FACILITATE-AI

GUIDELINES FOR FACILITATING THE LEARNING OF ARTIFICIAL INTELLIGENCE
BY SCHOOL STUDENTS OF GRADES7-12

Quality Assurance and Evaluation Plan

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Executive Summary

This document serves as the Quality Assurance Plan for the Erasmus+ project **"FACILITATE AI."** All activities of the project will be designed, implemented, and monitored in strict accordance with established quality-assurance processes. This document lists the specific quality assurance elements to be implemented throughout the project. Quality management and evaluation in the project will be continuously ensured by following this Plan.

Aims and Objectives of the Project

According to the White Paper on Artificial Intelligence (AI) of the European Community, it is necessary to develop skills needed to work in the field of AI and to adapt the educational systems of individual European countries. We live today in the age of artificial intelligence. It is estimated that by 2022, there will be 58 million new jobs around artificial intelligence. Thus, it is important that the youth of today are both conscientious consumers and designers of AI. All people and especially school students are already leaving through the smart technologies embedded with AI logistics. It is particularly important for school students as the future generation who will develop and apply AI to begin to understand it from early age, also building the necessary competence to support its growth.

The objectives of the FACILITATE-AI project are to support school teachers (the facilitators of learning) in developing an inquiry base and evidence-based understanding of the complexities and principles of AI, the algorithmic creative thinking, and how these can be integrated in the school students' learning process for promoting creative problem solving, adaptability to change, and progressive design through a STEAME interdisciplinary approach. In doing so it is planned to:

1. Support school "facilitators for learning" in their understanding of AI use in everyday life.
2. Prepare schoolteachers to develop competence for becoming good facilitators of learning AI to their students, considering applications, strengths, and weaknesses, in line with Digital Competence Framework 2.0 and Digital Education Framework.
3. Contribute to the Enhancement of digital skills and competences for the digital transformation, which requires basic digital skills and competences from an early age such as good knowledge and understanding of data-intensive technologies, such as artificial intelligence.
4. Support teachers and students in developing problem solving skills, computational thinking and design thinking involving AI tools and methods.

Main Target Groups of the Project

The main target audience of the project is the teacher group facilitating the learning of students of grades 7-12, including initial and in-service teachers and teacher trainers. In the consortium countries and in most European Countries, teacher training does not provide knowledge and competences in using digital tools and AI-based technologies.

Main Results of the Project

The project has three main results to achieve:

R1 - AI Teaching Guide for teachers facilitating the learning of students in grades 7-12: The 1st result of the project will produce a guide for the target group teachers to enable them to introduce AI to students (grades 7-12). The AI Teaching Guide will set the Pedagogical and Learning Framework that will describe among others the competences teachers need to acquire/develop to successfully facilitate AI learning. It comprises of the following three activities:
- R1/A1 – PEDAGOGICAL AND LEARNING FRAMEWORK AND NATIONAL REPORTS
- R1/A2 DYNAMIC CURRICULUM DESIGN AND FORMAT A1/T1 and A1/T2 results
- R1/A3 LEARNING AND CREATIVITY PLANS (L&C Plans) FOR THE USE BY FACILITATORS OF LEARNING Based on R1/A2

R2 - Training Course for Facilitators of learning in AI-STEAME education: The 2nd result focuses on the development of the training modules and their implementation and validation through piloting of the training course (through C2 STT activity) with teachers and facilitators will ensure security and sustainability in the training of future students. It comprises of the following three activities:
- R2/A1. Competence transformed into Modules (the R1.A1 result to be made into modules for teacher training).
- R2/A2. 9 Modules for facilitating the learning of AI by school students (digital material, PPP, video, etc) (This will include how to develop L&C Plans and how to implement the ones created by the partners of this project under R1).
- R2/A3. A 3-day training programme with 3 modules per day plus first-hand,

implementation, piloting, and validation, recorded into MOOC (This will be facilitated by a C2 short term training activity to be organised in the second year for piloting and validation).

R3 - Dynamic Online Learning Environment with OER on AI in interdisciplinary STEAME school subjected with a set of Blueprint Policy Recommendations: The 3rd result is an online environment to complement the other two Results (R1 and R2) and at the same time provide the digital space for communicating resources for AI in school education, which will be called AI-Education Observatory. It comprises of the following three activities:

- R3/A1. A Learning Environment with existing tools like Moodle will be set up for this learning environment accessible to teachers and teacher students.
- R3/A2 Development, piloting, validation, and publication – all partners will evaluate and validate the platform.
- R3/A3 Blueprint Policy Recommendations for European Governments to implement.

Quality Assurance Strategy

For effective project management, UCY formulated a concrete QA Strategy, aiming to establish monitoring mechanisms for the evaluation and improvement of the processes and the performance of the project.

Methodology

The quality of the project's activities and results will be monitored and evaluated through the following steps:

- Step 1: General Plan Quality. The objective of this step is to ensure that all Standards and Guidelines required for the plan, administration, resources, and project control, are sufficiently determined.
- Step 2: Define QA Framework. The objective of this step is to ensure that:
  - 2.1 the Standards and Guidelines, which were determined in the Quality Management Plan, are realistic and correspond to the specific conditions of the project.
  - 2.2 the activities of the quality control are performed normally and without irregularities.
  - 2.3 the analysis of errors and defects will provide the basis for improving the

quality of the projects' deliverables.

- Step 3: Perform Quality Control Activities. The purpose of this step is to identify defects to be able to correct them to be performed during the whole project.
- Step 4: Perform corrective/preventive actions. The defects and discrepancies identified by quality control must be corrected.

The Evaluation and Quality Plan is intended to serve as a document describing all necessary monitoring and evaluating steps, activities during the project life so that the quality will be assured on the elevated level. Continuous monitoring and evaluating will show, beyond achieved project results and framework standards, the measure of the satisfaction of every partner and the efficiency of the project management. This plan will be developed, agreed between the partnership, and will include the following (the description implies further indicators as shown herein):

- QP1. Pre-evaluation to find out all partners' expectations on the project and other aspects of the project as well. These are also related to the potential problems and risks.
- QP2. Post-evaluation at the project end to find out both, to what extent and quality was reached, were the partners' expectations on the project fulfilled? Post evaluations also after the C1 and C2 trainings and MEs.
- QP3. Continuous evaluation of project meetings and work-packages: Each project meeting is crucial in the frame of a further cooperation among partners in the project and for the next steps. At the same time all the planned results are the pillars of the project.
- QP4. Continuous evaluation of partnership: Firstly, the partnership will be evaluated on the meeting and secondly as a whole during the project life. Monitoring will be the communication among partners, providing the tasks and contributions to the project.
- QP5. Target Group and Curriculum of training course: Involvement of the target group will be monitored especially through the virtual community – social network, visiting the web pages.

QA Committee

The consortium established a QA Committee consisting of four participants from partners (excluding the coordinator), who are preferably managers, exhibiting the required experience to be able to identify risks and decide upon the necessary corrective/ preventive actions.

Consortium partner	Representative name
INSTITUTO POLITECNICO DO PORTO	Prof. Ricardo Santos
Prof. Ivan Apostolov Private English Language School	Nikola Tomov
DOUKA EKPAIDEFTIRIA AE-PALLADION LYKEION EKPAIDEUTIRIA DOUKA	Dr. Yannis Kotsanis
UNIVERSITATEA SPIRU HARET	Rocsana Bucea-Mnaea-Tonis

Basic Success Indicators

To ensure effective quality control, UCY has prepared a Quality Assurance (QA) Strategy, which includes the four steps and specific indicators. The indicators concern:

IM. Project Management Level:

- IM.1 Number of meetings carried out (target = 3 physical and 6 online meetings)
- IM.2 Number of deliverables submitted on time (target 100%)
- IM.3 Number of budget revisions (target 0)
- IM.4 Number of reallocation of responsibilities (target < 10%)

Two (2) quality evaluation reports are foreseen for this project, one at the end of the first year of the project in relation to interim reporting and one at the end of the project.

Quantitative

In addition to the above basic indicators from the proposal, the following indicators have been also identified:

- Number of end-users involved in the courses: We will test the courses based on individual needs.
- Level of user satisfaction: We will create a user satisfaction questionnaire to evaluate the number of people that were satisfied with the courses.

Qualitative

In addition to the above basic indicators from the proposal, the following indicators have also been identified:

- Exceed the outcomes of the project: Create a plan to successfully reach all the expected project outcomes and overcome them.
- Successful development of all the courses: Successfully create all the courses as mentioned in the proposal.
- Conduct interviews and focus group discussions with AI experts.

Impact

PR1: The expected impact is the higher competence and skills of the partner participants to formulate the practical method of understanding AI and creating AI L&C Plans for school education and the impact on participants experts in FC discussions. The consortium partner participants will begin to generate a better expertise in the aims of the project by converging knowledge and competence in AI and Pedagogy together.

PR2: The expected impact is that now European Teachers and Facilitators of Learning will not only have a course that will tell them what AI is but a course that will train them how to use it and apply it in the teaching process so it is learned by school students and more over they will be able to be creative around it.

PR3: The expected impact is the higher digital competences and skills of the target groups, the ease of use and applicability, higher confidence in use of digital platforms, tools, approaches, and methodologies. The learning environment will allow interaction and collaboration of different target groups and stakeholder besides the main ones of the project; thus, we will

enhance the collaboration school university-research-business, which is necessary in this process. Students are highly motivated using modern technologies and interactive methodologies, as well. The OER will allow new ways of assessment and evaluation. Teachers can start the new role of mentors and facilitators of learning in the process and further impact the interest of students and their level of attention and engagement.

Overall impact: The desired impact of the project on all levels is as follows:

1. Sharing innovative practices in a multi-layer methodology including international experts.
2. The AI-Education as a new basis of evolution of education in Europe and beyond.
3. The AI-Teaching guide as an instrument to strengthen the capacity of policymaking and to evolve schools into flexible learning environments.
4. Establish a new generation of schools flexible to digital transformation.
5. Establish a new generation of teachers deviating from teaching centred approaches to learning centred approaches and eventually becoming AI-Education facilitators of learning and co-creators with their students.
6. Create a new generation of school students with AI critical thinking and competences for the use for creativity and research skills in the centre.
7. Create teacher educators, education policy makers, parents, young learners, school leaders with better understanding of the complexities and basic principles of AI, computational thinking, robotics, and technology in general.
8. Teachers equipped with the knowledge and necessary resources to reach, support, motivate more students to participate in activities in the field of AI, computational thinking, and new technologies in general and their applications, strengths, and weaknesses.
9. Partners will strengthen local capacities by sharing their experiences and lessons-learned to integrate AI in learning, approach new stakeholders, and build new collaborations with teachers, educators, local schools, parents, private and public institutions etc.
10. Offer open access to the digital space with rich informational and educational resources and data on the subject which are considered major knowledge assets that teachers, teacher educators and other stakeholders can use in their professional practices.

Risk Management

The coordinator will promote, organise, manage, and orchestrate the collaboration between the partners. Should any conflict or risk be identified, UCY will be involved in applying risk management and quality assurance techniques. Smooth management without any impact imposed on the progress of the project will be ensured by proper identification, handling or resolving of any risk or conflict in the incredibly preliminary stages. Also, as an extra precaution, any conflict or risk will be discussed in the partners' monthly meetings. It is the coordinator's responsibility to deal with the partner conflict effectively.

Handling project risk is also achieved via the partnership legal agreement. The partnership agreement will clarify the financial facts, the management details, the role of each partner involved, the main copyright issues and clearly state the shared outcomes and activities that all parties will endeavour to achieve. Posing the obligations and rights of the partners, the coordinator will inform the partners and ensure the smooth operation of the project.

Risk management aims at identifying events and conditions that, in case they occur, may have a negative effect on the project's objectives (e.g., failure to reach the target group, low quality of intermediate projects results, etc.). It forms part of the overall QA and Evaluation Plan. The major risks related to project management that have been identified and their respective solutions include:

1. Insufficient communication, cooperation, and synchronization among partners. Mitigations:
   o well-defined management; strong coordination.
   o active involvement of partners in the management structure and frequent communication.
2. Delays and/or mismatches in developing the project results. Mitigations:
   o strong control on deadlines by the Project coordinator, spare capacity in staff to support delayed partners.
3. Shortage of human/financial/technical resources. Mitigations:
   o early warning systems and binding agreements indicating available resources.

List of Recommendations – Conflict Avoidance

- Take decisions by majority, strive for consensus
- Deal with arising conflicts immediately, avoid the temptation to ignore it
- Clarify decision-making, escalation, and time management
- Be a team player
- Do not let any conflict get personal
- Promote openness, express any issues immediately
- Habitually identify assumptions, ask yourself "why" on a regular basis
- Apply active listening, paraphrase, clarify, question
- Focus on actionable solutions, do not elaborate on things that cannot be changed
- Practice clear communication
- Encourage different points of view
- Avoid looking for blame, encourage ownership of the problem and provide a solution
- Demonstrate respect if the situation escalates, take a break, and wait for emotions to subside