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Dissemination plan

Co-funded by the Erasmus+ Programme of the European Union

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1. Introduction

This document constitutes the HERA project dissemination plan. The HERA dissemination activities aim to raise awareness in the target higher education sector in Europe, and more generally the lifelong learning community, on project objectives, activities, and outcomes.

More specifically, the dissemination plan aims to raise awareness among stakeholders on the benefits of the proposed educational framework that facilitates the development of problem-solving skills of higher education students through open-ended, complex problems inspired by the real world, the solution to which requires the integration of knowledge from all subjects in the educational curriculum as well as soft skills. The project aims to achieve this objective through an active learning intervention that is based on serious games by exploiting gamification elements towards addressing educational goals.

The HERA dissemination plan identifies the target groups and describes the planned activities for reaching them.

2. HERA objectives and outcomes

HERA aims at the design, implementation, and validation of an active learning intervention that promotes the development of problem-solving skills among higher education engineering and economics students with the objective of empowering them to become the problem solvers of the 21st century, equipped with the knowledge and skills necessary for addressing the complex challenges that society and industry faces today.

The project is in-line with ET2020 objectives which include:

- The modernization of higher education through emerging learning design, such as active and problem-based frameworks.
- Bringing education to the digital age through the design and development of digital learning services and applications designed for learning.
- Fighting unemployment by developing the foundational knowledge and soft skills that professionals need today to engage in the knowledge economy.
- Linking education to the world of work and promoting the transferability of knowledge developed in higher education through learning activities inspired by real life.

The outcomes of the project are:

O1: An active methodological learning framework for building problem-solving skills through exploration, experimentation, and serious games. The framework is developed by first analyzing the stakeholders of the HERA activities, the learning needs of students and educators, related initiatives and project, the current processes for building problem-solving skills in higher education, and the current deployment of digital technologies in related educational contexts.

O2: A digital learning game for building problem-solving skills among higher education students. The learning game is based on the active learning approach developed in O1. The game exposes students to open-ended, complex scenarios the solution to which requires the integration of knowledge from diverse subject areas in a manner that

simulates problem solving processes in industry. The game builds both foundational knowledge related to curricula and soft skills such as critical and analytical thinking, collaboration capacity, ability to revaluate information, ability to prioritize, and more. It is designed for deployment in wider blended learning that integrates classroom instruction with virtual exploration and experimentation.

O3: Instructor support content that aims at building the capacity of educators on integrating the proposed HERA educational methodologies and digital learning game into their existing educational practices. The content aims to encourage instructors to rethink their teaching practices and to reflect on what they teach and how the teach it. The content involves a reference manual, learning sheets that describe suggested educational activities, and videos that act as visual reference on how to best use HERA results.

O4: Good practice guidelines on how to get the best results from the deployment of the HERA learning intervention based on evaluation activity results. This outcome aims at the deployment of the results of O1 – O3 with external user groups consisting of higher education students and educators, the generation of feedback that is integrated in an on-going manner into project deliverables, and the summarization of the experiences built through piloting in the form of good practice guidelines on successful initiatives that educators may use as inspiration or guidance for designing their own problem-based learning interventions.

3. HERA dissemination target groups

HERA dissemination aims to address all direct and indirect stakeholders of problem-based learning supported by digital technologies in European higher education, including:

3.1 Higher education students

Dissemination targets **higher education students** both at the national level in the countries where the consortium has partners and at a European level.

Why target higher education students:

Students, along with educators, are the direct project stakeholders, namely the main beneficiaries of the HERA objectives and outcomes and specifically the proposed active learning intervention that deploys serious games for building 21st century skills. They are the ones that will use the HERA learning design and educational game that builds problem-solving skills, analytical, and critical thinking through learning scenarios inspired by real-world challenges.

Group interests and needs:

Students are in need of building the skills and knowledge that society and industry demand in the 21st century. These include both foundational knowledge and soft skills, such as analytical and critical thinking, collaboration capacity, problem-solving, and innovative thinking. Students are the problem solvers of tomorrow who will be called to design solutions to the complex sustainability challenges of today that include mitigating climate change, preserving natural resources, responsible production and consumption, clean and affordable energy, education for all, health for all, mitigating poverty, and more.

Outcomes to be disseminated:

- O1. The HERA active learning framework.
- O2. The HERA gamified learning platform for problem solving skills.

Dissemination channels:

The following channels will be deployed for reaching this group:

- The project portal.
- The HERA informational leaflet.
- Scientific publications.
- Social media.
- Traditional media, such as newspapers.
- Internet articles, published through on-line news and thematic portals.
- Student engagement in evaluation activities of project outcomes.

3.2 Educators

Higher education instructors are targeted at the regional level and at a European level.

Why target higher education instructors:

Educators, along with students, they are the direct stakeholders of the HERA project. They will use directly the proposed active learning design for delivering problem solving activities as well as the HERA learning game for structuring digital learning tasks that they will integrate into classroom activities. They will benefit from the proposed learning framework, digitally enabled learning environment, and instructor support content.

Interests and needs:

Educators are in need of understanding the skills that society and industry need for addressing 21st century needs of young scientists. They further need to build their capacity on integrating digital technologies in educational settings for bringing learning into the digital age. Finally, the need to successfully integrate emerging learning design, such as active and problem-based learning, with ICT tools for enriching the interactivity in the classroom and for better supporting skill and knowledge development for their students.

Outcomes to be disseminated:

- The HERA active learning framework.
- The HERA gamified learning platform for problem solving skill development.

- The instructor support content.

Dissemination channels:

- The project portal.
- The HERA informational leaflet.
- Scientific publications.
- Social media.
- Traditional media, such as newspapers.
- Internet articles, published through on-line news and thematic portals.
- Educator engagement in evaluation activities of project outcomes.
- Presentations.

3.3 Higher education institutions

Educational organizations are further targeted by dissemination activities.

Why higher education institutions:

Educational organizations must address their social responsibilities and their role as effective knowledge providers for the modern world.

Interests and needs:

According to ET2020 objectives, educational organizations are in need of modernizing educational practices through emerging learning design, building 21st century skills, ensuring the transferability of skills to the real world, fighting unemployment, and linking education to life.

Outcomes to be disseminated:

- O1. The HERA active learning framework.
- O2. The HERA gamified learning platform for problem solving skills.
- O3. Instructional support content.
- O4. Evaluation results and good practice guidelines for maximizing the impact of HERA methodologies and tools.

Dissemination channels:

- The project portal.
- Scientific publications.
- Traditional media, such as newspapers.
- Internet articles, published through on-line news and thematic portals.

3.4 Educational administrations and policy makers at the regional level

Educational administrations and policy makers at the regional level are also addressed where applicable for addressing at the policy the effective alignment of skills built in higher education to industry and societal needs.

Why educational administrations:

Policy makers and authorities have the capacity to widely promote project results in the sectors of their jurisdiction. In some countries, such as Greece, universities are independent and are not overlooked by an authority. For example, no regional authorities for higher education exist in Greece. In others, this is not the case. This activity will be pursued in countries in which regional authorities do engage in higher education planning.

Interests and needs:

Educational authorities are interested in building insight on the necessary skills for 21st century scientists and young professionals, on the positive effects of deploying digital technologies in learning based on piloting results, on aligning skills to industry needs, on the broad deployment at the higher education level of emerging pedagogical design towards addressing modern challenges, and more.

Outcomes to be disseminated:

- O1. The HERA active learning framework.
- O2. The HERA gamified learning platform for problem solving skills.
- O3. Instructional support content.
- O4. Evaluation results and good practice guidelines for maximizing the impact of HERA methodologies and tools.

Dissemination channels:

- The project portal.
- Scientific publications.
- Presentations.
- Email communication.

3.5 The European lifelong learning community

HERA addresses the needs of the higher education sector. However, the HERA active and problem-based learning design has applicability in wider learning sectors, such as school, vocational, and professional education.

Why the lifelong learning community:

For promoting widely the perceived benefits of the HERA proposed learning intervention that deploys digital technologies for promoting 21st century problem-solving skills for all. In addition, for demonstrating how the HERA methodologies and tools may be adapted for addressing educational objectives in learning sectors that go beyond higher education.

Interests and needs:

The lifelong learning community has an interest in emerging pedagogical design and benefits, good practices on the deployment of digital technologies in learning for bringing education to the digital age, understanding of emerging desirable skill sets for the 21st century, linking education to the world of work, and more.

Outcomes to be disseminated:

- O1. The HERA active learning framework.
- O2. The HERA gamified learning platform for problem solving skills.
- O3. Instructional support content.
- O4. Evaluation results and good practice guidelines for maximizing the impact of HERA methodologies and tools.

Dissemination channels:

- The project portal.
- Scientific publications.
- Social media.
- Internet articles, published through on-line news and thematic portals.

3.6 The European learning software industry

The learning software industry is an active economic sector that focuses on the design and development of software services, tools, and applications that target the education market.

Why the educational software industry:

HERA dissemination aims at providing the software industry with insight on the effectiveness of the deployment of digital services in educational settings by publishing not only project outcomes but also the results of evaluation activities that demonstrate the acceptance, relevance, and effectiveness of the HERA learning intervention for building problem-solving skills. This insight will allow industry actors to understand what works and what may be improved in terms of using digital solutions for building knowledge and skills needed by industry and society.

Interests and needs:

The educational software industry sector is interested in understanding the needs of 21st century higher students, educators, and educational organizations towards designing products that more effectively address educational objectives.

Outcomes to be disseminated:

- O1. The HERA active learning framework.
- O2. The HERA gamified learning platform for problem solving skills.
- O3. Instructional support content.
- O4. Evaluation results and good practice guidelines for maximizing the impact of HERA methodologies and tools.

Dissemination channels:

- The project portal.
- Scientific publications.
- Social media.
- Internet articles, published through on-line news and thematic portals.

3.7 The general public

The general public is targeted as project outcomes ultimately benefit local communities and aim to support the retention o talent, development, and quality of life.

Why the general public:

The general public is targeted for promoting sustainable development, for building the problem-solvers of tomorrow, for fostering civic engagement, employability through the development of human capital, and, ultimately, social cohesion.

Interests and needs:

Local communities are in need of learning design for the knowledge economy, in which growth stems from human intellect and knowledge, including both foundational knowledge and soft skills such as critical thinking and problem-solving. Developing the skills sets needed by young adults for addressing projects and challenges that lead to growth while at the same time observing sustainability goals.

- O1. The HERA active learning framework.
- O2. The HERA gamified learning platform for problem solving skills.
- O4. Evaluation results and good practice guidelines for maximizing the impact of HERA methodologies and tools.

Dissemination channels:

- The project portal.
- Informational material.
- Traditional media, such as newspapers.
- Internet articles, published through on-line news and thematic portals.
- Social media.

4. HERA dissemination activities

Dissemination activities will target both direct and indirect stakeholders as described above. Broad and diverse media will be exploited for reaching broad stakeholder groups in a targeted manner. The information to be presented to each group will be tailored in terms of content, focus, and detail to the group's interests, needs, and professional activities.

The following dissemination activities are foreseen:

4.1 HERA project portal

The project portal will promote information on project goals, activities, interim and final project outcomes events, and more. It will target general audiences, presenting information in an easy to understand way. The project portal will make freely accessible to all interested parties project results, including reports, scientific articles, leaflets, software, information on dissemination events, media publications and more. More importantly, through the project portal interested parties will have free access to the HERA educational game that will be openly available to all.

The project portal will be developed in the first 3 months of the project implementation period and will be continuously updated. It will be maintained post project completion by the coordinator. This is possible because the project portal will be internally hosted by the coordinator, thus ensuring that future maintenance may be achieved by exploiting existing hardware and technical support personnel.

4.2 Bi-annual HERA project newsletter

The newsletter will target general audiences and will include information on the current status of the project implementation. The informational material will help reach the lifelong learning community and the general public.

Four issues of the project newsletter are foreseen. A new issue will be developed approximately every 6 months.

The content of each issue will reflect the implementation phase of the project. The newsletter will present learning methodologies, software design approaches, software evaluation information, engagement of stakeholders, dissemination activities, events, and more.

4.3 Informational material

A brochure will be developed on project objectives, activities, and results. It will target general audiences. It will be openly available through the project portal. It will be distributed at dissemination and multiplier events. The informational material will help reach the lifelong learning community and the general public.

An early version of the brochure will be made available early in the project implementation period describing project objectives, participants, target sector, innovation, and other information. The brochure may be updated towards the completion of the implementation period to include actual project results, such as screenshots from the HERA learning game.

4.4 Publications to conferences

At least 1 publication will be pursued at a scientific conference aiming at reaching the academic community and industry. The publication will present the methodological learning framework of the project, the implementation of the proposed digital learning environment, evaluation processes, evaluation results, and recommendations on the effective deployment of the HERA learning intervention.

Examples of conferences that may be considered include EDUCA On-line, EduLearn, EduCon, and more.

4.5 Articles and presentations to traditional media

Articles will be pursued towards traditional dissemination channels, such as newspapers, TV, radio, and others. This activity will target the general public promoting in an easy to understand manner the project objectives, activities, and results.

4.6 Presentations in social media

The project will have its own social media presence through a page on popular social media services. This activity will help reach the lifelong learning community and the general public.

Furthermore, publications will be pursued by project partners to organizational social media pages as well as external social media pages in which audiences may have an interest in project activities and results.

4.7. Presentations on the internet

The project will be promoted to thematic on-line portals with audiences that have an interest in lifelong learning, technology enhanced learning, serious games, and other related subjects. This activity will help reach the lifelong learning community and the general public.

Examples of portals to be sought include SCIENTIX, EPALE, the Erasmus+ Results Portal, the Serious Games Network (http://seriousgamesnetwork.eu), the Digital Learning Games Network (https://www.facebook.com/digitallearninggames/), the Creative Technologies Learning Lab (http://ctll.e-ce.uth.gr), and more.

4.8 Presentations to stakeholders

Face-to-face presentations will be also pursued targeting stakeholders, including students, educators, policy makers, industry, educational administrations, professional associations, and more. The presentations will promote project objectives and activities and will highlight the educational benefits of the HERA learning intervention on building problem-solving skills through digital technologies.

The information in presentations will be tailored to the needs and interests of each group; it will vary in terms of detail and focus.

5. Time planning and impact indicators

Following is a GANNT chart demonstrating the evolution of the HERA dissemination activities.

HERA dissemination activities	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Project portal																								
Portal development																								
Portal maintenance																								
Bi-annual newsletter																								
Issue 1																								
Issue 2																								
Issue 3																								
Issue 4																								
Informational material																								
Brochure development																								
Brochure translations																								
Brochure updates																								
Publications to conferences																								
EduCon 2020																								
EduLearn 2020																								
IEEE Access 2020																								
More																								
Articles in traditional media																								
Newspapers, TV, radio																								
Social media articles																								
HERA social media page creation																								
HERA social media page updates																								
Articles in external social media																								
Internet articles																								
Articles in partner portals																								
Articles in external portals																								
Presentations to stakeholders																								
Networks, policy makers, more																								

Figure 1. GANNT chart of HERA dissemination activities over the 24 months of the project implementation period.

The following table demonstrates quantitative indicators in relation to the expected achievement of dissemination activities.

HERA dissemination activities		
Project portal	**Indicator**	**Target**
	Access	Openly available
Bi-annual newsletter	**Indicator**	**Target**
	Number of issues	4
Informational material	**Indicator**	**Target**
	Number of brochures developed	1
	Number of translations	5
	Number of updates on initial brochure	1
Publications to conferences	**Indicator**	**Target**
	Number of publications	3
Articles in traditional media and the internet	**Indicator**	**Target**
	Number of publications or reproductions	30
Social media articles	**Indicator**	**Target**
	Number of posts	50
	Number of followers to HERA page	100
Presentations to stakeholders	**Indicator**	**Target**
	Number of presentations	10

Figure 2. Target indicators and values for dissemination activities.

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6. Open sourcing HERA software code

HERA project outcomes will be made freely available to stakeholders and interested parties. This includes reports, the active learning digital platform for building problem solving skills, instructor support content, scientific articles, media articles, good practice videos, informational material in the form of a brochure, evaluation results, and more.

Project outcomes and deliverables will be freely available on the project portal without any restriction. This includes the HERA digital active learning environment.

The project will go a step further in promoting access to project outcomes and results. In addition to making the software openly available, the consortium will make openly available the source code, in other words the software program to be developed, of the software application. Making the software code openly available means that other interested parties may use the code, adapt it, or modify it for developing their own educational applications towards addressing additional educational needs of the higher education or other sectors, such as secondary, vocational, or professional education.

This approach adds value to project results by allowing not only the deployment of digital tools that will be developed in the context of the project but also allowing the project software to evolve for reaching wider audiences and addressing wider interests. Thus, not only the target sector of higher education will benefit from project results but other sectors may benefit from them through software adaptations.

This conscious step of the consortium will further maximize the impact of project activities and results by allowing external organizations to exploit them without restrictions.

This objective will be achieved through a Creative Commons license. The license will allow reuse and modification of the software by 3rd parties with references to the original owners.

This activity will take place towards the end of the project implementation period.

References

The HERA project portal, available at: http://heraproject.eu

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