Vignettes

Gamified cases for master students, PhD students and supervisors

Intellectual property

I. Learning objectives

- To identify emerging issues of intellectual property (IP) rights in research activities when dealing with CS projects
- To demonstrate compliance with IP principles and good practices in research design
- To differentiate ethical practices related to IP for context-related circumstances

II. Target group(s)

x Master's students

x Doctoral students

□ Supervisors

III. Determining a story

Nicola is a doctoral student in marine biology. Currently, he is collecting data for his doctoral thesis on the depth of a newly discovered lake underneath an ice sheet in northern Greenland. Due to bad weather, hostile conditions, and a limited budget, Nicola reaches out to the local community to benefit from their knowledge and experience of the area and for help in making measurements in such a difficult environment. Following up on the advice of his mentor, Nicola also needs citizen scientists to increase the number of illustrative measurements and therefore improve the accuracy of the research. Citizen scientists would provide measurements from a greater variety of locations across the research area. Nicola provides the necessary information about the location where the measurements need to be made, trains the citizen scientists, and provides the tools to make the measurements based on international IP-rights standards. The citizen scientists make the measurements and deliver the data as required, contributing to the successful completion of the data collection process.

One of the citizen scientists politely asks Nicola to provide the overall findings of the data collection process prior to his final defence. Nicola refuses to share the data that have been collected by him or anyone else in the project, including other citizen scientists, with the justification that such a request would require further data processing followed by verification steps until the data can be fully disclosed. Also, the collected data are to be used to support the thesis hypothesis, making them subject to IP rights. Therefore, the data cannot be shared until the thesis is defended.

Has Nicola displayed ethical behaviour in his research activities involving CS?

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Co-funded by the Erasmus+ Programme of the European Union (2020-1-SE01-KA203-007)

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Answer options
1. There is no need for Nicola to share the data of his PhD thesis since the data require further processing by him, making them subject to IP rights. 2. Nicola needs to find out if sharing the data prior to his thesis defence can be considered a violation of the academic integrity policies of his university. 3. Nicola should share the data once the thesis has been defended, requesting proper acknowledgment of the source, i.e., the thesis. 4. Nicola should have discussed the terms and conditions of the data ownership with the citizen scientists before they made the measurements, and agreed to share the data at any stage of the study. 5. Nicola is in violation of generally accepted ethical standards within the academic community.
IV. Game design elements
Instructions

Option A1 Topic-by-topic, individually	Option A2 Topic-by-topic with a facilitator (in-team)
For learners: ● familiarise yourself with the topic in the *Guidelines* (10 min), then ● read the corresponding vignette (10 min), ● choose one answer option (4 min), and ● access the score and the feedback (1 min). ● Follow-up discussion. Share your answers and discuss the choice you have made and the rationale behind the choice (10 min). Total duration: 35 min	For a facilitator: ● inform learners of the time allocated to read the topic in the *Guidelines* (10 min), then ● introduce the corresponding vignette (e.g., by reading) and the answer options (10 min), ● explain how the answer options should be understood and emphasize that only one answer option may be chosen (5 min), ● once the chosen answer options are reported, summarise the results and announce the right answer (5 min), ● present scores for all answer options and discuss the options using feedback (5 min), and ● actively moderate the discussion. Total duration: 35 min

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Answer scores	
1. There is no need for Nicola to share the data of his PhD thesis since the data require further processing by him, making them subject to IP rights.	0
2. Nicola needs to find out if sharing the data prior to his thesis defence can be considered a violation of the academic integrity policies of his university.	5
3. Nicola should share the data once the thesis has been defended, requesting proper acknowledgment of the source, i.e., the thesis.	5
4. Nicola should have discussed the terms and conditions of the data ownership with the citizen scientists before they made the measurements, and agreed to share the data at any stage of the study.	10
5. Nicola is in violation of generally accepted ethical standards within the academic community.	5

Feedback

The *Guidelines for Research Ethics and Research Integrity in Citizen Science* recommend that citizen scientists must be informed of issues related to IP, preferably at the beginning of the project. These data ownership issues need to be thoroughly discussed with the citizen scientists, researchers, and other contributors, addressing the extent to which such ownership is limited. In the case of Nicola, he will need to share information with the citizen scientists at any stage of the doctoral thesis and maintain open access to the data for all contributors equally, regardless of the timing when the access has been requested.

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