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RESEARCH

Path of dialogue II: expanding the bioethics experience for high school

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Abstract

The insertion of bioethics in basic education and the environmental bioethics are two growing aspects of bioethics. At the confluence of these two areas, the action promoted by the United Nations Organization called "Sustainable Development Goals" emerges. Its agenda proposes 17 goals to be fulfilled by 2030, aiming at the balance between the economic, social and environmental dimensions of development. In this scope, the activity "Path of dialogue II" was conducted, which presented high school students with reflections on bioethics and the sustainable development goals. This article reports the experience of this intervention and discusses bioethics from the perspective of education, without the intention of formally teaching concepts of bioethics, but of inserting the perspective of bioethics through interdisciplinary discussions so as to identify vulnerabilities and discuss solutions for the environment, development and sustainability.
Keywords: Sustainable development indicators. Environmental health education. Education, primary and secondary. Education. Bioethics.

Resumo

Caminho do diálogo II: ampliando a experiência bioética para o ensino médio

A inserção da bioética na educação básica e a bioética ambiental são duas vertentes em ascensão. Na confluência dessas duas áreas, desponta ação promovida pela Organização das Nações Unidas denominada "Objetivos do desenvolvimento sustentável", cuja agenda propõe 17 objetivos a serem cumpridos até 2030 para o equilíbrio das dimensões econômica, social e ambiental do desenvolvimento. Neste escopo foi realizada a atividade "Caminho do diálogo II", que apresentou estudantes de ensino médio à reflexão sobre bioética e aos objetivos do desenvolvimento sustentável. Este artigo relata a experiência dessa intervenção e discute a bioética no contexto da educação, sem a intenção de trabalhar formalmente conceitos de bioética, mas de introduzir a perspectiva bioética pelo diálogo interdisciplinar de forma a identificar vulnerabilidades e debater soluções em meio ambiente, desenvolvimento e sustentabilidade.
Palavras-chave: Indicadores de desenvolvimento sustentável. Educação em saúde ambiental. Ensino fundamental e médio. Educação. Bioética.

Resumen

Camino del diálogo II: la ampliación de la experiencia bioética para la enseñanza secundaria

La inclusión de la bioética en la educación básica y la bioética ambiental son dos vertientes en ascenso. En la confluencia de estas dos áreas, surge una acción promovida por la Organización de las Naciones Unidas denominada "Objetivos del desarrollo sostenible", cuya agenda propone 17 objetivos que se deben cumplir hasta el 2030, buscando el equilibrio de las dimensiones económica, social y ambiental del desarrollo. En este ámbito, se realizó la actividad "Camino del diálogo II", que presentó a estudiantes de enseñanza secundaria la reflexión sobre bioética y los objetivos del desarrollo sostenible. Este artículo relata la experiencia de dicha intervención y discute la bioética en el contexto de la educación, no con la intención de trabajar formalmente conceptos de bioética, sino de introducir la perspectiva bioética por el diálogo interdisciplinar para identificar vulnerabilidades y discutir soluciones en medio ambiente, desarrollo y sostenibilidad.
Palabras clave: Indicadores de desarrollo sostenible. Educación en salud ambiental. Educación primaria y secundaria. Educación. Bioética.

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The insertion of bioethics in teaching and the consolidation of environmental bioethics, although inherent to this field of action and a *sine qua non* condition for planetary survival, as emphasized by Potter[1,2], emerge in the Brazilian scenario with their own identity, methodology and perspectives, being a theme of research and interventions. At the national level, four works were published in the last three years that bring together researchers with these innovative approaches.

In the bioethics education segment, Renk[3] organized a collection presenting different views on bioethics in teaching, a field still prominently studied in higher education, in the context of professional training and education in health. Although official documents, legislation and educational guidelines are not analyzed in basic education, some authors[4-7] have clearly identified space to work with it in this context, aiming to form critical citizens, protagonists who will value self-care, fight violence, inequalities and preserve the environment.

These researchers are also in favor of the idea of transposing the formal space and emphasizing the most characteristic aspects of bioethics: dialogue, community living and joint decisions based on the development of social skills and moral maturity, which can be provided by the common methods, experiences and spaces of the school environment. In addition, it is worth to remember that the student also uses several digital means to interpret the information he receives[5,6].

Rauli and collaborators[8] innovated by proposing active methodologies in the teaching of bioethics, based on the idea of education as a social process and the conception that they should excel in autonomy, critical sense and protagonism. The research of these authors predominantly addresses higher and community education aimed at training health professionals through seminars, debates, simulated jury, problem situations, inverted classroom, board games, cinema, theater, music, digital and alternative technologies handcrafted and technological for the use of animals. In addition, it discusses issues such as narrative and transnarrative bioethics and the weaknesses in the access to information. For the basic education, Good, Cunha and Dubiaski-Silva[9] bring the innovative role-playing game (RPG) proposal that increases students' dynamism, motivation and involvement in ethical issues typical of contemporary societies.

As for environmental bioethics in the Brazilian context, Fischer and Molinari[10] support the resumption of the ecological nature of this field of knowledge through quantitative analysis of the works presented at scientific events, pointing to an increase in the environmental bias in bioethics, thanks to the expressive contributions of research groups . Considering four events in the area, the authors attested the following frequencies and corresponding total for lectures and papers presented: 1) 2000: 6.5 and 12.8% of 77 and 47; 2) 2013: 3.3 and 4.6% of 548 and 213; 3) 2014: 3.1 and 6.5% of 139 and 32; 4) 2015: 5.7 and 24.2% of 124 and 87.

Regarding the inclusion of bioethics in education at these same events, the frequencies obtained were: 1) 2000: 1.2 and 1.5%; 2) 2013: 0 and 15.1%; 3) 2014: 3 and 6.4%; 4) 2015: 0 and 21.7%. It should be noted that works and lectures related to bioethics in basic education corresponded to 22% of the entire sample, considering the four events. Naves and Reis[11] base environmental bioethics as a transdisciplinary space for dialogue, bringing together ethics, bioethics and law. In the collection by Sganzerla, Rauli and Renk[12], research on the theme was gathered, ranging from questions of philosophical foundation to the practical insertion of bioethics in the 2030 Agenda, citizenship, human rights, environmental education and health, economics, water use, agriculture, food security and technology.

The assertions of Potter[1,2] reinforce the argument that the depletion of natural resources and environmental contamination jeopardize the maintenance of life on Earth. In view of these global problems and, consequently, the responsibility of all countries, the United Nations (UN) instituted international goals of equalization between rich and poor countries to overcome basic limitations for a decent life[13].

Supported by Agenda 21, the millennium development goals also began to cover environmental issues, since in the last 15 years there has been little progress in this area[14-16]. Sustainability goals were established, with a deadline in 2030, which included new goals to eradicate poverty, reduce inequalities and promote the environment aiming at the well-being of all[13,17].

The 17 goals and 169 targets are considered ambitious since they aim to balance the economic, social and environmental dimensions[17]. The agenda depends on the commitment of each country to mobilize material and human resources, associating the private and the third sectors, to monitor and evaluate the progress achieved at the regional, national and global levels[13].

Among the points taken by the signatory countries is education [17], since it is necessary to develop the critical sense and the technical and creative capacity of citizens to lead them to solutions to mitigate negative impacts of technological development. Pessini and Sganzerla [17] emphasize the idea of education as a public asset, a fundamental human right, guarantee of realization of other rights and social justice, essential for tolerance, peace, human fulfillment and sustainable development.

Taking into account all these aspects and the principles of environmental bioethics and the insertion of this field in education, the Program of Postgraduation in Bioethics (PPGB) of the Pontifícia Universidade Católica do Paraná (PUCPR) continued in 2018 the Path of Dialogue [18] during the II Ibero-American International Conference on Bioethics, this second version of the project focusing on bioethics education for high school students and the Sustainable Development Goals (SDG).

Thus, here we report the experience of this intervention. A bioethics education for this public is the bridge that can unite actors involved in an ethical issue that demands common values and interests for just and sustainable solutions.

Method

Construction of the intervention

Undergraduate and graduate students of PUCPR were invited to participate in the action, which brought together 20 undergraduate students from different courses of the institution, 25 master's degree students and MSc in bioethics, totaling 45 agents of the action. Two work meetings were held to divide the participants into six teams that had at least one PhD, one MSc, one master's degree student and one undergraduate student each.

The 17 SDGs were grouped according to affinity and distributed among the groups (Chart 1). For four months, research on the subject was carried out, considering statistical data, advances, new proposals, for the elaboration of theoretical and interactive material (paradidactic book).

Chart 1. Stations according to the distribution of SDGs, accompanied by speeches from high school students

Station I – To end **hunger**, to achieve **food security**, improve nutrition, and promote **sustainable agriculture**

"Not buying what I will not eat"

"If we just keep consuming, these resources will eventually run out..."

Station II – To ensure a **healthy life** and to promote welfare for all, through all ages
To promote **peaceful and inclusive societies** for the sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
To making **cities** and human **settlements** inclusive, safe, resilient and sustainable

"I suffered this [in the family]. *And this was Bullying. But they thought it was a joke"*

"They practice bullying with my handwriting, man. With my handwriting!"

Station III – To ensure equitable, quality and **inclusive education**, and to promote opportunities of lifelong learning for all
To achieve **gender equality** and empower all women and girls

"Excluded people tend to pay more attention to their surroundings and the situation that is happening"

Station IV – To ensure sustainable **production and consumption** patterns
To protect, recover and promote the **sustainable use** of terrestrial ecosystems, managing forests sustainably, combating desertification, halting and reversing land degradation and halting biodiversity loss
Taking urgent measures to combat **climate change** and its impacts
Conservation and sustainable use of oceans, seas and marine resources for sustainable development
Strengthening means of implementation and revitalizing the global partnership for the **sustainable development**

"I don't like being in such an environment..."

Station V – To eliminate **poverty** in all its forms, everywhere
To promote supported, inclusive and sustainable **economic growth**, full and productive employment and decent work for all
To reduce **inequality** in countries and between them
To build a resilient infrastructure, promoting a sustainable and **inclusive industrialization** and fostering innovation

"She is the rich one and the other one is nothing, how can you say jokes about it?"

Station VI – To ensure availability and sustainable management of **water** e **sanitation** for all
To ensure reliable, sustainable, modern and affordable access to **energy** for all

"A light that goes out does not get paid"

"We have to believe that it is possible"

Research

Starting from the conception that bioethics is the practical ethics and that it was necessary to adjust language for the adolescent universe, we tried to present SDGs in real situations. The proposal was to use alternative resources such as images, staging, videos or dynamic and engaging language applications.

The participants

The 68 high school students invited to the action, on June 26, 2018, were from the State Center for Professional Education of Curitiba and the State School São Paulo Apóstolo. After a chat about SDGs and bioethics, they were divided into two groups – half to the right and half to the left, repeating the distribution, structure and concept of the first version of the action [18]. Each team passed through the three stations, ending with a snack and the construction of the time capsule. The students also received a personalized agenda and pens to record their commitments to the issues discussed, between 2018 and 2030.

The stations

The concept of trees of life in the first version of the Path of Dialogue [18] was transformed into SDG stations and, to meet the recommendations of the first version, they were reduced so that the student could spend more time in each one.

As basis, the hunger station used questions about eradication of this problem, food security, nutritional improvement and sustainable agriculture [13]. They started from the premise of the difficulty of reflecting on hunger with people who have not experienced this situation – if, on one hand, poverty plagues thousands of people in many regions of the world, at the same time, the rampant consumerism causes obesity and malnutrition to other groups.

The perspective of bioethics understands that, although they have not endured hunger, these individuals can assume the role of moral agents in the issue of waste. The team worked on the theme considering the impacts of uneven distribution and losses in the production and transport process, and in the immorality linked to waste in the face of so many people suffering with hunger [19].

The issue was addressed by creative and dynamic games. The first of them represented a refrigerator, and students should place post-it adhesives with their commitments regarding these SDGs. In the second activity, the student was the piece of a board game that, guided by a die, should be positioned at each stop and get information on the topic. The team also prepared and distributed delicious food made with leftovers that are normally discarded, with an emphasis on the banana skin *brigadeiro*.

The station "Quality of life: how many likes is your life worth?" discussed healthy living, peaceful societies, justice for all, inclusive, safe and sustainable cities and settlements [13]. The construction of this station started from reflecting on the value that young people give to their own lives.

Bullying is another point of concern, since it compromises the quality of life of many young people, causing suffering and leading to tragic outcomes [20]. Bioethics has also focused on the care and reception of the person who suffers for not feeling loved and accepted, since diversity is a principle of nature and cannot be a reason for segregation and hatred. Therefore, there is a lot to be discussed on this topic, not being only the State's responsibility to institute laws against bullying, but every citizen should be aware of this problem.

The dynamics of life took place in a pleasant garden, among trees and flowers, where young people saw symbols of aggression emblazoned, followed by dynamics in which physical contact, exchanging looks, welcoming experiences and collective reflection on lived experiences were stimulated and about what the other one feels in a situation of oppression.

The station "Education: your school your home… where do you want to live?" discussed this very serious issue for bioethics and addressed the SDGs for inclusive education and gender equality [13]. The economic, physical and intellectual inclusion in schools goes back to the beginning of civilizations, when education was restricted to the privileged, who could count on tutors like Alexander III of Macedonia, instructed by Aristotle.

The rest of the population had daily informal education, mainly focused on activities related to survival and to work. Currently, although education corresponds to the synergy of learning promoted by the family, society and school, the institution must provide critical autonomy for conscious choices, encouraging protagonism and transforming the individual into a citizen [21].

The proposed dynamic took place in a room adapted for chatting, with carpeted bleachers, cushions and ottomans that allowed panoramic views and interaction between everyone. The

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dynamics involved simulation in which a young monitor – who seemed to be one of the teenagers – acted being a backward student who was prevented from entering the conversation. The students were exposed to a difficult challenge to be deciphered, the solution of which would be easier if they simply included the student. In the end, joint reflection led to an understanding of the injustices of exclusion.

"Conscious consumption: everything you consume becomes you… Who are you? Who do you want to be?" addressed the consequences of unconscious consumption and the impacts on the environment, climate change and nature conservation. The station was planned and built with several elements and started in a gloomy, dark world, with disturbing odors and noises to represent the excess of air and water, sound, visual and electromagnetic waves' pollution. The installation also simulated the chaotic urban center – images of pollution, environmental problems and disturbances were projected, and everyday garbage was scattered on the floor.

Soon after reflecting on the consequences of unbridled consumption, the students went on to the second installation: a garden with sounds of nature, taxidermized animals distributed by the exuberant vegetation, whose interaction was by quick response codes (QR codes) that led to sites with information about the species. In the end, they received seedlings of the tea of wisdom (mint) that should be cultivated and consumed, symbol of the development of environmental awareness and conscious consumption, aiming at a viable future.

"Sustainability: everything you do, will someday come back to you!" started from the definition of sustainability as actions and activities to meet current needs without compromising future generations [22], with eradication of poverty, sustainable economic development and inclusive industrialization [13]. The name of the station (referring to a "boomerang") represented the idea of the consequences of our actions in the future, being the dynamics related to the awareness that comfort and convenience resulting from technological development can result in irreversible situations. The scenery of that station was decorated with shocking and disturbing images of everyday life – disregard for water, land and air. The circuit also had monitors representing wealth/poverty, purity/pollution and a "come and go" toy. Finally, the students demonstrated their emotions with emoticons and discussed the topics with the monitors.

The action took place right next to Belém, a clean river with biodiversity at its source, but which suffers the impacts of unplanned urbanization; when entering the city, it is no longer able to maintain life, being a means to spread diseases, malaise and economic losses caused by frequent floods.

The central theme of "Energy and water station – nature's internet: timeless, interspecific and international connection" was the water as a vital asset associated with sanitation and energy. In this case, the action symbol was the water molecule. Considering that water is very essential for the survival of any living being on this planet, bioethics has long been focusing on the topic and pointing out the need to mitigate the populations vulnerabilities generated by bad decisions [23].

This action sought to show how much water and energy are intrinsically related to everything that makes up people's lives. Didactically, a piece of meat was placed inside a 500 liter water tank and a barrel of batteries to illustrate concepts such as virtual water, water footprint, gray energy and, mainly, to reinforce that 15.5 thousand liters of water and 31.5 kWh of energy are spent to produce 1 kg of meat [24]. The team used a quiz (interactive game) on water, sanitation, energy and SDG, whose answers should be given with the students' movement, dialogically. The students took advantage of the polluted Belém [18] river that passed by the station.

The action

The action symbol was a water molecule that came from the future to witness what the human being of the present is doing for it. The group considered that the current amount of water on the planet is the same since its formation, and that the same water has crossed the time, the geographical limits and the bodies of all beings that inhabited the Earth, allowing life and helping the human being to exceed the limits imposed for their survival [22].

Water is more than a natural resource, more than a food; it is life, which keeps us alive, and it is impossible to attribute a unique meaning or value to it. This substance will be part of the outcome of our civilization, and that is why it was chosen as a symbol of action for these teenagers who are going to build a distant future that they will not witness. The water molecule of the activity in question went through the circuit with the students, witnessed the interaction – the dynamics with the students lasted about 30 minutes in each station. After students and

tutors received explanations about the intervention and the intention to report it to the scientific community, they signed an informed consent form.

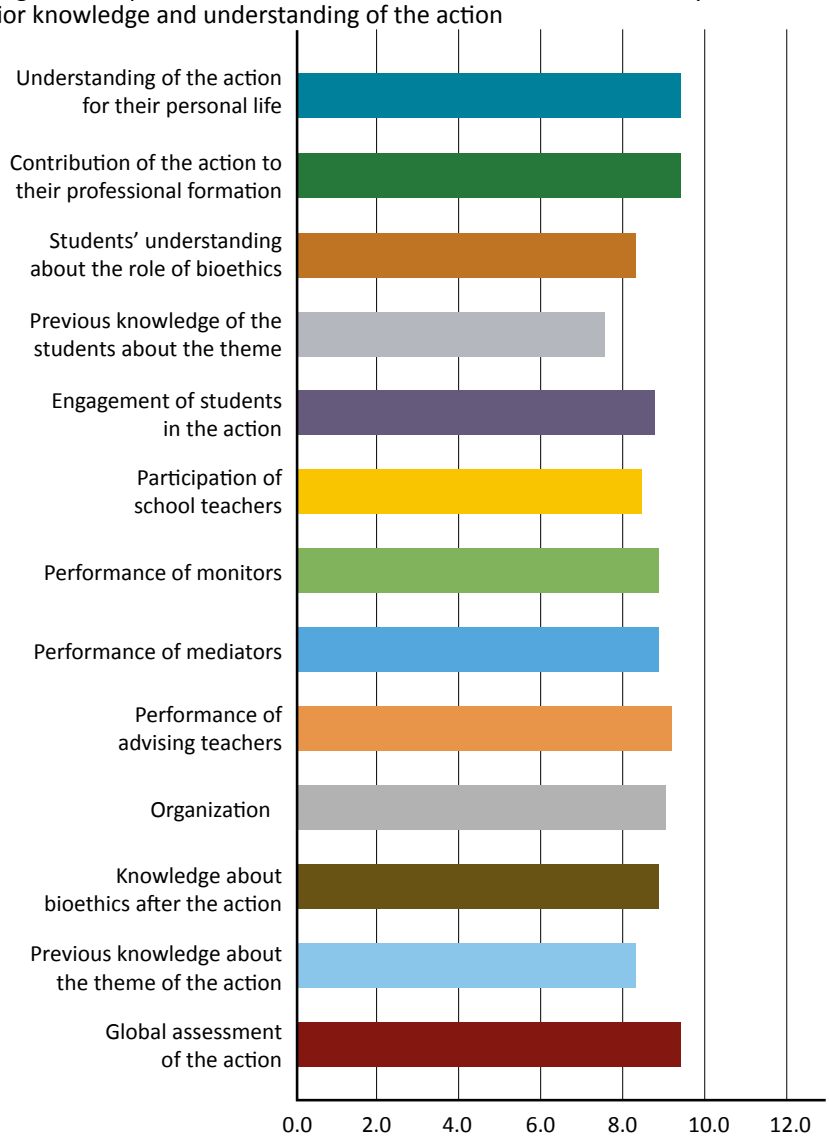
Evaluation

The intervention was evaluated by an electronic questionnaire transmitted by the Quatrics application, also used in the first version of project[18], which was answered by the monitors (undergraduate and graduate students, MScs. And PhDs). The messages left by the students for the young man of the future were also analyzed. The responses were categorized according to the technique of analysis of semantic content by Bardin[25], and the results presented by descriptive statistics.

Results and discussion

The questionnaire was answered by 23 undergraduate students (Biology: 11; Theology: 3; Social Sciences: 1; Physical Education: 1; Nutrition: 6; Psychology: 1), 12 master's degree students (Bioethics: 8; Theology: 1; Dentistry: 2; Law: 1), 5 masters from the PPGB and 4 professors from PUCPR, who assigned values higher than 8 to all assessment items (Figure 1), surpassing those with less value in the first phase of the intervention (assessment organization, participation and contribution of students), as well as the values conferred to their own knowledge before and after the intervention[18].

Figure 1. Average score attributed by the monitors of the action for organization (n=23), self-assessment of previous knowledge and acquired after the action, and evaluation of elementary school students regarding participation, prior knowledge and understanding of the action



The positive point most spontaneously mentioned by the respondents was the integration between the institution's courses and schools, among students, undergraduates, master's students and teachers, and between academia/community, as can be verified in some examples (Table 1). These results corroborate those obtained in the previous intervention [18], whose participants demonstrated satisfaction in working on a community project, joint construction in favor of common values, in this case, the other, the planet and the future.

Although 25.6% of the research participants did not identify negative points, the main ones mentioned were the duration of the intervention and the few students benefited (Table 1). In the first version of the project, the organization of groups, the time and the displacement of students were criticized [18]. Suggestions for reaching more people, expanding the project to other periods and taking it to more vulnerable groups (such as older adults, children with special needs and people with incurable diseases) reveal the positive consequences of the action.

Regarding high school students, there were no evident differences between the groups, mainly because the SDG themes are already worked on at school, even if indirectly, and also considering the students' maturity. This was a quite different result from the one observed in a previous research carried out with elementary school students [18]. Even so, there was evidence that the participation in both classes had very different characteristics, conditioned by the fact that some participants had already passed through the station before, and students and monitors felt more confident and "at ease" in the interaction. However, they noticed that the first group was more excited by the novelty, and the last one was already showing signs of tiredness.

It is also worth highlighting the emotional descriptions of the students and the positive feelings linked to the action (Table 1). As attested to in the previous version of project [18], the results of this one surpassed the initial idea of inserting the theme from the bioethical perspective in the student's life. Mutual positive results feed the desire to act for a cause that is the greater good. Thus, the participants associate bioethics with the environment, understanding that the health and dignity of the individual goes beyond the physical limits of the biological body.

The issue involves connection between body, mind and spirit, individual and nature, local actions and global consequences, for the promotion of the health of all living beings that today share existence on this planet, aiming for a viable future for all [26]. For achieving this objective, it is essential to promote education, as pointed out by the participants, the communication bridge promulgated by bioethics to refine the search for common values [5].

The participants understood as the main idea of the action the formation of more conscious consumer citizens, starting from the conception that consumerism is the main trigger of the excesses committed to the environment. In addition, the perception that this process must be mediated by bioethics was also identified (Table 1). Finally, they also understood that they need to change their attitude and multiply this knowledge, corresponding to the commitment assumed with the SDGs [13].

Table 1. Assessment of the action by the monitors

Monitors		
Positive points (n=76)		
Integration between courses and with the community	28.9%	"*Team integration. Everyone was committed. Collaborative spirit*"
Theme of SDGs	19.7%	"*The action played a very important role in informing young students about the existing goals*"
Participation/reflection/sensitization and awareness	15.8%	"*We were able to arouse the interest of high school students for reflections involving hunger, food and nutrition security and food waste*"
Being a transforming agent/creativity	14.5%	"*Possibility to pass this knowledge on and make young people aware of the importance of the environment*"
Dynamic/playful aspect	13%	"*Genius idea of working with bioethics in this playful and light way*"
Organization	3.9%	"*The organization was excellent, the students showed a lot of interest in the themes*"
Knowledge acquired	3.9%	"*Learn better to work as a team; learn didactics; and especially the awareness of the themes presented* "

continues...

Table 1. Continuation

Monitors		
Negative points (n=39)		
Time	30.8%	*"Time was too short to discuss the activity"*
They did not identify negative points	25.6%	-
Few students	23.1%	*"More students could have participated"*
Teamwork	12.8%	*"Lack of commitment by some teammates"*
Others (participation, integration of themes and support material)	5.8%	*"Lack of integration between trees"*
Participation (n=45)		
Technical description	86%	*"I was responsible for talking to students about inclusive education. My role was, exclusively, to make them feel as if they needed inclusion"*
Emotive description	13%	*"A delight! I really enjoyed hearing incredible ideas from young people so young and concerned with changing the world"*
Perception (n=45)		
Positive feelings	62.2%	*"It was wonderful... I even improved my behavior in view of the challenges"*
Bridge between society and academia	37.8%	*"Bringing a sector of society to the academy, the action proved to be effective in building a bridge between scientific knowledge and the population"*
Relationship with Bioethics (n=47)		
SDGs as a theme of Bioethics	39.6%	*"Ensuring well-being and knowledge about SDGs to students!"*
Education.	33.3%	*"Knowing that this type of issue is being discussed in schools is really something that makes me happy, I hope that we have awakened the interest in bioethics in some people"*
Others (communication, dialogue, reflection, respect)	25.5%	*"By guiding and talking about our actions and their consequences, everyone and not just students looked at the issue differently"*
Action idea (n=63)		
Conscious consumption	58.7%	*"To sensitize students about the impacts of excessive consumption"*
Dialogue	15.9%	*"The main idea is that of dialogue, both in terms of knowledge and in the sensitive perception of the diversities that present themselves in life"*
Sensitization	9.5%	*"The main idea of our action was to sensitize students, demonstrating examples from our daily lives"*
Care for the environment	7.95%	*"To make young people aware of the fundamental mission they have with planet Earth"*
SDG	7.9%	*"The importance of creating the SDG, its objectives, its commitments"*
Their commitment (n=46)		
Attitude changes	52%	*"Changes in the way of acting and consuming guided by the SDGs"*
Multiplication	48%	*"Bringing the congress experience with bioethics into the classroom"*

The attitude and participation of the students were recorded in each station, and in the reports the impact of the teaching resources used is clear, such as the images and the scattered garbage, and the fact that students are delighted to be at the university and participating in this new experience. The students were active and even the shyest groups were attentive, interested and asking questions, demonstrating previous contact with the theme.

The students reacted to the disturbing environments, feeling uncomfortable with the garbage on the floor and disconcerted when invited to collect the waste in a place that did not have a compatible trash can. In the same way, they were surprised to find, instead of water, a small piece of meat in the water tank. Many had difficulty talking about the future, a characteristic pointed out in the researches by Fischer and collaborators [5], according to whom this difficulty in dealing with

environmental issues is related to personal conflicts, physical and emotional transformations that are normal in this phase of life. It is clear that a special attention should be given to topics such as inclusion and bullying in view of students' reaction to situations when the vulnerability of a young person excluded by automatic impulse is exposed, as experienced in the education station or in the formation of peers in the station of life.

The messages left for the youth of the future were analyzed (Table 2), with emphasis on the environment and actions considered politically correct, associated with the topics discussed, such as water, garbage, plastic, inclusion and food. However, issues of solidarity, concern for human beings and respect were also incorporated (Table 2). Fischer and collaborators [5] warn of the importance of experiences for the moral maturity of young people, influenced by other individuals of the same age who are slightly more developed morally.

According to Silva and Krasilchik [27], this process is fundamental, since high school students tend to judge ethical issues based on personal or conjunctural interests. This argument justifies this educational action, whose validity is attested in the speech of the participants, characterized mainly by creative and intriguing advice and reasonings. Many students included additional messages with drawings (heart and emoticons) indicating affection, as well as elements related to group identity (Table 2). These results corroborate the results of Messias, Anjos and Rosito [28] when proposing bioethics in integral education for the formation of future citizens.

Table 2. Analysis of the message left by the students to the youth of the future

Students		
Message contents (n=85)		
Warning	38%	"*You who were on a bad day… Remember that you are no better than anyone and treat others as you would like to be treated*"
Hope	28.2%	"*I hope there is still water, that the world is not in any war and that all kinds of inequality are no longer present*"
Wish	22.4%	*"I hope and I am sure that in the future people will have gold, internet and food*"
Encouragement	9.4%	"*Be curious, discover the world around you, understand that you can be very important to people, someone being inspired by you*"
Value (n=137)		
Environment	29.2%	"*Take care of the environment*"
Politically correct (water, garbage, plastic, inclusion, food, meat)	16.8%	"*Learn to look at the sky more than at the screen of your cell phone and computer*"
Solidarity	14%	"*Watch the anime, don't be jerks, notice people, don't be oppressive"*
People	10.2%	"*Take care of people, you can… May there be no more bad people and that all bad people have become better*"
Respect	8.8%	*"I hope you see the problems and difficulties of others and not only yours"*
Others (knowledge, protagonism, conscious consumption, peace, justice, making a difference, happiness, freedom)	21%	"*I hope you are fighting for what you believe and you are not just being a spectator*"
They advise	37.1%	*"I'm saving water thinking about you, save water thinking about your neighbor"*
Self-criticism or to the current generation	18.6%	*"I hope people are more aware."*
Extra (n=46)		
Affection	32.6%	Heart drawings or emoticons
Drawing	24%	
Politics	15.2%	*"#ForaTemer"*
Sports	10.9%	*"#BrasilHexa"*
Entertainment	8.7%	*"#LetsGoBro"*

continues...

Table 2. Continuation

Students		
Others	4.3%	*"I hope you will not forget to appreciate the beauties and pleasures that the world has to offer and that you will never be afraid to venture out"*
Religious	4.3%	*"Jesus loves you"*

Final considerations

Following the suggestion of expanding the Path of Dialogue, this new action validates once again this dynamic method of inserting bioethics in education, even without the intention of formally working on the concepts of bioethics in this context, but encouraging interdisciplinary reflection to identify vulnerabilities and discuss solutions in social life. With few material resources, the project relied mainly on the creativity and motivation of transforming agents, proving that more investments are needed in interdisciplinary and continuing education of basic education teachers than in technology itself.

The main result was the engagement of all those involved, with integration being considered the greatest value. The issues addressed in the SDGs have great bioethical appeal, since they are permeated by vulnerabilities resulting from inequalities and require a joint effort to be overcome. It is in this context that the guidelines of environmental bioethics enter.

To educate is to liberate the citizen, to make him aware of his rights and duties, in search of the common good. While knowing that the ability to act and the disposition of each person depend on several social and personal variables, we consider that this type of experience can help the cognitive, emotional and moral maturation of the participants. In addition, placing undergraduates in joint work with master students, who mirror their teachers, stimulates the social notion of the major objective of training.

In addition to being a commitment of all peoples, signed within the scope of the UN, the reflection and discussion of the environmental issue is an urgent human need. Understanding the planet and other beings as one system makes each person a protagonist in the promotion of global health. In this sense, the intervention presented here elucidates how it is possible to work on a topic of global interest, in a dynamic, relaxed and motivating way, involving different social actors.

Furthermore, it attests that theoretical knowledge alone is not enough for major changes: it is necessary to share, listen, build with the other, with the different, so that there is growth. However, for this exercise of awakening consciences not to stay limited to a dilettante action, aimed at the privileged few, it is essential to seek ways to make it permanent and extend it to wider audiences.

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Participation of authors

All authors designed and executed the project. Marta Luciane Fischer drafted the article. Thiago Rocha da Cunha revised the manuscript and, with Thierry Betazzi Lummertz, analyzed the data.

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