

Teachers' Views on the Incorporation of Bioethics Courses in Primary School Syllabus

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Abstract

The current study is a pilot survey of future research that seeks to record the views of Primary Education (PE) teachers with respect to the promotion of bioethics literacy in PE through the incorporation of bioethics in the syllabus of primary schools. In this study, which took place in Athens from March 10, 2020, until May 10, 2020, all the appropriate research tool refinements have been considered before its finalization. The snowball sampling method has been used for primary school teachers of various disciplines. Furthermore, the requirements of the mixed research (qualitative and quantitative – triangulation) are met. Research data have been collected through an open-ended type questionnaire comprising 10 questions pertaining to the incorporation of bioethics in the PE syllabus and the data process has been performed with the use of the Content Analysis Method. The majority of the participants showed a positive attitude towards the introduction of bioethics courses in PE and expressed their thoughts and concerns about the implementation of this endeavor. The most important finding is the perception on the importance of bioethics literacy in PE.

Keywords: *Bioethics, Literacy, Primary Education, Good Practice*

Article History:

Received: April 20, 2022

Accepted: September 1, 2022

Revised: August 28, 2022

Published online: September 3, 2022

Suggested Citation:

Balatsou Maria & Theologou Kostas (2022). Teachers' Views on the Incorporation of Bioethics Courses in Primary School Syllabus. *International Journal of Educational Management and Development Studies*, Volume 3 Issue 3, pp. 142 - 159. DOI: <https://doi.org/10.53378/352916>

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* *This paper is presented in the 3rd International Conference on Multidisciplinary Industry and Academic Research.*



1. Introduction

Education is defined as an institution that aims at “the systematic teaching of pupils and students, the development of mental and moral abilities of humans through special institutions (schools) and specific methods (Babinotis, 2005). The holistic approach to education leads to the expansion of the curriculum to integrate students’ literacy of current trends. During the last decades, it has been made evident that Bioethics Literacy needs to be included in the educational requirements. Bioethics Literacy is the promotion of bioethics principles and values through education and its objective includes the development of self-perception of the individual as an entity and the sense of belonging in a small or wider social group. Individuals who have developed their bioethics literacy will be capable of recognizing, understanding, and managing moral challenges in all aspects of their life, whether they are directly or indirectly (as members of a social group) affected.

According to the EURYDICE network, the European Information Network for the educational systems and policies in the European Union, bioethics topics have already been traced in various curricula across the European countries. Topics such as life skills, ethics, equality, diversity, civics, have either been incorporated into various syllabus courses such as literature, music, history, religion, science and biology, or they are taught independently as ethics or bioethics courses. According to the Presidential Commission for the Study of Bioethical Issues, ethical education shall begin early enough and essentially needs to act as a receptor of new skills, which the individual will gain through lifelong learning.

Lifelong learning of bioethics, which starts from the primary education, may lead to a special perception of life. The students have a less self-centered perception of their environment by participating in debates in their classrooms and exchanging views on bioethics-related topics. In this way, they realize that they are equal members of their society and become better citizens, who are responsible for their quality of life (Gardelli et al., 2014). Consequently, bioethics through early education is realized as a scientific field that concerns not only each person as an individual but each person as a member of the world.

Teaching bioethics in the primary school ensures more effective learning outcomes before pupils get engaged with specialized courses of higher grades. In addition, the individual will gain timely moral skills, develop bioethics principles and gain basic scientific knowledge that is useful

during adulthood in the evaluation of personal and social issues and ultimately will make him/her a better world citizen (Sadler & Donnelly, 2006). Primary education constitutes the main pillar for the promotion of bioethics literacy for the entire population (Shahadur et al., 2019). In the earlier grades of primary school, the individual develops basic skills and pupils gain a rudimentary knowledge of the general principles. In higher grades, it is necessary to deal with and study various bioethics issues that are classified on the basis of age and topic.

The field of bioethics education is considered most appropriate for the implementation of alternative ways of teaching (Klugland, 2001). It can serve the purpose of introducing techniques that aim at skill development both individually and collectively. More specifically, it promotes critical thinking, cooperation that shows respect to different views, teamwork, development of individual and collective responsibility. At the same time, the engagement of teachers in bioethics at all levels of education enhances good teaching practices, which can form the basis for those interested in the promotion of bioethics literacy through education.

2. Methodology

The research methodology follows the triangulation concept. The qualitative approach was used as an initial step since it has been widely considered as most suitable for the in-depth review of the views of the participants. Afterwards, the qualitative approach was used to analyze the results. Data collection took place in Spring 2020 from March 10 to May 10 during the COVID-19 quarantine period with the use of the snowball sampling method.

A questionnaire followed by a short text, that included the definition of bioethics, has been sent via email to the teachers. The main research target is to capture the personal views of the participants on the perspective of the incorporation of bioethics in the PE syllabus. The participants needed to respond to ten bioethics-related topics. True conclusions can be drawn with respect to the research hypothesis through the method of recording ideas, views, and concerns (Atkinson, 1998). The final research sample has been defined to 20 participants, since the response rate has reached 80% (20 out of 25).

The data were processed with the use of the Content Analysis Method (CAM). It is considered the most appropriate since it covers "...the decoding and recording of written

information and especially personal views and perceptions, hypotheses, and perspectives...” (Verma & Mallick, 2004). CAM includes the classification of issues in thematic categories, with distinct boundaries among them, in order to reach reliable deductions. It needs to be noted that all the views of the participants are included in the data analysis that has been performed.

The questionnaire that has been sent to the participants included open-ended questions on the following thematic categories or issues:

- a. Bioethics in primary school. Should this course be included or not? Present your arguments (topic #1).
- b. Bioethics as an independent course or incorporated in some of the current courses? Which courses are eligible to include Bioethics? Interdisciplinary aspects (topic #2).
- c. In which grades the Bioethics courses are more suitable to be taught (topic #3)?
- d. How many hours do Bioethics courses need to be taught per week (topic #4)?
- e. Goals of Bioethics courses (topic #5).
- f. Educational discipline of teachers that is preferable for bioethics courses (topic #6).
- g. Topics of Bioethics that need to be covered (topic #7).
- h. Suggestions for relative course material (topic #8).
- i. Support by the Teaching Federation of Greece (DOE) - (topic #9).
- j. Other concerns (topic #10).

It is important to note that since this study is based on low-scale qualitative and quantitative research, it is difficult to generalize the results. The generalization of results is essentially a very difficult target in all cases; however, it is stressed the innovative perspective of studying the views of teachers on the incorporation of bioethics in primary school’s syllabus.

3. Results

Table 1

Participants per Discipline

Participants	Frequency	%
Teachers	11	55
IT Teachers	1	5
German Literature Teachers	1	5
Gymnastics Teachers	1	5
Arts Teachers	2	10
French Literature Teachers	1	5
Music Teachers	1	5
Psychologist	1	5
Coordinators	1	5
TOTAL	20	100

The majority of teachers that were selected to take part in this study were assigned to classes with active duties. 11 out of 20 participants were teachers, 1 was an IT teacher, 1 German Literature Teacher, 1 French Literature Teacher, 1 Gymnastics Teacher, 2 Arts Teachers, 1 Music Teacher, 1 Psychologist, and 1 Coordinator.

Table 2

Years of Service

Years of Service	Frequency	%
0 – 5 years	3	15
5 – 10 years	1	5
10 – 15 years	7	35
15 – 20 years	3	15
20 – 25 years	3	15
25 – 30 years	3	15
TOTAL	20	100

The teachers were randomly selected in terms of their total years of service. From descriptive statistics shown in table 2 note that: 3 teachers have 0-5 years of service, 1 have 5-10 years of service, 7 have 10-15 years of service, 3 have 15-20 years of service, 3 have 20-25 years of service and 3 have 25-30 years of service.

Table 3*Type of Employment*

Type of Employment	Frequency	%
Permanent	12	60
Substitute	7	35
Contract	1	5
TOTAL	20	100

Table 3 shows that 12 out of 20 teachers have a permanent type contract, 1 has a limited time contract and 7 were substitute teachers with a fixed-term contract.

Table 4*Administrative Position*

Type of Employment	Frequency	%
Coordinator	1	16.67
School Director	1	16.67
School Superintendent	2	33.33
Deputy School Director	2	33.33
TOTAL	6	100

Table 4 shows that 6 out of 20 teachers serve in executive administrative positions with managerial duties. More specifically, 1 serves as a coordinator, 1 is a school director, 2 are school superintendents and 2 are deputy school directors.

There are 18 out of 20 teachers with full-time teaching duties and 2 out of 20 teachers have full-time administrative duties (coordinator and school director). There are 3 teachers in the 1st grade, 1 in the 2nd, 2 in the 3rd, 1 in the 4th, 1 in the 5th, 1 in the 6th, 2 in both the 5th and 6th, and there are 7 teachers assigned in all the grade levels.

In terms of the educational qualifications, 19 teachers hold a Bachelor's degree, 1 holds a Bachelor's from a technical university, 13 hold a Master's degree and 1 holds a Ph.D. degree.

The following responses per topic have been traced:

a) *Bioethics in primary school. Should this course be included or not? Present your arguments.*

The majority of the teachers in the sample (17) agreed on the view that the bioethics courses need to be introduced in PE. The following arguments have been recorded:

“...it will enable the creation of concerned citizens who will improve the world. It will enable to broaden their horizons...”

“...it is an important issue that concerns more and more our lives, taking into account the fast pace of scientific progress...”

“...it is interesting as teaching material. It is a contemporary issue because of the rapid progress of science and technology and the impact they have on our everyday life. Most people cannot understand the consequences of this progress. Preparation of citizens of the future will be achieved through bioethics...”

“...everybody will need to make decisions on problems and dilemmas that stem from both the science and our work environment. These decisions will ultimately affect our society and our environment. Through bioethics, we will receive the proper skills in order to make correct decisions based on moral values and critical thinking ...”

“...there is a necessity to teach more ethical and social related topics pertinent to science and technology...”

“...PE should help students grasp basic bioethics principles. These are the future active citizens who will use science and technology...”

“...its topic is quite interesting and covers many issues...”

“...children need to be educated in order to adopt acceptable behaviors and perceptions from the very beginning concerning issues that emerge from the widespread applications of biotechnology...”

“...it will act as a bridge for pupils between PE and Secondary Schools...”

“...Ethics is a developmental process...”

“...Children will be facilitated to build a good social identity and therefore they will have the skills needed for the development of abstract reasoning...”

“...it is important for children to learn early enough that even in science there are ethical boundaries...”

“...Children need to develop, apart from cognitive and general skills, life skills that will help them in decision making in all aspects of their life. They need to understand values and develop critical thinking for bioethics issues that they will come up with in the future...”

“...Bioethics, as part of a holistic approach that the school tries to convey to the students, could be a field of research and discussion...”

The minority of the teachers in our sample (3) do not believe that the incorporation of bioethics in the primary school syllabus would be useful. They expressed the following views:

“...It requires combined thinking skills, which may have not yet been developed by children at this age...”

“...Children of this age do not have the maturity nor the experience to grasp this kind of concept...”

“...Maybe it is more suitable for secondary school pupils...”.

As far as topic #1 is concerned, the majority of the teachers in the sample (14), expressed the view that bioethics needs to be incorporated into primary school syllabus, and integrated into already existing courses. A small number of teachers (4) believe that bioethics needs to be introduced as a standalone course and 2 teachers believe that it would be useful to have this course integrated into other courses for the lower grade (A, B and C), whereas in the upper grades the stand-alone option would be more beneficial.

Concerning the type of courses that could serve as a host for bioethics teaching material, the following results were received: study of the environment (9), science (8), religion (6), social and political education (6), Greek language and literature (5), complementary skills (4), history (2) and all taught courses (4). It needs to be noted that the participants were not guided to limit their answers to a specific number of options and they were free to choose whichever courses they wish. Another important parameter that needs to be taken into consideration is the fact that the course study of the environment is being taught in the first four grades, whereas science is taught in the last two grades of the primary school.

In topic #2, 9 teachers believe that bioethics is considered proper teaching material for pupils of all grades of primary school. Similarly, 4 teachers expressed that bioethics is proper only for F' grade students, 3 teachers responded for D', E' and F' grades and 4 teachers believe it is proper for E' and F' grades.

In relation to topic #4, the majority of the teachers (7) believe that bioethics needs to be taught 1 hour per week, 4 teachers agreed on 2 hours/week, 1 respondent agreed on 3 hours/week, and another respondent believe on more than 5 hours per week. Meanwhile, 4 teachers expressed the view that bioethics material should be spread throughout the existing courses, 1 teacher responded that the time devoted to bioethics needs to be adapted to the pupil's potential, 1 respondent believed that there should be a short discussion (15 minutes) on a daily basis and another teacher thought that teaching of bioethics topics should not exceed 1-2 hours annually.

As far as topic #5 is concerned, the teachers mentioned a wide range of goals for bioethics in PE. It should be stressed that there was no specific number of options for the participants to choose. The following results were recorded as goals of bioethics:

- i) Versatile development and maturation of the individual.
- ii) Learning of code of conduct and dissemination of ethical attitudes and values.
- iii) Apprehension of meta-cognitive strategies of self-control and self-assessment and the development of critical thinking.
- iv) Development of empathy and respect towards both the individual and diversity.
- v) The development of a mentality of creativity and productivity within a collaborative framework.
- vi) Development of democratic and cooperative principles.
- vii) Concern for our environment.
- viii) Understanding of the effects of technological development in our environment.
- ix) Education of future citizens through engagement with basic principles of organization of a state.
- x) Preparation of the individual to deal with emergency situations (e.g., COVID-19).
- xi) Improvement of the way of life.
- xii) Familiarization with Ethics and Bioethics terminology.

It needs to be added that some teachers believe that the goals of the teaching material of bioethics in PE depend on the age of the pupils.

In topic #6, the majority of the teachers (12) responded that teaching bioethics in PE needs to be assigned to the teachers. The main reason behind this choice is the fact that the teachers have received the appropriate pedagogical training, they are knowledgeable on the interests and the individual differences of the pupils and they are the ones who attract the most love and trust from

the pupils. Another view that represents a minority of the sample (3) states that teachers are responsible for bioethics teaching but teachers of other disciplines need to cooperate towards this end. Furthermore, 3 teachers responded that teachers of all disciplines are suitable for teaching bioethics in PE since the teaching material of this course should be widespread across the PE syllabus. In addition, 2 teachers believe that the introduction of bioethics courses in PE must incur the employment of new teacher specialties in the primary school. Hence, this new course will be taught by biologists, sociologists, or psychologists. Concerning the preparation of the teachers who will be assigned to teach this new course, 11 teachers believe that relevant training needs to be offered in order to cope with the new duties successfully while 9 teachers have not provided any response to this issue.

As far as topic #7 is concerned, the teachers reported a large number of issues that need to be covered by the teaching material of bioethics in PE. Once again, the teachers were not offered a pool of specific topics but they were free to state their own. Based on the answers provided, the following list of topics has been formed that includes biomedical, socio-economic, and environmental issues:

- i) People with disabilities.
- ii) Human rights and duties.
- iii) Understanding of the term empathy.
- iv) Scientific evolution and human rights
- v) Management of juvenile delinquency
- vi) Elderly people.
- vii) Robotics.
- viii) History of evolution. The role of science and technology in the evolution of human beings.
- ix) Relationship between scientific knowledge and ethical values.
- x) Ethical Limits of Science.

- xi) Study of human reactions to technological advances (per age, time, and place).
- xii) Ethical and legal issues that stem from human intervention in nature. Consequences of science and technology in the environment. Risk assessment.
- xiii) Environmental Ethics.
- xiv) Environmental Awareness.
- xv) Renewable sources of energy.
- xvi) Agriculture / Husbandry.
- xvii) Animal Experiments.
- xviii) Nutrition.
- xix) Genetics.
- xx) Management of emergency health conditions.
- xxi) Transplantations.
- xxii) Ethical constraints of medical research.

In topic #8, 7 participants provided no answer while 12 of them stated that it is necessary to create an educational platform – a website in order to upload educational material and relative documentation (social stories, role-playing, projects, academic research, etc.). A pool of topics that are frequently updated needs to be uploaded on this platform so that the teachers can make use of them as teaching material. Another important aspect that has been recorded is the creation of a forum on the aforementioned platform for exchanging ideas among teachers who teach bioethics. This forum will enable teachers to exchange views, good practices, and teaching techniques that facilitate the promotion of bioethics literacy in the pupils. One teacher stated that it is necessary to produce a manual for the teaching material of bioethics that will include alternative teaching plans and teaching practices.

The participants suggested some actions and strategies that could support the teacher of bioethics in PE. The establishment of a coordination group that will provide guidance and support to the teacher assigned to teach this new course is considered of high importance. Furthermore, they believe that members of the scientific community need to be invited to primary schools in order to present various topics and interact with the pupils. This type of communication can also take place online in a VTC environment. Finally, it would be beneficial to promote bioethics literacy in PE in various ways such as through an appropriate campaign of mass media, brochures, and publication of articles.

With regards to topic #9, the response rate was lower than 50% since 12 teachers provided no answer for this matter. Only 5 participants believe that the endeavor to include bioethics in the PE syllabus will receive support from the Teaching Federation of Greece (DOE) whereas 3 teachers believe it will not.

Finally, in topic #10, the prospect of introducing of bioethics in the PE syllabus is a matter of debate. There are 11 participants who did not answer this topic. The major concerns that were expressed for this matter were related to the preparation of the teachers who will be assigned to teach this course. The reception of the course material not only by the teaching community but also by the entire society, and the way of conveying the concepts, the principles and the values of bioethics to primary school pupils were the primary concerns. More specifically, the issues that were recorded include:

- i) Are the teachers ready to teach this course?
- ii) What will be the reaction of the teaching community to the prospect of including a new and innovative course such as bioethics in the PE syllabus?
- iii) How will the teachers manage the sensitive ethical issues in the classroom?
- iv) What will be the reaction of society to the prospect of including bioethics in the PE syllabus? What will be the reactions of the parents?
- v) How can we ensure that the teachers assigned to teach this course are trained properly? Will their training be adequate or not?
- vi) Will all teachers be capable of teaching this new course?

- vii) What will happen with the teachers who are less aware of these issues or cannot perform well within an interdisciplinary framework?
- viii) What will happen if the teachers do not wish to discuss ethical issues on science and technology, which may lead to multiple concerns that they are unable to manage?
- ix) How can we ensure that an in-depth approach to bioethics issues will be followed?
- x) How can we avoid the possibility of “conflicts” or contradictory opinions among teachers of different disciplines who are assigned to teach bioethics? How can we ensure that the deduction of distorted conclusions will be avoided?

Discussion

This pilot study shows that the majority of the teachers who participated in the research (regardless of their discipline, years of service, or educational background) consider that it is necessary to incorporate bioethics in the PE syllabus. Their views on the benefits that bioethics literacy may offer to pupils are consistent with the standpoint of organizations such as the Commission on the Teaching of Bioethics (1976), which stressed that the ultimate goal of bioethics literacy is to teach pupils multifactorial ethical, social and mental skills through their engagement with technological and scientific advances preparing them to generate informed decisions both for themselves and for their social group. The participants believe that a new framework of learning is being created that includes multiple pedagogical and learning goals. The new educational programs that are being developed consider not only the cognitive aspect of the teaching material, but also the development of pupils’ perception that is based on personal beliefs and ethical values. According to Georgiou (2016), a more comprehensive vision looking through a personal standpoint is required, since the sheer knowledge of the fields of science and technology is not enough.

The majority of the participants believe that the teaching material of bioethics needs to be integrated into one of the existing courses, in order to be widespread in the syllabus and hence it can be studied within a multidisciplinary perspective. This approach will improve the performance

of the learning outcome and will enable the comprehension of the interface of bioethics with the other scientific fields (Booth & Garrett, 2004). On the other hand, Chowning et al. (2012) argued that this integration will facilitate the ethical reflection, “in the mid of actual circumstances” (Glykofridi & Zapanidou, 2019).

Most of the participants agree that teaching bioethics would be beneficial for pupils of all grades. It is suggested to teach this course in the upper classes of primary school, provided that tailored teaching techniques are applied for each grade (Helland, 2001). However, Shahadur et al. (2019) state that PE is the main pillar for the promotion of bioethics literacy of the entire population, through individual development. The child who acquires ethical skills early enough, will use them in multiple aspects of his/her adult life, and ultimately, he/she will become a better world citizen (Sadler & Donnelly, 2006).

The majority of the participants believe that teaching bioethics must be assigned to teachers, which is consistent with the view of Glykofridi and Zapanidou (2019) that teaching in PE requires enthusiasm, an interactive way of dealing with the topics, and not just “toneless” lecturing. Thus, all teachers need to acquire knowledge of Pedagogics, since only PE-70 teachers cover this requirement. Alternatively, a carefully planned training program may be offered to non-PE-70 teachers, in order to prepare them to assume their new duties pertinent to teaching bioethics. There are some participants who believe that all teachers need to collaborate with the PE-70 teacher of the class, who will act as a coordinator, or alternatively, all teachers of PE, regardless of their discipline, may be assigned to teach this course. Some participants expressed the view that bioethics needs to be taught by teachers of new disciplines that currently do not serve in PE. It is very important to note that none of the participants stated the requirement to include bioethics in the syllabus of teachers’ university degrees.

Concerning the topics of the teaching material of bioethics in PE, the majority of the participants raised issues of biomedical, environmental, and socio-economic content, which need to be managed by pupils within the primary school context, in order to successfully accomplish their preparation as equal members of every society and for the challenges of their adult life.

The creation of a coordination group that will provide support and pedagogic guidance to teachers has been deemed necessary. The majority of the participants believe that it is important to establish a platform-website, in order to upload teaching material, training scenarios, good

practices, projects, academic studies, and announcements relevant to the bioethics course. Most of the participants consider very important the creation of a forum for exchanging ideas and communicating with other teachers on course issues. It has been recorded that the publication of a manual for this course would be valuable for the support of the teachers.

Most of the participants consider that the most “bitter aspect” of this endeavor is the support that is required by the Teaching Federation of Greece (DOE), which is the main union of the PE-70 teachers. DOE support is deemed necessary by the participants, however, most of them doubt it will be finally secured. Furthermore, it has been expected to face various concerns expressed by the relevant stakeholders, as is the case for every new and innovative approach.

Based on the participation of the teachers in the pilot study, their responses, and their concerns, the promotion of bioethics literacy, through the incorporation of bioethics in PE, is interesting, contemporary, and innovative. The use of the questionnaire showed reliability and effectiveness. The suggestions and concerns of the participants have proven to be particularly helpful for the study.

4. Conclusion

It is important to stress that the majority of the participants expressed the view that bioethics needs to be incorporated into the PE syllabus and recognized that there is a plethora of benefits of such an educational innovation. As Knight (2015) asserts the goal of teaching bioethics in children: “...*We want children to think if we need to take into account the conditions when we are to decide if a certain action of lie is a mistake...And we want them to think on how important it is to be good people to live a good life and it is important, which aspects of their character they need to develop in the pursuit of this goal.*”

Further research needs to be done on this innovative and contemporary issue and all the parameters pertinent to the incorporation of bioethics in PE need to be deeply analyzed. However, it is important that teachers of all disciplines, each one from his/her own standpoint, need to realize the importance of Bioethics as a distinct discipline and the benefits that will emerge if it will be incorporated into the PE syllabus. As a final point for our argument, this study quotes one of the views of a teacher as an answer to the scope of research: “...*Children need to develop, apart from*

cognitive and general skills, life skills that will help them in decision making in all aspects of their life. They need to understand values and develop critical thinking for bioethics issues that they will come up with in the future...”

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