



Training  
the Trainer

**D4.5 Massive Open Online Course (MOOC)**

Project Details	
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<b>Work package leader</b>	Nicole Foeger
<b>Authors and editors</b>	Armin Schmolmueller Nicole Foeger
<b>Reviewer</b>	Natalie Evans

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## D4.5 Massive Open Online Course (MOOC) – 6 courses (M34)

### Introduction and summary

This deliverable describes the results of Task 4.3. Content development and adaptation for a MOOC, as well as T4.5. Improvement and updating of training materials. The aim of task 4.3 was to adapt and incorporate the educational materials, as they were assembled in WP2 and developed in WP4, in a MOOC. The aim of T4.5. was to update educational materials based on input from researchers and trainers who participated in the VIRT<sup>2</sup>UE Train-the-Trainer workshops across Europe. This deliverable reports on the development of 12 eLearning modules as part of three eLearning series for the VIRT<sup>2</sup>UE toolbox.

The purpose of these 12 eLearning modules is twofold: They are designed in a way that they may serve as a preparation for a research integrity training building upon virtue ethics as provided by VIRT<sup>2</sup>UE but also as a standalone online training for any interested researcher, research integrity trainer, or student. Furthermore, the modular structure of the courses also allows for flexibility for trainers and trainees alike.

In the following, the formative development of the eLearning modules will be outlined, and the final products will be described in more detail. For more general information (e.g. Selection of authoring tool; Availability of adequate educational materials; General pedagogical requirements and overall educational rationale) please review D4.2 (Delivery of first MOOC courses for VIRT<sup>2</sup>UE toolbox ).

### Formative evaluation

As described in D4.2 (Delivery of first MOOC courses for VIRT<sup>2</sup>UE toolbox ) and in line with T4.5 (Improvement and updating of training materials), the development of the MOOC courses is embedded in a iterative evaluation plan, which will be outlined in the following:

1. *Revision based on internal review by selected topic experts in the consortium (June - September 2019)*

A first version of a comprehensive eLearning course was developed (“**Introduction of virtue ethics to research integrity**”) with the authoring tool Articulate Storyline (<https://articulate.com/>), which was reviewed internally by selected topic 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.

2. Revision based on feedback from the face-to-face consortium training (September 2019 – February 2020)

At large, the comprehensive eLearning course was viewed as an adequate preparation for the face-to-face training. Nonetheless, some ideas for further improvements were suggested. Among those, the time needed to complete the comprehensive module was a major concern. Moreover, some conceptual and specific content changes were proposed, following from the feedback from the evaluation of the face-to-face training which suggested more in-depth preparation was necessary for some of the concepts used. In order to both reduce the time for the completion of the module, and to enrich the content with further conceptual clarifications, the first draft of the comprehensive course was separated into three modules, namely (1) “**Research Integrity in a Nutshell**”, (2) “**Introduction of virtue ethics to research integrity**”; and (3) “**Applied virtue ethics – To make a virtue of necessity**” (Please review D4.2 [Delivery of first MOOC courses for VIRT2UE toolbox] for further information).

3. *Revision based on internal review by selected topic experts in the consortium and first feedback from VIRT<sup>2</sup>UE Train-the-Trainer participants (March - September 2020)*

Since the revision of the first comprehensive eLearning modules and its translation into three eLearning modules included several conceptual and content changes, an internal review with selected topic experts in the consortium was conducted to ensure the internal consistency of each of the new modules, as well as the accuracy and adequacy of the content and the reflection exercises. It was concluded that the three modules constituted an improvement of the comprehensive eLearning modules that were used as a preparation for the face-to-face consortium training. Yet, it was also assessed that the translation of virtue ethics as a philosophical approach into the context of research integrity needed further conceptual clarifications, examples, external resources in order to be deemed relevant and attractive for all researchers (especially those who were not trained in the humanities, or philosophy in particular). The need to translate the content and exercises for a wider audience was also reflected in the feedback collected from participants of the first VIRT<sup>2</sup>UE Train-the-Trainer workshops. Three modules were now called (1) “**Introduction to Research Integrity**”, (2) “**Introduction of virtue ethics to research integrity**”; and (3) “**Virtue Ethics applied under current research conditions**”

4. *Revision based on feedback from the evaluation of VIRT<sup>2</sup>UE Train-the-Trainer participants (September 2020 - March 2021)*

The implementation of VIRT<sup>2</sup>UE Train-the-Trainer workshops across Europe was evaluated by WP6 and provided valuable insights into the reception of the three revised eLearning modules. At large, alongside the other preparatory materials, the three modules were considered a good preparation for the interactive training sessions

(due to the COVID-19 pandemic, many of the VIRT<sup>2</sup>UE Train-the-Trainer workshops were held online in autumn 2020) developed by WP3. Overall, the information provided in the modules was considered relevant by a vast majority of the respondents. The language and the visual design of the eLearning modules were considered adequate by most respondents. Most participants also considered the navigation to be intuitive. One major concern still seemed to be the length of the modules (due to the formative revision process, ever more content and conceptual clarifications were added to the modules), since they were perceived to be too long for trainers to embed in already existing teaching frameworks, and there were issues with saving the progress for longer than one session. Moreover, further conceptual clarifications and the adding of new content was suggested.

It was concluded that the three rather extensive eLearning modules would be best split into a set of mini-series: Each of the three modules is now comprised of 4 shorter modules, making a total of 12 eLearning modules (Duration for each approx. 15-30 minutes).

Since each of the new modules builds upon the previous one, a summary of the previous modules in the series was added as a repetition to further consolidate the information, or to contextualize the new content in order to make the module work as a standalone module. Furthermore, subtitles were added to each of the modules for reasons of inclusiveness, as well as to further facilitate the understanding of the audio.

For trainers and students, these changes have the following advantages: they allow for the possibility to review singular modules more frequently if needed instead of doing the whole extensive eLearning module anew, issues with saving the progress are now less prevalent, trainers can use the modules more modularly based on considerations such as:

- Time;
- Level of expertise;
- Seniority;
- Didactical considerations.

## Three mini-series of 12 eLearning modules in sequential order

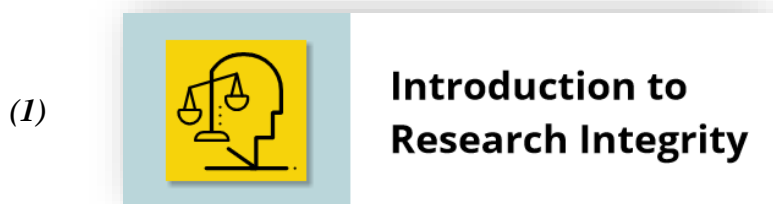
In the following, the 12 eLearning modules will be described shortly in context of the wider context of the mini-series, namely

- (1) **“Introduction to Research Integrity”**
- (2) **“Introduction of Virtue Ethics to Research Integrity”**
- (3) **“Virtue Ethics under current research conditions”**.

As discussed in D4.2 (Delivery of first MOOC courses for VIRT2UE toolbox ), the series may be put into a hierarchical order, the numbers (1) – (3) may also be seen as the sequential order of complexity/level of analysis, from more general to more concrete.

- (1) “**Introduction to Research Integrity**” may be seen as the most basic, since it introduces the learners to research integrity, and includes a contextualized reading of the ECoC.
- (2) The eLearning series “**Introduction of Virtue Ethics to Research Integrity**” presupposes a basic understanding of the principles of research integrity and thereby focusses more on introducing the relevance of virtue ethics to research integrity.
- (3) The third series, “**Virtue Ethics under current research conditions**”, 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.

Similarly, the order of the modules of the respective series described below (1) – (4) reflects the hierarchical/sequential order in the series. You may access each of the singular modules for each of the series by clicking on the respective title.



The eLearning series “[Introduction to Research Integrity](#)” is based on the previous module “**Research Integrity in a Nutshell**”. It aims to provide an overview of the main principles of research integrity and proposes a contextualized reading of the European Code of Conduct for Research Integrity (ECoC)<sup>1</sup>.

This series of eLearning modules was authored by Armin Schmolmüller (Concept, Content) and Fenneke Blom (Content), and reviewed by Rosemarie Bernabe, Fenneke Blom, Birgit Buschbom, Natalie Evans, Nicole Föger, Teodora Konach, Laura Hartman, Ana Marusic, Erika Löffström, Daniel Pizzolato, and Guy Widdershoven.

### (1) [What is Research Integrity?](#)

Throughout this module, the ECoC is introduced and quoted as an important source of reference. A definition of research integrity is elaborated, as well as the four principles of research integrity, as outlined in the ECoC. A drag-and-drop exercise aims to familiarize the

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<sup>1</sup> ALLEA - All European Academies (2017). The European Code of Conduct for Research Integrity (Revised Edition). Berlin: ALLEA - All European Academies.

learner with the document's structure, and also introduces some norms outlined in the document.

Intended learning outcomes: *Learners need to identify the purpose and the structure of the ECoC*

### **(2) Three levels of Research Integrity**

This module explores research integrity on three levels, the individual researcher, research culture, as well as the research system. Drawing largely upon the recent report “What researchers think about the culture they work in” by WELLCOME for Shift Learning (2020)<sup>2</sup>, different aspects of research integrity are discussed. This discussion is further complemented by the introduction of the Hong Kong Principles for Assessing Researchers<sup>3</sup>

Intended learning outcomes: *Learners need to understand various factors that influence research behaviour and their own responsibilities in that.*

### **(3) Scope of Research Integrity**

This module explores the difference between responsible conduct of research, research misconduct, and questionable research practices. This differentiation is exemplified explicitly and/or implied, e.g. regarding the prevalence and impact of research misconduct and breaches of responsible research practices. Publication pressure, and its implications on the integrity of research is discussed as one major driver of breaches of research integrity. This discussion is complemented by an exercise to foster reflection about the effect of publication pressure on the learner.

Intended learning outcomes: *Learners need to distinguish between responsible conduct of research, research misconduct, and questionable research practices and link this to the ECoC.*

### **(4) Research Integrity in your context**

This module suggests a contextualized reading of the European Code of Conduct for Research Integrity (ECoC) using five selected recommendations for Good Research Practices mentioned in the document. The exercise is to identify breaches for each of the norms in the learner's respective field(s) of research. This way, learners are not only invited to reflect on the relevance of the ECoC for their research, they may also detect any breaches of research integrity better in the future.

Intended learning outcomes: *Learners need to distinguish between responsible conduct of research, research misconduct, and questionable research practices and link this to the*

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<sup>2</sup> Moran, H., Karlin, L., Lauchlan, E., Rappaport, S. J., Bleasdale, B., Wild, L., & Dorr, J. (2020). Understanding Research Culture: What researchers think about the culture they work in. *Wellcome Open Research*, 5(201), 201.

<sup>3</sup> Moher, D., Bouter, L., Kleinert, S., Glasziou, P., Sham, M. H., Barbour, V., ... & Dirnagl, U. (2020). The Hong Kong Principles for assessing researchers: Fostering research integrity. *PLoS Biology*, 18(7), e3000737.

*ECoC; Learners need to contextualize a general norm from the ECoC to their respective field(s) of research, and identify breaches of this norm.*

(2)



## **Introduction of Virtue Ethics to Research Integrity**

The eLearning series “**Introduction of Virtue Ethics to Research Integrity**” is based on the previous module with the same title “**Introduction of virtue ethics to research integrity**”. This eLearning series aims to provide an introduction to virtue ethics, and to highlight the relevance of virtue ethics for research integrity. Moreover, 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.

This series of eLearning modules was authored by Armin Schmolmüller (Concept, Content), Rien Janssens MIPA and Guy Widdershoven (Content), and reviewed by Rosemarie Bernabe, Fenneke Blom, Birgit Buschbom, Ana Sofia Carvalho, Natalie Evans, Nicole Föger, Laura Hartman, Teodora Konach, Erika Löfström, Ana Marusic, Signe Mezinska, Daniel Pizzolato, and Jan Helge Solbakk.

### **(1) What is Virtue Ethics?**

This module is comprised of an introductory video on virtue ethics<sup>4</sup>, and a subsequent multiple-choice quiz. 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.

*Intended learning outcomes: Learners need to demonstrate a basic understanding of key characteristics of virtue ethics.*

### **(2) Virtue Ethics & Research Integrity**

This module draws upon the notion of communal practices by Alasdair MacIntyre<sup>5</sup> and introduces relevant concepts, such as difference between the concepts of values and norms, as well as moral conflicts and moral dilemmas. In an exercise, learners are required to apply these differentiations and transfer their knowledge into distinguishing two cases from the

<sup>4</sup> <https://www.youtube.com/watch?v=PrvtOWEXDIQ>

<sup>5</sup> MacIntyre, A. C. (2014). *After virtue*. London: Bloomsbury.



Rotterdam Dilemma Game<sup>6</sup>, one of which portrays a moral conflict, the other one a moral dilemma.

Intended learning outcomes: *Learners need to distinguish between a moral conflict and a moral dilemma.*

### (3) Virtues in Research

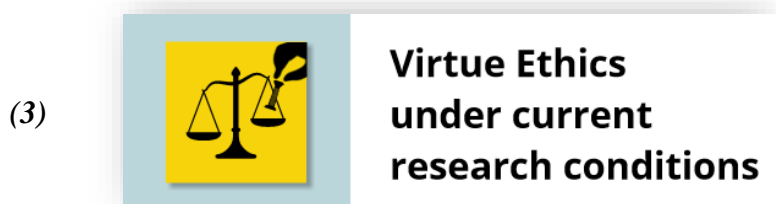
This module offers a definition of a virtue, and introduces virtues that are relevant for research by drawing upon the list of virtues assembled by WP1 (cf. D1.2. Scoping review of scientific virtues for training). Along the historic example of Galileo Galilei, five virtues are discussed in more detail in its relevance for research integrity, following the deliberations of Bruce Macfarlane<sup>7</sup>. In a two-step exercise, learners are first invited to write their own laudation, 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.

Intended learning outcomes: *Learners need to identify with their own aspirations to become a more virtuous researcher.*

### (4) How virtues are taught

This module explores how virtues are taught or learned, and introduces the concept of a moral exemplar. It therefore discusses the responsibilities of a supervisor, or what a good role model/a good mentor entails. In a reflection exercise, learners are invited to reflect on a particular situation, in which someone they looked up to inspired them to act more virtuously.

Intended learning outcomes: *Learners need to reflect on the influence of moral exemplar(s) on moral development and the cultivation of virtues.*



The eLearning series “**Virtue Ethics under current research conditions**” is based on the previous module “**Applied virtue ethics – To make a virtue of necessity**”. By drawing upon

<sup>6</sup> 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>

<sup>7</sup> Macfarlane, B. (2010). *Researching with integrity: The ethics of academic enquiry*. Routledge.

psychological theories, like *Cognitive Dissonance Theory*<sup>8</sup>, this series aims to anticipate possible concerns that the current research culture may constitute conditions that could undermine a virtue ethics approach, and scientific values more generally. Throughout the series, a narrative explores a plausible psychological explanation of why and how unethical behaviour is justified, and the possible consequences of such self-justifications. The series aims to conclude with a more positive note on how virtues may help to counterbalance such developments.

This series of eLearning modules was authored by Armin Schmolmüller and reviewed by Rosemarie Bernabe, Fenneke Blom, Birgit Buschbom, Ana Sofia Carvalho, Natalie Evans, Nicole Föger, Laura Hartman, Teodora Konach, Erika Löfström, Franca Marino, Ana Marusic, Signe Mezinska, Bert Molewijk, Daniel Pizzolato, and Guy Widdershoven.

### **(1) Performative Culture in Research**

This module starts with the assumption that many researchers may perceive the notion of virtue ethics in conflict with performative pressures in research. Drawing upon the work of Bruce Macfarlane<sup>9</sup>, a culture of performativity is explored, as well as the question of whether current research conditions may involve incentives to be boastful. A reflection exercise asks learners to reflect on the effect of a performative culture in research, and whether these may tempt them to act more boastfully.

*Intended learning outcomes: Learners need to reflect on the effect performative pressures in research may have on their work as researchers.*

### **(2) Cognitive Dissonance & Moral Distress in Research**

This module aims to explain and demonstrate the underlying dynamics and relevance of cognitive dissonance for the research process. Along with the example of honorary authorship, it is discussed how conflicting imperatives (or underlying conflicting values) inherent in the current research system (e.g. “Maximize your h-index!” vs “Be truthful and honest!”) may be experienced as cognitive dissonance or moral distress. This module may prompt learners to experience this psychological discomfort, and invites them to reflect upon their personal experience.

*Intended learning outcomes: Learners need to reflect on their experience of cognitive dissonance in a research related context.*

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<sup>8</sup> *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>

<sup>9</sup> Macfarlane, B. (2010). *Researching with integrity: The ethics of academic enquiry*. Routledge.

### (3) Why we justify unethical behaviour

This module aims to both explain and demonstrate 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. 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 has previously been introduced to them with the example of honorary authorship.

Intended learning outcomes: *Learners need to reflect on the necessity and risks of applying self-justification strategies; Learners need to select the most relevant breach of research integrity in their discipline and invent self-justification strategies.*

### (4) To make a virtue of necessity

This module aims to conclude this rather complex and negative outlook on current research conditions by drawing upon the phrase “to make a virtue of necessity”. It is explored, whether the experience of cognitive dissonance or moral distress may pose a possible necessity to researchers to translate the distress into eustress, that is, into a positive incentive to cultivate virtues. Again, inspired by Bruce Macfarlane<sup>10</sup>, the relevance of five virtues is explained with a hypothetical situation, in which a researcher is confronted with clear evidence that undermines the theory he/she has been working on (and building his/her academic self-concept around). This module concludes with a reflection exercise, inviting the learner to reflect on a situation from the past, in which moral distress was experienced, and think about how this situation may have been an opportunity to cultivate virtues.

Intended learning outcomes: *Learners need to reflect on the relevance of specific virtues for their work as researchers; Learners need to reflect on how to shift their experience of a situation from moral distress towards eustress.*

## Modularity

As already discussed in D4.2 (Delivery of first MOOC courses for VIRT2UE toolbox ) for the three eLearning courses, the eLearning series, as well as the respective subordinate modules described above can be brought into a hierarchical order.

The hierarchical and modular structure of the series/modules 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

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<sup>10</sup> Macfarlane, B. (2010). *Researching with integrity: The ethics of academic enquiry*. Routledge.

the series “**Introduction to Research Integrity**”, 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 series “**Introduction of Virtue Ethics to Research Integrity**” and “**Virtue Ethics under current research conditions**” a source of inspiration, or engage in self-reflection about him or herself as a researcher in the respective eLearning modules. Similarly, a researcher may want to embed the VIRT<sup>2</sup>UE materials in already existing teaching frameworks. Since the total length of the eLearning modules are rather extensive, it may be necessary to select a number of eLearning modules from the three series that best complement the existing teaching framework at his/her institution (regarding the length but also curricular considerations). Not only to ensure consolidation of previously learned content, a summary was added as a repetition of what was discussed in the previous modules of each series. This way, each module may work as a standalone online training in an institutional setting, as well as for any interested researcher.

## Adaptability

In the evaluation of the VIRT<sup>2</sup>UE Train-the-Trainer workshops, training participant indicated interest in the possibility to adapt the eLearning courses, as well as to embed them in the Learning Management System (LMS; e.g. moodle, Coursera, etc.) of their institution. The eLearning modules will be licensed under CC BY 4.0 - Creative Commons. Therefore, each eLearning module will be made available on the [Embassy of Good Science](#) as a so called SCORM Package (to embed in any LMS), as well as an Articulate Storyline file (so it may be adapted/adjusted).