Deliverable 4.2

Delivery of first MOOC courses for VIRT²UE toolbox

D4.2 Delivery of the first MOOC courses for VIRT²UE toolbox

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:	VIRT2UE
Start date of the project:	01.06.2018
Duration:	36 months
Project number:	N 787580
Delivery date	31.01.2020
Deliverable details	
Work Package	WP 4 Development of training materials for online use
Deliverable description	D4.2 Delivery of the first MOOC courses for VIRT2UE toolbox
Work package leader	Nicole Foeger
Authors and editors	Armin Schmolmueller Fenneke Blom Marc van Hoof Nicole Foeger Rien Janssens

Overview

Introduction and summary

This deliverable describes the results of Task 4.3. Content development and adaptation for a MOOC. The aim of this task was to adapt and incorporate the educational materials, as they were assembled in WP2 and developed in WP4, in a MOOC. This deliverable reports on the development of the first three MOOC courses for the VIRT^{2}UE toolbox.

The purpose of these three MOOC courses is twofold: They are designed in a way that they may serve as a preparation for the research integrity training building upon virtue ethics as provided by VIRT^{2}UE, but also as a standalone online training for any interested researcher, research integrity trainer, or student.

Analysis of requirements

eLearning authoring tool

As was already indicated in D6.1 (Pilot version of the eLearning platform is online), the Open EdX platform proved to be technically challenging and the user interface seemed not flexible enough for customization. These aspects have been further evaluated, also from an educational perspective. The conclusion is that Open Edx and comparable open source eLearning tools (Eliademy, Moodle, Adapt, Canvas, Coursera, h5p have been explored by WP4) do not constitute alternatives that would allow the development of interactive and engaging learning exercises to reflect an educationally sound relationship between virtue ethics and research integrity. That is, each of the open source authoring tools reflect the assumption that in education there is always a *right* and a *wrong*. Therefore, it was decided to build the eLearning course with the authoring tool Articulate Storyline (https://articulate.com/). The advantages of Articulate Storyline over Open Edx are, among others, that the user experience/flow can be tailored to the needs and characteristics of the content (e.g. linear or explorative navigation) with interactive exercises (many built-in functionalities, but with the option to create exercises without programming skills). Another advantage of Articulate Storyline is that it allows for a customized and consistent design in line with the corporate identity (CI) of the Embassy of Good Science. It was decided that the educational requirements of a virtue ethics approach to research integrity to be the primary concerns in the selection of an eLearning authoring tool to use.

Availability of adequate educational materials

As was assembled in WP2 (cf. D2.1. Review of the existing ERI training literature and practices), none of the existing materials were specifically designed and developed to foster virtues in ERI trainings, although some of the existing materials do mention scientific values and virtues (as they are found in several national and international codes of conduct).
Therefore, new online educational materials and exercises were and will be developed and adapted with the specific aim to provide an educationally sound relationship between virtue

ethics and research integrity, and the corresponding and underlying concepts. Thus, the online modules aim to provide a basic understanding of several concepts, like virtues, values, norms, moral dilemma and moral conflict, and how these concepts interrelate within the research environment. The courses build upon the results of the work of WP1 and WP2 (cf. D1.1. and D2.1.), for example the list of virtues assembled by WP1, as well as the use and/or the adaption of already existing materials (videos, Rotterdam Dilemma Game, etc.) as assembled by WP2. Moreover, the eLearning course consists of newly developed learning exercises that are based on, or inspired by empirically based educational measures found in literature.

General pedagogical requirements and overall educational rationale

The eLearning modules described below aspire to do justice to the three pedagogical principles outlined in the grant agreement: Learner-centeredness to encourage deep learning, constructive alignment, and the application of research- and evidence-based methods.

It is assumed that from a motivational perspective, adult learners are more likely to engage with educational materials if they encourage learners to develop new competences beneficial in their daily work. In that sense, it is assumed that the eLearning courses need to start, where the learners are.

Therefore, the modules are interactive, i.e., they not only aim to provide content, but also to facilitate reflection among participants on their individual experience with a variety of learning exercises. Given that an eLearning course is standardized, and contextualization (e.g. discipline) and localization (e.g. national rules and guidelines) are rather difficult to achieve, the eLearning modules draw upon the knowledge and experience of each learner. It requires learners to fill in the blanks for themselves, and appropriate the European Code of Conduct for Research Integrity (ECoC)[1] and the virtue ethics approach to themselves in their respective research context. This way, the need for adapting the educational materials developed by VIRT²UE are to some degree built into the courses.

Also, it is likely that at least some prospective learners may have reservations towards, or even disapprove of, online learning. To address these concerns, a clean visual design, an intuitive navigation, an inclusive tone of voice that guides through the storyline of the modules, among others, were applied. These measure aspire to minimize any means of frustration that could come between a motivated learner and an active engagement with the eLearning courses.

Modularity within the blended learning framework of VIRT²UE

A conceptual framework for the blended learning approach to the Train-the-Trainer program was developed in close cooperation with WP3. This framework builds upon the notion that in a blended learning setting, online and offline time should be used strategically. Therefore, it was evaluated, which educational materials were needed to complement the face-to-face training

---

[1] ALLEA - All European Academies (2017). The European code of conduct for research integrity (Revised Edition). Berlin: ALLEA - All European Academies.

developed by WP3. While online materials are designed for individual learning and reflection, the face-to-face training aims to create opportunities for interactive, reflective and problem-solving group activities. Working with philosophical concepts (like virtues, norms, moral dilemma) in interactive group activities requires a mutual and consolidated understanding of these concepts, shared by each participant. Therefore, the online materials are designed to provide a basic understanding of the respective concepts, and how these concepts interrelate within the research environment. The VIRT^{2}UE blended learning training is designed to be more than the sum of its parts, and some parts need to be modified or adjusted based on the respective audience of the trainers to be trained. The three eLearning modules described below (Figure 1) can be brought into a hierarchical order, the course "***Research Integrity in a Nutshell***" (1) can be seen as the most basic, since it introduces the learners to research integrity, and suggests a contextualized reading of the ECoC. The eLearning course "***Introduction of virtue ethics to research integrity***" (2), presupposes a basic understanding of the principles of research integrity and thereby focusses more on introducing the relevance of virtue ethics to research integrity. The third course, "***Applied virtue ethics – To make a virtue of necessity***" (3) is presupposing prior knowledge and self-reflection about research integrity and the relevance of virtue ethics for research integrity. It addresses more systemic issues, like performative pressures in research, and relates these to virtue ethics and the individual experience of the researcher.
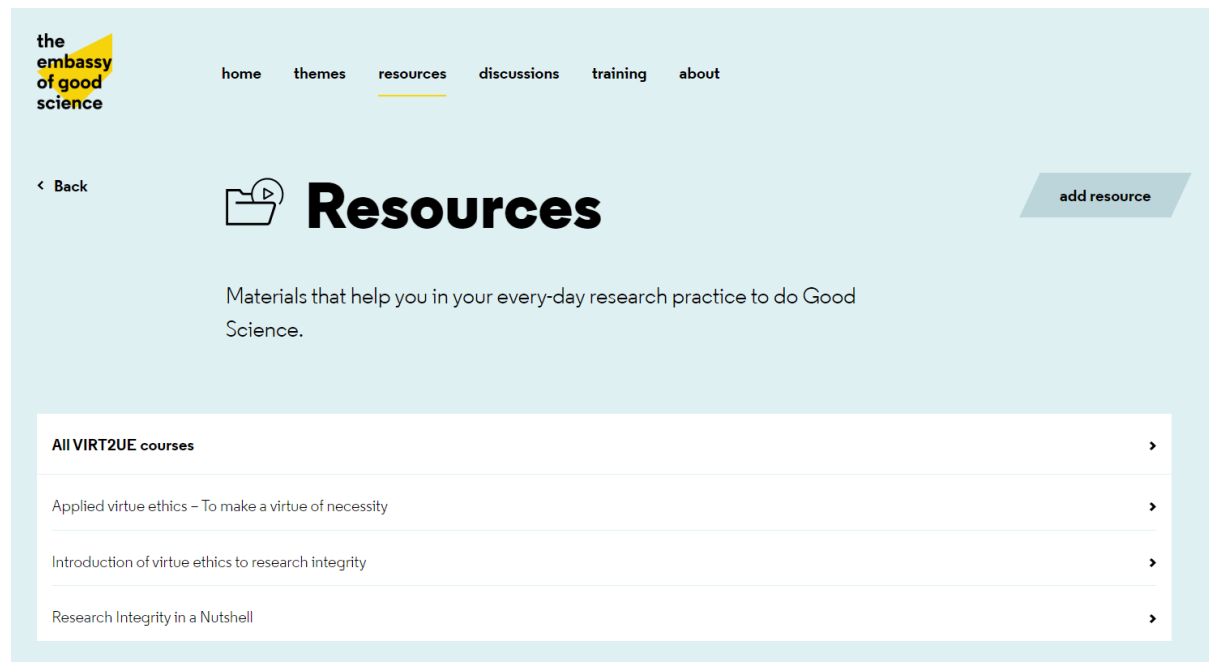

Figure 1. An overview of the courses which have been created by VIRT^{2}UE and are hosted on the staging platform of The Embassy of Good Science. This page can be reached using this link and the login user '*preproduction*' with password '*s8dfKjsh2dEfhksjdn*'.

The hierarchical and modular structure of the courses therefore allows for more flexibility for trainers and trainees alike. For trainers, it may be necessary to tailor the assignments to the level of expertise of their trainees. A trainer may need to assign different preparatory exercises

before the face-to-face training, depending on whether their trainees are e.g. PhD students, or research integrity experts. The latter group may not need to engage with the module "***Research Integrity in a Nutshell***", while this course can be a good preparation for the training of PhD students. Likewise, if an interested researcher has sufficient knowledge about research integrity, but not enough regarding a virtue ethics approach to research, he or she may find in the modules (2) and (3) a source of inspiration, or engage in self-reflection about him or herself as a researcher in the respective eLearning module.

The first three courses

(1) Research Integrity in a Nutshell

This eLearning module aims to provide an overview of the main principles of research integrity and proposes a contextualized reading of the ECoC.

The intended learning outcomes are as follows:

- *Learners need to identify the purpose and the structure of the ECoC.*
  Throughout the module, the ECoC is introduced and quoted as an important source of reference. A drag-and-drop exercise aims to familiarize the learner with the document's structure, and also introduces some norms outlined in the document. In another exercise, learners are invited to reflect on breaches of selected norms quoted from the ECoC.
- *Learners need to distinguish between responsible conduct of research, research misconduct, and questionable research practices and link this to the ECoC.*
  In the module, the difference between responsible conduct of research, research misconduct, and questionable research practices is exemplified explicitly and/or implied, e.g. regarding the prevalence and impact of research misconduct and breaches of responsible research practices, and explore which norms of the ECoC are violated in case of certain research misbehaviour.
- *Learners need to understand various factors that influence research behaviour and their own responsibilities in that.*
  In the module, possible reasons for research integrity violations and some corresponding consequences for researchers are made explicit on three aspects: individual researchers, the research culture and the research system. Learners link norms from the ECoC to these three aspects. Finally, learners explore what publication pressure does to them.

Research Integrity in a Nutshell

What is this about

This eLearning module aims to provide an overview of the main principles of research integrity and proposes a contextualized reading of the ECoC.

Why is this important

▶ Learners need to identify the purpose and the structure of the ECoC.

Figure 2. A detailed page on The Embassy introduces the elearning course (top). A still from the course is provided (bottom). The course can be directly reached using the link in the title.

(2) Introduction of virtue ethics to research integrity

This eLearning module aims to provide an introduction to virtue ethics, and to highlight the relevance of virtue ethics for research integrity. As described below, this course aims to introduce relevant concepts and their interrelationships, and invite learners to self-assess newly

gained knowledge, relate and apply the concepts in interactive exercises, or reflect on the relevance of these concepts for their daily research practice by drawing on their prior experience.

The intended learning outcomes are as follows:

- *Learners need to demonstrate a basic understanding of key characteristics of virtue ethics.*
  After watching an introductory video on virtue ethics, learners are required to answer a set of five multiple choice questions that aim to summarize the most relevant characteristics of virtue ethics. Learners get instant feedback on whether their responses are correct or not.
- *Learners need to distinguish between a moral conflict and a moral dilemma.*
  In an exercise that follows information about the difference between the concepts of values and norms, as well as moral conflicts and moral dilemmas, learners are required to apply these differentiations and transfer their knowledge into distinguishing two cases from the Rotterdam Dilemma Game[2], one of which portrays a moral conflict, the other one a moral dilemma.
- *Learners need to identify with their own aspirations to become a more virtuous researcher.*
  In a two-step exercise, learners are first invited to write their own obituary/laudatio, which requires them to adopt a perspective of temporal distance (a look into the future) and simultaneously an inter- rather than an intrapersonal perspective at themselves as researchers. This way, they may reflect on their overarching goals as researchers that may differ from their everyday aspirations. At the end of the module, learners are asked to identify the three most important virtues that the description of themselves entails.
- *Learners need to reflect on the influence of moral exemplar(s) on moral development and the cultivation of virtues.*
  In a reflection exercise following information on how virtues are learnt, and taught, and what a good role model/mentor entails, learners are invited to reflect on a particular situation, in which someone they looked up to inspired them to act more virtuously.

---

[2] Erasmus University Rotterdam. (n.d.). Retrieved January 30, 2020, from Erasmus University Rotterdam website: https://www.eur.nl/en/about-eur/strategy-and-policy/integrity/research-integrity/dilemma-game

Figure 3. A detailed page on The Embassy introduces the elearning course (top). A still from the course is provided (bottom). The course can be directly reached using the link in the title.

(3) *Applied virtue ethics – To make a virtue of necessity*

This eLearning module aims to integrate the concerns, that the current research culture may constitute conditions that could undermine a virtue ethics approach, and make it more likely

for researchers to develop some vices (or cognitive biases) rather than virtues. Therefore, more systemic issues are explained, and its relation to research integrity and virtue ethics highlighted. By drawing upon *Cognitive Dissonance Theory[3]*, this module aims to both apply research- and evidence-based methods but also create opportunities for learners to draw upon the experience cognitive dissonance.

The intended learning outcomes are as follows:

- *Learners need to reflect on their experience of cognitive dissonance in a research related context.*
  Both in explaining and demonstrating the underlying dynamics and relevance of cognitive dissonance for the research process, learners are likely to experience this psychological discomfort, and reflect upon it.
- *Learners need to reflect on the necessity and risks of applying self-justification strategies.*
  Both in explaining and demonstrating the underlying dynamics informing the application of self-justification strategies in research, learners are invited to reflect on the self-justification strategies they use, and the possible unintended consequences, like the development of cognitive biases.
- *Learners need to select the most relevant breach of research integrity in their discipline and invent self-justification strategies.*
  In a two-step exercise, learners are first required to choose the most relevant violation of research integrity in their discipline. Then, they are asked to write different types of self-justification strategies (e.g. denial of responsibility, trivialization) that have previously introduced to them with the example of honorary authorship.

---

[3] *Cognitive Dissonance Theory* was initiated by Festinger, L. (1957). *A Theory of Cognitive Dissonance*. Stanford University Press.
For a more recent discussion, see for example:
McGrath, A. (2017). Dealing with dissonance: A review of cognitive dissonance reduction. *Social and Personality Psychology Compass, 11*(12), e12362. https://doi.org/10.1111/spc3.12362
Vaidis, D. C., & Bran, A. (2018). Some prior considerations about dissonance to understand its reduction: Comment on McGrath (2017). *Social and Personality Psychology Compass, 12*(9), e12411. https://doi.org/10.1111/spc3.12411

edit resource

Who

VIRT2UE

Applied virtue ethics – To make a virtue of necessity

What is this about

This eLearning module aims to integrate the concerns, that the current research culture may constitute conditions that could undermine a virtue ethics approach, and make it more likely for researchers to develop some vices (or cognitive biases) rather than virtues. Therefore, more systemic issues are explained, and its relation to research integrity and virtue ethics highlighted. By drawing upon *Cognitive Dissonance Theory*[1], this module aims to both apply research- and evidence-based methods but also create opportunities for learners to draw upon the experience cognitive dissonance.

Figure 4. A detailed page on The Embassy introduces the elearning course (top). A still from the course is provided (bottom). The course can be directly reached using the link in the title.

Evaluation and further steps

The three eLearning modules described above are embedded in a formative evaluation plan. As a preparation for the face-to-face training, a first version of a comprehensive eLearning course was developed (*"Introduction of virtue ethics to research integrity"*; please note that the above mentioned module (2) shares the title but is not identical with this more comprehensive previous version). This version was reviewed internally by selected experts in the consortium and then revised according to the change requests. The revised version was then used as a preparation for the face-to-face consortium training on September 3 and 4, 2019 in Amsterdam.

Consequently, the evaluation of the introductory course by the whole consortium (cf. D6.2 Report on findings of the pilot evaluation) based on the experiences of the pilot training was reviewed. At large, the course was viewed as a good preparation for the face-to-face training. Yet, some revisions and possible changes were suggested. Among those, the time needed to complete the module was a major concern. Moreover, some conceptual and contentual changes were proposed, also regarding the evaluation of the face-to-face training and the articulated need for more in-depth preparation of some of the concepts. Aspiring to both reduce the time for the completion of the module, and elaborate some of the content further, the first draft of the comprehensive course was separated into three modules. This way, the duration to complete one module could be reduced and more content could be provided. Furthermore, this modular structure of the courses also allows for more flexibility for trainers and trainees alike (see above).

Currently, the internal review of the three modules by two respective experts from the consortium for each module is in progress. After the reviews are collected and the suggested revisions applied, the current version of the respective modules will be replaced by the revised version. This will be the further course of action in the formative evaluation of the materials produced: The eLearning modules will further be evaluated by the participants of the VIRT2UE training program across Europe, and by the community of The Embassy of Good Science at large. The feedback by the community will be used to improve the training materials continuously and revise them accordingly.