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Teaching Bioethics: evaluation of a virtual learning object

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Abstract

The use of information and communication technologies brought together the teaching of bioethics and professional practice. The objective of the study is to evaluate the Virtual Learning Object – Analysis of Ethical Situations, developed and used as an innovative approach to the teaching of bioethics in courses in the field of health. The methodology integrates quantitative and qualitative analysis. Participants are students who used the virtual object in the disciplines of Ethics and Bioethics of Dentistry and Speech Therapy courses. A questionnaire (open and closed questions) was applied, and the categories analyzed related to the use of the virtual object and learning of bioethics: interaction, curriculum content, and teaching and learning dynamics. Testimonials show that the educational material provided analysis of situations with potential bioethical conflicts and demonstrated the possibility of practicing interdisciplinarity, considering this experience important in the training of health professionals. The study points to bioethics as a cross-curricular field of health practices.
Keywords: Bioethics. Education, distance. Health education. Staff development. Teaching materials.

Resumo

Ensino da bioética: avaliação de um objeto virtual de aprendizagem

O uso de tecnologias de informação e comunicação aproximou o ensino da bioética à prática profissional. O objetivo deste estudo é avaliar o objeto virtual de aprendizagem Análises de Situações Éticas, produzido e utilizado como abordagem inovadora no ensino da bioética em cursos na área da saúde. A metodologia integra análises quantitativas e qualitativas. Os participantes são estudantes que utilizaram o objeto virtual nas disciplinas ética e bioética de cursos de odontologia e fonoaudiologia. Foi aplicado questionário (questões abertas e fechadas), e as categorias analisadas relacionam-se ao uso do objeto virtual e à aprendizagem da bioética: interação, conteúdo curricular e dinâmicas de ensino-aprendizagem. Depoimentos demonstram que o material educativo proporcionou análise de situações com possíveis conflitos bioéticos e evidenciam a possibilidade de interdisciplinaridade, considerando a experiência importante na formação de profissionais da saúde. O estudo aponta para a bioética enquanto campo curricular transversal das práticas de saúde.
Palavras-chave: Bioética. Educação a distância. Educação em saúde. Desenvolvimento de pessoal. Materiais de ensino.

Resumen

La enseñanza de la Bioética: evaluación de un objeto virtual de aprendizaje

El uso de tecnologías de la información y la comunicación acercó la enseñanza de la bioética a la práctica profesional. El objetivo de este estudio es evaluar el objeto virtual de aprendizaje Análisis de Situaciones Éticas, producido y utilizado como enfoque innovador para la enseñanza de bioética en el área de salud. La metodología integra análisis cuantitativo y cualitativo. Los participantes son estudiantes que utilizaron el objeto virtual en la disciplina de Ética y Bioética en la Odontología y la Fonoaudiología. Se aplicó un cuestionario (con preguntas abiertas y cerradas) en que las categorías analizadas se relacionan con el uso del objeto virtual y el aprendizaje de la bioética: interacción, contenido curricular y dinámicas de enseñanza-aprendizaje. Los testimonios indican que el material educativo propició el análisis de situaciones con posibles conflictos bioéticos, y demuestran la posibilidad de interdisciplinariedad, teniendo en cuenta esta importante experiencia en la formación de profesionales de salud. El estudio indica a la bioética como un campo curricular transversal de las prácticas de salud.
Palabras clave: Bioética. Educación a distancia. Educación en salud. Desarrollo de personal. Materiales de enseñanza.

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It is observed, in the daily services and training in health, an increased use of biotechnologies, which entails more detached relationships between professionals and users. In the practices of health professionals, the organization of work processes favors the use of equipment, diagnostic tests, etcetera that are characterized as hard technologies. The consumption of technologies currently lead the health work models, being considered important mainstay in the interface between professionals and users [1-4]. In other words, technologies that permeate the health practices provide ways and even dictate the mechanisms of these relationships and, in this sense, may be considered, by their complexity, mainstays [5]. In this context, the importance of bioethics for understanding the constant incorporation of technological innovations in healthcare is growing [6].

The medicalization of health is a phenomenon that has been studied by many researchers in recent years - among which Rose and Bell are highlighted in this article [7,8]. This permeates the transformation movements of contemporary societies, marked by the exacerbation of the fundamentals of modernity and the culture of excess and urgency, as well as consumption and individuality [9]. When questioning the adversity of these times, regarding its bioethical and bio-political implications, very interconnected to signs of consumption, hyper-individuality and new technologies, one concludes that it is time for restructuring subjectivities [10]. And, understanding the establishing power of health work as micro-policy governing subjectivities [11-13], it discusses how to focus on the micro-policies of medicalizing processes – the very practice of health workers.

The responsibility of educational systems that produces health professionals is noteworthy with regards to the teaching of bioethics. The challenge is to provide students with exercises to analyze their professional practices (individual and collective), pointing to the importance of the benefits of science when in balance with the requirements of humanization. The sense of human understood here is not a key value won by way of reason, but resides in the interrelationships of the subject with history, culture and society [14]. The objective is to develop the ability to act with competence to overcome reductionist health practices or that which remain within techno-scientific aspects to the detriment of developing links with users [15-21].

The transversality of Bioethics and humanization assumes importance in health education in view of the role that is attributed to social interaction from the perspective of the universal bioethical principles – autonomy, non-maleficence, beneficence, justice [2]. This way, issues such as biopower and the right to health [22,23], when applied to curricular courses, broaden the understanding of how to promote health and to access and consume technology [3].

The bioethics contents covered in undergraduate courses must meet the needs of humanization in health services and more qualified work processes [24,25]. Humanization can be understood as a principle of conduct with a bioethics foundation, based on public policies for the care and management of care technologies in the Brazilian Unified Health System (*Sistema Único de Saúde* - SUS). Bioethics is an instrument that favors humanization as it critically nurtures the views of health professionals on how institutions think and act [26].

In this process, it is also understood that the new information technologies have a role to play in education, and their use is justified by the need to make education more interactive [27]. It highlights, at the current and global level, the intense use of computers, and information and communication technology (ICT) [28-32]. The incorporation of virtual educational environments can be understood as a catalyst for significant changes in learning, by developing collaborative activities and assuming the active participation of those involved in the process, who share their experience, research and discoveries. Health education based on traditional methods has not been sufficient to train professionals for humanised health models: *A new model of health requires new social subjects, new ways of providing services and new ways to train professionals* [33].

Virtual environments provide students and lecturers the opportunity to expand their repertoires and styles of engagement with learning; and can facilitate experiential and social learning – favorable aspects to social and cultural adaptation that are integral to *becoming bioethical* [34]. As a result of these advantages, the Analysis of Ethical Situations virtual learning object (VLO) - whose application is presented and discussed in this article - was designed with the objective of expanding innovative ways and approaches in bioethics courses incorporated in health undergraduate courses, or points of production for health and bioethics.

The use of a VLO was justified by the need to improve the teaching of bioethics in the curriculum of health undergraduate courses, making it more attractive and interactive. The VLO provides hypermedia content that encourages autonomy, allowing the development of knowledge by users. Its

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organization in the form of real situations, related to policies and practices pertaining to the field of health, fosters the experience and the development of content covered by practical application.

The main VLO characteristics can be related to principles of adult education that emphasize the practical application of knowledge [35]. It can be used in regular classes or integrated into different virtual learning environments, according to the teaching intentions of each lecturer. It aims, in the case of academic reading, to attain the levels of an authentic hermeneutic [36]. In the shape of a hypertext, it seeks to explore the complexity facing a linear organization of knowledge and to require the reader to utilize their base of knowledge [37].

The aim of this study is to evaluate the use of the Analysis of Ethical Situations VLO, thereby analyzing how it contributed to the teaching and learning of bioethical concepts in health courses.

Methodology

This study explores the integration of quantitative and qualitative analysis perspectives. The participants were 39 students in the disciplines of ethics and bioethics taught in dental courses (26 students from the 2014/2 semester) and speech therapy courses (13 students from the 2014/1 semester) at the Federal University of Rio Grande do Sul (UFRGS). The courses were organized to enable access and use of VLO contents in the curriculum, always interspersed with face-to-face meetings or asynchronous distance education forums [38].

The structured research instrument was drafted with open and closed questions (see Appendix). The questionnaire was made available to participants at the end of the activities of the ethics and bioethics disciplines conducted in 2014, through a link previously accommodated in the VLO itself. The questionnaire addressed categories for assessing VLO that were used in other studies: interface, interactivity, usability, motivation, content, hypertext language and integration into classroom activities [39-42]. Students' responses were organized according to the Likert scale, commonly used in opinion poll questionnaires for its characteristics of: reliability, validity and sensitivity, with its powerful ability to capture reality being most significant [43].

The quantitative data produced by the study was analyzed according to the frequency of closed-ended responses. As for the qualitative analysis, it was based on the epistemological foundations of the discourse analysis that aims to work with the sense, and not just the content, of the text [44]. The research project follows the ethical guidelines in force in Brazil. Only students who signed the free, prior and informed consent (FPIC) were considered.

Results

Objectives and difficulties

The survey questionnaire starts with a question that allows students to exhibit their understanding of the objectives of the Analysis of Ethical Health Situations VLO, and they responded as follows: learning and teaching; the realization of practical activities related to bioethics; the use of technological resources to provide and systematize knowledge; the complementation of bioethical content; and the interaction between lecturers and students. In the words of the respondents:

"Exposing cases containing ethical issues that may be discussed and related to the content seen in class" (Student 7);

"It is a teaching unit in which knowledge of ethics and bioethics is transmitted through technological resources" (Student 11);

"To complement the student's knowledge and facilitate access to the information relating to attended classes" (Student 6);

"Interaction and integration between classmates and lecturers" (Student 18);

"To facilitate student learning through a single, simple and didactic tool, unifying the main student access sites for various scholarly information" (Student 21).

Similarly, still at the beginning of the questionnaire, students were requested to indicate the main difficulties encountered during their use of VLO. The statements describe three main aspects: the complex language of the texts, problems with the videos, and the search for the requested information. One of the statements did not refer specifically to the virtual object, but to the teaching dynamics used in the course: *"The place were the grades are made available is not always intuitive. The lack of notification by e-mail regarding activities and the closing dates"*(Student 21).

Still considering the general aspects of evaluation, we requested students to offer suggestions for change in the forms of presentation and interaction,

if they considered them important. The following points were indicated: *"Easier understanding and access to proposed topics"* (Student 8); *"Use of short sentences"* (Student 29); *"More accessible and direct language"* (Student 33); *"Change access difficulties"* (Student 21).

Interaction with VLO

The first category of VLO assessed relates to aspects of its quality of interaction. The quantitative results presented in Table 1 show that the achieved score can be considered positive.

Quadro 1. Resultados das categorias analisadas: interação, conteúdo e dinâmicas de ensino-aprendizagem (n = 39)*

Assessed categories		1 n%	2 n%	3 n%	4 n%	5 n%	No response
Interaction	Easy to understand	1 (3%)	22 (56%)	13 (33%)	3 (8%)	0	0
	Encouraged the use	1 (3%)	18 (46%)	19 (48%)	1 (3%)	0	0
	Clear instructions	1 (3%)	18 (46%)	7 (18%)	0	0	13 (33%)
	Appropriate language	8 (21%)	18 (46%)	5 (13%)	6 (15%)	2 (5%)	0
Content	Easy to understand	7 (18%)	24 (61%)	7 (18%)	1 (3%)	0	0
	Textual content	5 (13%)	21 (54%)	0	0 (0%)	0	13 (33%)
	Visual content	5 (13%)	18 (46%)	1 (3%)	2 (5%)	0	13 (33%)
	Learning efficiency	5 (13%)	26 (67%)	8 (20%)	0 (0%)	0	0
Dynamics	Integration with classroom activities	6 (15%)	29 (74%)	3 (8%)	0	1 (3%)	0
	Shared exercises	2 (5%)	6 (16%)	5 (13%)	4 (10%)	9 (23%)	13 (33%)
	Opinion regarding the use of VLO	5 (13%)	27 (69%)	7 (18%)	0	0	0

**he first column presents the more positive responses, and the latter, less positive, according to the Likert scale.*

Through an open question and seeking to investigate subjective aspects related to the interaction of students with the VLO, we asked the participants who did not approve of the VLO presentation to justify their answers. It should be noted that only one respondent disapproved the use of VLO, expressing his opinion with the following statement: *"Difficulty getting to specified content"* (Student 13). Another important aspect regarding the VLO was that, when asked if the VLO provided freedom of navigation, 85% of respondents answered *"yes."*

When they were prompted to report why they used the data provided by the links in the proposed activities (text, graphics, tables, newspaper reports, etc.), students gave different justifications. Some said they did so because they considered them *"complementary"* (Students 21, 33, 39), others because *"the interaction aroused my curiosity"* (Students 29, 13) and another was *"prompted by classroom activities"* – *"As we carried out an analysis activity in the classroom in which the data presented was necessary to think about the questions posed"* (Student 37).

Development of curriculum content

The second category of VLO assessed relates to the development of curriculum content (Table 1). Quantitative results have been positive. When encouraged to respond freely on how the VLO helped in the development of bioethical content, students emphasized the ability to relate practical cases with learned content:

"Through the explanation of professional practices" (Student 33);

"Exemplifying the ethics and bioethics content learned in class" (Student 2);

"The VLO contextualized content; therefore, we were able to see the application of such content in a real life situation" (Student 7);

"It showed the methodological tools in practice" (Student 22).

Respondents also considered that the use of VLO facilitated the development of content, both in

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relation to the presentation of the case and as to whether to exercise critical analysis of the situation: *"It helps to think critically about the case, relating to content seen in class"* (Student 10); *"Makes one reflect on the different ways of looking at the same case"* (Student 32).

Students stressed that VLO helped in the development of content - by defining concepts and expanding knowledge regarding bioethics made available in the form of videos and systematized in a unique learning environment (Students 6, 11, 20 and 21). In the opinion of 92% of them, the VLO helped to establish the bioethics contents, among which the following were highlighted:

"Ethical and bioethical principles and concepts " (Student 2, 3, 6, 7, 10, 19, 22, 25, 29, 31, 34, 35, 39 and 30);

"Ethical analysis of cases and situations" (Students 8, 9, 11, 12, 13, 17, 37);

"Foucault and biopolitics" (Students 14, 22, 26, 27);

"Clinical and professional practice" (Students 20, 28, 32, 33);

"Methodological tools" (Students 22, 25);

"Humanization in health, science in the service of health" (Student 37);

"Issues of a sociocultural context, as well as quality of life and everything related to real clinical cases" (Student 16);

"To be or not to be bioethical" (Student 15).

Still in the form of an open question, some students answered how the VLO aroused their curiosity to search for new content. There were two aspects: 1) the use of professional practice situations; and 2) the hypertext language. According to participants: *"The case of Dona Laura involved a dental question that was raised for discussion within the college and that made me find out more and understand the subject better ."* (Student 7); "*Through the hyperlinks*" (Student 33).

Respondents were also asked if the VLO offered a different way of understanding the topic of bioethics, and 79% of respondents answered *"yes"*, 13% said that *"nothing was different"* and 8% thought it *"offered a very different way to understand bioethics"*.

The interaction of students with a virtual learning resource, the VLO, included in new educational technologies enabled a better grasp of bioethical topics (humanization, quality of life, biopolitics, among others) as key for their future clinical practice. In this perspective, the study of bioethics shows its potential to provide structure and also transversal training, as it allows students to overcome entrenched biomedical concepts, casting wider perspectives of health actions, especially by including the ethical, social and humanistic fields in these processes. And this research supports the possibility of considering, as in other examples in the health field [16], training guided by the transversality that bioethics holds, both by its nature and by practical experience during the course [2,33,45,46].

Teaching and learning dynamics

The third category of VLO assessed relates to the way it was used for education, given that it aimed to support the discipline of bioethics in the classroom. Quantitative results can be seen in Table 1.

In a qualitative analysis on how to integrate VLO with the other course activities, the students answered that this occurred through debates, videos, complementary content, social reality, interdisciplinarity, analysis of clinical cases and professional practices.

"Because the content covered in class was present in the VLO in the form of videos (mostly)" (Student 20);

"Because through the websites we can easily consult other content, and in the clinical cases the students were motivated through 'challenges' "(Student 22);

"Because we can integrate the theory we study with the practice seen in society" (Student 26);

"Because we can have examples and interaction with areas related to the cases presented" (Student 39)

Discussion

The results highlight how learning occurred in the field of bioethics regarding the use of the Analysis of Ethical Situations VLO and demonstrate how the topic can arouse the interest of students. This includes the experience of real situations that bring together content and professional practice, the involvement of students with an interactive teaching

methodology based on ICT resources, as well as teaching and learning dynamics.

As part of the understanding of "creating" health, educational tools such as VLO allow those involved in the teaching-learning process to produce judgments on complex and ambiguous situations. The bioethical analysis of actual cases is opposed to the mere application of the principles by students to learn how to solve possible future professional dilemmas. The topic has already been discussed by other authors [47], who point out that the simple explanation of principles with allusions to hypothetical cases leads to students' disinterest in the subject. From an andragogical perspective, by offering opportunities to learn how to work with real-life problems, the principles of humanization can be augmented, describing how adults learn best [35].

Study participants seem to associate VLO with an opportunity to analyze cases of professional practice. When comparing online learning with face-to-face interaction, it appears that online learning is associated with: 1) a decreased inhibition and an increased willingness to take risks, and to share and discuss sensitive issues; 2) more equitable discussions (in other words, less dominated by a few individuals); 3) a longer time to interact thoughtfully; 4) the increase in learning about controversial issues and 5) the development of an online community [48].

The use of interactive communication resources and the convergence of students with bioethical issues, as a possible forum outside the classroom context, stimulated by virtuality, optimize the educational dynamics. Moreover, they enable some customization to the extent that students are able to access the environment whenever and wherever they choose. Thus, the virtual learning environments can be a powerful way to reconstruct the dimensions of teaching, opening the prospect of another classroom, relocated in virtual space and with its own characteristics.

The interaction is independent of space and time, and enables contextualized and collaborative learning. The virtual environment does not replicate or simulate-the face-to-face classroom, but is another teaching-learning context with its own rules and features. It composes a creative technical-educational scenario, contextualized, with specific characteristics, and sustained by assumptions that derive from how the technological tools will be used. Teaching in virtual learning environments brings to the lecturer/tutor the challenge of skills management, mediation between different content, and action in the social context of learning [49].

On the one hand, the VLO enabled an innovative relationship between bioethics content and students, which was challenging from the start; on the other, it affirmed the need to think of bioethics in the training of health professionals as the responsibility of all lecturers (institutionally), since it is a transversal issue in 'creating' health. It is understood, just as other authors have thought about health care training, that it is up to trainers (institutions and lecturers) to provide experiences, and to stimulate the understanding and comprehension of the choices and behavior of students throughout their future careers [2,20]. Involvement with VLO learning dynamics can bring relevant knowledge regarding new social roles – for example, in the case of bioethics, when they learn to balance the tensions between humanization and evidence-based medicine [48].

With Boyd [50] and his experience in exploring methods for the development of critical thinking in dental students, it is considered essential to think, propose and evaluate new didactic and educational strategies that promote understanding and prepare students to face collective and individual's problems in a caring manner.

Also, sharing the ideas of Junqueira and colleagues' work [4], it is understood that the forum to debate the responses considered satisfactory for the health needs of users, and that transcend the classical transmission of information and the training of skills, encourages critical thinking. However, it is worth mentioning here that this refers to a very special form of criticism, or to that which is directed at a wide range of questions regarding how power works through discursive practices [51]. Bioethics role in providing a critical sociocultural and hypercritical view of scientific progress [52] should be highlighted.

Some statements described in the results demonstrate that the use of this educational resource helped students understand the value of interdisciplinarity – when they recognized the importance of socio-cultural practices or integration with other areas of knowledge. This point, in particular, has shown how the teaching of bioethics can develop professional attitudes that favor the recognition of the other, which institutionally allows the search for benchmarks values of professional attitudes that express what is, in its collective dimension, considered good and just [26].

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Finally, the appropriate content and languages of VLO were considered facilitators of learning. From the answers of respondents, it is clear that issues such as understanding the use of VLO, clear instructions and appropriate language stimulated its use and were important to arouse curiosity about bioethics issues. The VLO brought to the study of bioethics in undergraduate courses the possibility of integrating classroom activities, debates and proximity to social reality by stimulating the analysis of clinical cases and professional practices.

Regarding the content that the VLO presented to students, it is believed that bioethics produces, for students and lecturers, higher levels of understanding regarding the impact of new technologies on life. There is, in bioethics, the power to reconcile the technical and scientific development, which increasingly interferes with human life and nature, with humanitarian values [53]. To this end, stimulating and creative proposals, which do not consider bioethics only as a discipline, but as a territory, a place of confronting knowledge and problems arising from the progress of biomedical sciences, life sciences and the humanities [54], can catalyze actions based on respect, solidarity, compassion, empathy, and kindness [26].

Final Considerations

The development of the study allowed the understanding of the process of teaching and learning developed with the use of the Analysis of Ethical Situations VLO, which revealed itself as a learning aid for undergraduate students from two areas of health (dentistry and speech therapy) because it provides opportunities to analyze professional situations with possible bioethical conflicts. It appeared, based on the students' opinion, that the VLO increased the learning of bioethics by allowing classroom activities to have continuity outside the classroom.

According to the results, students considered that the VLO contributed to the process of teaching and their learning of bioethical concepts. The students' perception regarding the use of VLO stimulates its enhancement and its use as an educational strategy for future classes and/or other institutions. The analysis of the limits and possibilities of this educational tool, through the responses of the participants, also enables better comprehension of ways to integrate bioethics content in everyday clinical practice.

The approach to issues related to health situations in clinical practice, in research, in the organization of services or even in debates and experiences, as well as the complex pluralism of today's human society - from health problems to the sophistication of technology - challenge educational institutions and health care courses to rethink their role as facilitators and promoters of the development of students' skills to make decisions and articulate knowledge, skills and values. These are technical, scientific, social and ethical issues that can only be achieved through a transversal approach, in other words, structured from activities planned and included in all course disciplines. This encourages and promotes teaching strategies that foster dialogic reflection with specific methodologies. The data in this study indicate that the transversality of teaching bioethics cannot fall into disordered and occasional activities. Therefore, it is considered that a curriculum of a health course, in its entirety, would also need to contain an activities plan guided and articulated with the work processes, to deal with bioethics.

It is postulated, therefore, that bioethics is as a field, a territory, a multifaceted and interdisciplinary forum with a remarkable spectrum of possibilities for developing a hypercritical perspective of actions in health. This approach to the bioethics field could overcome models structured in specific disciplines, often disassociated from the students' experiences and interests. There are new challenges for training in health and therefore there should also be innovative methods, approaches and educational tools. In this context, the VLO stimulates the interest of students and transforms the relationship of learning because it values new relationships between reality and requirements, in addition to emerging as an innovation for the needs of humanistic education, consistent with ethical and fair health practices.

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Cristine Maria Warmling contributed in the design, analysis of the results, writing and critical review for approval. Fabiana Pires Schneider did the interpretation of results, writing and critical review of the article. Julio Baldisserotto participated in the writing and critical review. Martiné Levesque did the interpretation, writing and critical review of the article.

Appendix

Assessment Questionnaire regarding the Virtual Learning Object – Ethical analysis of health practices

Interviewee's profile

Course: _____ Gender: ( ) Female ( ) Male Age: _____

Marital status: (1) Single (2) Married (3) Separated or divorced (4) Widow/Widower (5) Other

Home state:_____
Town:_____

Do you have a computer: ( ) Yes ( ) No

How often do you use a computer?:
(1) Never (2) Seldom (3) Sometimes (4) Frequently (5) Very frequently

Level of knowledge of basic computer tools (Word, Excel, internet):
( ) Very low ( ) Low ( ) Medium ( ) High ( ) Very high

Assessment/Evaluation of the Learning Object

Block I – Regarding the interaction with the learning object (functionality)

1. In your opinion, what is the objective of the virtual learning object (VLO)?
_____

2. Was it easy to understand how to use the VLO? (Answer the question by assigning a grade according to your opinion.)
(1) Very easy (2) Easy (3) Indifferent (4) Difficult (5) Very difficult

2.1. Highlight the main difficulties encountered in the use of the VLO (if they occurred).
_____

3. Did VLO's presentation (interface, colors, buttons, forms of interaction, etc.) motivate you to use it (made you wanted to interact with it and discover its possibilities of use)? (Answer the question by assigning a grade according to your opinion.)
(1) Motivated a lot (2) Motivated (3) Motivated slightly (4) Inhibited (5) Inhibited very much

3.1. If you did not like it, why didn't you?_____

3.2. Would you have any suggestions regarding changes in the forms of presentation and interaction?
_____

4. In your opinion, did the VLO present clear instructions? (Answer the question by assigning a grade according to your opinion.)
(1) Very clear (2) Clear (3) Slightly clear (4) Confusing (5) Very confusing

5. Does the VLO allow users to decide how they want to navigate (for example, by offering different paths)?
( ) Yes ( ) No

6. Was VLO's language appropriate for you? (Answer the question by assigning a grade according to your opinion.)
(1) Very easy (2) Easy (3) Neither easy nor difficult (4) Difficult (5) Very difficult

Block II – Regarding the curriculum content developed from the learning object

7. Did the VLO help you to understand bioethics' content? (Answer the question by assigning a grade according to your opinion.)
(1) It helped a lot (2) It helped (3) It helped slightly (4) It didn't help (5) It hindered understanding

7.1. How did it help you? _____

8. In your opinion, was the VLO efficient (it helps learning a great deal in a short space of time)? (Answer the question by assigning a grade according to your opinion.)
(1) Very efficient (2) Efficient (3) Less efficient (4) Not efficient (5) There was no learning

9. How do you consider the textual content presented by the VLO to develop the topic of bioethics? (Answer the question by assigning a grade according to your opinion.)
(1) Very good (2) Good (3) Indifferent (4) Regular (5) Inconsistent

9.1. Why? _____

10. How do you consider the visual content presented by the VLO to develop the topic of bioethics? (Answer the question by assigning a grade according to your opinion.)
(1) Very good (2) Good (3) Indifferent (4) Regular (5) Inconsistent

11. Did the VLO offer you the opportunity to consolidate the bioethics content and practice?
( ) Yes ( ) No

11.1. Why?_____

11.2. In your opinion, which bioethics contents were more consolidated due to the use of VLO?
_____

12. Did the VLO arouse your curiosity to seek new related content to deepen the topic of bioethics?
( ) Yes ( ) No

12.1. If so, how did it occur? _____

13. Did you need prior knowledge to carry out the activities that the VLO offered?
( ) Yes ( ) No

14. Did you use the information provided via the links (texts, graphics, tables, newspapers reports, etc.) in the proposed activities?
( ) Yes ( ) No

14.1. Why? _____

Block III –Teaching and learning dynamics

15. Did the VLO offer a different way to understand the topic of bioethics? (Answer the question by assigning a grade according to your opinion.)
(1) Very different (2) Different (3) Slightly different (4) It offered no difference (5) It didn't allow comprehension

16. Regarding how the VLO was used, was there integration with other discipline activities? (Answer the question by assigning a grade according to your opinion.)
(1) Very integrated (2) Integrated (3) Indifferent (4) Slightly integrated (5) Not integrated

16.1. Why? _____

17. Were the exercises performed by you through the VLO shared with your colleagues? (Answer the question by assigning a grade according to your opinion.)
(1) Very shared (2) Shared (3) More or less shared (4) Slightly shared (5) Not shared

17.1. If positive, please describe your experiences:
_____

Block IV – Final considerations

18. What is your opinion regarding the use of VLO? (Answer the question by assigning a grade according to your opinion.)
(1) I liked it very much (2) I liked it (3) I slightly liked it (4) I disliked it (5) I disliked it a lot

19. What was the biggest advantage of VLO?
_____