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The role of biology curriculum in promoting student health, environmental awareness, and academic success: Teacher responsibilities

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Abstract: The biology curriculum significantly shapes students' understanding of health and environment, equipping them with knowledge and skills necessary for responsible citizenship and informed decision-making. This study aims to examine how the biology curriculum affects students' education, focusing on how it helps students become more aware of health and environmental issues. The study utilized a mixed-methods research design. A Purposive sampling was utilized for this research. The study was carried out in four schools in Tirana: Gymnasium "Aleks Buda, "Gymnasium "Samiu," Gymnasium "Isa Boletini," and Gymnasium "Partizani." The sample consists of 200 students and 20 teachers. The research instruments used for the collection of data were questionnaires, interviews, and classroom observation. Findings of the study show that students' understanding of essential health-associated subjects was greatly improved by their participation in the biology class. It also highlights how important it is for teachers to raise students' achievement levels. The study shows the important role instructors play in fostering an encouraging and exciting atmosphere for education. Furthermore, instructors may pinpoint how to meet every student's distinctive educational requirements with customized supervision, offering individualized assistance along with helpful criticism. In conclusion, the curriculum acts as a catalyst for bringing important health issues, like disease prevention and individual well-being, to the public's attention while simultaneously encouraging a sense of responsibility for the sustainability of the environment and the preservation of our world.

Keywords: *Academic achievement, Biology education, Environmental education, Exemplary citizenship, Health education, Interactive techniques for teaching, Student success, Sustainable educational practices, Tailored instructions, Teacher-student relationship.*

1. Introduction

Biology has long played a significant role in education because it is a key to understanding how the environment, human health, and other aspects of life operate. As our world constantly confronts changing concerns in public health and environmental sustainability, the biology curriculum is becoming increasingly significant in developing students into responsible, knowledgeable, and proactive global citizen [1]. In addition to imparting information, a strong biological program fosters intellectual curiosity, problem-solving skills, and an understanding of the intricate interconnection of all species. Students get an understanding of the delicate equilibrium of habitats and the way that humans affect the species as well as the natural world through an investigation of environmental concepts. Students may gain awareness of urgent concerns like warming temperatures, contamination, and restoration by grasping the complexities of ecology, which fosters a sense of caring for the environment. Additionally, studying the biological sciences helps students understand how the body of a person works, establishing the groundwork for potential jobs in medical fields and as educated citizens. Students gain an

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understanding of how their bodies work through investigating genetic architecture, organelles, and the processes of illness [2]. One cannot overstate the importance of teaching. Teachers act as guides, helping students understand complex biological concepts as well as promoting an inquiry-driven method of teaching. Teachers arouse curiosity among students about the topic while encouraging continuous education by employing appropriate instances and developing their inherent inquisitiveness. Instructors also play an essential role in enabling students to think about the social and moral consequences of scientific discoveries by linking the lessons to practical uses. A thorough biological program works in collaboration with committed and knowledgeable teachers to create updated ecologically conscious, and technologically educated people that are ready to face the problems of contemporary society [3].

The curriculum exposes students the knowledge and skills necessary to make informed decisions about their health and the environment by exposing them to such a wide range of biological concepts. In order to cultivate a sense of responsibility for both one's own well-being and the sustainability of the globe, one must have a thorough understanding of the linkages between biology, health, and the environment. The biology curriculum acts as a catalyst for increasing public knowledge of current health problems and environmental problems like pollution, climate change, and biodiversity loss [4]. Through interesting learning materials, useful experiments, and authentic case studies, we encourage students to investigate the real-world applications of biological ideas. Through practical learning, students develop a profound understanding of the importance of adopting sustainable lifestyles and become champions for change in the face of urgent global crises. Despite the significant contributions to the biology curriculum, the importance of teachers in helping students reach their full potential stands out. Effective teachers go beyond merely imparting knowledge; they also serve as mentors, role models, and growth facilitators. They help students succeed intellectually and emotionally by fostering a supportive and inclusive learning environment [5]. They play a significant role in identifying students' learning needs and tailoring teaching strategies to different learning preferences. Teachers may inspire a passion for studying, inspiring students to thrive in biology class and beyond, by providing customized attention and helpful feedback [6]. According to this study, instructors are the ones who can turn the biology curriculum from a dry list of lessons into a life-changing learning opportunity. Teachers operate as catalysts for lifelong learning and active citizenship by encouraging their students' curiosity, critical thinking, and sense of responsibility [7]. Teachers take on the role of mentors and guides, establishing a sense of purpose and empowerment in their students as they set out to become informed individuals with a thorough awareness of health and environmental issues. Furthermore, the importance of the biology curriculum in educating students about environmental and health issues cannot be overemphasized. The course work in biology's ability to foster knowledge of important health and environmental topics and supply students with necessary to bring about significant change makes it vital to the process of creating educated global citizens [8]. Nonetheless, it depends on the concentrated efforts of passionate teachers to realize its revolutionary capabilities. They are responsible for not only improving their students' performance in school but also inspiring a sincere desire for learning [9]. Schools play an essential role in enabling students to become the proactively innovators necessary for solving the grave issues of the present day and forming a healthier and more educated world population through fostering an exciting educational setting.

1.1. Contribution of the Study

- Students' awareness of their wellness and surroundings is greatly shaped by the biological instruction, equipping them to engage in civic responsibility and make sound choices.
- It highlights the biological curriculum's effects on student's understanding of health and ecological issues, highlighting how it helps students develop a sense of duty for these crucial subjects.
- The critical role instructors that play in enhancing children's educational achievement and general development underscores the importance of a stimulating and encouraging classroom.

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- For individuals studying science and other subjects, receiving an individualized focus and helpful criticism fosters higher standards of achievement.

The rest of the paper is organized as follows: Part 2 explains literature review, Part 3 demonstrates methodology, Part 4 summarizes the result; and Part 5 is a conclusion of a research paper.

1.2. Research Significance

This paper proposes a comprehensive investigation of the nexus between biology education, students' understanding of health and environmental issues, and the roles of teachers in enhancing students' academic success. By handling these critical areas, the research contributes valuable insights to educational theory and practice, as they impact the promotion of global health and environmental sustainability through effective biology education.

1.3. Research Questions

The study will aim to answer the following research questions:

i. Are students informed about health and environmental education?
ii. Are students satisfied with the implementation of health and environmental education in the biology curriculum?
iii. Are there deficiencies related to health and environmental education in the biology curriculum?
iv. What are the methods used by teachers to raise awareness of environmental and health education in your school?
v. Is there cooperation between teachers and students, and does this cooperation affect the increase in the level of your achievements?

2. Literature Review

The biology curriculum is an essential part of education that has a significant impact on how well students understand the environment, health, and their responsibility as global citizens. This literature study aims to investigate current research and scholarly literature that examines the contribution of biology curriculum to students' education in health and the environment, as well as the critical function of teachers in raising their students' academic standards. In their research, Kimiti and Kipkoech [10] presented that "environmental education has therefore been seen by some of its proponents as concerned with developing a curriculum that encourages active participation and collaborative decision-making and involves critical analysis of the ecosystem and its sustainability." Esquivel-Martin et al stressed the need for schools to equip students (as global citizens) with knowledge necessary for making informed decisions amidst rising environmental crisis [11]. Numerous studies emphasize the importance of a well-structured biology curriculum in promoting students' engagement and learning outcomes. In the article Campbell, et al. [12] construct "a comprehensive curriculum that integrates topics such as genetics, physiology, and ecology and enables students to develop a deeper understanding of biological processes and the impact of environmental factors on living organisms." The study by Arvai, et al. [13] illustrated that "…to help students become better environmental decision-makers, educators must also work to incorporate lessons about decision-making into conventional EE curricula." Many studies have examined the role of biology curricula in enhancing students' environmental awareness and promoting sustainable practices. The research by Heruyono, et al. [14] explored the idea that "good environmental knowledge should be manifested in the attitudes and actions of daily living habits." The article Thor and Karlsudd [15] presented that, "the purpose of environmental awareness is for people to become environmentally aware and also understand that they have their own role in relation to the environment in order to manage and protect it." The study by Hattie [16] suggested that teachers who prioritizes building strong teacher-student relationships and fostering a positive classroom environment have a significant impact on students' outcomes. The research by Darling-Hammond, et al. [17] emphasized that 'teacher professional development and pedagogical strategies significantly influence students' academic growth in science subjects, including biology. The literature highlights the importance of

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personalized instruction in biology classrooms. The article by Bangert-Drowns, et al. [18] discovered that tailoring instructional methods to individual learning needs enhances students' academic achievement in science subjects, including biology. The research by Midgley, et al. [19] demonstrated that the teachers who provide differentiated instruction based on students' abilities and interests contribute to greater student motivation and performance. Research shows that fostering students' interest and intrinsic motivation in biology positively influences their academic success. The study by Ainley and Ainley [20] revealed that the students who perceive biology as relevant to their lives are more likely to demonstrate higher achievement levels. In their article Deci and Ryan [21] argued that the teachers who support students' autonomy and competence in their learning journey enhance intrinsic motivation, leading to increased engagement and academic success.

The goal of the biology curriculum is to assist students in applying analysis and experimentation to solve basic problems in their immediate surroundings and in developing scientific methods for resolving issues that affect both individuals and society as a whole (such as those related to the environment, economy, and health). The curriculum is designed to support students in gaining the practical skills necessary to work with scientific apparatus, biological materials, and living organisms; to gather, analyze, and interpret biological data; and to visually represent data so that students can recognize the connections between biology and other scientific fields and maintain their interest in the subject. Once more, students are expected to recognize and comprehend the connections that exist between living things and both their surroundings and themselves. In addition to building a foundation for individuals who plan to pursue careers in the biological sciences, students are expected to appreciate the importance of biology to society and utilize it responsibly to foster a sense of wonder, creativity, and critical thinking [22].

3. Methodology

3.1 Research Design

A mixed-methods research design has been used to examine the contribution of the biology curriculum to students' education in health and the environment, as well as the influence of teachers in increasing their achievement levels. With this method, we were able to conduct a thorough analysis of the issue and combine qualitative and quantitative data to better understand [23, 24].

3.2. Research Population/Sample Selection

The research population includes all students and biology teachers and instructors in the city of Tirana, Albania. We choose participants for this study using a purposive sampling technique. The participants were from the following schools of the city of Tirana: Gymnasium "Aleks Buda", Gymnasium "Samiu," Gymnasium "Isa Boletini," and Gymnasium "Partizani." The sample comprised teachers (who were mostly biologists from a variety of educational settings, from universities to secondary schools) and students. To gather a variety of viewpoints, the selection criteria included twenty (20) teachers with various degrees of experience and two hundred (200) students from various grade levels or academic backgrounds.

3.3. Research Instrument

The research instruments used in the collection of data were questionnaires, (surveys), interviews, and classroom observation:

3.3.1. Surveys

Both biology teachers and students completed a standardized questionnaire. The poll for instructors focused on their methods of instruction, the methods they used to raise student achievement, and their opinions of how the biology curriculum affected their perceptions of health and the environment. The student poll asked them about their perceptions of the effectiveness of their teachers as well as their involvement with the biology curriculum and their understanding of environmental and health issues.

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3.3.2. Interviews

We conducted in-depth interviews with several biology teachers and students. Participants' experiences, motivations, difficulties, and viewpoints regarding the biology curriculum and its value to health and environmental education were examined in these semi-structured interviews. The methods used by teachers to improve student achievement levels were also questioned.

3.3.3. Classroom Observations

We observed a few biology classrooms to learn more about teaching methods, classroom dynamics, and student participation. The observations offered insightful qualitative information that enhanced the survey and interview results.

3.4. Validity and Reliability Test

The validity and reliability of the research instruments were assessed. We used simple faced validity to assess the validity of the research instruments. The questionnaires and interview questions were reviewed to ensure that they measured what they were designed to measure. Experts in the field also evaluated the items listed in the research instruments to determine their relevance and appropriateness for the study's subject [25].

Reliability and the internal consistency of the research instrument were tested using Cronbach Alpha test. The value of the Cronbach's Alpha was 0.83, showing that the items of the research instruments were sufficiently consistent, thus indicating reliability.

3.5. Data Analysis

We obtained and examined quantitative survey data using descriptive statistics to find trends and patterns in teachers and students' responses. The collected data were analysed statistically using descriptive statistics (frequencies and percentages) charts (such as pie charts and bar charts). Thematic analysis separated out qualitative data from classroom observations and interview transcripts to find recurrent themes and glean insightful information.

3.6. Ethical Considerations

The appropriate research ethics committee gave its consent after receiving an ethical review. All participants provided informed consent, protecting the privacy and anonymity of their comments. Participants had the freedom to leave the study at any time without facing any consequences.

3.7. Limitations

One of the study's drawbacks was the possibility of participant bias, because respondents gave socially acceptable answers. The specific sample selection and the setting further limited the study's predictability.

3.8. Conclusion

The mixed-method research design enable a thorough understanding of the biology curriculum's contribution to students' health and environmental education, as well as the crucial role that teachers play in helping students attain higher levels. The research provided insightful information that will help teachers, legislators, and curriculum designers improve the biology curriculum's ability to help students become aware, accountable, and proactive members of society.

4. Results and Discussion

4.1. Results

The survey findings demonstrate how students benefit from biology curriculum in terms of their health and the environment around them. According to the study, which shows that two hundred (200) students participated, their understanding of essential health-associated subjects was greatly improved

by their participation in the microbiology instruction. The thorough investigation of human beings gave students invaluable knowledge of the intricate workings of the human body, enhancing their comprehension of crucial preventative techniques and fostering their overall health. Greater knowledge of the complex interaction among living things in their surroundings was sparked by studying Biology. Furthermore, students gained a deeper understanding of the crucial role forests play in maintaining ecological equilibrium by clarifying the complex web of connections within them. This increased knowledge of ownership fostered their shared dedication to preserving the ecosystem and promoting sustainable practices. This greater understanding not only gives a student the information they need to make prudent choices about their well-being but also fosters an anticipatory health environment. Tables 1,2,3,4 and 5 illustrate the teachers' responsibility for students' achievement levels.

Table 1.
Informing students about environmental and health education.

Are you informed about health and environmental education?		
Answers	**Number of respondents**	**Percentage (%)**
Every time	160	80
Rarely	20	10
Never	20	10
Total	200	100

Presented in Table 1 are the responses of students to being informed about health and environmental education. Most of the respondents reported that they were informed about their health and environment every time, which was represented by 160 (80%) of the students. 20 (10)% reported that they were rarely informed about health and environmental education. The remaining 20 (10%) reported that they were never informed about health and environmental education.

Table 2.
Implementation of environmental and health education in the biology curriculum.

Are you satisfied with the implementation of health and environmental education in the biology curriculum?		
Answers	**Number of respondents**	**Percentage (%)**
Every time	130	65
Rarely	50	25
Never	20	10

As regards the implementation of environmental and health education in the biology curriculum (Table 2), majority of the students (65%) reported that they are always satisfied with the implementation of environmental and health education in the biology curriculum. 25% of the respondents claim to be rarely satisfied, while the remaining 10% are dissatisfied with the implementation of environmental and health education in the biology curriculum.

Table 3.
Deficiencies related to environmental and health education in the biology curriculum.

Do you think there are deficiencies related to health and environmental education in the biology curriculum?		
Answers	**Number of respondents**	**Percentage (%)**
Yes	30	15
No	150	75
I don't know	20	10

As presented in Table 3, there are no shortcomings or inadequacies related to environmental and health education. This was reported by most of the respondents (150), representing 75% of the students. 30 (15%) of the students argued that there were deficiencies related to environmental and health education. The remaining 20 (10%) were not certain if there were inadequacies in the aspects of health and environmental education.

Table 4.
The use of methods by teachers to increase awareness of environmental education in Albania schools.

What are the methods used by teachers to raise awareness of environmental and health education in your school?		
Answers	**Number of respondents**	**Percentage (%)**
Explaining to them more about environmental education	7	35
Telling them more about the importance of the environment	3	15
Holding activities on the environment and its protection	10	50
Total	20	100

Presented in Table 4 are methods used by teachers to raise awareness of environmental and health education in schools. Half of the teachers (10) reported holding activities on the environment and its protection, as means of increasing awareness. 35% of the teachers reported explaining to students about environmental education, as their method of raising awareness. The remaining 15% of the teachers increase awareness by lecturing students on the importance of the environment.

Table 5.
The impact of teacher-student cooperation on increasing the level of students' achievements.

Is there cooperation between teachers-students and does this cooperation affect the increase in the level of your achievements?		
Answers	**Number of respondents**	**Percentage (%)**
Yes	190	95
No	10	5

There is cooperation between teachers and students, and this cooperation affects the increase in the level of students' achievements (Table 5), as claimed by 190 (95%) of the students. Only a handful of them (5%) reported that there was no cooperation between teachers and students.

The investigations made (from interviews and classroom observations) in the learning environment showed that engaging teaching techniques enhance students' interest in Biology. Students' engagement significantly increased when instructors were allowed to incorporate hands-on activities, digital materials, and interesting illustrations into the way they taught. These teachers successfully piqued students' curiosity and created a greater awareness about the application of basic Biology to students' health and their environment through integrating philosophical ideas into concrete, real-life scenarios.

The important highlight of the effective interactions between teachers and students' in enhancing student' academic success reflects the significant influence that interactions between individuals have on learning environments. Arguments made by students regarding improved achievement in the context of kind, sympathetic, more approachable instructors highlight the necessity of mental assistance in building a classroom of intellectually vibrant learners. Developing a close relationship between teachers and students helps to promote an all-inclusive and productive atmosphere for learning.

The fact that personalized instructional methods have a chance to alter the biology classroom highlights the importance of personalized instruction as a driver of improved academic performance.

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There was a noticeable increase in student engagement as well as participation, due to instructors who adopted a varied teaching method, according to the varied educational orientations and abilities of students. Students with personalized educational opportunities reported feeling more confident about themselves, which encouraged *inner drive and a strong commitment to attaining their academic goals.* This focus on specific instruction fosters not just a deeper bond among students and the topic material but also a nurturing environment for learning that is helpful to all aspects of a student's growth.

4.2. Discussion

The research highlights the significance of the biology curriculum improving students' comprehension of the ecological condition in Albania's education system. The results are consistent with previous studies, highlighting the crucial role that biology instruction plays in raising students' knowledge of medical problems and instilling a sense of responsibility for the environment [26]. This is consistent with the study of Xhomara [27] who mentioned that "science curriculum is an important part of pupils' formation with knowledge, skills, and competencies." A thorough understanding of the deep interdependence between organisms and its influence on the globe's ecosystems is facilitated by a biological program that integrates a variety of topics, including hereditary, ecology as well as physiology. It emphasizes the need for a comprehensive and all-encompassing curriculum that equips students to take responsibility for their surroundings.

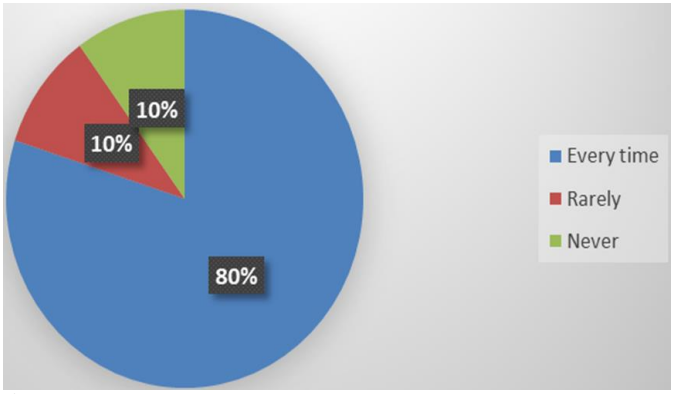

Figure 1.
Frequency of being informed about health and environment.

Figure 1 above illustrates the frequency of being informed about health and environmental education.

The report also emphasizes how important teachers and instructors are to raising learning rates. Effective instructors go beyond the limits of traditional education, taking on the duties of a mentor committed to encouraging interest, intellect, and an enthusiasm for learning [28, 29]. By utilizing participatory teaching strategies, including practical studies, and the use of technological resources to increase the participation of students, they make biology more intriguing [30]. Educators may develop strong teacher-student connections that motivate students to pursue greatness by fostering an enjoyable learning atmosphere [31]. In addition to improving the biological sciences curriculum's effectiveness, this gives students a better understanding of how closely related all aspects of life are to the outside world. Figure 2 illustrates the satisfaction of implementation in health and environmental education of biology curriculum among students.

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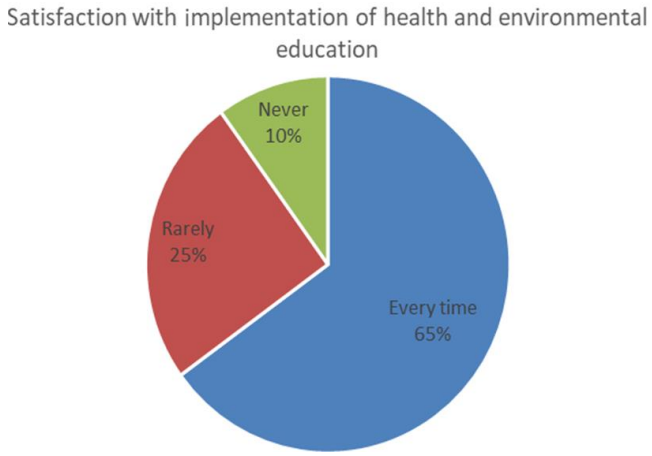

Figure 2.
Implementation of health and environmental education.

The study emphasizes the value of individualized education in biology lessons. The drive for students is increased, and a closer relationship to the content is fostered when instructional techniques are adjusted to meet various educational demands. Students were more likely to be engaged in their studies and take control over their scholastic path if they believed their unique learning tastes and types were respected. With specialized education, instructors may accommodate a variety of educational styles, including visual, auditory, and tactile students. This promotes an increasingly varied and engaging learning environment in the educational setting [32, 33]. It fosters an environment of acknowledgment of each other as well as an understanding of responsibility in students, thus encouraging in-depth knowledge. Figure 3 illustrates the low levels of the health and environmental education among students.

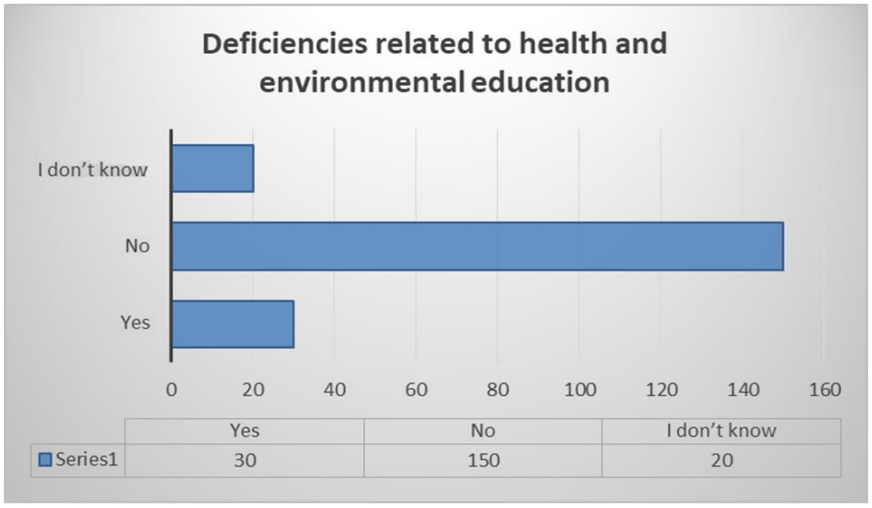

Figure 3.
Deficiency level of health and environmental education.

The investigation emphasizes the critical significance that a strong biological program plays in encouraging wellness and environmental awareness, as well as the crucial function that teachers play in improving the academic achievement of students [34]. In creating a whole learning environment, it emphasizes the mutually beneficial connection between the development of curriculum and successful

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methods of instruction. Figure 4 presents the methods used for raising awareness of health and environmental education in schools.

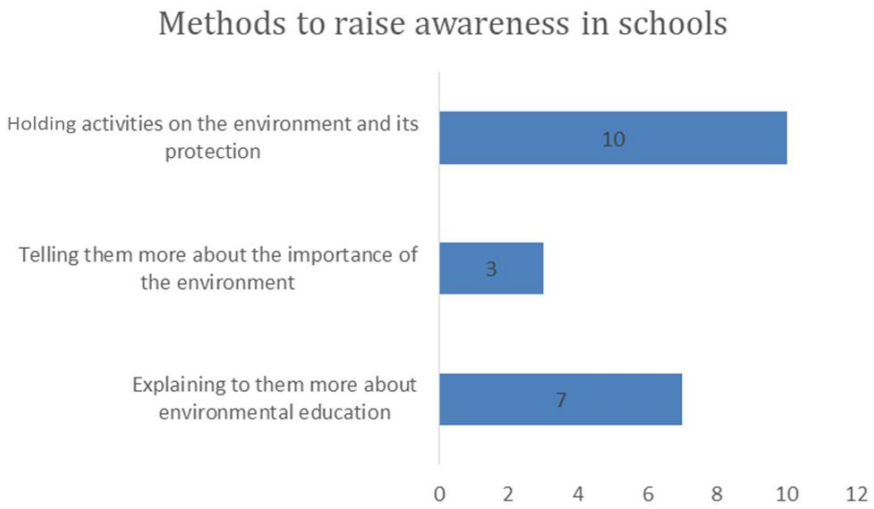

Figure 4.
Methods to raise awareness in the school.

The findings urge instructors to recommit to continual personal growth in order to improve their teaching methods and foster closer relationships with their students. Furthermore, politicians and educators could make use of such revelations to create biology curriculum that encourages students to develop into knowledgeable, responsible, and active drivers for improvements in both their hometowns and in the world in general [31]. Educational actors may create a transformational educational setting that raises the next batch of responsible global citizens through the implementation of those values. The cooperation levels among teachers and students were analyzed to reveal the achievement level, as shown in Figure 5.

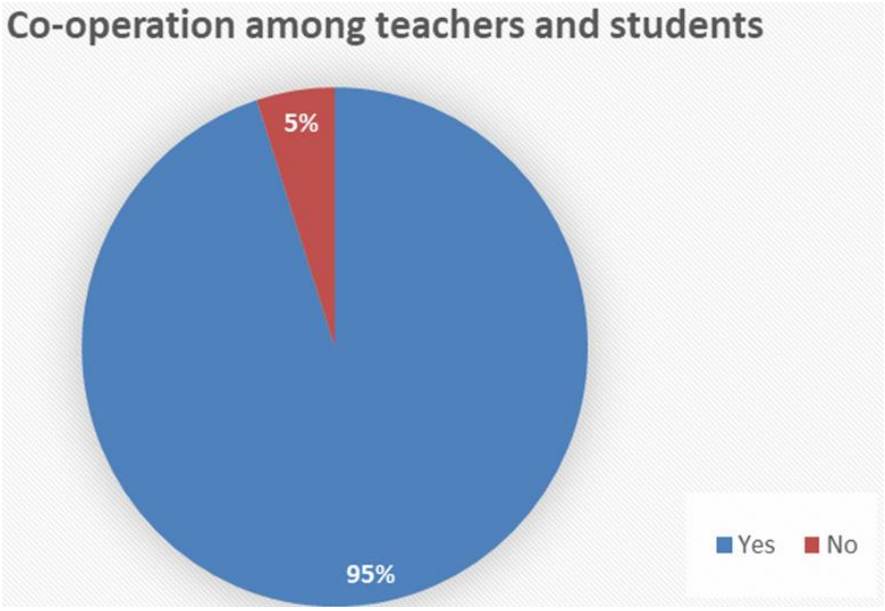

Figure 5.
Cooperation level among students and teachers.

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5. Conclusion, Recommendation & Limitation

5.1. Conclusion

The literature study emphasized the biology curriculum's substantial contribution to students' education in health and the environment. The curriculum promotes environmental awareness, sustainable activities, and responsible citizenship by giving students a thorough understanding of biological ideas and their connection to contemporary problems. Furthermore, it is impossible to exaggerate the importance of teachers in this process because they serve as catalysts for students' academic development, inspiring them to excel in biology and cultivate a love of lifelong learning. Teachers play critical role in creating the next generation of knowledgeable, ethical, and academically successful people by providing tailored education, igniting curiosity, and developing intrinsic drive. The results of this study show how crucial the biology curriculum is in influencing how students are taught about health and the environment. Students get a deeper grasp of how living things and the natural environment are interconnected through a thorough investigation of biological principles. The curriculum acts as a catalyst for bringing important health issues, like disease prevention and individual well-being, to the public's attention while simultaneously encouraging a sense of responsibility for the sustainability of the environment and the preservation of our world. The vital role of teachers is to enhance the beneficial effects of the biology curriculum on students' health and environmental education. Teachers are essential to raising the academic standards of their students because they act as mentors and facilitators. Strong teacher-student bonds based on concern, empathy, and approachability inspire students to achieve academic success.

Additionally, teachers who use interactive teaching strategies and offer tailored instructions create engaging learning environments that encourage students to take charge of their education and build a passion for biology. The study also emphasizes how individualized instruction in biology classrooms has the power to influence learning. Teachers can encourage their students to actively engage with the material and develop into self-motivated learners by varying their teaching methods to meet each student's unique learning needs. Understanding the relevance and applicability of biology to their daily lives ignites students' inherent motivation to succeed in health and environmental sciences. This study's implications go beyond the boundaries of the classroom. A strong biology curriculum, with its emphasis on health and environmental education, equips students with crucial knowledge and skills, preparing them to become responsible, aware, and proactive global citizens. Teachers have a responsibility to shape their students' education outside of the classroom as they take on advocacy roles for sustainability and positive change. The findings of this study suggest that, in order to further increase the effectiveness of the biology curriculum, educators, policymakers, and curriculum creators should work together. In order to provide instructors with cutting-edge instructional techniques and promote a culture of continuous growth, it is essential that they get ongoing professional development. Recognizing the significance of health and environmental education in solving global concerns, policymakers ought to give priority to these topics within biology curricula. In summary; the biology curriculum plays a critical role in educating students about environmental and health issues and developing well-rounded individuals who have a thorough grasp of their place in the ecosystem. The devotion and enthusiasm of teachers who act as mentors, guiding their students toward academic achievement and cultivating their innate ambition to have a positive impact on the world, enable this transformative potential to be realized. We may encourage future generations to become supporters of health, environmental sustainability, and responsible stewardship of our world by combining an engaging curriculum with knowledgeable and compassionate teachers.

5.2. Recommendations

From the findings of this study, the following are recommended: stakeholders, government, and school administrators should focus on equipping teachers with soft skills and training. This can be done by organizing teacher training programme and ensuring the integration of the knowledge of health and the environment into biology curriculum. Furthermore, collaborative learning should be encouraged to

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enable students to engage with their classmates or other students with same interest in biology. Another recommendation is the promotion of experimental learning; by doing so, students can put what they have been taught into practice.

5.3. Limitation

A number of limitations may have been encountered in course of this study. This includes the likelihood of Hawthrone effect [35]. This is where participants are aware they are part of a survey, and tend to influence the outcomes [36]. Also, the finding may not be generalizable (considering the variability of biology curriculum structure across the globe) due to its focus on a specific context or region.

Funding:
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Institutional Review Board Statement:
The Ethical Committee of the Faculty of Natural Sciences, Department of Biology, University of Tirana, Albania has granted approval for this study on 9 May 2023 (Ref. No. 608/1).

Transparency:
The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

Competing Interests:
The authors declare that they have no competing interests.

Authors' Contributions:
All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

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