

Good Academic Practice During Doctoral Studies

An E-learning Course for Early Career Researchers at the Goethe University,
Frankfurt (Germany)

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Abstract—This case study reports on an e-learning course on good academic practice, compulsory for doctoral students of the central graduate academy GRADE at the Goethe University in Frankfurt (Germany). The tool comprises of six closely linked web based trainings. They are designed as a virtual PhD, depicting the different phases of a doctorate and covering the various aspects of good academic practice and potential fields of academic misconduct.

Index Terms—higher education, web based training, online learning, doctoral studies

I. INTRODUCTION

Science is a continuous process, with present-day research interconnecting with and building upon the achievements of past research generations. Research results are especially valuable if the society and the research community can trust each other. However, too often, early career researchers, senior scientists and politicians are faced with situations of (un)conscious scientific misconduct or fraud. The presented e-learning course “Good Academic Practice During Doctoral Studies” tackles this problem by providing information on what is meant by good academic practice. At the same time, it gives insight into how to establish a culture of independent research responsibility. The course is didactically designed as a virtual PhD, covering the orientation, working and completion phases of each doctoral study (Figure 1). Information is thus presented within its anticipated context, supporting information perception and course orientation. The course was created by the central graduate academy GRADE at the Goethe University Frankfurt (Germany) in cooperation with the central e-learning facility *studiumdigitale*. It was conceptualized and realized within 18 months.

II. TARGET GROUP AND COURSE CONTENT

The e-learning course “Good Academic Practice During Doctoral Studies” is designed as an interdisciplinary course for doctoral students in the natural and life sciences as well as the humanities and social sciences. However, it is also accessible to other people interested in the topic of good academic practice, e.g. supervisors, MSc and BSc students. The six closely linked modules, or web-based training units (WBTs), inform on topics such as authorship criteria, literature and project management, supervision relationships, referencing practices and systems, (un)conscious reasons for and the consequences of aca-

demical misconduct. The WBTs are integrated into a web portal (www.e-learning-by-grade.de), where doctoral students can get individual access after registering. They may pause, repeat and start the WBTs at any time by using a personal password. The idea is to use the course as a permanent and updated reference on the topic of good academic practice.

To achieve a sustainable information transfer, the course content is presented in a motivated manner, i.e. different medial elements are interleaved such as question types (e.g. multiple choice and single choice, ranking, drag and drop, error tracking), animations, videos, documents (e.g. sample supervision and authorship agreements, national and university guidelines), weblinks, text, images and an accompanying glossary (Figures 2 and 3). Questions are always accompanied by feedback loops, providing further situation-dependant information (Figure 3). The course layout is kept simple and intuitive, shifting the focus more towards information perception rather than to course orientation.

In general, the course content is not presented as official rules, but instead, the necessity of the respective topic is highlighted. Participants are encouraged to be self-reliant and become reflective to engender one's own research responsibility and cultural awareness. An explicit focus was laid on gender neutrality and achieving a high sustainability, which may result in fewer future modifications of the course content. At the end of the course and after the participants have successfully finished all six WBTs, an automatically generated certificate can be obtained for future documentation.

III. QUALITY ASSURANCE, IMPLEMENTATION AND ACCESSIBILITY

During course conception, two surveys were conducted to receive feedback from the target audience: In the initial survey, doctoral students of the Goethe University Frankfurt (Germany) were asked about the most widespread types of academic misconduct experienced, perceived or known in their field of research and their ideas about what is meant by good academic practice. The response rate was 17 %, and the more than 300 answers were later used to appropriately develop and structure the course content. In the second survey, the pre-final course content was presented to the doctoral students, supervisors and ombudspersons for discussion and improvement.

Since its introduction in the summer term 2015, the course has been compulsory for the members of GRADE,

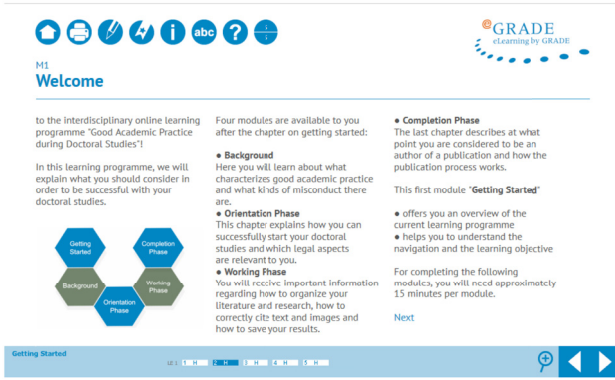


Figure 1. Layout of the e-learning course. Welcome and overview page of WBT1, showing the distinct phases of a doctoral study.



Figure 2. Content page of WBT2, demonstrating the connectivity of past and present research results.

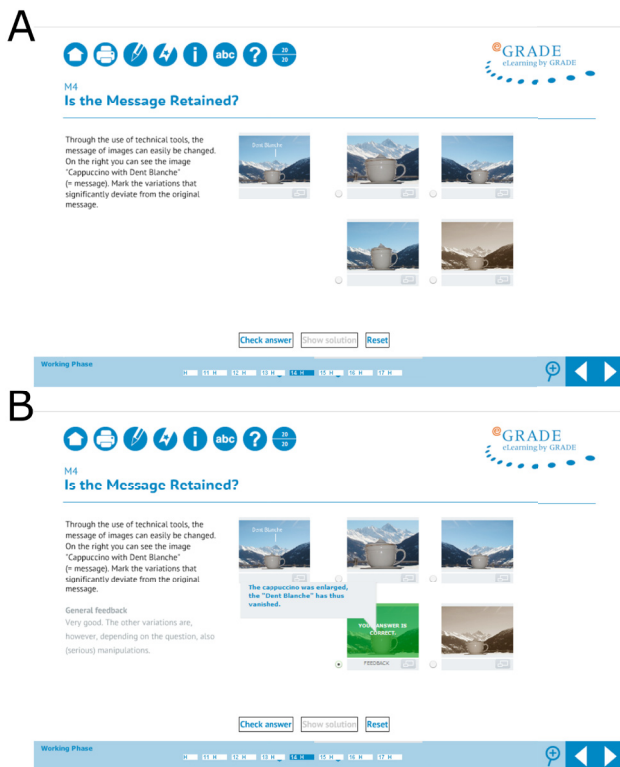


Figure 3. Question-Answer-Feedback structure. A: Question page about image modifications. B: Question page with the correct answer and implemented feedback structure indicated.

and there has been a tremendous positive response among doctoral students and supervisors. The latter appreciate the education towards assuming responsibility, while doctoral students value the interactive learning and the possibility of reading passages again at any time.

At this point, it must be highlighted that this e-learning tool is not meant to substitute traditional topic workshops, but to complement them by providing basic knowledge. However, economic aspects play a certain role in the field of academia. From a financial perspective and on a least expensive price scale, 54 individual licenses are already more economical than the cost of a lecturer. Thus, employing an e-learning tool seems an efficient and effective way to deal with this important topic on a broad basis. A course with a lecturer and 54 participants would end after only a few hours. In contrast, the e-learning tool "Good Academic Practice During Doctoral Studies" reaches a multitude of people and is accessible over a longer period of time. In addition, experts ensure that the content is always kept up to date with respect to legal and academic considerations.

The tool is offered in both German and English, which permits an international usage. In 2015, it has been awarded by the International E-Learning Association (IELA; Honorable Mention E-Learning in the Academic Division) and The Society for Pedagogy, Information and Media (GPI; Comenius EduMedia-Seal). Further information as well as a demo version of the course can be found at <http://www.e-learning-by-grade.de>.

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