D 2.3 List of priorities and dissemination strategies for ERI training programmes

Project Details

Project full name	Virtue based ethics and Integrity of Research: Train-the-Trainer programme for Upholding principles and practices of the European Code of Conduct for Research Integrity
Project acronym:	VIRT^{2}UE
Start date of the project:	01.06.2018
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Deliverables details

Work Package	Work package 2 : Mapping the educational resources
Description of the deliverable	List of priorities and dissemination strategies for ERI training programmes in Europe
Work package leader	KU Leuven
Responsible for the deliverable	Kris Dierickx
Submission date	November 30th, 2019
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Background

VIRT^{2}UE aims to develop a sustainable train-the-trainer blended learning program, enabling contextualized Ethics and Research Integrity (ERI) teaching across Europe focusing on understanding and upholding the principle and practices of the European Code of Conduct (ECoC). VIRT^{2}UE will provide a toolbox of educational resources, based on existing material, incorporated in an e-learning course, alongside a face-to-face session. The online session will provide educational material as preparation for the face-to-face training and on specific RI-related contents. The face-to-face session will focus on learning how to apply in concrete the contents in daily practice. In undertaking the training program, trainees will:

- Have in-depth knowledge of RI-related issues (e.g. data management, publication ethics, research misconduct and unacceptable research practices)
- Understand RI as a core element of daily research practices
- Understand how to apply the acquired knowledge to concrete situations
- Develop virtues and understand how to use them, alongside the knowledge acquired, in complex moral dilemmas

Preparatory work (WP2)

Identifying and consulting different stakeholders involved (in)directly in RI-related topics, to understand existing capacities and lacunas in RI educational resources, was underlined in the proposal as the overall objective of the WP. Information about the state of the art of RI educational resources and practices was collected:

- Reviewing RI training literature and practices
- Collecting and reviewing RI educational resources
- Performing different focus groups with selected stakeholders

Looking at the format, timing and frequency, and learning approach of the training programs within the European context shows that the situation is largely fragmented. Training sessions are mainly organized for PhD students with a background in biomedical sciences. In some cases, the training session is delivered using a blended learning approach made by online plus face-to-face sessions. In others, one single face-to-face session is organized to provide basic information on the topic. In the majority of the cases, the training provides information related to topics such as research misconduct (FFP), authorship, data management, conflict of interest and peer review.

Looking at the educational resources collected, there seems to be no urgent need to develop new educational materials that describe guidelines, principles and norms. However, within our collection, there are very few resources using a virtue-based approach. The collected resources use mainly a norm-based approach.

Looking at the outcomes of the stakeholders' consultations, a blended learning program is seen as the best approach possible to give such training. According to them, the online session has to provide knowledge-based information, whereas the face-to-face phase has to provide more value-based, tailored and discussion sessions. During the consultations, the participants suggested that the use of a value/virtue-based approach in RI training should not exclude the basic knowledge provided by the norm-based approach. They also suggested that the face-to-face should provide reflective sessions on specific virtues at stake in particular dilemmas but also provide tailored dilemmas and scenarios for specific needs. In addition, using a virtue-based approach implies a certain knowledge on virtue ethics, which seems not to be the case for many researchers who do not have a background in humanities. Thus, it would be necessary to allocate some sessions to train those people.

Published educational interventions were primarily developed in biomedical and health sciences, and targeted at students, including undergraduate, graduate and PhD students. Interventions focused mainly on research ethics or responsible conduct of research, with only a few based specifically on research integrity. Guidelines, principles and codes were usually addressed in the training, while decision-making and processes were less represented. Including ethical decision-making processes, such as virtues and personal biases, improves effectiveness of training[1]. The majority of the trainings were delivered face-to-face, with a focus on lectures and case based discussions. Previous review showed that blended learning is more effective in ethics courses that cover both process and compliance based content[2]. Case-based activities that encourage active participation are recommended for effective education in research ethics[3]. Trainings that reported assessment of participant oriented outcomes could be categorized into three groups: 1) assessment of knowledge of ERI, through multiple choice and/or open ended questions, 2) assessment of ethical awareness (participants' self perception) through open ended questions and essays, and 3) assessment of ethical decision making and/or intention to change behavior. Assessments were usually done only post intervention.

[1]Watts LL, Mulhearn TJ, Medeiros KE, Steele LM, Connelly S, Mumford MD. Modeling the Instructional Effectiveness of Responsible Conduct of Research Education: A Meta-Analytic Path-Analysis. Ethics & Behavior (2016)27(8), 632–650.
[2]Todd EM, Watts LL, Mulhearn TJ, Torrence BS, Turner MR, Connelly S, et al. A Meta-analytic Comparison of Face-to-Face and Online Delivery in Ethics Instruction: The Case for a Hybrid Approach. SciEng Ethics (2017) 23: 1719.
[3]Todd EM, Torrence BS, Watts LL, Mulhearn TJ, Connelly S, Mumford MD. Effective Practices in the Delivery of Research Ethics Education: A Qualitative Review of Instructional Methods. Account Res (2017) 24:5, 297-321.

Consensus meeting

In order to reach a consensus about the priorities that the project has to take into consideration in the development of its training program, a meeting with experts was organized. The meeting gathered stakeholders from VIRT^{2}UE consortium and other EU funded RI projects.The aim of the meeting was to reach a consensus about which contents, format, needs and lacunas will get priority in the development of the VIRT^{2}UE training program. Based on our work, the topics of discussion during the consensus meeting were the following: **overall focus of the VIRT^{2}UE training, format and learning approach in the VIRT^{2}UE training, training and research culture, assessment and certification.**

The consensus meeting lasted 90 minutes.

The overall focus of the training

> The development of the RI training programs implies the identification of the overall focus of the training. Based on the literature[4,5] and on our work, we can identify two major objectives. On the one hand, trainings aim is to provide knowledge-related information, prioritizing rules, norms and guidelines. On the other hand, a value/virtue-based training focuses on fundamental values and on the moral character that are important to foster good research(ers). Current online educational resources and RI training programs give priority to knowledge rather than fostering values. However, based on our consultations, both objectives are important and one should not exclude the other. After discussion, participants stated that for the VIRT²UE training:

> - *The training program should give priority to a value/virtue-based approach, providing at the same time basic RI-related knowledge.*

> - *A training that focuses on fundamental values and virtues implies the development of a training that is general, and non-customized for disciplines or seniority. However, the implementation of the training should reflect differences in background and career level.*

Format and learning approach in the VIRT^{2}UE training

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[4]Spjm Horbach and W Halffman, "Promoting Virtue or Punishing Fraud: Mapping Contrasts in the Language of 'Scientific Integrity,'" *Science and Engineering Ethics* 23, no. 6 (2017): 1461–85, https://doi.org/10.1007/s11948-016-9858-y.
[5]D B Resnik, "Ethical Virtues in Scientific Research," *Accountability in Research-Policies and Quality Assurance* 19, no. 6 (2012): 329–43.

The two main approaches found in the development of RI training take into consideration the use of the online format made by e-learning modules and the face-face-face format made by in-person sessions. Based on different sources (literature[6,7], review of RI practices and stakeholders' consultations), it was clear that a blended learning approach is better for this typology of training. The online session provides mainly knowledge-based information on guidelines, norms and rules on RI-related topics. Organizing the face-to-face session implies a choice between two different approaches: on the one hand, a passive approach made by lectures, on the other hands, a (pro)active approach made by *exercises.* The literature[8,9] and our consultations suggest that an active approach is more effective. After discussion, participants stated that for the VIRT²UE training:

- *A blended learning program (online training + face-to-face training) is to be preferred*

- *In the face-to-face sessions, an interactive approach is to be preferred.*

Training and research cultures

The project aims to implement the train-the-trainer program across Europe. Therefore, the project will be facing cultural differences between countries. Researchers from different countries can have different perceptions about the meaning or the importance of virtues/values and concepts in RI and there is strong evidence for a difference between nations and the importance they attached to various virtues[10]. In addition, during our consultations, the participants agreed that RI training has to be organized mainly at the local and regional level. After discussion, participants stated that for the VIRT²UE training:

- *The training should to be aware of differences in culture and regulatory frameworks and be organized at the local and regional level.*

[6]E M Todd et al., "A Meta-Analytic Comparison of Face-to-Face and Online Delivery in Ethics Instruction: The Case for a Hybrid Approach," *Science and Engineering Ethics* 23, no. 6 (2017): 1719–54.

[7]Ruth Ellen Bulger and Elizabeth Heitman, "Expanding Responsible Conduct of Research Instruction across the University," *Academic Medicine* 82, no. 9 (2007): 876–78.

[8]Norbert Michel, John Cater, and Otmar Varela, "ACTIVE VERSUS PASSIVE TEACHING STYLES : AN EMPIRICAL STUDY OF STUDENT LEARNING OUTCOMES" *Small Business Institute National Proceedings* Vol. 33, no. 1 (2009): 55–67.

[9]Marilia Grp Avaliacao Fac Med, "EVALUATION OF ACTIVE LEARNING IN HEALTH GRADUATION," *Revista San Gregorio*, no. 16 (2017): 60–69.

[10]Jan Pieter van Oudenhoven et al., "Are Virtues National, Supranational, or Universal?," *SpringerPlus* 3, no. 1 (2014): 1–12, https://doi.org/10.1186/2193-1801-3-223.

Assessment and certification

Virtue-based learning implies a combination of acquiring knowledge of general principles and learning how to apply them in practical situations, focusing on fostering the researchers' moral character. After discussion, participants stated that for the VIRT²UE training:

- *The organizers should develop proper assignments. The completion and submission of these assignments should reflect the commitment and the activities of the participants before, during and at the end of the training.*

- *The successful completion of these assignments results in a VIRT²UE trainer certificate.*

Moderators of the meeting

Prof. Kris Dierickx (EnTIRE, VIRT^{2}UE, SOPs4RI) andDrs Daniel Pizzolato (VIRT^{2}UE, SOPs4RI)

List of participants and related EU funded project

- Dr. Nicole Foeger, as member of VIRT^{2}UE, ENERI, SOPs4RI and former chair of ENRIO

- Prof. Ana Marusic, as member of VIRT^{2}UE, EnTIRE, SOPs4RI, HEIRRI

- Mr.Tom Lindemann, as member of VIRT^{2}UE, ENERI, EnTIRE and Path2Integrity

- Prof. Guy Widdershoven, as coordinator of VIRT^{2}UE, EnTIRE

- Dr. Panagiotis Kavouras, as member of VIRT^{2}UE, ENERI, SOPs4RI, PRO-RES and EARTHnet network

- Prof. Bert Molewijk, as member of VIRT^{2}UE and EACME

- Dr. Maura Hiney, as member of the VIRT^{2}UE advisory board, SOPs4RI, ALLEA P{WG Science and Ethics and Co-chair of ENRIO

- Dr. Ton Hol, as chair of LERU