

Path Integrity

Path2Integrity roadmap

Deliverable D3.1

30 April 2019

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Path2Integrity

**Rotatory role-playing and role-models
to enhance the research integrity culture**



Prepared under contract from the European Commission

Grant agreement No 824488
EU Horizon 2020 Research and Innovation action

Project acronym: **Path2Integrity**
Project full title: **Rotatory role-playing and role-models to enhance the research integrity culture**
Start of the project: January 2019
Duration: 36 months
Project coordinator: Prof. Julia Prieß-Buchheit
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Deliverable title: Path2Integrity roadmap
Deliverable n°: D3.1
Nature of the deliverable: Other
Dissemination level: Public

WP responsible: WP3
Lead beneficiary: Coburg University of Applied Sciences and Arts

Citation: Häberlein, L., Claas, O., Dwojak-Matras, A., Kalinowska-Sinkowska, A., Koterwas, A., Prieß-Buchheit, J. (2019). *Path2Integrity roadmap*. Deliverable D3.1 EU Horizon 2020 Path2Integrity project, Grant agreement No 824488.

Due date of deliverable: Month n°4
Actual submission date: Month n°5

Deliverable status:

Version	Status	Date	Author(s)
1.0	Final	30 April 2019	Lisa Häberlein, Oliver Claas, Julia Prieß-Buchheit <i>Coburg University</i> Agnieszka Dwojak-Matras, Katarzyna Kalinowska-Sinkowska, Agnieszka Koterwas <i>Instytut Badań Edukacyjnych</i>

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List of abbreviations

D3.1	Deliverable 3.1
IBE	Instytut Badań Edukacyjnych
RE	Research ethics
RI	Research integrity
WP	Work package

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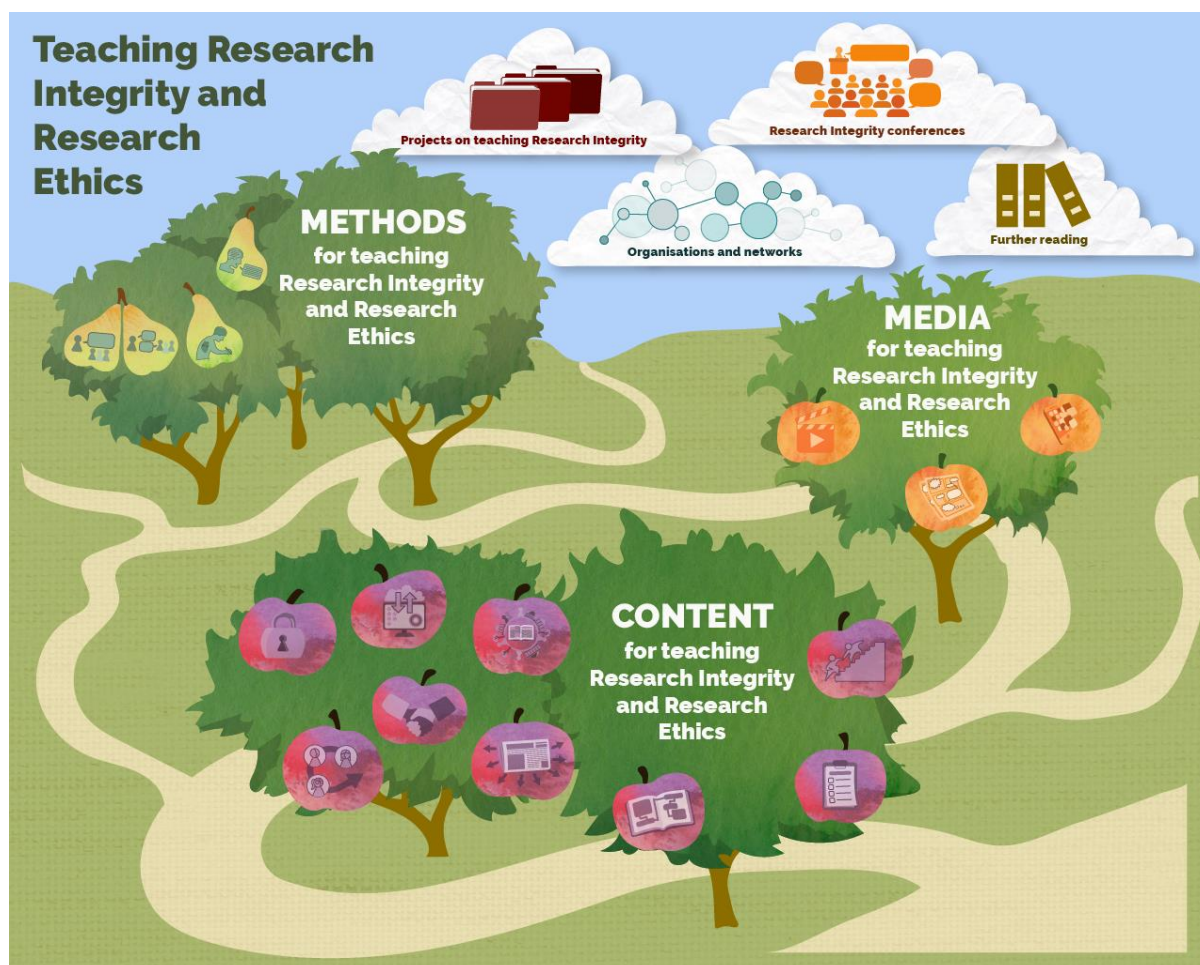


Figure 1: The main page of the roadmap www.path2integrity.eu/teaching-RI

Preface

Scholars can struggle with the requirements surrounding responsible research. An open scientific community that enables and promotes dialogues about good research fosters its culture of research integrity. A closer look reveals that although Research Integrity (RI) and Research Ethics (RE) are generally introduced into students' higher education curricula, they are taught very differently, and the available classroom material is scattered. It is therefore important to provide a collection of this existing experience by preparing teaching material for RE and RI that motivates and inspires lecturers and teachers to take on the subject and to positively promote RE and RI teaching. Thus, the Path2Integrity roadmap offers an intuitive and visually appealing collection of the state of the art, gives an overview of various approaches and materials, sparks the interest of users and underpins the significance of RE and RI for science itself as well as for society.

Summary

This report introduces the digital Path2Integrity roadmap (www.path2integrity.eu/teaching-RI) by briefly explaining the project Path2Integrity and presenting its partners who created the roadmap. The following chapters then describe 1) what the Path2Integrity roadmap is, 2) how it can be used, 3) who can use the roadmap, 4) why the Path2Integrity roadmap was created, and 5) what the future will bring. Colourful graphics accompany the explanation and provide initial insights into how to use the digital version of the roadmap.

The digital Path2Integrity roadmap is structured and mapped in an intuitive and appealing three-level graphic that is easily accessible without registering as an interactive website. It contains annotated teaching materials and presents various possibilities to connect with important RE and RI networks. The digital Path2Integrity roadmap is deliverable D3.1 in the Path2Integrity project. Highlighting the roadmap's most important features, this report shows how the website www.path2integrity.eu/teaching-RI can be used. In addition, the report includes how the website or rather the Path2Integrity roadmap will develop further on as a living document.

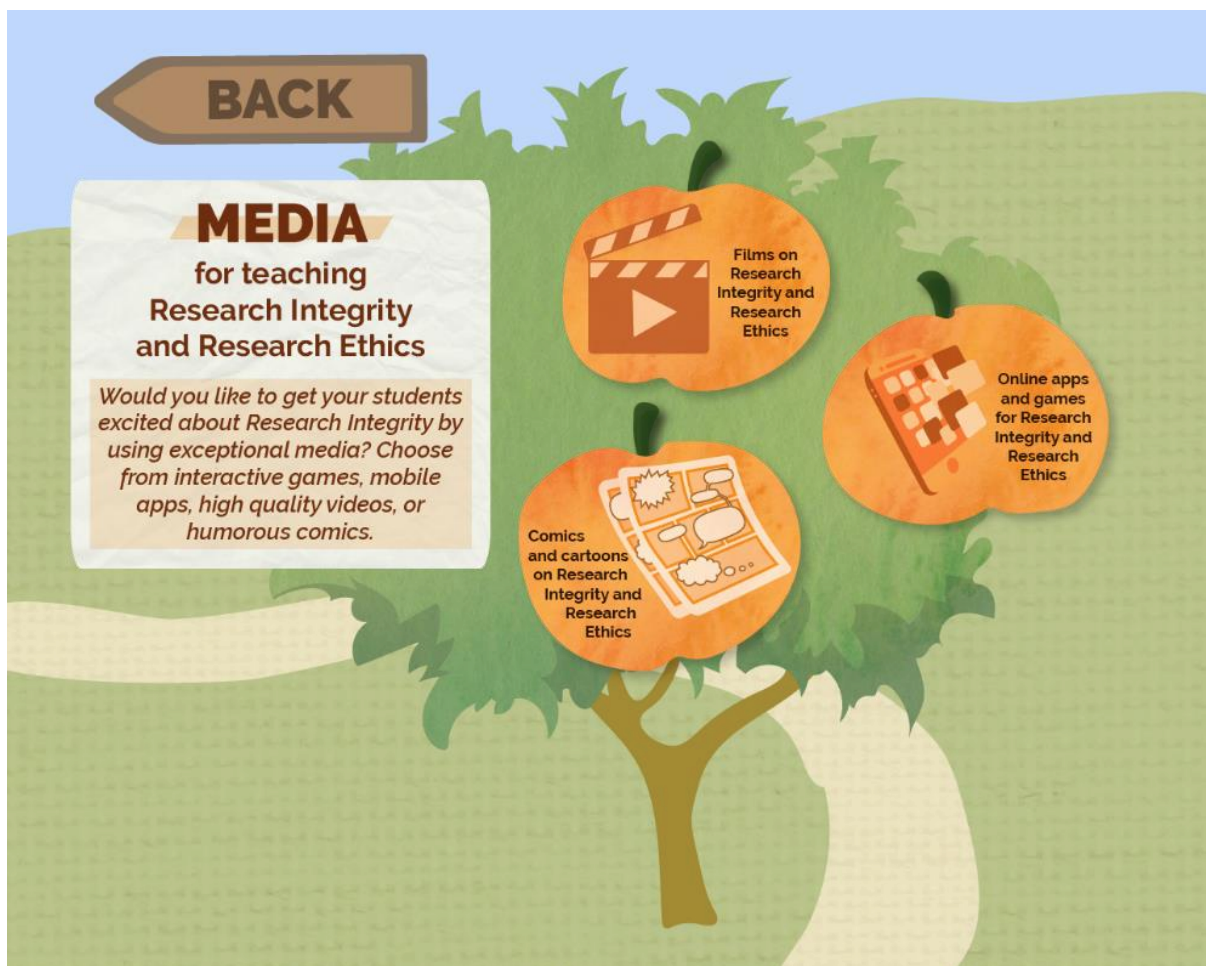


Figure 2: The second layer of the roadmap, cf. www.path2integrity.eu/teaching-RI

What is the Path2Integrity project?

The Path2Integrity project is a collaboration of eight partners from five European countries (Germany, Poland, Spain, Denmark and Bulgaria), representing universities and institutions from the educational sector as well as specialists in dissemination, compliance and Research

Ethics. The project is funded by the European Union's research and innovation programme Horizon 2020, which, in the context of "Science with and for Society" (SwafS), aims at building capacities and developing innovative ways of connecting science to society. Path2Integrity is committed to promoting Research Integrity (RI) through formal and informal learning across disciplinary boundaries by emphasising both the virtues of integrity as well as its importance for establishing a culture of Research Integrity. During its three-year lifetime, the project will develop the Path2Integrity handbook of instructions, which will contain 20 teaching units targeting secondary school students, bachelor students, students enrolled in master's degree programmes as well as young researchers and provide innovative teaching and learning methods. Furthermore, RI will be promoted by the widespread Path2Integrity campaign, which will present facts about RI and its core messages, as well as male and female role-models to raise awareness for the importance of Research Integrity in European educational institutions. The Path2Integrity project aims to target everyone that is directly or indirectly involved in education and research, regardless of cultural background or academic discipline, by enabling an accessible and comprehensible approach to new scientific techniques as well as to compliance in responsible research conduct. The Path2Integrity roadmap serves as an important component of this project by collating and presenting the status quo of teaching RE and RI. (cf. Prieß-Buchheit et al. 2019, p. 4)

What is the Path2Integrity roadmap?

The Path2Integrity roadmap presents a categorised collection of existing innovative and traditional educational material regarding the teaching of RE and RI. Users can acquire knowledge about RI, gain an understanding as to the benefits of different learning approaches and in particular find answers to important questions about teaching RE and RI, such as: How can I teach RI?, What can I teach when addressing RI?, What material and media can I use to teach RI?, How can I stay connected to this emerging field? and How can I receive news on RI to stay up to date? Descriptive categories (see Figure 1) allow users to orientate themselves, to broaden their horizon and to find easily relevant ways and materials usable in various disciplines. In the category "methods" (see Figure 1), users will gain an overview of possible forms of teaching, while in the category "media" (see Figure 2), they can access useful videos, cartoons, apps etc. for teaching RI (Figure 2). Finally, the category "content" presents learning materials clustered into different topics such as mentoring, publishing, research conduct etc. (see Figure 1). Those who want to connect themselves to emerging the field of teaching RE and RI and are interested in getting further information on ongoing projects, organisations, events and literature can find corresponding links in the category "Enhancing the Research Integrity culture" (see subcategories in the clouds in Figure 1).

The Path2Integrity roadmap categorises as well as describes links to external sources, and can thus be described as an up-to-date (annotated link) collection, whose dissemination contributes to an innovative and effective approach to teaching and learning, thereby helping to raise awareness on the multifaceted and meaningful nature of this topic. Even so, the roadmap does not claim to offer a comprehensive overview of all methods, media or contents to teach RE or RI. Instead, it constitutes a selection of material that is useful to consider. Although the links (materials, videos, texts, courses etc.) were collected carefully, Path2Integrity does not take any responsibility resulting or arising directly or indirectly from the use of or inability to use this roadmap.



BACK

Comics and cartoons on Research Integrity and Research Ethics

You can use Research Integrity comics, infographics and cartoons to become familiar with or present the topic in a visually appealing and humorous way.
Please follow the links of comics available online:

For all groups:

- Comic on integrity and ethics in research from the digital architect Patrick Hochstenbach <https://hochstenbach.wordpress.com/2017/02/17/ugent-commission-on-research-integrity/>
- A Pinterest collection of comics dealing with research integrity <https://pl.pinterest.com/researchugent/research-integrity/?lp=true>
- Scienceblogs is a communication platform for scientists and the public which besides comics on research integrity offers information about scientific integrity cartoon contests and much more <https://scienceblogs.com/grrlscientist/2008/07/31/choose-your-science-cartoon-id>
- The Research Integrity Program from the University of Louisville offers a series of videos depicting various aspects of ethical challenges <http://louisville.edu/research/integrity/research-integrity-resources>
- Slideshare gives information about 150 new cartoons about ethics at work: <https://www.slideshare.net/MuelKaptein/business-ethics-cartoons-book-part-1-and-2>
<https://de.slideshare.net/MuelKaptein/cartoons-book-about-ethics-at-work-ethicisms-and-their-risks>
<https://de.slideshare.net/MuelKaptein/ethicisms-and-their-risks-150-new-cartoons-about-ethics-at-work>
- The Research Integrity Office (ORI) provides a series of infographics addressing the responsible conduct of research and the proper handling of research misconduct <https://ori.hhs.gov/index.php/infographics>
- Priego, E. (2016). Comics as Research. Comics for Impact: The Case of Higher Fees, Higher Debts. The Comics Grid : Journal of Comics Scholarship, 6, 16. doi: 10.16995/cg.101 <http://openaccess.city.ac.uk/16156/1/101-948-1-PB.pdf>

Comics for PhD students:

- The Netherlands Research Integrity Network presents a large series of comics, cartoons, graphs and movies on being a PhD student, including many examples of questionable research practices <https://www.nrin.nl/ri-collection/misc/humour/phd-comics/>
- PHD presents comics, cartoons and collaborative movies on research ethics <http://phdcomics.com/comics.php>

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Figure 3: The third layer of the roadmap: Screenshot of the list of annotated material in the category of comics and cartoons, cf. www.path2integrity.eu/teaching-RI

How can the Path2Integrity roadmap be used?

The Path2Integrity roadmap is presented as an intuitive multi-layer website that is easily navigated by allowing the readers to follow a path guiding them through how to plan the teaching of RI. The users are given the opportunity to learn about the concrete planning of

teaching units on the topic of RE and RI (referring to the categories “methods”, “content” and “media” in the trees) or to connect themselves to emerging the field of teaching and learning RI by drawing attention to conferences, literature, projects etc. (which can be found in the clouds).

The landing page which is depicted in Figure 1 (the main page of the roadmap) consists of a digital three-dimensional panoramic view of a landscape that corresponds to a literal roadmap showing a path to integrity. The path to integrity is depicted as a winding road which at the bottom roughly points to the users. Trees, representing options in learning RI or – from a different point of view – the main didactical categories of RE and RI, grow along this path, allowing the users to quickly orientate themselves. The categories answer the question of how to plan learning units on RE as well as on RI and allows users to focus on one subject at a time. The clouds stand for further topics, such as information on how to continue working on RI beyond the classroom.

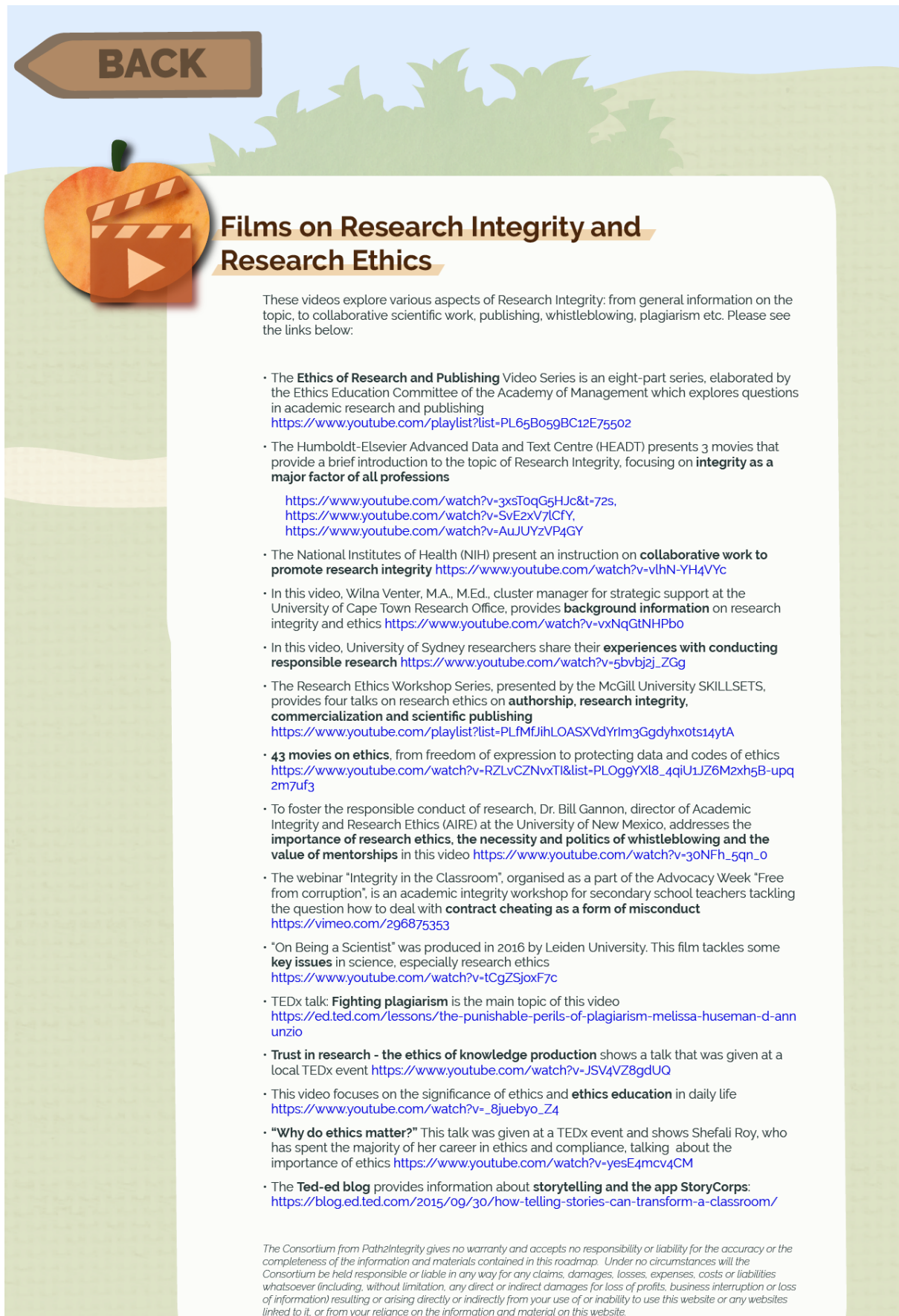
Figure 1 on page 5 displays a screenshot of the roadmap’s main page. By clicking on a digital object on this map (www.path2integrity.eu/teaching-RI), users zoom into the second layer. An example of such a layer is given by Figure 2 on page 6, which refers to “media for teaching Research Integrity and Research Ethics” as one example of the categories. By zooming in, the decision tree opens up and the fruits (peaches in this example) become bigger and identifiable. Each fruit symbolises one item within a category. To facilitate orientation, each item features a pictogramme in icon form. For navigational purposes, a back button, which is depicted as a street sign, is included in every layer (see Figure 2 on page 6, Figure 3 on page 8, Figure 4 on page 10 and Figure 5 on page 12). The third layer of the website, which is reached by clicking on the icons on the second layer, lists the different material in the respective field. Short descriptions and comments guide the users through the material. A screenshot of these lists is shown in Figure 3 (page 8), Figure 4 (page 10) and Figure 5 (page 12). Due to its arrangement along a road, the roadmap is to be understood literally as a map. Its unconventional and visually appealing presentation will give users a quick overview and deep insight into the various aspects of teaching RE and RI.

Who is addressed?

The Path2Integrity roadmap addresses lecturers and teachers for secondary schools and universities who are interested in teaching RE and RI. Path2Integrity also welcomes everyone directly or indirectly involved in education, research and enterprises related to research (such as researchers from educational institutes, experts for coaching and training, publishers etc.) to learn more about this important and fascinating topic.

Why a roadmap?

The Path2Integrity roadmap presents numerous existing methods, media and contents (see Figure 1) that allow an exploration of the topic in innovative and traditional ways. To support teachers and lecturers who are interested in the subject (see for example Figure 3), the roadmap is intended to raise awareness about different possibilities and to maintain and increase attention both within and outside of the scientific community. Altogether, the roadmap facilitates access to materials in such a way that it can be used to outline useful learning paths for adults, whether they are simply interested in science as a citizen, are first entering the scientific community or are already a member of the scientific community. The roadmap aims to encourage teachers and lecturers (and anyone who is interested) to answer questions about how, what and with what materials RI and RE can be taught to secondary school students, university students and young researchers, lecturers and teachers. Additionally, some of the material aims to further educate teachers and lecturers. That is why the roadmap supports enhancing a culture of RI.



BACK

Films on Research Integrity and Research Ethics

These videos explore various aspects of Research Integrity: from general information on the topic, to collaborative scientific work, publishing, whistleblowing, plagiarism etc. Please see the links below:

- The **Ethics of Research and Publishing** Video Series is an eight-part series, elaborated by the Ethics Education Committee of the Academy of Management which explores questions in academic research and publishing
<https://www.youtube.com/playlist?list=PL65B059BC12E75502>
- The Humboldt-Elsevier Advanced Data and Text Centre (HEADT) presents 3 movies that provide a brief introduction to the topic of Research Integrity, focusing on **integrity as a major factor of all professions**
<https://www.youtube.com/watch?v=3xsToqG5HJc&t=72s>,
<https://www.youtube.com/watch?v=5vE2xV7lCFY>,
<https://www.youtube.com/watch?v=AuJUYzVP4GY>
- The National Institutes of Health (NIH) present an instruction on **collaborative work to promote research integrity** <https://www.youtube.com/watch?v=vlhN-YH4VYc>
- In this video, Wilna Venter, M.A., M.Ed., cluster manager for strategic support at the University of Cape Town Research Office, provides **background information** on research integrity and ethics <https://www.youtube.com/watch?v=vxNqGtNHPbo>
- In this video, University of Sydney researchers share their **experiences with conducting responsible research** https://www.youtube.com/watch?v=5bvbjj_ZGg
- The Research Ethics Workshop Series, presented by the McGill University SKILLSETS, provides four talks on research ethics on **authorship, research integrity, commercialization and scientific publishing**
<https://www.youtube.com/playlist?list=PLFmfJihLOASXVdYrim3Ggdyhxots14ytA>
- **43 movies on ethics**, from freedom of expression to protecting data and codes of ethics
https://www.youtube.com/watch?v=RZLvCZNvxTI&list=PLOggYXl8_4qiU1J6M2xh5B-upq2m7uf3
- To foster the responsible conduct of research, Dr. Bill Gannon, director of Academic Integrity and Research Ethics (AIRE) at the University of New Mexico, addresses the **importance of research ethics, the necessity and politics of whistleblowing and the value of mentorships** in this video https://www.youtube.com/watch?v=30NFh_5qn_0
- The webinar "Integrity in the Classroom", organised as a part of the Advocacy Week "Free from corruption", is an academic integrity workshop for secondary school teachers tackling the question how to deal with **contract cheating as a form of misconduct**
<https://vimeo.com/296875353>
- "On Being a Scientist" was produced in 2016 by Leiden University. This film tackles some **key issues** in science, especially research ethics
<https://www.youtube.com/watch?v=TCgZSjoxF7c>
- TEDx talk: **Fighting plagiarism** is the main topic of this video
<https://ed.ted.com/lessons/the-punishable-perils-of-plagiarism-melissa-huseman-d-ann-unzio>
- **Trust in research - the ethics of knowledge production** shows a talk that was given at a local TEDx event <https://www.youtube.com/watch?v=JSV4VZ8gdUQ>
- This video focuses on the significance of ethics and **ethics education** in daily life
https://www.youtube.com/watch?v=-8juebyo_Z4
- "Why do ethics matter?" This talk was given at a TEDx event and shows Shefali Roy, who has spent the majority of her career in ethics and compliance, talking about the importance of ethics <https://www.youtube.com/watch?v=yesE4mcv4CM>
- The **Ted-ed blog** provides information about **storytelling and the app StoryCorps**:
<https://blog.ed.ted.com/2015/09/30/how-telling-stories-can-transform-a-classroom/>

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Figure 4: The third layer of the roadmap: Screenshot of the list of annotated material in the category of films, cf. www.path2integrity.eu/teaching-RI

What's next?

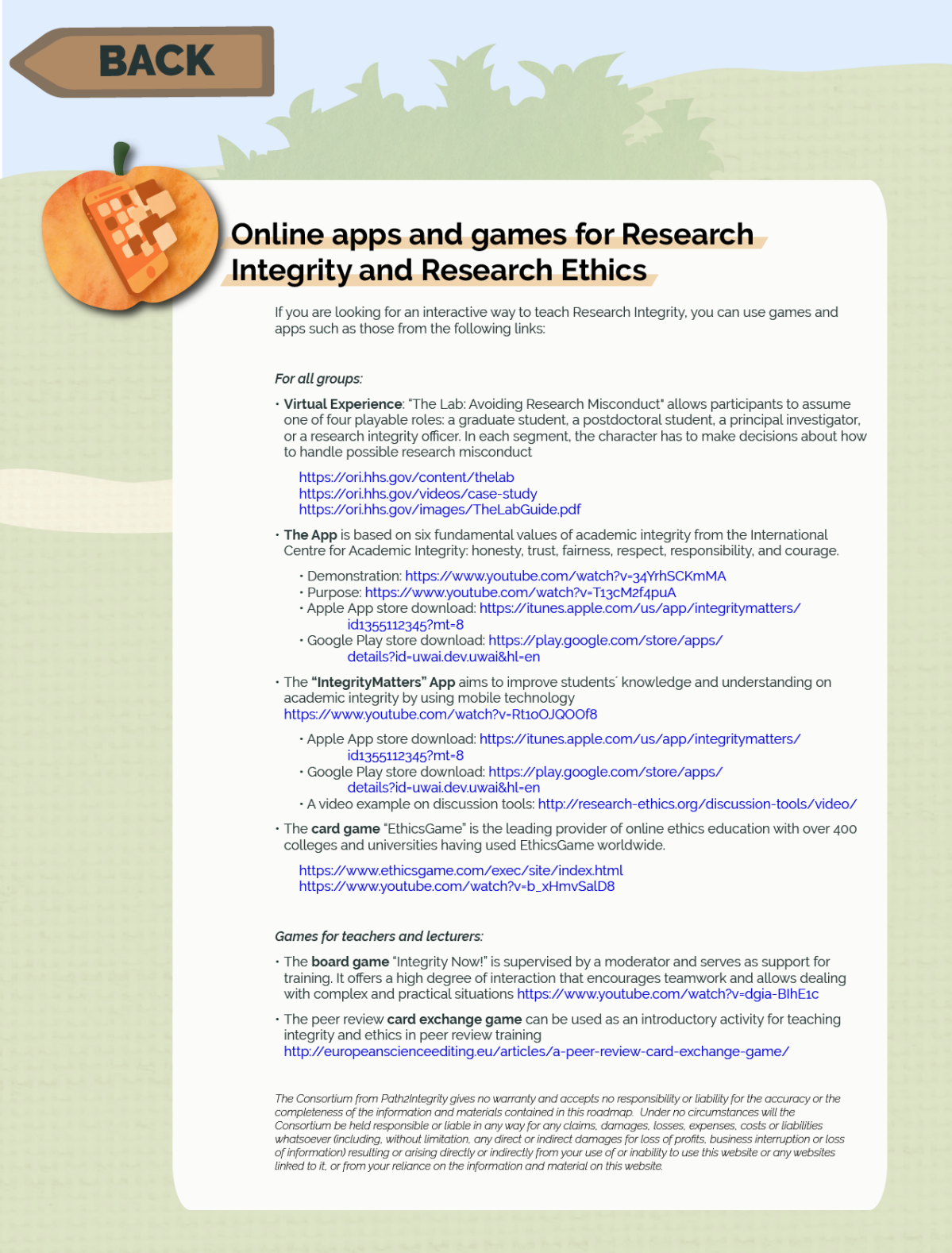
The Path2Integrity roadmap is a living document that will be updated regularly during the Path2Integrity project's lifetime. Incoming information will be integrated into the existing categories. Thus far, the roadmap has been built upon results from online questionnaires. These questionnaires are still running and will continue to be assessed in future. Additionally, further expert interviews will be conducted to obtain further information on promising material for teaching RI and RE. In this way, the material collection of the roadmap will constantly be expanded. Everyone who has material on teaching and learning RE and RI to offer, is invited to send it to: path2integrity@hs-coburg.de, subject: Path2Integrity roadmap.

Acknowledgements

Most of the material presented in the Path2Integrity roadmap has been collected via a questionnaire conducted since March 2019. The incoming information was categorised at Instytut Badań Edukacyjnych (IBE). The overview of the topics and description of external material was provided by Coburg University of Applied Sciences and Arts together with Kiel University (CAU). The roadmap was designed by science illustrator Holly McKelvey. The website has been programmed and is maintained by Pensoft Publishers.

References

Prieß-Buchheit J, Aro A, Kuzmova I, Lanzerath D, Stoev P, Wilder N (2019). *Rotatory role-playing and role-models to enhance the research integrity culture*. European Union (EU) Horizon 2020 Path2Integrity project, Grant agreement No 824488.
<http://www.path2integrity.eu>



BACK

Online apps and games for Research Integrity and Research Ethics

If you are looking for an interactive way to teach Research Integrity, you can use games and apps such as those from the following links:

For all groups:

- **Virtual Experience:** "The Lab: Avoiding Research Misconduct" allows participants to assume one of four playable roles: a graduate student, a postdoctoral student, a principal investigator, or a research integrity officer. In each segment, the character has to make decisions about how to handle possible research misconduct
 - <https://ori.hhs.gov/content/thelab>
 - <https://ori.hhs.gov/videos/case-study>
 - <https://ori.hhs.gov/images/TheLabGuide.pdf>
- **The App** is based on six fundamental values of academic integrity from the International Centre for Academic Integrity: honesty, trust, fairness, respect, responsibility, and courage.
 - Demonstration: <https://www.youtube.com/watch?v=34YrhSCKmMA>
 - Purpose: <https://www.youtube.com/watch?v=T13cM2f4puA>
 - Apple App store download: <https://itunes.apple.com/us/app/integritymatters/id1355112345?mt=8>
 - Google Play store download: <https://play.google.com/store/apps/details?id=uwai.dev.uwai&hl=en>
- The **"IntegrityMatters" App** aims to improve students' knowledge and understanding on academic integrity by using mobile technology
 - <https://www.youtube.com/watch?v=Rt1oOJQOOf8>
 - Apple App store download: <https://itunes.apple.com/us/app/integritymatters/id1355112345?mt=8>
 - Google Play store download: <https://play.google.com/store/apps/details?id=uwai.dev.uwai&hl=en>
 - A video example on discussion tools: <http://research-ethics.org/discussion-tools/video/>
- The **card game** "EthicsGame" is the leading provider of online ethics education with over 400 colleges and universities having used EthicsGame worldwide.
 - <https://www.ethicsgame.com/exec/site/index.html>
 - https://www.youtube.com/watch?v=b_xHmvSalD8

Games for teachers and lecturers:

- The **board game** "Integrity Now!" is supervised by a moderator and serves as support for training. It offers a high degree of interaction that encourages teamwork and allows dealing with complex and practical situations <https://www.youtube.com/watch?v=dgia-BlhE1c>
- The peer review **card exchange game** can be used as an introductory activity for teaching integrity and ethics in peer review training <http://europeanscienceediting.eu/articles/a-peer-review-card-exchange-game/>

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Figure 5: The third layer of the roadmap: Screenshot of the list of annotated material in the category of online apps and games, cf. www.path2integrity.eu/teaching-RI