

Intellectual Output 2

A4: Validation exercises

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Authored by: ARC team

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REVISION HISTORY

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(*) Action: C = Creation, I = Insert, U = Update, R = Replace, D = Delete

REFERENCED DOCUMENTS

ID	Reference	Title
1	2020-1-UK01-KA201-078934	IPinSTEAM Proposal
2		

APPLICABLE DOCUMENTS

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1		
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1. IPinSTEAM project

1.1 The context

On the point of creativity and innovation being the roots of European cultural and socio-economic growth, respecting others' work becomes a far-reaching need both for professional and personal development of individuals (EUIPO, 2017). On the other hand, nowadays that online sharing of information is rife, one cannot help but wonder whether people are aware of proper ways to attribute others' ideas along with the necessity to reap the benefits of intellectual potential given the fact that most innovations are now highly related to technology.

Au contraire, the absence of Intellectual Property (IP) protection of educational materials and innovations – with online learning only deteriorating the situation – reveals a significant problem in many European countries. In fact, while uncontrolled access is given to educational resources across the Web, the majority of learners are not aware if IP is implemented in their work as well as ways to protect their own intellectual property (Evans, 2016).

On the grounds that STEAM comprises continuous innovation, invention, discovery and understanding of technical knowledge that lead to (commercial) products, the protection of inventions becomes more and more complex (National Inventor Hall of Fame, 2019). Conceivably, this reveals the rationale behind the lack of IP in school education. In particular, recent research has depicted the knowledge and implementation gaps related to IP, resulting in lack of knowledge about working definitions of IP in the field of Arts. In conjunction with the fact that most European countries are not in position to capture the relevance of IP in STEM, the need to integrate IP in STEAM curricula becomes even more significant (Office for Harmonization in the Internal Market, 2015).

1.2 Objectives

In order to address the lack of IP knowledge resulting in an inefficient implementation of IP in the world of inventions, the **IPinSTEAM project** aims at promoting IP strategies in schools and more specifically in STEAM education under the prism of confronting this issue from its roots. To generate awareness about Intellectual Property across European educational institutions, the project will develop an innovative ICT-enabled training package focused on the needs of K-12 STEAM teachers.

Towards that purpose, the project will develop and validate training materials tailored to the real needs of school teachers, educational institutions and STEAM departments towards giving shape to the integration of IP concepts into STEAM curricula.

1.3 Target groups

The **direct target group** of the project involves STEAM teachers, mainly primary school and lower secondary school teachers (ages up to 12). They will learn the key concepts of Intellectual Property along with useful information and guidelines about ways to efficiently implement IP strategies in STEAM-related subjects and integrate them into their curricula. By all means, all school STEAM departments can be regarded as direct target group of the project.

The **indirect target audience** of the project comprises:

- Students up to 12 years old
- Schools and educational institutions teaching STEAM-related subjects
- Law schools and departments
- Policy makers responsible for the design and implementation of actions relevant to ICT strategies for educational purposes
- Other institutions or organizations that are active in school education
- Authorities or organizations that can organize specific actions in order to contribute to the development of high-quality education
- Networks, voluntary associations and other NGOs that are active in school education
- Research communities active in the broader field of lifelong learning.

2. National report

2.1 Objectives

The objective of the present report is to present the results of the validation activities performed with representatives of the target group at national level. Each partner will have to engage at least 20 teachers and 5 students to validate the project outcomes, collecting the results of the validation questionnaires for teachers and for students. The aim is to receive valuable feedback towards continuous improvement.

2.2 Questionnaire for teachers

Please score the following statements considering the scale:

1 = Completely Disagree; 2 = Disagree; 3 = Neither agree nor disagree; 4 = Agree; 5 = Completely agree.

	1.	2.	3.	4.	5.
The topics and contents addressed by the Gamified Mediator were relevant					
The scenarios proposed in the Gamified Mediator were adequate to the acquisition of knowledge on Intellectual Property (IP)					
The scenarios proposed in the Gamified Mediator were relevant/significant for teaching IP concepts on STEAM subjects					
The tips/feedback provided were adequate and relevant					
The proposed scenarios were original					
The proposed scenarios were adapted to the target-group					
The overall visual design of the Gamified Mediator was adequate					
The text was legible					
The animations used in the Gamified Mediator were adequate					
The proposed scenarios promoted students' engagement					
The proposed scenarios allowed the acquisition of knowledge in a fun and enjoyable way					

My general evaluation of the Gamified Mediator is positive

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Please, feel free to add anything you find relevant regarding the Gamified Mediator.

2.3 Questionnaire for students

Please score the following statements considering the scale:

1 = Completely Disagree; 2 = Disagree; 3 = Neither agree nor disagree; 4 = Agree; 5 = Completely agree.

	1.	2.	3.	4.	5.
The topics and contents addressed by the Gamified Mediator were relevant					
The Gamified Mediator helped me to understand better the importance of Intellectual Property in STEAM subjects					
The Gamified Mediator gave me important knowledge and resources to apply Intellectual Property in STEAM subjects					
The proposed scenarios were original					
I enjoyed the Gamified Mediator					
The overall visual design of the Gamified Mediator was adequate					
The text was legible					

The animations used in the Gamified Mediator were adequate

The tips/feedback were useful for clarifications

The proposed scenarios allowed me the acquisition of knowledge in a fun and enjoyable way

I would recommend this Gamified Mediator to others

My general evaluation of the Gamified Mediator is positive

Please, feel free to add anything you find relevant regarding the Gamified Mediator.

3. Conclusions

The second Intellectual Output of the IPinSTEAM project comprises the IPinSTEAM Gamified Mediator, an online assessment tool to enhance understanding of IP strategies in STEAM subjects through gamified learning. This output acts as complementary to Intellectual Output 1 under the prism of increasing K-12 teachers' motivation to embrace new concepts in their training and thus to be able to generate awareness about the importance of IP among their students. The tool will serve as a mediator between the implementation of IP knowledge and STEAM-related subjects providing real-life scenarios that trigger users' critical thinking and problem-solving skills. IPinSTEAM partnership performed the validation activities of the IPinSTEAM Gamified Mediator with representatives of the target group at the national level in order to gather and analyse their valuable feedback regarding this result.

ARC recruited **20 teachers and 10 students**, total 30 participants for the validating activities of the IPinSTEAM's 2nd Intellectual Output, testing the IPinSTEAM's tool, the Dynamic Demonstrator with participants of the target group.

Results from the validating activities of the IPinSTEAM 's tool, the Gamified Mediator will be analysed in more detail.

Participants reacted quite positively to the efficiency of the tool; their answers were positive.

3.1 Validation exercises in Romania

To conduct the validation exercises of the second Intellectual Output in Romania, ARC disseminated the Gamified Mediator and the validation questionnaire through the target group in Bucharest, for a partner schools: Colegiul National Mihai Viteazul, in order to reach their feedback. The dissemination started in May 2022/

the results retrieved from the questionnaires for teachers and the questionnaires for students will be analyzed separately, in order to assure a detailed report.

3.1.1 Questionnaire for teachers

20 Teachers were invited to rate some statements regarding the Gamified Mediator. The results showed positive feedback from 20 teachers, with the standardized statements to questionnaire's questions being answered in great majority with "agree" or "completely agree". The respective average and percentage of standardized answers to each question is as follows:

1 = Completely Disagree; 2 = Disagree; 3 = Neither agree nor disagree; 4 = Agree; 5 = Completely agree.

The topics and contents addressed by the Gamified Mediator were relevant 4 = 4,5%; 5 = 95%

The scenarios proposed in the Gamified Mediator were adequate to the acquisition of knowledge on Intellectual Property (IP) 4 = 4,7%; 5 = 95%

The scenarios proposed in the Gamified Mediator were relevant/significant for teaching IP concepts on STEAM subjects 4 = 4,7%; 5 = 95%

The tips/feedback provided were adequate and relevant 4 = 4,5%; 5 = 94%

The proposed scenarios were original 4 = 4,5%; 5 = 94%

The proposed scenarios were adapted to the target-group 4 = 4,6%; 5 = 94%

The overall visual design of the Gamified Mediator was adequate 4 = 4,5%; 5 = 93%

The text was legible 4 = 4,3%; 5 = 95%

The animations used in the Gamified Mediator were adequate 4 = 4,5%; 5 = 94%

The proposed scenarios promoted students' engagement 4 = 4,5%; 5 = 95%

The proposed scenarios allowed the acquisition of knowledge in a fun and enjoyable way 4 = 4,5%; 5 = 95%

My general evaluation of the Gamified Mediator is positive 4 = 4,6%; 5 = 94%

In conclusion, the teacher's assessment of the tool is highly positive. They appreciated the Gamified Mediator as relevant material, original instrument, with attractive animations for STEM lessons, very practical and interactive way to teach.

3.1.2 Questionnaire for students

10 Students were invited to rate some statements regarding the Gamified Mediator. The results showed positive feedback from 10 students, with the standardized statements to questionnaire's questions being answered in great majority with "agree" or "completely agree". The respective average and percentage of standardized answers to each question is as follows:

1 = Completely Disagree; 2 = Disagree; 3 = Neither agree nor disagree; 4 = Agree; 5 = Completely agree.

The topics and contents addressed by the Gamified Mediator were relevant 4 = 4,5%; 5 = 93%

The Gamified Mediator helped me to understand better the importance of Intellectual Property in STEAM subjects 4 = 4,6%; 5 = 95%

The Gamified Mediator gave me important knowledge and resources to apply Intellectual Property in STEAM subjects 4 = 4,6%; 5 = 94%

The proposed scenarios were original 4 = 4,5%; 5 = 93%

I enjoyed the Gamified Mediator 4 = 4,7%; 5 = 95%

The overall visual design of the Gamified Mediator was adequate 4 = 4,5%; 5 = 95%

The text was legible 4 = 4,5%; 5 = 95%

The animations used in the Gamified Mediator were adequate 4 = 4,6%; 5 = 95%

The tips/feedback were useful for clarifications 4 = 4,4%; 5 = 95%

The proposed scenarios allowed me the acquisition of knowledge in a fun and enjoyable way 4 = 4,6%; 5 = 95%

I would recommend this Gamified Mediator to others 4 = 4,6%; 5 = 95%

My general evaluation of the Gamified Mediator is positive 4 = 4,7%; 5 = 95%

In conclusion the student's assessment of the tool is highly positive.

The feedback show that the tool is very appreciated, it is an important project result. The project tool allows students to learn about IP concepts.

All participants agreed that their experience with the Gamified Mediator was positive.

Teachers and students will recommend the tool to others, considering this tool as innovative in STEM teaching. They confirmed that the Gamified Mediator is a tool that can help them better understand the importance of Intellectual Property in STEAM subjects and give them more knowledge about it.

4. References

Please use [APA Style](#) to write down your references.