

Bioethics Programme through Open and Distance Learning Mode using ICT Aids: An Innovative Design

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Abstract: Physicians worldwide, follow the International Code of Medical Ethics. Medical ethics is focused on medical practices, whereas the broad area is Bioethics. Recognizing the need for Bioethics, School of Health Sciences (IGNOU) in collaboration with Indian Council of Medical Research launched one year Post Graduate Diploma in Bio-Ethics programme in 2011. The design of the programme followed pedagogical steps. The innovative features of the programme were the Curriculum, Interactive Design, which included appropriate media, OERs, interactivity, assessment, discussion forum. The programme will help the students to put into practice ethical principles while conducting bio-medical research and health research.

Key words: *Bioethics, Blended learning, Distance education.*

Introduction

Bio-medical and health research, such as drug trials and stem cell research requires the participation of human volunteers or experimental animals (research participants). There is a need to protect the welfare of these research participants. There are certain ethical, legal and social issues involved in the protection of the research participants, which are addressed under the subject of bioethics. There is an increasing need to practice bioethics in bio-medical and health research.

The physicians worldwide, in general, need to follow the International Code of Medical Ethics. This code was adopted by the World Medical Association in 1949 to establish the ethical principles based on the duties of the physicians to his patients and to his colleagues. However, medical professionals increasingly find themselves confronted with moral questions and ethical dilemmas. The development of advanced technology on the one hand has provided treatment for diseases and rise in life expectancy, but on the other hand there are many issues and challenges regarding ethical dilemmas faced by doctors and nurses. The changing context in which health care is provided has created new challenges in medical ethics for the health workers and health researchers (Elsayed & Ahmed, 2009).

Medical ethics is focused on medical practices, whereas the broader area is bioethics. Bioethics is concerned with the moral issues associated with the development of biological sciences, including health sciences.

Educational programmes on bioethics are being offered worldwide by UNESCO to address this issue. The UNESCO has established the Chair of Bioethics Haifa in 2001 and at present there are 114 Chairs worldwide. It coordinates an International Network of Institutions for Medical Ethics Training (NIMED). The NIMED associates with higher education institutions in developed and developing countries and designs syllabus for medical ethics education. There are nearly 25 Chairs of Bioethics Haifa in India. Regular ethics training of teachers are being held in medical colleges and universities (Deshpande, 2016).

The major medical organizations in India, such as the Indian Medical Association, the National Board of Examinations, and the Medical Council of India have recognized the importance of bioethics and some of them have formed bioethics units. The Vice Chancellors of several health universities have also formed bioethics groups and joined the movement (Deshpande, 2016).

The Programme

Recognising the need for a bioethics course, Indian Council of Medical Research under the project 'Centrally Co-ordinated Bioethics Education in India', in collaboration with the School of Health Sciences (SOHS) of Indira Gandhi National Open University (IGNOU) launched a one-year Post Graduate Diploma in Bio-Ethics (PGDB) Programme in 2011. The Programme was designed for learners having a graduate degree in any discipline and working in healthcare services, social sciences and philosophy, etc., or for those who were engaged in activities related to institutional ethics committee.

The main objective of the Programme was to equip the learners with the necessary knowledge and skills to develop as leaders in teaching of bioethics and its application at various levels and settings.

The Programme was of 32 credits and comprised nine courses. It covered a wide range of topics in bioethics, such as philosophy, ethics in clinical and social science research related to health, research methodology, education and communication technologies, research ethics, and health related laws. The duration of the Programme was one year (SOHS, 2014).

The method of instruction at IGNOU differs radically from that of the other conventional universities. The University has adopted a multimedia approach to instruction. The different components are self learning materials, and counselling sessions; both face-to-face and via *Gyan Vani* and *Gyandhara*. For courses in

Health Sciences, arrangements have been made to enable students undertake practical classes at select study centres (RSD, 2018).

The Programme (PGDB) was offered online. It included various methodologies of learning, such as virtual class, online study material, online assignments, face-to-face contact sessions, presentations and offline examination (ICMR, 2012).

Need for Innovation

In early 2014 the SOHS in collaboration with the National Centre for Innovation in Distance Education (NCIDE) decided to modify the online content with the aim to find innovative ways and strategies to offer the programme. Accordingly, a few Units of the Programme were modified by the SOHS and NCIDE faculty with the *eGyankosh* staff and presented to the University authorities for approval.

Technological and Pedagogical Considerations

Although technology plays a key role in the delivery of distance education, educators must remain focused on instructional outcomes. The key to effective distance education is focusing on the needs of the learners, the requirements of the content, and the constraints faced by the teacher, before selecting a delivery system. Typically, this systematic approach will result in selecting and implementing a mix of media, each serving a specific purpose (Wills, 1994), that would give rise to a blended mode of learning.

Researchers and educators have explained the meaning of blended learning in a variety of ways, which ranges from a supplemental addition of a web-based tool for a course to a more pedagogical blend of instructional online tools that support learning (Mathur & Oliver, 2007). Essentially, the use of blended learning is a new way of teaching-learning in higher education. Students need to learn the material in a novel interactive way that would take into account the individual needs and interests, so that these skills may be transferred in the real-world settings. A blended learning approach provides room for the development of autonomy, self efficacy, and individual organizational skills since certain pieces of the program are self-regulated and provides consistency in learning.

Studies have indicated that blended learning courses have improved the quality of learning experience for learners (Jagannathan, 2006). Blended learning programmes allow students to undertake part of their learning activities online, reducing the time they are required to attend face-to-face lectures. This can help learners in rural areas, with mobility problems, with family commitments and/or who are employed, thus increasing accessibility of the programme. The flexibility offered by blended learning is very attractive for employed learners who desire to upgrade their knowledge.

Learners always look for flexibility in time, space, place, content selection and delivery of instructions. It was quite impossible to satisfy such requirements in earlier times due to the non-availability of proper tools. It is now feasible and possible to implement open and flexible learning strategies using information communication technology (ICT) as tools (Majumdar, 2014). A study highlighted that student's learning and teacher's teaching could be enhanced by technology if used appropriately (Kadagidze, 2014). Technology could encourage more independent and active learning among students. A key reason for the use of technology within a learning situation is to enhance the quality of learning and teaching. Computer-based online discussions or online forums have been used in a wide range of higher education setting to provide major learning environments for distance education or to supplement face-to-face discussions.

Integrating ICT into teaching and learning always places pedagogy over technology; it involves using ICT to improve teaching and learning. The aim is to improve learning, motivating and engaging the learner, further it helps in self learning, creativity and critical thinking. Therefore it was decided to modify the instructional design in an innovative way, adding media and open educational resources (OER) links, integrating interactivity and discussion forums etc. A new online package was thus conceptualised.

Design and Development

The design and development of the online package was carried out stepwise as follows.

1. The first step was brainstorming and exploring the various innovative ideas.
2. The second step was to review the units and short listing various mediums and methods.
3. The third step was to distribute the content to the faculty members for re-writing. The writers were requested to add various innovative features judiciously to the content as per its requirement. Creative elements such as quiz, interesting facts, graphics etc., were added.
4. The fourth step was to revise the units with the addition of web-links, OERs, audio-video links, check your progress, PowerPoint slides, and discussion forum.
5. In the fifth step, the members reviewed the unit and discussed the changes required, and the units were re-revised.
6. The sixth step was to select content for the development of audio-video and writing scripts for audio-video.
7. The seventh step was to record audio-video programmes, edit them, and integrate them with PowerPoint slides and with the content.

8. The eighth step was to review the Units again and finalize them.
9. The ninth step was to present the package to the IGNOU authorities.

Innovative Features

This was first time in the university that it was proposed to provide e-content with the print material along with the following innovative features:

1. **Curriculum:** This was the first academic programme on bioethics in India to be offered through the ODL system and online mode.
2. **Instructional Design:** The Units were creatively designed using the various elements as follows:
 - a) **Appropriate Sequence and Segments:** The content in the Units were broken into appropriate sequences and segments. These were enriched with teaching aids, such as tables, figures, illustrations etc., to make the content attractive and easy to understand by the learners of different aptitudes. Breaks were provided for questions and comments. Figure 1 highlights the reorganized content.

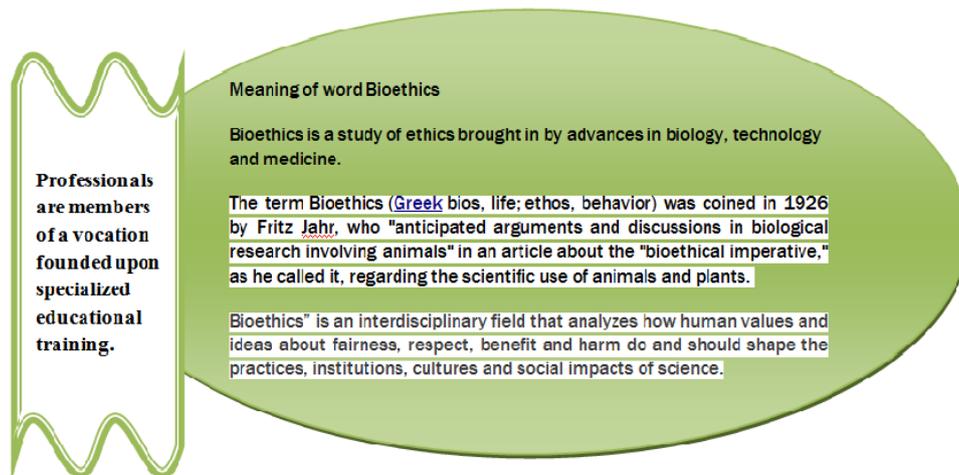


Figure 1: Reorganized content

- b) **Appropriate Media:** Various media were added at the relevant places in the Units. These media are:
 - i) Web links
 - ii) Videos
 - iii) Audio, and
 - iv) PowerPoint Content

Box 1 illustrates how the web links were judiciously provided for content at appropriate places.

Box 1: A screenshot showing the web links in the Unit

In the areas of clinical practice and in conducting research among humans, it is highly unlikely to hold onto rules and principles that are absolute, as there are many variables. The Universal three principles in Bioethics however serve as powerful guides in clinical medicine and research. These moral principles have been accepted to a large extent in the moral analysis of ethical issues in medicine and research. Tom L. Beauchamp and James F. Childress in *Principles of Biomedical Ethics* have put forth four principles namely *Autonomy, Beneficence, Malfeasance and Justice*. We will consider them one by one.

<http://www.utcomchatt.org/docs/biomedethics.pdf>

http://archive.journalchirohumanities.com/vol%2014/jchiroprhumanit2007v14_34-40.pdf

Providing a rich multimedia is beneficial for the students' learning as they can access resources wherever they are and whenever they need. Audio and video media can be very useful for showing real scenarios in field and clinical areas, and can act as a trigger for discussion forums. For this package, PowerPoint presentations with integrated audio and video were prepared by the faculty members.

- c) *Open Education Resources*: An attempt was made to enrich the content of PGDBE Programme through OER. When the International Council for Open and Distance Education (ICDE) launched its global Open Educational Resources (OER) Task force in November 2006, it was said that: "One of the main driving forces for efficient and quality e-learning in the future is likely to be OER, which is a tremendous opportunity for everyone to share, use and reuse the world's knowledge." The main assumption here was that e-learning has a major presence in the teaching practices of academics and that the latter are aware of the potential improvement in the quality of the design and delivery of their content (Gunness, 2006). Some of the links are given in Box 2 below.

Box 2: Some Links of OER used in the Programme

<http://www.jewishvirtuallibrary.org/jsourc/Holocaust/medtoc.html>

http://www.usmmm.org/wlc/en/media_ph.php?ModuleId=10005168&MediaId=917

<http://www.deathcamps.info/Experiments/experiments.htm>

http://www.usmmm.org/wlc/en/media_ph.php?ModuleId=10005168&MediaId=1674

http://www.usmmm.org/wlc/en/media_ph.php?ModuleId=10005168&MediaId=1412

<http://www.genocide.capote.dk/>

http://www.usmmm.org/wlc/en/media_ph.php?ModuleId=10005168&MediaId=781

- d) *Interactivity*: Students need to be actively involved with the learning material and one of the methods to involve them is interactivity quiz in which a situation and the solution options are provided by the teacher. The learner finds a correct answer and an immediate feedback is provided to the learner. To encourage learner participation, interactivity was built in the Units in the form of quiz (Box 3), drag and drop activities etc.

Box 3: A Screenshot of an Interactive Quiz

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|--|
| <p>Q3 : After the release of Helsinki Declaration who among the following published in a reputed journal about lack of adherence to ethical principles evidenced in publications of trials conducted by renowned physicians?</p> <p><input type="radio"/> John Gregory</p> <p><input type="radio"/> Thomas Percival</p> <p><input type="radio"/> Warren Reich</p> <p><input checked="" type="radio"/> Henry Beecher</p> <p><input type="radio"/> Tom Beauchamp</p> |
|--|

- e) *Conclusion*: The concluding section of a Unit helps to bring a logical end to a Unit and summarize or repeat the concepts discussed in it. There are many ways to write a conclusion. One may write what learners have learnt in a particular unit, including what they will learn in the next Unit or the next course. The concluding section of the Units was presented as a quick recap as the “Let Us Sum Up” section, that highlighted the important points (Figure 2).

Appropriate assessment: Assessment is an ongoing process to know about the progress of the learner and provide evidence for informed decisions for the future. Designing of an effective pedagogy needs feedback on what students are learning, and their status or levels of learning. This feedback provides valuable inputs to the teacher to plan future lessons for the students. The various forms of assessment are the Unit-end questions, assignments and term end examination. Besides these forms of assessments the Units have the ‘Check Your Progress’ segments for self assessment. In this online package, these assessment questions were creatively designed to cater to the different levels of comprehension of the learners with an aim to enhance those levels.

Discussion Forum: A discussion forum enables teachers and learners to interact with each other by discussing topics related to certain themes. This also helps in improving the communication skills, critical thinking and knowledge construction skills of the learners. A discussion forum was designed for feedback and motivation of the students. A sample is presented in Box 4.

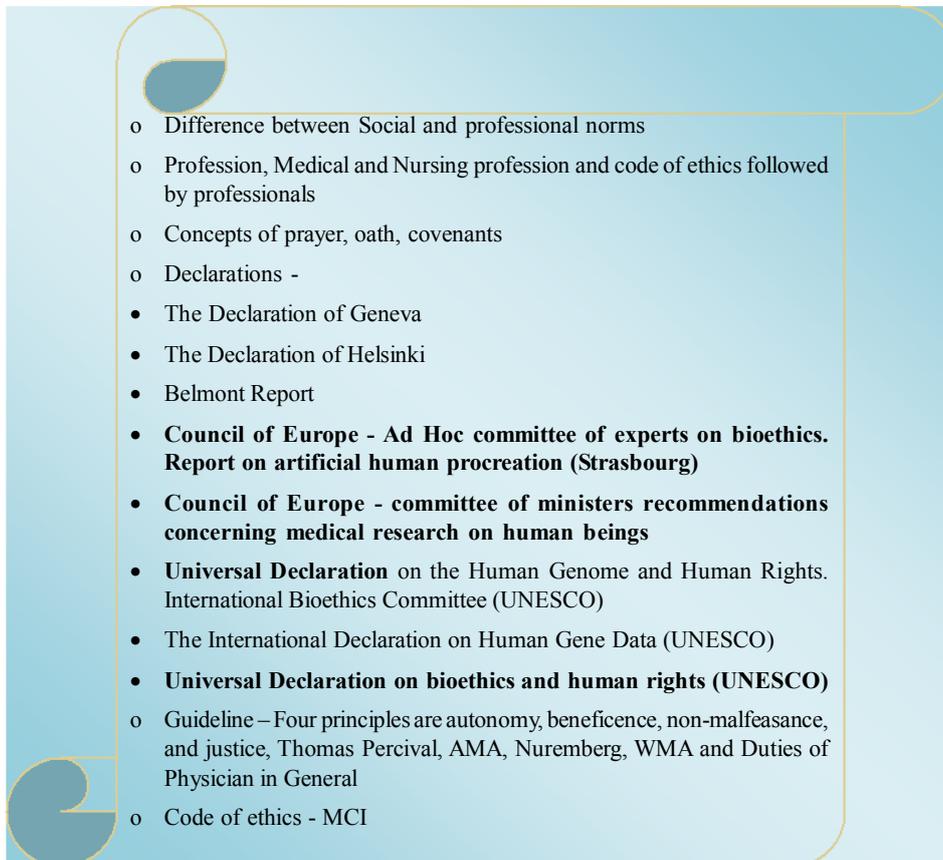


Figure 2: A Screenshot of the Concluding Section

Box 4: A screenshot of the discussion forum

Discussion Forum

What is the relevance of these principles in research? Discuss with examples from your setting.

Each student will participate in discussion and critically analyze the situations given by others.

Transfer of Skills

Transfer of learning is usually described as the process and the effective extent to which past experiences affect learning and performance in a new situation. Knowledge transfer involves the application of previously learned knowledge while completing tasks or solving problems (Wikipedia, 2018).

It is envisioned that the Post Graduate Diploma in Bio-Ethics (PDGBE) programme, will help the students to put into practice ethical principles while conducting bio-medical research and health research, to follow the guidelines for institutional ethical clearance, and design consent form in detail for the consent of the research participants. They will be able to understand the underlying concepts related to bioethics and apply wherever required. Discussion forum and inbuilt exercises will help them to discuss various situations and case studies to apply ethical principles and follow guidelines, and critically analyse the strength and weakness of the case studies discussed. The students will be able to recall and follow the code of ethics of their profession and apply the ICMR guidelines discussed in the real world. Students in their working situations, who are also members of ethical committees, will be able to apply these while discussing proposals in the real world, which will also help them to reflect their own thinking.

Future Steps

In 2017, the University Grant Commission published the Open and Distance Learning Regulations, 2017. It provides the opportunity to integrate all the above strategies for the learners as highlighted in its definition of Open University, Open and Distance Learning, and Self Learning Material. It is interesting to note that as per the Regulations, “Open University” means a University which imparts education through distance education or Open and Distance Learning mode using variety of Information and Communication Technology i.e., online education in the form of Open Educational Resources (OER) or Massive Open Online Courses (MOOCs) etc., (UGC, 2017, p 39). Open universities can design and develop such innovative online programmes.

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