are the socioeconomic impacts that urbanization and industrialization have amplified exponentially the mere existing pressure on the diversity of ecosystems. However, environmental education still waits for its due place in the educational policies and its strategy still needs to make concrete inroads in the school and college curricula.

2.2. Previous Studies on Environmental Education in Pakistan

Environmental education is vital in creating environmental awareness, knowledge, attitude, and skills among school students. Main purpose of this education is to develop a sense of school environment and then to transfer the enhanced concept to broader social environment. It is being said that if young ones are well trained and educated about environment and its importance, in future they will be more concerned about the deteriorating environmental conditions worldwide. In Pakistan, environmental education and related research is in its initial stages and there is a need to focus and promote research in this area across urban, peril-urban and rural educational institutes of all levels.

The Ministry of Education, Government of Pakistan, officially introduced environmental education in the primary and secondary level curriculum in 1980. The subject is also being taught at the Higher Secondary Certificate level. However, in rural underdeveloped districts like Multan, the syllabi content is taught for scoring marks to complete the curriculum, instead of practically implementing it in real life. All the mentioned authors have worked on Pakistani students, focusing on urban centers; however, this study encompasses the rural-urban mix of environmental aspects. Referring to Multan, the 2nd largest city of South Punjab, this aspect seems to have been neglected thus far. This study is the first conducted in an area similar to Multan concerning the environmental knowledge, attitude, and behavior of school students. But the current study is group based, for districts, and Multan itself is a little explored region of South Punjab in the context of such studies.

2.3. Factors Influencing Environmental Knowledge, Attitude, and Behavior

The environmental pollution is increasing at a rapid rate because of the increasing industrialization, commercialization and motorization. All these activities are the sources of environmental pollution. The air and water pollution are sources of many acute and chronic diseases. So, some immediate steps should be initiated to control and to minimize the environmental pollution. Subjects were 692 school students of different government and private schools. They were chosen from five different educational levels i.e. primary, middle, matriculation, intermediate, graduation. They were from rural and urban areas of district Multan. A self-constructed questionnaire was used to conduct the survey from the students. There were questions about environmental knowledge, attitude, and causal perception of environmental pollution and environmental behavior of the students. The subject also responded how they control and minimize the environmental pollution. The collected data were analyzed through SPSS. The demographic variables of gender and area of residence were the independent variables while the environmental knowledge, attitude and behavior of the students were the dependent variables.

Lack of knowledge and practice of environmental cleanliness and conservation are the sources of environmental pollution. It is a general trend that poverty-ridden people do not give attention to cleanliness and conservation of environmental resources. In other words the environmental pollution is also the poverty of the community. This is the reason that the environmental pollution is more common in rural than in urban areas of Multan district (Nazneen & Sachar, 2018). The survey findings reported that the knowledge and perception of students about cleanliness, conservation and control of air and water pollution in rural schools were very limited. Although the students of urban schools had somewhat better knowledge and awareness, but still their practice and behavior towards environmental cleanliness, conservation and control were very little. The students had some knowledge and perception about the sources of air and water pollution, but they did not know the treatment, control measures and remedies against environmental pollution. So, it is needed to enhance the knowledge, awareness and perception of students about environmental pollution and its control. It is recommended that the curriculum of studies should be revised i.e. the subject of environmental science should be compulsorily and obligatorily taught. It should be made sure that an up-to-date and elaborate knowledge and thorough understanding about environmental pollution phenomena and its control and cessation measures should be part of the curriculum. A well-organized syllabus should be introduced.

3. Methodology

The topic of environmental awareness and protection is quite relevant in 21st century due to increased awareness about climate change and warming of earth due to carbon foot printing of different pollutants. Present study was conducted to access level of environmental knowledge, attitude and behavior among school students of district Multan using semi structured interview. Multistage stratified random sampling method was used to select 125 students from different schools in district Multan. 'Z' test was applied to establish a relationship between different demographic variable and knowledge, attitude and behavior of students regarding environment. Thus, results have depicted that school students have good knowledge and attitude about environmental issues but behavior related to environmental protection is less significant. The alarming rate of rise in global warming and increase in incidents of environmental degradation and pollution has forced people to handle this critical issue with seriousness. In this respect, public and private institutions are launching awareness campaign regarding environmental protection. It is the demand of time that environmental issues must be resolved at district level and to initiate this process awareness campaign regarding environment conservation and protection should be initiated among students. School students can play a vital role in raising awareness about environmental issues because students are the best change agents in any society as they are better able to learn and retain information than adults. The best thing about sensitizing students is that taught knowledge and skills are spread across society. This has a long-lasting impact on society as student continues to share it, not hesitate, as well as can communicate to adults too. This type of awareness need to be awakened in students to bring about a vital change in the society. So, instead of going for awareness campaign at very youth and early childhood stage it is much more fruitful, to impart environmental knowledge and skills to the subtle minds of student. We know that these environmental issues have been integrated in the curriculum of many schools but questions are that whether a taken knowledge is implemented in practical life or daily routine. (Hock Lim et al., 2013) To understand the sensitivity of students about environmental issue not only academic instruction has significance role rather other awareness campaign is also vital. So this is the great concern of the researchers and scholars to design effective strategies and habits in students to promote environmental conservation by taking this backdrop into account study was subject matter below the following headings in the district Multan.

3.1. Research Design

This section provides an outline and rationale for the methodological approach used in the study. It is populated by following subsections: research design, population and sample, data collection, research instrument, and data analysis.

The study employed a descriptive and survey research design. A mixed methodology, incorporating both quantitative and qualitative approaches, was utilized for data collection. The primary aim of the research was to evaluate school students' knowledge, attitudes, and behaviors regarding the environment and to draw conclusions beneficial for stakeholders. Descriptive research methods were applied throughout the study. To gather data, a survey was implemented in elementary and secondary schools within the Multan district, focusing on students' environmental knowledge, attitudes, and behaviors.

The evaluation comprised three key components: knowledge, attitude, and behavior related to the environment. The survey was executed using a cluster random sampling technique across 12 primary and secondary schools, resulting

in 276 completed questionnaires deemed valid for further analysis. Findings revealed a direct relationship between knowledge levels and attitudes, as well as a direct and positive correlation between knowledge levels and behaviors. Overall, the respondents exhibited low levels of environmental knowledge, attitude, and behavior.

The objective of this research is to identify the level of environment knowledge, attitude and behavior of the Multan district's student community and to identify the relation and the effect of the environment level of knowledge and attitude on their behavior; understand the moderate influence of the socio-demographic variables and propose appropriate recommendations for increasing environmental education among them. In this connection, this research contributes to the growing body of research examining environment awareness, attitude and behavior in Pakistan, and forms a basis for planning effective environmental education programmers, especially targeting students. At the same time, this research also benefits students and school authorities, who will have valid information on the current situation of environmental education, and will aim to improve speech and attitude and behavior of the environment to meet their desire to live a healthier life.

3.2. Sample and Data Collection

The data was collected between February 5th, 2018 to February 25th, 2018. During sampling, it was attempted that random methods were used and it should be ensured that every individual was given adequate representation for the sample. The participants (candidates) consisted of 303 school students during sampling process. The responses were collected from all participants and thoroughly, on the spot. The questions were read properly to each student and their responses were circled accordingly. The responses were checked carefully and later on cleaned using proper method. Regarding reliability, the data was validated. In order to ensure validity of instrument and data, the tool was checked making up-to-data material. A reliable survey was developed and was used during survey. Regarding validity, A Vocational College was chosen to conduct survey; IBA Community College, University of the Punjab, in which the students belong to old residency of Multan city. The residents of Multan have diversity with respect to the areas. The students belong to Urban areas that comprises Johari gate, Dear Addax, Chowk Quasar Wala), and to Rural side (Kasbah Gujrat, Jabalpur, and Griot). Due to this diversity, validity of data was checked. The students were pre-looked similarly concerning to disposal, transportation, packaging, unused material. The statistical modeling was performed, on afterwards. For statistical analysis, the data was fed into the spreadsheet for symbols, equations and calculations. Later, the data was transferred to Statistical Package for Social Science (SPSS). Descriptive statistics was used to describe the data, while factorik analysis was used to explore facts that associate the behavior (Hock Lim et al., 2013). Furthermore, linear regression was applied that associates two more variables. The data was prepared, and cards, resulting graphs, tables were drawn, to attain the objectives and testing the hypothesis. The raw information was consolidated, comparisons made and later discussed the results. The conclusion reflected the agreement and disagreements based on the results. The video lectures were followed that consist of collecting the data, and later analyzing it.

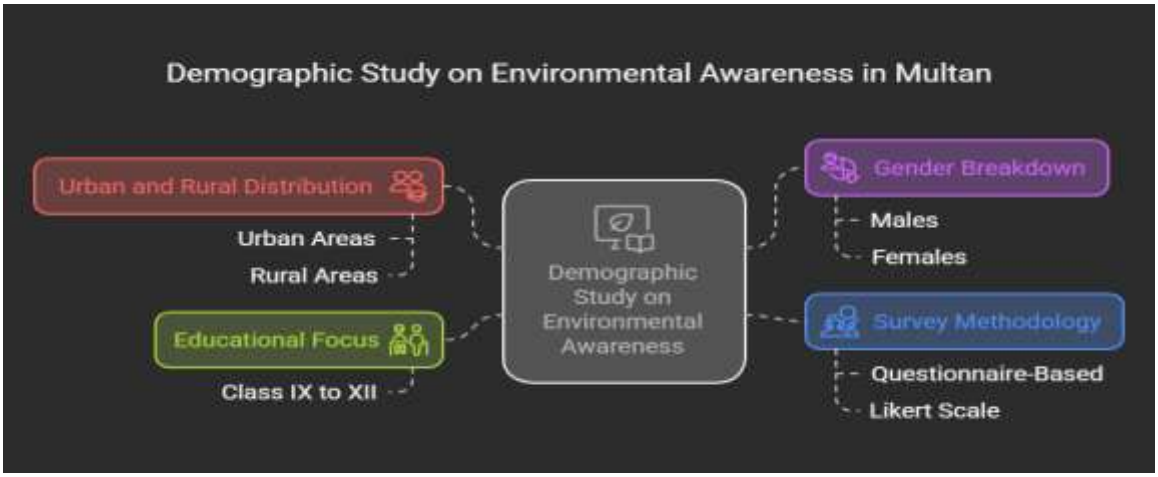
3.3. Data Analysis Techniques

In this investigation, two primary methods were employed to analyze the data collected from school students concerning their knowledge, attitude, and behavior in Environmental Sciences during the UDLC. The first method involved quantitative data analysis, and the second method focused on thematic analysis of qualitative data. The responses from questionnaires were systematically tabulated, with each category of response assigned a specific score: Strongly Disagree = 1, Disagree = 2, Neutral = 3, Agree = 4, Strongly Agree = 5. Following this coding procedure, the cumulative data was inputted into an Excel spreadsheet, where the arithmetic mean and standard deviation were computed to facilitate conclusion drawing. The midpoint of the response scale was determined to be 3. A mean score exceeding 3 indicated general agreement, while a score below 3 signified disagreement. For the data analysis, SPSS software was utilized, incorporating various statistical techniques including descriptive and inferential statistics. The descriptive statistics provided a comprehensive overview of the data, detailing the mean (M), standard deviation (SD), minimum, and maximum values for each selected item, thereby allowing an assessment of the students' knowledge, attitude, and behavior levels concerning Environmental Sciences. A high mean value (greater than 3) suggested a favorable understanding of the subject, whereas a low mean value (less than 3) indicated a deficiency in knowledge, attitude, and behavior towards Environmental Sciences. In addition to general descriptive analyses, specific statistical tests were applied: the ANOVA test was used to assess mean parity among different groups based on variables such as parents' educational status and fathers' occupations, while the Mann Whitney U-Test of significance was employed to analyze pairs of statements. Furthermore, post hoc tests for multiple comparisons were conducted to further explore group differences.

The outcomes of the mean analysis serve as a recommendation for improving the Environmental Education and Learning Curriculum (EDLC) and provide valuable insights for policymakers, officials, and non-governmental organizations in developing regulations aimed at environmental protection. (Hock Lim et al., 2013)

4. Results and Discussion

A cross-sectional study was conducted to assess the relationship between demographic characteristics and environmental knowledge, attitude and behavior among school students of district Multan, Punjab, India. School buildings providing education to students residing in urban or rural areas of district Multan, Pakistan were surveyed. A number of 471 students studying in different schools of district Multan, Punjab, Pakistan were investigated. Out of 471 students 312 in their schools buildings in urban and 159 students in their schools buildings in rural areas of district Multan, Pakistan. Educational programs on conservation and protection and the results of this preliminary analysis may assist the rhetoric of environmental education programs to increase the awareness of school students about environmental issues and protection. 469 students 377 Males (80.21%) and 92 Females (19.57%) from 6 High Schools of the district were included in the study. A questionnaire based survey of school students of class IX to class XII was conducted to collect the relevant information. For response, a 5-point Likert scale was used in the Questionnaire. The student's response was termed positive if she/he Strongly Agree or Agree with the items. In otherwise it was considered negative. Most of these studies are about university students and adults Educational preparedness of this future generation to manage available resources and to tackle drastic environment issues may assist in a wise planning of environmental awareness campaigns for students. Ranani High School students are active in plantation and conservation activities. There is a need to incorporate the school students to protect and improve the environment of district Multan, Pakistan. Campuss greenery must be improved to attract the students towards environmental conservation.



4.1. Overview of the Sample

The study was carried out among the students of post graduate colleges of District Multan, Pakistan. Multistage random sampling technique was used to select a sample of 283 students aged 20–25 years, enrolled in postgraduate colleges. The standardized questionnaires of environmental knowledge, attitude and behaviour were used for the collection of data. The data collected were computer analyzed to get percentages, means, frequency ranges, and standard deviation. The results indicated a significant awareness towards environmental knowledge, attitude and behaviour among students. The results showed that the students were found well aware of environmental knowledge, attitude and behaviour (Hock Lim et al., 2013). More public awareness should be promoted through campaigning and awareness program through electronic and print media. In colleges, more funds should be allocated for the education and promotion of environmental cleanliness and hygiene. Students should be offered scholarships and a concession in the fees who are involved in the activities of the conservation of the environment. It will enhance the environmental education and learning objectives of the students in particular and the community in general. The educational policy draft should be revisited to include compulsory environmental education at every level of study to provide awareness among the youth. The awareness regarding the hazards of wastages and management of waste products should be launched by the environment agencies in collaboration with the Pakistan electronic media and through bandwidth television the environmental cleanliness and the measures regarding this

should picture and demonstrated in the programs, so that the common audience, most of them illiterates, may understand these problems of air, water and soil pollution and take effective and remedial measures (Nazneen & Asghar, 2018).

4.2. Environmental Knowledge Levels

The analysis of the survey data of school students implies that the students having environmental education as a subject in classes possess sound knowledge and favorable attitudes regarding the environment. In the view of positive aspects, the majority of urban as well as rural school students were of the opinion that the environment was deteriorating. However, more rural students believed that individuals should be concerned about protecting the environment than did urban students. In the study, informants, including guardians, principals, and teachers of schools indicated that the percentage of schools with a subject on the environment was 41%. Those schools having any kind of environmental activity monthly were 24% as per the informants. Moreover, 14% of the schools involved students in the plantation of trees. At the secondary school level, informed about the plantation in schools weekly is 2%, monthly is 7%, and 1-2 times in academic year is 4.88. Almost all the informants were of the opinion that the teachers in general were skilled in teaching regarding environmental issues. And 61% of the informants informed that the medium of instruction regarding environmental issues was always in the local language. In other schools, the medium of instruction was English. After the above general discussion, generally some of the specific medium-based results have been reported separately.

4.3. Environmental Attitudes

The attitude of the students towards the environment comes first, as it generates an interest in them to do something beneficial for the environment. If attitude is there, it will turn into their behavior (Nazneen & Asghar, 2018). Regarding the environment, people behave in a particular way, so it is important to explore their behaviors in relation to the environment. Frequently, students have an open minded attitude, but is there a behavior also, which is related to the environment. They tell others to not make a mess of their surroundings, but do they also act on their advice, or their behavior is negative towards their first statement? This study investigates the environmental attitude and behaviors of the students in District Multan, Pakistan. This is an important area to investigate because these are the people who are going to be the leaders and workers tomorrow. Attitude and behavior are not only related to youth but are most importantly developed by them as they are the future of the world. Once the attitude has been assessed, researchers assume certain predictions of performance that require direct action. For example, if someone is assumed to have negative attitudes towards the environment, it can also be assumed that that person cannot perform environmentally related behaviors. On the other hand, an individual with positive attitudes is predicted to show certain behaviors, which in turn is to wish to have a clean and pollution free environment. Regardless of the educational background, whatever degree one is earning, the quality that has become limited in the national character for cleanliness and the desire for a healthy atmosphere needs serious monitoring, which is lacking in youth. So, the people to whom this is being related are the students, who range from matriculation to the postgraduate level. So this demographic group will be selected to view their attitude and behaviors towards any kind of the environment.

4.4. Environmental Behaviors

Findings regarding environmental behaviors show that the average environmental behavior score of school students is 22.47 with 3.17 standard deviation. Very limited literature available regarding district Multan, Pakistan shows that it's above the score of 19.02 with 2.60 standard deviation. The students have shown a dependent behavior regarding environmental issues on other peoples. This dependent behavior causes creating dirt in school and house premises. Only limited percentages of students (28%) were involved in cleaning school premises and throw dirt out of the school. Household behavior of students is prevailing cause shape by dependence behavior on other family members. These results reveal that there is a scope for improvement in environmental behaviors of students so that they can shape their environmental protection behavior. Intellectual effort has been made to know about the existing knowledge, attitude, and behavior towards the environment of school students in the areas of district Multan, Pakistan. Children are primary stakeholders in terms of environment knowledge, attitude, and behavior. The future of the environment and environmental issues depend on the hands of present children. When they realize the importance of environment in their locality, they automatically adopt attitudes and behavior toward the improvement of environmental quality. To know about the knowledge, attitude, and behavior regarding the environment of the school students, it has been made established that one government and three private schools, one high and one middle-level school for boys and girls were selected randomly. It has been found from the study results that the

environment knowledge of the school students is scarce. There are only a few students who have environmental knowledge and realize the importance of the environment in the existence. The production of environment knowledge is the first step in environmental awareness. It's the environment from which the human being fulfills their three basic needs but these needs should fulfill at the optimal level because the saturated environment generates the infectious and chronic diseases (Alma, 2017). Satisfaction of limited needs damages the environment which causes many environmental problems. It's needed that every individual living in the area aware of and adopt the precautions to prevent the environmental problems.

4.5. Correlations and Patterns

From the gender point of view, some variations were found in inferences regarding school grades, for the most items, the females' attitude was better (awareness, FC, and duty or responsibility). FC is highest (0.83) under female grades of 81-90, while it is highest (0.43) under male grades of 91-100. Duty is highest (5.31) with female grades of 51 – 75 while with male grades less than or equal to 50. Education sector-wise, or schools wise, the mean values for awareness of EB and EK are almost the same (2.97), with L-0, negative (−2.18) value for the FC and a positive value (5.62) for duty was found at primary level. A similar pattern was observed at the middle level. Only the mean awareness values for the students of primary and middle levels differ (15.5) slightly, education level-wise, the mean value for awareness of FC and duty was highest (0.78, 5.07) at the graduation level.

From the caste point of view, the results of linkage of FC with IG/ST are in accord with those of . The only exceptions are male (0.41) OBCs and (0.69) FCs in this study. Similarly BD has the highest \(\rho\) with gender at the ST level, which is in concurrence with . It can be observed from Table 17.1 that in the majority of cases, the common point where the values of correlation are the highest are lowest or highest responses for the categorical variables considered viz. gender, caste, monthly income and the highest percentage of thoughts of environmental problems in the respective directions for taking customary provision. Further, significant gender, medium of the school, and monthly income by investment in adhering to some suggestive thoughts of customary reasons aspects ((Kumar Astalin, 2011)). Pair-wise comparisons of school grades of the awareness of environmental knowledge have shown a consistent pattern; that is, the greater the average of the school grades, the better the environmental knowledge seems to be ((Astalin, 2012)).

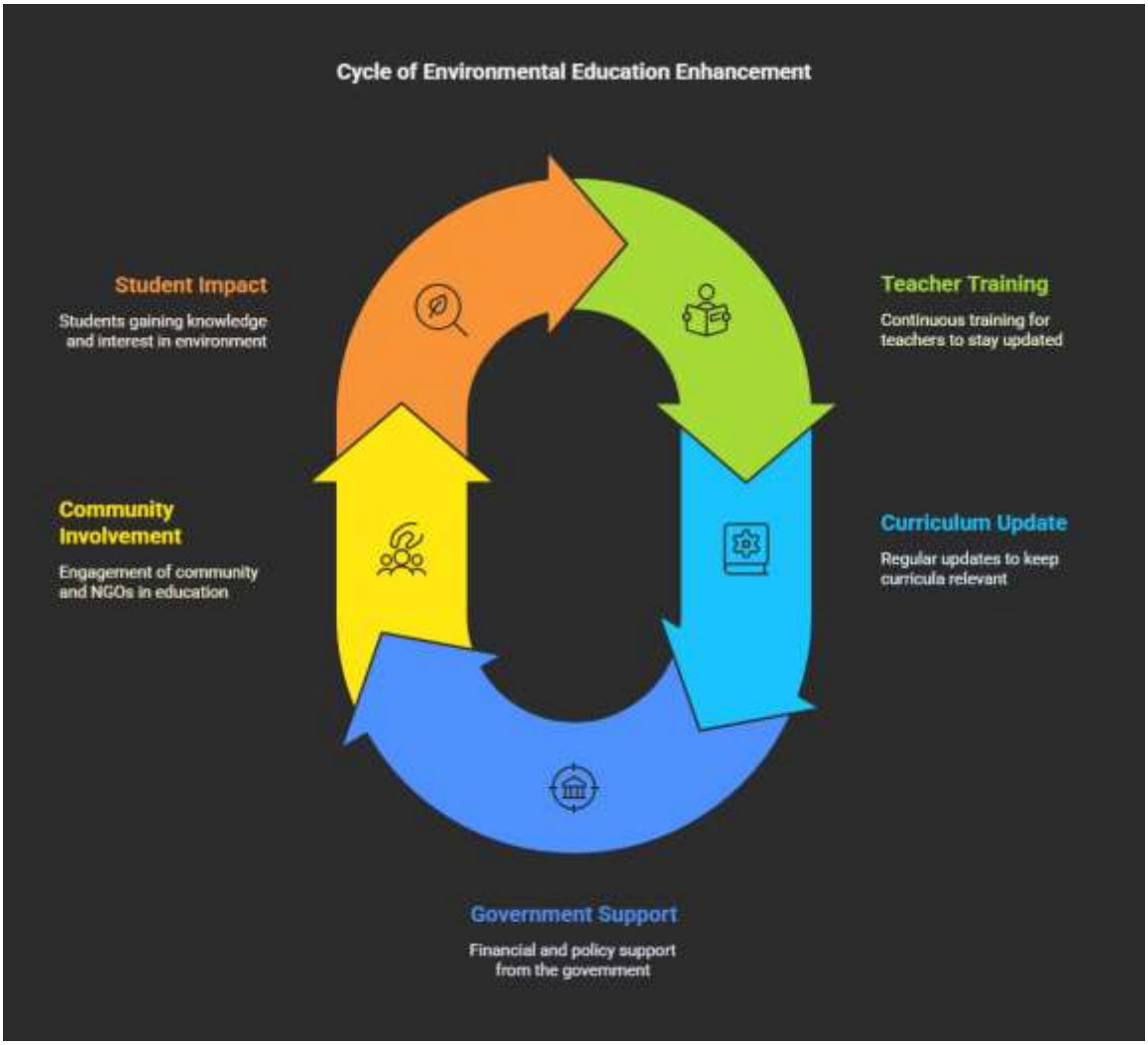
5. Implications and Recommendations

Numerous efforts have been made at the Governmental level to achieve environmentally sustainable development in Pakistan. Environmental research has identified a significant gap in the analysis of environmental knowledge, attitudes, and behaviors in Pakistan which this study aims to address. In this context, the overall objectives of the research are to examine the relationship between environmental knowledge, attitudes, and behaviors of school students. Environmental awareness, knowledge, attitude and behavior in school students are important to understand as they are likely to be future decision-makers and the overall potential of environmental protection lies in their future hands. School students form a sizeable portion of Pakistan's population, which is undergoing different programs regarding environmental care. The study intends to assess the knowledge, attitude, and behavior of school students in Multan to compare it with findings of studies in other parts of Pakistan, and other developing and developed countries. This would provide a picture whether to retain or reassess the current strategies towards school children. The study is significant for policy analysis as it can provide feedback on current programs whose impact is usually felt in society after some time. In developing countries, such as Pakistan, resources for surveys on environmental opinions are scarce (Alam, 2017). This study would provide a new angle of investigating environmental concern by using school children as a target population.

5.1. Educational Implications

In every educational activity science teachers are keys and backbone. If they are environmentally knowledgeable, they will be able to transfer environmental knowledge to their students (Alam, 2017). Therefore, curricula of science teachers should be updated frequently. Semi-annual meetings, conferences, science exhibitions, field studies, and workshops on environmental education should be arranged for the training and awareness of science teachers. The government should also provide environmental-based training and grants to the teachers. Teachers should be involved and encouraged to participate in different projects, planning, and policies regarding environmental education. Therefore, regular short courses on environmental education should be required for the students, the public, GNs, and NGOs to encourage the formal environmental education (Elmosaad, 2024). Wildlife and forest departments should much more impress school administrations, GNs, and NGOs for activities regarding

environmental education. Teachers are only great assets and source which can prove themselves as a great reader for enforcement and strengthening environmental education at the root level i.e. in the minds of the children. Actions should be taken as soon as possible for training and provision of better salary, opportunity and conducive environmental for teaching, so that the educated and professional personality of teachers towards environmental education would automatically be reflected on the mindset of the students and society. Actions should also be taken from the top governmental level for the prevention of deforestation and extinction of wildlife, which can be the cause of decrease in the interest of students and teachers towards insects, animals, and forestry programmes.



5.2. Policy Recommendations

The design and content of environmental education should be given consideration in the light of the facts of environmental knowledge, attitude and behaviour of the students. In this context, the following suggestions are recommended: The attention of the education policy makers should be drawn towards the formation of an environment expert force of the education system by giving them special training and incentives. The professional trained force can create awareness in the society in a shorter span of time for changing the negative situation of the environment. The practical steps and methods should be included in the syllabi for the environment education. This content may also be included in other subjects and course books of the study. The students may discuss it in the leisure time at home and among friends and teachers. Setting strict time bar for the factories to play releases the wastage in the rivers, canals and other running waters should be developed. The factories may be directed to plant trees in their premises so as to reduce the air pollution. The govt, may promote the use of smokeless material for households works. Such a system when attached with the factory will have dual advantage. The wastage of the

factory can be used as fuel in the kitchen, and this will help in lessing the pressure on the wood regime (Alam, 2017).

5.3. Future Research Directions

Environmental knowledge among students is still at lower level which need further improvement. The environmental knowledge about human activities causing environmental degradation, species extinction and global warming need special attention of student in the area. It is responsible to infuse environmental attitude towards betterment and save environment. The provision of digging facilities in the district can enhance environmental attitude among student of the area. This study also has very important policy implications. There is a dire need to include such topics in curricula as well as organizing seminar for students to improve environmental knowledge. Government also takes step in providing diving facilities in the area more frequently. A few limitations of the study to examine the environmental knowledge and environmental attitude of the sample of school students on the basis of gender and residence only, further broad base studies exploring more variables such as grade levels, education of parents, and type of school are suggested for the district.

6. Conclusion

A brief investigation was carried out in District Multan, Pakistan within 10 schools including 200 students and 10 teachers focusing on the knowledge, attitudes, and behaviour of school children towards the environment of District Multan, Pakistan. The questionnaire method had been taken as a primary tool for the data collection to investigate the environmental awareness among students and their teachers. It was observed that students generally being less experienced and knowledgeable have a lower score to measure the environmental knowledge as compared with the teachers. Similarly, students from the newly established schools have shown a much lower environmental knowledge than the students in schools which had been established in early years (Alam, 2017).

Environmental education and creation of environmental awareness immediately in society is a much needed thing especially in these areas where poverty prevails. It is desirable to make some concerted efforts to disseminate knowledge of the environment and to mould attitudes and values in favour of harmony with the nature amongst the people. If adequate knowledge, appropriate skills and positive attitudes are to be created by which the people might be able to understand and appreciate their own environment and participate positively in long term schemes of local relevance to improve and safeguard the quality of the environment, it would be necessary to adopt a comprehensive and interdisciplinary approach, with participation of two or more of the problem in the planning as well as the execution of the involving. There were only three teachers who might be regarded as sufficiently experienced from the point of view of length of time spent in experimenting about the environmental effects of playing certain kinds of games.

6.1. Summary of Findings

An investigation was made to evaluate environmental knowledge, attitude and behavior of school students. A sample of 385 students was selected to collect the primary data. A semi-structured questionnaire method was adopted and a five point Likert scale was used to record the responses. Findings reveal that more than 50% of school students have neutral knowledge about list of environmental issues of Pakistan. School students of private schools have more knowledge about list of environmental issues of Pakistan than government school students. There is no remarkable difference in knowledge about environmental issues of Pakistan between male and female school students. Government school students have a positive attitude about the presence of greenery near to their house whereas no differences have been detected among private and NGO school students. NGO school students have a good attitude about their responsibilities towards cleanliness. There is a strong association between student education and attitude about annual days of environmental issues. The availability of gloves and mask improve the positive attitude of students about a cleanliness drives in the schools. Major facilities are not available in many schools for cleanliness such as, trash cans, gloves, masks, broom and brushes. More than 50% of students engage in plantation in the schools. There are no such associations that have been determined between a number of trees and plantation's habits of school students with respect to the availability of trees in nearby colony (Hock Lim et al., 2013).

6.2. Concluding Remarks

The current study concluded on a few important draws drawn from the findings. The results may act as a basic structure for policymakers to adopt significant schemes for developing awareness among students regarding the environment. The mean values of interaction on the environment knowledge, attitude and general behaviour were

calculated, in order to know the overall perspective of the undergraduates towards this vital issue. For Environment knowledge, the average value was 59.65130 percent, showing the Undergraduate Students are considerate regarding damage to the environment, but further attention and additional study are necessary. Regarding Environmental Attitude, the average percentage was 72.55781, suggesting that the participants seem to be concerned about environmental circumstances. The mean value of Environmental Behaviour was 42.79507 in percentage terms, which shows that actions are mandatory toward conserving the world, further effort and further focus are required to rectify this scenario. Environment education can play a vital part in enhancing pupils' awareness of the ecosystem and, as research reveals, boost their proactive behaviour to discourage environmental destruction. When education is efficiently utilized, it may improve awareness of the nature of environment difficulties, concerns, chances and the responsibility of people in their solution. Effective Environmental Protection Policies virtually rely on ecological instruction being provided to kids and the youth so that they can save the community from pollution and reduce adverse effects on human health. The current study has promoted many important implications for the authorities of Bangladesh, as educating the younger community about the surroundings is a compulsory constitutional obligation for the country.

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