

INVOLEN

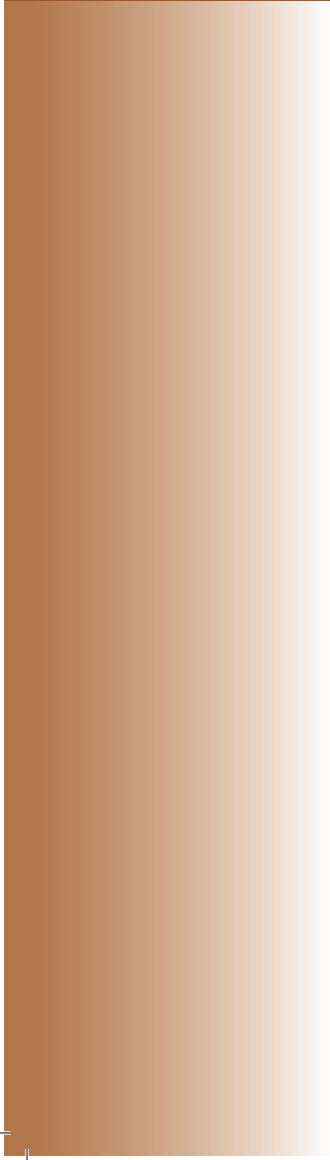
Intergenerational Learning for Nature Conservation Volunteers

A Guide for Learning Facilitators



With the support of the Lifelong
Learning Programme
of the European Union.







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A Guide for Learning Facilitators



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Contents

	<i>page</i>
1. INTRODUCTION	7
2. METHODOLOGY OUTLINE, DEFINITIONS AND CONCEPTS	7
2.1 Intergenerational learning	7
2.2 Volunteering.....	9
2.3 Nature conservation.....	10
2.4 Outline of the INVOLEN methodology.....	10
3. THE TARGET GROUPS. DEFINITION AND RECRUITMENT	11
3.1 Young people	11
3.2 Seniors.....	12
3.3 Learning Facilitators.....	12
4. COMPETENCE AND LEARNING NEEDS OF THE TARGET GROUPS	13
4.1 How to diagnose the competence and learning needs of the target groups.....	13
4.2 How to improve the competences of the target groups	15
5. A COURSE OF INTERGENERATIONAL LEARNING ACTIVITIES	16
5.1 The role of the facilitator	16
5.2 Two models of organising a course of learning activities.....	18
5.3 The structure and content of the course	18
5.3.1 The planning meeting	18
5.3.2 The work units.....	20
5.3.3 Monitoring and evaluation	22
6. WHAT YOU NEED TO KNOW ABOUT LOCATION-BASED GAMES.....	25
6.1 Group's needs regarding ICT	25
6.2 Location-based games in education	25
6.3 Game Patterns of LBGs.....	26
6.4 Challenges during Design and Play.....	27
7. FIVE CASE STUDIES OF IMPLEMENTING THE INVOLVEN METHODOLOGY	28
7.1 ITALY	29
7.1.1 THE PROTECTED AREA: Provincial Park of Monti Livornesi	29
7.1.2 THE PILOT GROUP	29
7.1.3 MANAGEMENT.....	30

7.1.4 INTERGENERATIONAL LEARNING.....	page
7.1.5 LOCATION BASED GAME	31
7.2 FRANCE	32
7.2.1 THE PROTECTED AREA: Dune area of Gâvres Quiberon	34
7.2.2 THE PILOT GROUP	34
7.2.3 MANAGEMENT.....	35
7.2.4 INTERGENERATIONAL LEARNING.....	36
7.2.5 LOCATION BASED GAME	37
7.3 GREECE	38
7.3.1 THE PROTECTED AREA: Vravrona Wetland	38
7.3.2 THE PILOT GROUP	39
7.3.3 MANAGEMENT.....	39
7.3.4 INTERGENERATIONAL LEARNING.....	40
7.3.5 LOCATION BASED GAME	41
7.4 SLOVENIA	42
7.4.1 THE PROTECTED AREA: Notranjska Regional Park.....	42
7.4.2 THE PILOT GROUP	43
7.4.3 MANAGEMENT.....	43
7.4.4 INTERGENERATIONAL LEARNING.....	44
7.4.5 LOCATION BASED GAME	45
7.5 HUNGARY	47
7.5.1 THE PROTECTED AREA: Dead Rába	47
7.5.2 THE PILOT GROUP	48
7.5.3 MANAGEMENT.....	48
7.5.4 INTERGENERATIONAL LEARNING.....	49
7.5.5 LOCATION BASED GAME	50
ANNEX I: Questionnaires for competences and learning needs identification.....	52
1. Youth	52
2. Seniors	56
3. Learning facilitators.....	60
ANNEX II. The course evaluation questionnaires	64
1. Youth	64
2. Seniors	66
3. Learning facilitators.....	68

1. Introduction

The INVOLEN project “Intergenerational Learning for Nature Conservation Volunteers” targets schools, NGOs and other organisations committed to environmental education, aiming to promote voluntary work for the protection of nature and the conservation of valuable ecological heritage amongst youngsters and senior citizens in particular. There are two vehicles that the INVOLEN project uses to achieve this aim: firstly, joint learning and cooperation between young and older volunteers; and secondly, game-based learning, which involves the creation of location-based games, playable on mobile phones on site, in protected areas.

This Guide presents the methodology developed by the INVOLEN team and piloted in 5 countries, namely Greece, Italy, France, Slovenia and Hungary, with groups of teenagers and seniors. The aim of the Guide is to give practical advice to teachers and other learning leaders and facilitators about implementing the INVOLEN methodology, providing also examples of how this methodology was implemented during its pilot application in schools and NGOs.

The Guide includes the following sections:

1. An outline of the methodology, some definitions and useful concepts
2. A description of the target groups of volunteers and how to recruit them
3. How to define the learning needs of the target groups
4. How to plan and organise a course of intergenerational learning activities for a mixed group of volunteers
5. More about game-based learning and location-based games
6. Examples of the implementation of the INVOLEN methodology in five different locations

2. Methodology Outline, Definitions and Concepts

The INVOLEN methodology outlines a learning process that aims to influence the behaviour of the named target groups regarding their involvement in voluntary activity, their awareness of the importance of nature conservation and their recognition of the value of intergenerational learning. These three concepts, therefore, are worthy of some further elaboration here.

2.1 Intergenerational learning

Intergenerational Learning describes the way that people of all ages can learn together and from each other. Intergenerational Learning is an important part of Lifelong Learning, where the generations work together to gain skills, values and knowledge. Beyond the transfer of knowledge, Intergenerational Learning fosters reciprocal learning relationships between different generations and is a way of enhancing intergenerational solidarity. By bringing together people from different generations in purposeful, mutually beneficial activities, greater understanding and respect between generations is achieved and the positive resources that both the younger and older generations have to offer each other are developed and consolidated¹.

The intergenerational activities can be classified according to the following typology²:

● Meet

Intergenerational activities allow different generations to meet and to learn from each other. They include meetings between young children and very old persons, often living in institutions. This type of activities requires a preliminary preparation but is also open to the unforeseen and to the spontaneity of the persons involved.

1 Source: www.enilnet.eu

2 Reference : <http://www.faaafc.ca>

- **Make together**

Here, the participants undertake to create a common activity, to build and to realise a project together.

- **Make for each other**

This is about activities based on the help one generation can offer to another, and the related services. Such activities allow different generations to compare their values.

- **Transmit**

The transmission may be cultural or of knowledge and knowhow or expertise. Transmission implies two-way learning: both older and younger people can gain from the exchange. Valuing people and their narrations is central to this type of activities.

Intergenerational interaction has many benefits. The diagram below shows briefly what these benefits are for different generations:

For youth, meeting with other generations helps:	For the generations between, meeting with other generations helps:	For seniors, meeting with other generations helps:	For all generations, meeting between them helps:
Prepare to grow old	Prepare to get old, to build a family, and get closer to one's parents	Be productive and active, feel useful, transmit their experience, their history	To build a more inclusive and tolerant society
Build their personal identity	Transmit life experiences, and relay those of ancestors	Learn new technologies, new knowledge	Change their point of view about the others, open their mind
Transmit their reality, their point of view of life	Feel useful, give meaning to life	Have new relationship	Improve their personal skills develop communication with the others
Understand cultural and historical heritage, traditions, give clues to understand History	Become active and supportive citizens	Break isolation and /or loneliness	Boost self-esteem and the construction of identity
Develop an open mind, stimulate learning of life, of human relations	Introduce an intergenerational dimension to their work	Get closer to their grandchildren, their children	Increase the life experience and maturity

2.2 Volunteering

Volunteering is a non-remunerated and freely chosen activity exercised in general within non-profit institutions, associations, non-governmental organisations, trade unions or the public sector. Volunteering is an instinctive commitment to helping people or protecting something based on a communal value. Volunteering can be associated with a broad field of activities³ such as social services, health, education, culture, environmental protection or food safety. Beyond the practical actions of problem solving, volunteering implies also a commitment to preventing crises by warning and alerting the civil society and prompting policy makers to take proactive decisions. Volunteering can be summarised in one sentence as:

*"Action taken by a person or group on their own initiative, in what they perceive to be the public interest, without direct financial reward."*⁴

For older people, volunteering provides many benefits to both mental and physical health.

- **Volunteering increases self-confidence:** it may provide a healthy boost to a person's self-confidence, self-esteem, and life satisfaction. By doing good for others and the community, a natural sense of accomplishment is achieved, as well as a feeling of pride and identity. And the better one feels about oneself, the more likely it is to have a positive view of life and future goals.
- **Volunteering combats depression.** Reducing the risk of depression is another important benefit of volunteering. A key risk factor for depression is social isolation. Volunteering keeps an older person in regular contact with others and helps them develop a kind of support system, which works against stress and depression.
- **Volunteering helps to stay physically healthy.** Volunteering is good for one's health at any age, but it's especially beneficial for older adults. Studies have found that those who volunteer

have a lower mortality rate than those who do not, even when considering factors like the health of the participants. Volunteering has also been shown to lessen symptoms of chronic pain or heart disease.

For teenagers, either individually or within school, volunteering can be an exceptionally valuable activity in many ways. Some youth volunteer as part of a school-based service-learning programme. Others are involved in service projects of other institutions, such as the church or the scouts.

While benefits to the communities served can be translated to a monetary figure, the benefits gained by the young people offering their service have a positive impact on them personally, both immediate and into the future. Such benefits include:

- **Personal development:** learning to respect others; learning to be helpful and kind; learning to understand people who are different; developing leadership skills; becoming more patient and better understanding of citizenship; and moreover, beating boredom and gaining a perspective on life.
- **Future benefits:** the skills and developmental assets gained by young people who volunteer early in life translate to future benefits, both for them personally and for society. For example young people involved in community service are more likely to have a strong work ethic as an adult; and they acquire skills that can lead to professional development and are usefully added to their CVs.
- **Intergenerational understanding:** volunteer opportunities provide an environment for people of different generations to work together for a common goal, as well as offering an opportunity for mutual understanding.

³ Dekker & Halman, 2003

⁴ Michael Dower, Euracademy Thematic Guide Twelve, 13th Summer Academy, July 2014

- Lifelong volunteering: when youth volunteer, they tend to volunteer as adults as well⁵ resulting in a lifelong volunteer. The community gains a generation of young people who care about their community and their environment and are willing to make a commitment to improvement.

2.3 Nature conservation

Nature conservation has many meanings. In the context of INVOLEN, nature conservation includes activities of a voluntary character that help to protect and enhance a valuable area of nature. Conservation activities may focus on the preservation of natural habitats or the improvement of their current state through restoration or maintenance.

The INVOLEN methodology takes a special interest in NATURA 2000 sites, wishing to encourage the teachers and learning facilitators who would choose to apply the proposed methodology to concentrate, as far as possible, on these sites.

The NATURA 2000 network is promoting a development model aiming to protect the environment while invigorating the local communities. Volunteering and conservation are prominent values associated with the NATURA 2000 list of sites throughout Europe, ensuring that products and results of the project can be readily implemented in all European protected areas. Experience has shown that skills and competences learnt in a protected area can be readily adapted and transferred to other protected areas in Europe, fostering the sense of European identity.

2.4 Outline of the INVOLEN methodology

The main features of the **INVOLEN** methodology are:

- a) it follows a model of intergenerational learning

- b) it underlies a participative approach, where all learning stakeholders come together and plan their learning process, define their learning objectives and learning outcomes, and become equal “players” of learning
- c) it re-defines the roles of teacher and learner by introducing the “learning facilitator” as a key role in the learning process, aiming to mediate the transfer of knowledge between older and younger participants
- d) it employs innovative IT tools as learning tools, using a game-based approach, offering the possibility to learners to construct their own learning games using friendly open source or free software
- e) it is transferable to different locations, settings and audiences.

The INVOLEN methodology is implemented through a sequence of activities, which can be organised and held within the school curriculum or after school hours, inside the school or outside it with the help and supervision of an NGO. We call this sequence of activities in short an “INVOLEN project” in subsequent chapters.

The activities that implement the INVOLEN methodology are:

- Establishment of the learners’ group, including teenagers and seniors, who have confirmed their wish to learn together, work together as volunteers for the protection of the environment and use IT to produce awareness-raising material for the conservation needs of protected areas. One or more learning facilitators and an environmental conservation expert should assist the learners’ group.
- Assessment of the skill needs and the learning needs of the participants (teenagers, seniors, facilitators) to ensure that the needs of all group members are met. Survey techniques, focus groups and consultation with relevant organisations can be used for this assessment.

⁵ Youth who volunteer are three times more likely to volunteer as adults (Latham, 2003)

- Planning the course of intergenerational learning activities that are necessary to implement the learning methodology of INVOLLEN.
- Taking part in joint conservation activities in the protected area where the group has decided to focus on.
- Participating in a number of learning sessions/meetings during which seniors and environmental experts transfer knowledge regarding the conservation needs and the heritage of the selected area; ICT experts teach the group how to create location-based games using their mobile phones or tablets; and the learners design and construct one or more games, through joint work, combining the knowledge of the seniors and the affinity with IT of the youngsters.
- Visiting the protected at least twice to get to know it better; and test the constructed games on site.
- Evaluating the learning outcomes and the personal and community benefits that have resulted from the implementation of the project.

The above methodology has been piloted in five countries and a number of supporting products have been developed on the basis of the piloting experience, including this Guide, a Toolkit for Learners, databases of "stories" narrated by senior learners and conservation experts linked to the pilot-locations; and skill needs assessment questionnaires. These products are freely available in the INVOLLEN website www.involen.eu to all those who would like to try out the INVOLLEN methodology, i.e. teachers, environmental education providers, youth leaders, adult educators etc. They can also be used as supporting material to launch INVOLLEN competitions for the construction of the best "conservationist's learning game".

3. The Target Groups, Definition and Recruitment

The target groups of the INVOLLEN methodology are:

- Teenagers, of secondary school age (12-17 years old)
- Seniors, over the age of 55
- Learning facilitators: schoolteachers with an interest and/or experience in environmental education and a working knowledge of computers and mobile phones; and other education leaders or non-formal learning mediators working outside schools, in NGOs, youth centres or adult education centres. Experts in environmental conservation and ICT can support the learning facilitators in their tasks.

A core criterion for the recruitment of the target groups, when putting together a group of volunteers willing to be involved in an INVOLLEN project, is their declared interest and commitment to both nature conservation and intergenerational learning. Another important criterion is to select a community (or communities) that is close to a protected area, preferably a NATURA 2000 site, and recruit the target group members from this community.

3.1 Young people

To recruit young people, it is necessary to involve a formal organisation in the project, which could be a school, a youth centre, an environmental NGO or an adult education centre. The recruitment of youngsters should be on a voluntary basis, i.e. they should agree to take part willingly. The group of teenagers can be recruited by a school from its student body, or among the members of a youth centre, or can be recruited by an NGO through its local network or by publicising the project to the local schools and asking them to inform the students.

The project-leading organisation should take responsibility for the meetings of the group, including:

- a) the meeting room(s) and some necessary equipment, such as a projector, some PCs and mobile phones of the recommended type (usually android or iPhone, or tablets/iPads);
- b) written permission from the parents of the youngsters, if the meetings are planned to take place outside the school hours, and more so, if they take place away from school, in a different location.

It is also necessary to make clear from the very beginning that involvement in the intergenerational project would mean the young people's commitment to be present in a series of meetings over a period of at least three months.

3.2 Seniors

To recruit seniors, different methods can be used:

- a) The parents' association(s) of the school(s) where the teenage participants come from may be contacted, and asked to recruit grandparents and grandmothers with an interest and experience in nature protection, who would be willing to take part in the project.
- b) The local day centres for old people may be approached and a presentation can be arranged by a member of the organisation which runs the project, followed by individual discussions with those seniors who would express interest in the project. The availability of the seniors should be ascertained and their commitment to join the meetings for the required period of time.
- c) Environmental NGOs active in the protected area in focus can be approached and asked to mobilise their networks of volunteers in the area. Usually such organisations are willing to take part in a nature protection project through their volunteers, and it is common to have listed several seniors in their volunteers' force.

It is very important to make clear to those seniors who would

be willing to join the project, that a good knowledge of the protected area would be necessary and that, ideally, their profession or recreation interests would have provided a good understanding of the conservation problems of the area, and how they have been dealt with over the years.

3.3 Learning facilitators

To recruit learning facilitators and experts different approaches can be used, depending on whether the project would run within a school curriculum or outside it.

- a) If the project runs within the school curriculum, a teacher should be assigned to the project by the school as the project leader, and additional support can be also provided by other teachers who specialise in ICT and/or environmental conservation issues, if the project leader considers it necessary. Alternatively, volunteer experts on nature conservation are recruited from environmental NGOs that are active in the area.
- b) If the project runs outside the school hours, but within the school, a teacher can still be assigned by the headmaster either as a volunteer or through overtime work. The same can be applied for supporting experts who would be school staff. The option of inviting volunteer experts from local NGOs should be also exploited here.
- c) If the project runs outside school hours and outside the school, for example in the premises of a youth centre, an adult education institute or a local NGO, the organisation in charge of the project recruits the learning facilitators either from its staff; or from volunteer teachers or experts working in the local schools or other organisations connected to the objectives of the project.

4. Competence and Learning Needs of the Target Groups

It is strongly recommended to conduct a competence and learning needs assessment prior to the commencement of an INVOLEN project, addressing all types of participants, i.e. youth, seniors and learning facilitators. It should be noted that we are concentrating on four types of competences that are necessary for the successful completion of the project, referring to: environmental conservation, intergenerational learning, volunteering and use of ICT, with a focus on the use of mobile phones and games design.

4.1 How to diagnose the competence and learning needs of the target groups

An easy and efficient way to assess skill needs is to organise a focus group, inviting the project group members to take part, discuss their needs and complete a questionnaire. The optimum size is between 10 and 15 participants, but a group of up to 20 participants can be acceptable, with suitable organisation. The focus group is best steered by a person outside the project.

Focus group agenda

There are some suggestions here on how to organise a focus group meeting, so that one gets the maximum out of it. It is recommended to start the focus group meeting with three introductory presentations:

- a presentation explaining the project;
- a presentation highlighting the main features of the protected area in focus; and
- a presentation offering a sketchy insight to location-based games, with examples.

Then, the group members are called to discuss the following topics:

1. Their knowledge and understanding of the conservation problems of the protected area in focus;
2. Their experience of volunteering, especially concerning volunteering for nature conservation
3. Their experience of and attitudes to intergenerational learning; and
4. Their ICT skills, including computers, mobile phones and online games in particular.

All the participants are encouraged to speak freely and without prejudice, and air their fears, inhibitions and shortcomings, as well as their strong points, in relation to the above types of competences.

Filling in questionnaires

At the end of the discussion, three questionnaires are delivered, one for youth, one for seniors and one for facilitators, and the participants are asked to complete the questionnaires before leaving the room. The questionnaires are collected by the focus group leader and analysed by qualified staff of the organisation leading the project. The results are fed back to the project management and project facilitators, and are presented to the group as statistics, during the next meeting, which is devoted to planning (see section 5.3).

The three questionnaires used for the piloting of the INVOLEN methodology can be found in Annex I, and can be used as they are, or adapted to the requirements of the intergenerational groups implementing the INVOLEN methodology.



Important points to keep in mind:

- For the focus group meeting you need a room large enough to take up to 20 people, equipped with a laptop or PC, a projector and a screen for projections. Copies of the questionnaires should be prepared in advance and pens or pencils provided during the meeting for completing the questionnaires. For those participants that bring their laptops along, an electronic version should become available and electronic completion of the questionnaires should be allowed.
- If you have more than 15 participants, it is recommended to break the group in two sub-groups, holding two separate meetings, but making sure that in both groups the three target groups are represented in good proportion each.

What we learned from the pilot implementation of the INVOLEN methodology about the competence and learning needs of the target groups

During the pilot application of the INVOLEN methodology, 7 focus groups were organised in 5 countries, with a total of 148 participants, including 112 young people, 19 seniors and 17 facilitators. The results of the discussions and the analysis of the questionnaires revealed that the needs of the target groups varied from country to country, but some common points were identified, which were used to enrich the methodology. A summary is presented below:

The **young people** of secondary school age showed, as expected, great interest in the use of location-based game platforms, having sufficient competences in the use of ICT; next to that, they showed interest in conservation issues and especially the conservation needs in the selected protected areas, in which they could contribute to. Young people also showed willingness to work with seniors, although they could not visualise how this would happen and therefore the need for defining and implementing a structured interaction methodology was confirmed.

The **senior volunteers** had in general a good knowledge of the protected area although they needed to update their knowledge concerning contemporary conservation issues; and further, they needed to understand better the background of these issues and the causes of the problems created. In general, their ICT competences were limited, but they showed strong interest to learn how to use a smart phone/tablet. Regarding intergenerational cooperation, seniors' needs were complementary to the needs of youth: the seniors wanted to learn how to help young people, and how to make the best use of the experience and knowledge they had gathered over the years.

The **facilitators** admitted, in general, that they had limited competences in the field of intergenerational learning, and an obvious need for training on this subject. They have also admitted a rather limited knowledge of conservation issues in the protected areas, and expected help from local experts in order to gain a deeper understanding of the prevailing conservation issues, including the distinction between traditional and modern conservation methods. The questionnaires also showed that medium-level ICT skills were very important for facilitators, including a good understanding of location-based games and the game platforms in particular, given that they would supervise and support the young volunteers in their game development tasks.

All **target groups** had limited experience of volunteering, and consequently this important component of the project had to be explained further to them during the meetings that followed.

4.2 How to improve the competences of the target groups

Having identified the competence needs of the project participants, the next step is to take action to improve these competences through learning. The model proposed by the INVOLEN methodology allows for the improvement of the target groups' competences in three stages:

First stage: Training the facilitators

Objective: To improve the competences of the facilitators through targeted training, on the subjects of:

1. Intergenerational learning, so that the facilitators can acquire the necessary knowledge and understanding to facilitate mutual learning between the two groups, i.e. young and senior volunteers, making sure that each group can appreciate what is taught by the other, forming a clear enough picture of the expected benefits.
2. ICT, focusing on location-based games and the available game design platforms (ARIS⁶ has been mainly used during the pilot application). The improvement of their ICT skills can allow the facilitators to train the young volunteers at a basic level, guiding them to delve deeper, using the existing ICT competences of the latter.
3. A good understanding of volunteering, so that the facilitators can explain the benefits of volunteering, and especially those relating to nature conservation to the other participants, encouraging them to become involved in it.

Method: A seminar can be organised for the facilitators, preferably bringing together facilitators who lead different project groups in a seminar room, to attend lectures by experts and do practical work on the above subjects. Follow up webinars⁷ can be an excellent and economical way to consolidate the knowledge offered during the initial seminar.

Second stage: Experts' input to the full project group.

Objective: To improve the competences of all target groups on environmental conservation and, optionally, on game design and the use of freely available software. Especially important is to provide input on the subject of nature protection and the conservation needs of the selected protected area; and on the subject of location-based games and the use of the available online platforms, if it is deemed necessary to seek additional help on this subject.

Method: The project leader can invite expert lecturers to speak to the project participants on the above subjects.

Third stage: Transfer of knowledge and skills among the three target groups

Objective: To develop efficient communication and create solid, productive relationships within the group, so that effective peer learning and knowledge transfer can take place throughout the project, and in particular:

- The facilitators pass on the skills and knowledge acquired during the first stage to the junior and senior participants, and encourage peer learning between them.
- The young participants pass on basic ICT skills and skills related to the use of smartphones and tablets to the senior participants.
- The senior participants pass on their knowledge and experiences about the protected area and discuss the changes that have occurred over the past decades and their causes.

Method: a course of learning activities is planned and implemented, making sure that there is involvement of all target groups in each step of the implementation of the course, and the results are all shared and jointly owned.

⁶ ARIS: Augmented Reality Interactive Storytelling. Game design platform available at <http://arigames.org/>

⁷ INVOLEN Webinars available at: <http://www.involen.eu/index.php/el/2013-10-15-11-42-38/2013-10-15-11-55-46>

5. A Course of Intergenerational Learning Activities

This section refers to the previously described Second and Third Stages of the INVOLEN learning model. The proposed course is divided in a number of units, and each unit is described separately, regarding its content, activities and expected results.

5.1 The role of the facilitator

Firstly, the role of the learning facilitator should be defined and well understood by all. The facilitator is called to undertake the following tasks:

- **Building a bridge between the two generations involved in the project**

Given that very few activities focusing on the environment are jointly undertaken by both youngsters and seniors, the facilitator must, first of all, find out if there are any and what are they: ask all participants, junior and senior, what their favourite places are in their town or in the selected protected area and why; what kind of memories they have from them; show them on a map and visit some, if possible.

- **Setting up a process of participative learning**

The facilitator has to make sure that every decision leading to the final objective (the construction of the conservationist's game) is taken collectively by the group. For this, it is necessary to respect the needs for interaction and learning of all participants; and make sure that the senior participants understand the recreational aspect of the game, alongside its educational character.

- **Work on the stereotypes surrounding both groups in order to overcome them**

The facilitator needs to erase the stereotypes: "young people are good in ICT but know nothing about the protected areas surrounding them!" or "seniors are ignorant of ICT!".

It is his/her job to create an atmosphere of mutual trust and friendliness that would allow everyone to feel comfortable and free to refer to their experiences and tell their stories.

- **Youngsters' and seniors' skill development**

Every member of the group is expected to have a different level of knowledge regarding the protected area or the use of ICT. It is therefore important to draw a map of the skills of all members of the group. It may be also productive to divide the participants in different groups and assign each group a different role in the project, according to the level of the skills they possess, and the target set for skills development. Beware of not boxing-in the seniors in the past!

- **Put the young people in a position of "helpers" to seniors on ICT**

It is important to remind both groups of participants that improvement of ICT skills is one of the project's missions as well as one of the key elements for the success of the project. It is necessary to give seniors enough time to play and manipulate ICT tools. If the senior participants have never used PCs, smartphones or tablets, allow time for the young people to show them how to do some essential things, for example:

- Send emails / create an email address
- Look for information on the Internet
- Take and store photos and videos (smartphone or tablet)
- Use the GPS
- Talk on Skype or Viber

- **Take care of the logistics**

The lead facilitator is also the project manager, and therefore should take responsibility for all authorisations necessary to gather the group together (e.g. parents' permission for the youngsters) or the rights to upload the pictures of the young people, seniors or any other participant of the project.

Some advice on organising and hosting a meeting

Preparing the meeting room and the necessary facilities and equipment:

Prepare the room, have tables or chairs so that all participants can see each other during the meetings.

- Provide a chalkboard or large pieces of paper on a stand and marking pens that would allow everyone to follow the progress of the meeting.
- Provide at least one PC and one projector in the room, and one smartphone/iPhone or tablet per three young participants and one senior
- Make sure that there is fast wi-fi in the room

The facilitators are responsible for:

At the start of the meeting:

- Presenting clearly the purpose of the meeting and whether the meeting should lead to one or more decisions.
- Specifying the schedule of the meeting

Throughout the meeting:

- If participants move away from the purpose of the meeting, the facilitator must refocus the discussion.
- If some participants are uncomfortable or shy, the facilitator should encourage them to speak their minds.
- If there are misunderstandings between the participants, the facilitator should rephrase what has been said and clarify their meaning, to facilitate dialogue.
- At the end of the meeting, the facilitator should summarise what has been said to ensure that all participants share what has been decided.
- The facilitator may assign the task of "secretary" to one or two participants, who will take notes of the main decisions taken by the group.
- The facilitator shall ensure the proper conduct of the meeting by asking all to listen carefully and respect one another's views, without losing sight of the objective of the meeting.

5.2 Two models of organising a course of learning activities

During the piloting of the INVOLEN methodology, two models of organising the learning course were tried out and evaluated, and the advantages and disadvantages of each of them were assessed. Although certainly there may be several variations of these basic models, it is useful to keep them in mind when planning the course.

The “in-school” model.

The first model can be broadly described as the “in-school” one. The course is embedded in the school curriculum or is added as an extension to it. This necessitates short and regular, usually weekly meetings. This model has the disadvantage of limiting the meetings to regular school hours, affording limited time space to the course. Thus, some of the activities of the course have to be interrupted because they cannot be completed in the available limited time of each meeting, and either continued at home by the students, or resumed at the next meeting, restricting the effectiveness of the learning process. On the other hand, the regular meetings help to engage the participants in the activities of the course, enhance the cohesion of the group and create a shared work approach among the participants. The fact that the young volunteers come from the same school – and even from the same school class – may further help the communication within the group and the development of a common understanding. On the other hand, the frequent short meetings are likely to discourage the consistent participation of the seniors in the course, especially as the schedule of the course is likely to be inflexible, being part of the school programme.

The “open venue” model.

The second model is based on longer meetings that take place during out-of-school hours in a suitable location, which could be a school, the premises of an NGO, a youth

centre or a public venue offered by a local institution (e.g. by the local municipality). This model gives more time to the course participants to complete a course activity within a single meeting. In this model, the young participants are likely to originate from different local schools and thus it is important to provide time for building good communication and team spirit amongst them. This can be achieved by allowing the participants to spend time, especially in the early meetings, to socialise and get to know one another better – for instance by holding long breaks. In an out-of-school setting, intergenerational activities are also more likely to be carried out in a more spontaneous way and the engagement of the participants can be thus maximised. On the other hand, extended meetings may be tiring for the participants, especially concerning ICT training sessions, and the facilitators should be very careful to avoid discouragement of the participants, especially during the initial stages of the training, when they must absorb a large amount of information. Overall, however, longer meetings can work well for groups of youth that are highly committed to the activities of the course, given that they participate during their free time.

5.3 The structure and content of the course

The course includes three types of learning activities:

- A planning meeting at the start of the course.
- Six work units, each consisting of one or more meetings held in a seminar room or classroom, including one or two visits to the protected area selected by the group to focus on.
- Conservation activities to be performed jointly by young and old.

5.3.1 The planning meeting

Required attendance: all volunteers, facilitators and environmental expert

Length: at least 2 hours

Objective: joint planning of the course and creating group cohesion

Tasks step by step:

1. Know each other:

- The Identity card technique (cf. A Toolkit for Learners, p. 53)
- Map of youngsters' and seniors' skills

2. Definition of the common aim

- Everyone talks about why they participate in an INVOLEN project: brainstorming
- Definition of the common aim: The 2/4/8 technique (cf. A Toolkit for Learners, p. 54)
- Talk about the game that will be created during the course
- Talk about raising awareness within the local community on the conservation needs of the protected area.

3. Composition of working groups

It is recommended to divide the participants in smaller working groups (sub-groups) and assign specific tasks/roles to them.

Caution: young people will be more numerous compared to seniors; therefore it is important to ensure that all have an equal say and an equally important role. When creating working groups, make sure to keep the balance regarding age and skills of participants. If possible, create groups with at least one senior and 2-3 young participants. This composition is likely to work well, allowing everyone to express themselves and take part in the discussion. Allocating roles among the group members should be worked out based on their consent. As the learning activities develop during the course, the participants should be given the opportunity to change roles and/or move from one sub-group to another.

In the Greek pilot course, which involved an exceptionally large group of volunteers, experts and facilitators, there was an issue concerning the allocation of roles and team management responsibilities. During the preliminary meetings of the group, 4 sub-groups were created, and each sub-group was invited to try and develop a scenario and work on the game design. This approach aimed to involve all participants in the game development in order to help them improve their ICT and game development skills successfully. Working in small teams proved very effective, releasing the creativity of individual participants and facilitating learning. The sub-groups were later redistributed to form larger teams, and the team-members' roles were re-assigned to fit the participants' interests under the guidance of the facilitators. This model of work organisation seemed to be efficient with larger groups of participants.

4. Agreeing on the timing and length of the course meetings

This planning meeting gives the perfect opportunity to the project participants to agree how often they can meet, where, and how long each meeting can be. Considerations of the availability of the participants, the facilitators and experts and the meeting room should be discussed and taken into account, leading to a schedule of 7-12 weekly meetings. The number of meetings necessary to complete the course depends on the length of each meeting.

The timetable prepared during the planning meeting should be taken as a draft schedule, which will set important deadlines, and will give all participants an idea of the commitment required from them over a period of approximately two to three months. This schedule is almost certain that will be revised as the project is being implemented and the group discovers that needs more time for the completion of certain units.

5 Clarify the timing and purpose of the field visits

Field visits are needed for diverse purposes:

- to know better the site and the environment and practice conservation activities
- to get information about the site locations useful for the game
- to test the game

The group members should be informed about the area they are going to visit, the transportation means to be used, the length of time to be spent on the trip; and they should also be given a brief description of the activities that will be carried out during these visits.

6 Creating a mailing list of participants

Creating a mailing list of participants is helpful, enabling and encouraging them to communicate by e-mail. Also, the lead facilitator should remind the participants about the meetings by email, without excluding other methods of communication (such as telephone calls) as necessary.

5.3.2 The work units

The learning process that implements the INVOLEN methodology is structured in “units”. Each unit has specific objectives, learning content and structure. In total, there are 6 units included in the learning schedule. In the description of the units that follows, the location (indoors or outdoors) the objectives and content, the outcome and the length are outlined. Regarding the length, an indicative figure is given, on the basis of the piloting carried out by the INVOLEN team. This figure should be adjusted by the facilitators of each course, on the basis of the number of participants, their skills’ level and the time available for each learning session. It should be also stressed that each unit may be extended to more than one meeting.

Unit 1: Introduction to the course - nature protection.

Location: classroom or seminar room.

Participants: Group meeting of facilitators and volunteers, with a nature conservation expert.

Objectives/content: Discuss the schedule of meetings and the learning content of the course, consolidate the results of the planning meeting; presentation by the expert, referring to the value of protected natural sites, with special reference to NATURA 2000 sites; introduction to the protected area that will be the focus of the course and the game; conservation techniques, challenges to volunteers about enhancing the protection of their selected site.

Length: 2 hours

Outcome: a plan of specific dates for subsequent meetings; familiarisation with the protected area and its conservation.

Unit 2: Field visits

Location: outdoors, in the protected area selected for the game.

Participants: All volunteers and facilitators

Objectives/content: this Unit has a dual objective: firstly, to introduce the junior and senior participants to the concept and practice of volunteering for nature conservation; and secondly to enhance the cohesion of the group, by involving all the group members in a joint activity out of doors. To achieve these objectives the group should pay one or more field visits to the protected area selected to focus on, for observation and joint conservation activities, performed together by junior and senior participants. One to three visits are envisaged, spread across the units. During the first visit, an introduction to what the group members will see should be given by, preferably, a conservation expert, as well as a

description of the conservation activity that will be undertaken during the visit. During the first and/or second visit, the group members will be encouraged to collect audio-visual material from the site, including photos, videos, sounds, as well as background information that can be used to create content for the “volunteer conservationist’s game” – in short “INVOLEN game”. It is advisable to end every field visit with a brief gathering over refreshments, to discuss the experience. The last field visit will take place near the end of the course, and will be devoted to playtesting the game.

Length: 2,5 - 5 hours, depending on the distance of the site from the starting point of the group, and the size of the area visited.

Outcome: Performing joint conservation activities by the junior and senior participants, collecting visual and audio material, as well as information from the site visited, getting to know better the protected area to be the focus of the game to be created by the participants; playtesting the game.

Unit 3: ICT-training

Location: classroom or seminar room.

Participants: Group meeting of facilitators and volunteers, preferably with the presence of an ICT expert with a working knowledge of location-based game design (the ICT expert may be external or one of the participants, if the latter has expertise on this field).

Objectives/content: Learning how to use a game design platform for game development (e.g. of the type of ARIS or similar). Introduction to the selected platform; showing a simple game to the participants and explaining how it has been created; explaining the importance of scenario building; encouraging participants to sign up and try to create a very simple game themselves, under the supervision of the facilitator and the ICT expert (if present). Discussion and homework for more practice is recommended.

Length: 2 hours

Outcome: ICT skills relating to game design and development for mobile devices.

Unit 4: Storytelling

Location: classroom or seminar room.

Participants: Group meeting of facilitators and volunteers

Objectives/content: Facilitating intergenerational learning by documenting senior volunteers’ stories/experiences from the selected protected area, in order to link them with conservation issues. The session should include: introduction to the importance of storytelling; explaining how the stories can be used; narration of stories by seniors; recording the stories of seniors by young participants.

Length: 2,5 hours

Outcome: Intergenerational interaction. Filing two to three stories that can be subsequently used to create the scenario of the game.

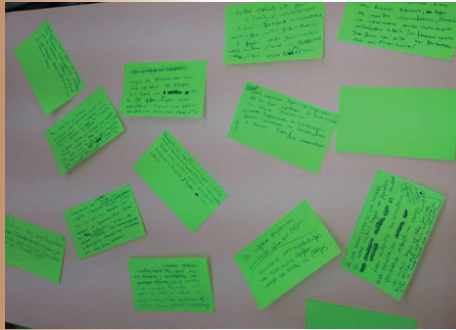
Unit 5: Scenario building

Location: classroom or seminar room.

Participants: Group meeting of facilitators and volunteers, preferably with the presence of an (external or internal) ICT expert with experience in location-based game design.

Objectives/content: Guided by the facilitators, the intergenerational group members assess the stories and information documented during Unit 2 and Unit 4 and select the





story or stories that can be used to build the scenario. The group should concentrate on those stories that are relevant to a prominent conservation issue in the protected area. This unit includes:

- an introduction by the facilitator or an expert (e.g. a literature teacher) about how to write a scenario
- a creative brainstorming about the content of the scenario
- creating a draft storyboard of the game, enriched with practical conservation input provided by the conservation expert; and by the experiences of the group during the field visit(s) of Unit 2.
- writing the scenario: this can be done by dividing the group in smaller sub-groups

Important: consult the directions provided in the Toolkit for learners, chapter 1.4.

Length: 3 hours

Outcome: the scenario(s) of the game(s) and the storyboard of the game(s)

Unit 6: Game development

Location: classroom or seminar room; and outdoors in the site where the game is based.

Participants: Group meeting of facilitators and volunteers; the presence of the ICT expert may be an advantage.

Objectives: Developing the game on the basis of the scenario created in the previous unit, and using audio-visual material collected during the field visits of Unit 2. The game

development can be finalised through homework by the students, monitored by the facilitator online, if the necessary time cannot be provided in the classroom. There are three steps in this Unit:

1. Construction of a draft game. The group members prepare a prototype which must be then tested for functionality.
2. Playtesting on location. The draft game is checked during a field trip to the protected area the game is located in (see also Unit 2).
3. Adjusting and revising the game, eliminating bugs and improving its functionality, to obtain the final consolidated version.

After finalising the game, the groups may wish to play the game on site, in the protected area, and discuss with the facilitators and experts the results and experience of the learning methodology.

Length: 5 hours

Outcome: one or more completed "INVOLN games", playable on mobile phones or tablets by anybody visiting the protected area selected by the group.

5.3.3 Monitoring and evaluation

Monitoring and evaluation of the course is very important for the facilitator, to make sure that the learning objectives are achieved and to make adjustments, as necessary, to remedy any problems or shortcomings that may arise during the learning process. For this reason, a questionnaire has been developed to measure satisfaction with the course and achievements by the participants. The questionnaires should be delivered to the junior and senior participants after the completion of each Unit. Through the questionnaires, information may be sought on the following:

- Whether the meeting(s) met their purpose.

- What is the learning outcome of the meeting: a) in relation to environmental conservation, b) in relation to intergenerational learning, c) in relation to ICT and game design.
- How the collaboration between the two groups of participants (young students and seniors) and within each group has developed; and to what extent collaboration with the facilitators has been achieved.

If there are more than one facilitators taking part in the course, then it is advisable to ask them to fill in a questionnaire as well, to report their opinion about a number of issues that concern the progress made in the group and the response of the participants to the course activities. The project leader (leading facilitator) should collect the questionnaires of all participants, including the facilitators.

The questionnaires that were used during the pilot application of the INVOLLEN methodology are presented in Annex III.

For the topics "whether the meeting met its purpose" and "learning outcome", the participants are asked to write their comments by responding to open-ended questions. The questions about collaboration invite the respondents (all groups) to assess this aspect of the course by using a four-point Likert scale, ranging from "poor" to "satisfactory", "very good" and "excellent". The facilitators' questionnaire includes another 4-point Likert scale, recording their assessment of the volunteers' response to the course (indifferent, slightly interested, very interested, enthusiastic).

Comments from the piloting facilitators

"...a great groupwork capacity despite the heterogeneity. Moreover, mixing students from two different classes was good for encouraging new friendships. The interaction between students and seniors was amazing and everybody could share knowledge and competences: creativity, informatics expertise, knowledge about nature." **Italy**

"...it was quite a difficult task to fully achieve the learning outcomes for all the participants, since the demands for ICT skills (ARIS games and Apple ICT devices) was something really new for them." **Slovenia**

"The youths were enthusiastic about playing the games with the elders and they were pointing out to the older participants the parts of the scenarios where the seniors' stories were used"... "when the channels of communication between generations are open, the interest in exchanging experience is rising." **Greece**

"the lack of motivation by some course participants was addressed by field visits and interactive research, which helped to keep up the students' interest in the project." **France**

"...a great opportunity (for the participants) to do something for the environment", "absolutely positive results of the learning process for the young people" and "we were impressed by the IT skills the young volunteers developed and we could do nothing but praise their engagement and creativity." **Hungary**



Comments from seniors

"In the beginning I observed a lot, then, during the excursion, I started collecting rubbish and I was surprised because the young students followed me, starting to collect rubbish as well." **Italy**

"despite all the stereotypes about them (youth) ... even if the young participants sometimes are not available because they are very busy, some of them have a strong motivation to create something in common -a game."

Slovenia

"We gained a positive view of life from the youth who offered their laughter and freshness and joy to us" and "despite being beginners in game design, the young people were able to identify the environmental issues and express them through the game." **Greece**

"...it is important to be able to transmit values and memories of the natural heritage to the younger generations" and "we gained some knowledge of the digital world during the project, although we are not yet comfortable with it." **France**

"...the quality of the ICT training meeting was excellent...it was really satisfying that the young ones appreciated our stories and used them for the scenario of the game." **Hungary**

Comments from youth

"The seniors were very helpful giving us their knowledge -were like a human encyclopaedia and they were not boring at all" and ... "some senior participants were very keen on using computers and cameras; they offered help but I'm sure they also learnt something from us as we learnt from them" and also "Many things of the elders' life are similar to ours even if they do them in a different way." **Italy**

"I learned a lot about pollution, bird nesting, farming, how to live without polluting the environment, fertilisers and pesticides, protected parks, karst fields and hayracks." **Slovenia**

"...the older people care a lot about the environment, they have helped to clean the area and they have a lot of knowledge about the way things were in the past" and "... we can visit a protected area or a park and not get bored - with technology we can make this (experience) more fun." **Greece**

"I feel proud to have participated in this project and I want to continue developing games such as the one I created for the project...it makes you feel a creator..." **France**

"the older people think wisely,...we can learn from them" and "Very interesting and important stories have been told to us during the field visit." **Hungary**

6. What you Need to Know about Location-Based Games

6.1 Group's needs regarding ICT

During the piloting of the INVOLEN methodology, high interest was expressed by all participants for the development of their ICT skills, especially game design and game development skills. The facilitators who plan to implement the INVOLEN methodology need to develop these skills at an early stage of the INVOLEN course, to be able to guide the junior and senior participants during the game design and game development units. The necessary skills include on-line multimedia management, Web 2.0 environments, usage of new generation smartphones and GPS devices, online mapping, geo-tagging and basic knowledge of Location-Based Game (LBG) design using the available online platforms.

6.2 Location-based games in education

Hide and seek, I-Spy, police and thieves, role playing games and capture-the-flag have all been popular real-life location-based games that have been played in different versions across the globe. These games allow the players to refer to physical objects and location(s) and use their creativity and imagination in order to interact meaningfully with others, as well as with the location(s). In recent years there has been a rise in the number of creative games, interactive narratives and playful activities that are facilitated by mobile devices in such a way that the game activity follows the players' location. A term used to describe such games is "mobile location-based games"⁸.

The advent of mobile devices, such as smartphones and tablets, and the fast evolution of game technology, provide great opportunities to develop place-based games that encourage participants to become immersed in playful and meaningful interactions, using different layers of information.

These products also offer real opportunity for learning and storytelling about specific locations and routes, introducing the natural or built environment as a participant in the players' interaction process and experience.

The ARIS game-design platform has been predominantly used during the piloting of the INVOLEN methodology for the creation of LBGs by the pilot participants, especially youth. It is useful to present here some of the key ideas put forward by David Gagnon⁹ who is the director of the ARIS project, concerning the importance of exploring new media and technology, such as mobile devices and video games, for learning purposes. New media, such as internet-connected mobile devices, enable instant social networking, micro-blogging and video sharing, all of which are being widely used by young people¹⁰. The nature of these media and the applications used, possibly more than their content, have greatly influenced the way the younger generation and society at large think¹¹.

In recent years, advanced mobile devices have made the use of Location-based Services (LBSs) very convenient¹². LBSs are IT services for providing information that has been created, compiled, selected, or filtered taking into consideration the current location of the users or those of other persons or mobile devices¹³. With the expansion of LBSs, location-based games have also gained in popularity and become more widespread.

Many applications for modern smartphones incorporate LBSs to provide location-based information. This information can be used to give location-based advice, navigation

⁸ Avouris & Yannoutsou, 2012.

⁹ Gagnon, 2010.

¹⁰ Smith & Caruso, 2010.

¹¹ McLuhan et al., 1994.

¹² Kuet al., 2008.

¹³ Küpper, 2005.



directions, to track movement and conveniently communicate one's current location to friends, etc. However, it can be also used in the fields of entertainment and learning, to create games that make the position of the player an essential part of the gaming process¹⁴.

A location-based game (LBG) is defined as a form of play designed to evolve on a device in motion, directly linking the game experience with the location of the player. To create a location-based experience, usually a connection to other devices such as a server or other players is necessary. However, it is also possible to run single player games, provided that all required information is stored in the player's device. In this case, a connection to other devices is not necessary to run a LBG, as long as the game follows the changing locations of the player's device¹⁵.

Location-based gaming offers great educational possibilities, as it allows educators and facilitators

of learning to create constructivist experiences rich in educational content. The proliferation of LBGs is due to the widespread use of mobile devices, like smart phones, with advanced location sensing capabilities, as for example GPS satellite positioning. LBGs can be compelling for young players as well as adults.¹⁶ Video games are, by their very nature, built around interaction and participation. Therefore, they provide a tool for designing curricula that offer more than mere exposure to content, aiming to enrich student

experience through active participation¹⁷. LBGs offer an additional level of experience: due to the fuzzy border between games and real world activities, and because of the resulting changes in the game experience, players become involved and associate with the LBG, thus gaining stronger emotions and satisfaction from well designed LBGs¹⁸.

Mobile games are particularly suited to creating educational experiences in informal settings. Mobile media and augmented reality can fruitfully combine the advantages of educational video games with place-based learning¹⁹.

LBGs offer great opportunities to include educational content in the playful experience by using context-aware learning tactics and content generation mechanisms like augmented reality, embedded in a mobile device game or triggered by simple technologies such as QR codes and Rfid.

LBGs have another important feature, which makes them valuable for education: they connect places and stories. In an LBG, it is possible to embed extra layers of information and narratives about, for example, historical locations or other places in a city. By visiting real places, the story becomes a personal experience linking physical objects with learning content. This conveys to the player location-specific knowledge, which is easy to remember, exploiting the connection between the real world and the game²⁰.

6.3 Game Patterns of LBGs

A useful classification²¹ of potential game patterns in LBGs is outlined below.

14 Lehmann, 2012.

15 Lehmann, 2012.

16 Montola et al., 2009).

17 Squire, 2006, Gee, 2004, Dewey, 1938, Gagnon, 2010.

18 Lehmann, 2012.

19 Squire et al., 2007.

20 Lehmann, 2012.

A. Search-and-Find

In Search-and-Find games the player has to search for a specific geolocation in order to make progress in the game. This can be made possible either by suggesting the rough location to be visited using a map in the game interface; or by giving a clue referring to the surroundings e.g a building, a road feature or a landmark. In such games the player can choose from a range of proposed locations or move towards the single location suggested. Reaching a destination is the main objective behind Search-and-Find Games.

An example of this game-pattern is *Geocaching*²² in which the player moves to a specific location in order to find a hidden physical object, usually a box containing items, then takes one item out of the box and leaves back another item in replacement to the one the player removed. GPS coordinates provide the location for the next “geocache” to be discovered.

B. Follow-the-Path

A Follow-the-Path game is quite similar to a Search-and-Find game with the only difference being that a destination is not the goal, but the sequence of destinations is, and how the player reaches them. Any deviation from the defined route can result in penalties for the player i.e. missing a reward/item/clue. Treasure Hunt is one of the most popular Follow-the-Path games.

C. Chase-and-Catch

In Chase-and-Catch games the players try to find a moving virtual target and claim it: this target can refer to the actual location of another player or the changing locations of a moving virtual object that exists only in the game world. The player is informed about the location of the target via the game interface/ interactive map and the aim of the game is to approach the target quickly to “catch” it. This game-pattern promotes strategy building and physical activity while it can involve a single player or be a multiplayer gameplay. Ingress²³

is an augmented reality territorial version of the Chase-and-Catch game type.

D. Change-of-Distance

Change-of-Distance games use the notions of proximity or remoteness between the player’s location and several geolocations within the game; the location itself or the direction of the player’s movement is not as important as the movement of the player. The player’s goal is to either move towards a location or move further away. An example of this pattern is The Journey: in this game the actual location of the player does not influence the plot, however the movement and the journey of the player are tracked, as well as the locations already visited.

6.4 Challenges during Design and Play

The very nature of LBGs, being placed in the physical world and using actual locations and places as their backdrop, poses several challenges to both designers and players, such as energy consumption, network coverage or GPS accuracy.

A. Energy Consumption

Using GPS on a mobile device while being connected to a wireless Internet at the same time results to high-energy consumption in most devices. Shorter game sessions and offline intervals or content introduced through QR codes can reduce the energy demands of an LBG.

B. (In)-Accuracy of Positioning Systems

Bad reception of GPS signal or inaccuracy of positioning systems can cause interferences to the player’s experience. A strategy that may efficiently address this problem is to

²¹ The patterns are presented according to the work of Lorenz Lehmann, 2012.

²² <https://www.geocaching.com>

²³ <https://www.ingress.com/>

increase the range of the geolocated virtual objects so that a non-accurate location would have fewer possibilities to interfere with the gameplay.

C. Inadequate wireless internet reception

Several of the natural areas meant to host INVOLEN games may have low 3G coverage. Bad signal is not unusual in natural areas and in some urban areas as well. Testing the signal of different providers on-site with mobile devices before starting the game could prove useful for two reasons: firstly, to define the field of action for the game more precisely; and secondly to choose a provider that offers the best coverage. Portable hotspots can also come in handy for data sharing in such cases.

However, if the group of designers preferred to create an offline game, either because data pack plans can be expensive or because portable hotspots can be slow, an alternative would be to use QR codes. This is a feasible option if the would-be game designers wished to avoid internet coverage restrictions, being willing, at the same time, to settle for text-only game content.

7. Five Case Studies of Implementing the Involen Methodology

A description is provided here of five different cases of piloting the INVOLEN methodology. Each case study includes the following sections:

1. A brief presentation of the protected area selected
2. The composition of the groups of participants and their recruitment
3. The management of the course, in terms of planning, facilities, frequency of meetings and bonding of participants, especially between generations
4. The achievements of intergenerational learning
5. The development of the game

7.1 ITALY

7.1.1 THE PROTECTED AREA: Provincial Park of Monti Livornesi

The protected area "Provincial Park of Monti Livornesi" was selected because of previously established contacts between the partner IBIMET-CNR and the local associations involved in the project "Occhi sulle Colline", the aim of which is the protection and sustainable development of the Livorno hills.



The Provincial Park of Monti Livornesi is located on the coast of the Tuscany region, very close to Livorno city, and covers 1329 hectares of public territories in the Livorno, Collesalveti, and Rosignano Marittimo municipalities. The Park is under the management of the Province of Livorno. The vegetation is mostly natural Mediterranean



woodland which extends southwards, covering 3300 hectares. Moving from the coastline to the interior, the hills are at first covered by a thick Mediterranean shrub that becomes Mediterranean maquis, characterised by dense and often

impenetrable vegetation of low trees until reaching in inner locations moister sites with high-tree woodlands. In Colognole, the holm oak high forest (climax vegetation of the Mediterranean zone and rare to see in areas where coppicing used to be a common practice) can be observed. The main vegetation species are holm oak (*Quercus ilex* L.), cork oak (*Quercus suber* L.) and strawberry tree (*Arbutus unedo* L.), while the local fauna includes typical European species like wild boars and foxes – with the presence of wolves also witnessed.

Moreover, the area contains important cultural heritage. In the XIX century, the area was known for the richness of its high quality water springs, and the water needs of Livorno city made this area attractive for water exploitation. In 1809, engineer Pasquale Poccianti took over the direction of the Colognole aqueduct construction. The aqueduct is 18 km long and is an elegant structure made of decantation pools and roman style arches and stairs, which served the needs of villages close to it.

7.1.2 THE PILOT GROUP

The recruitment of the pilot group members was made through contacts with local education institutions and non-profit environmental volunteering associations in Livorno. The director of the secondary school I.C. Micali in Livorno, agreed to involve two classes of students in the project, and assigned two teachers as facilitators.

Since the director of the school and the teachers recognised the didactic value of the project, the two classes initially selected were included in the piloting as two pilot groups with the same elders. However, this created difficulties



in managing the work units and it soon became clear that the existing imbalance between the numbers of seniors and students was not conducive to intergenerational learning. Thus, a smaller and more balanced pilot group was created, which included the most motivated students of the two classes. Eight 13-year-old students (six female and two male) were assigned to the pilot group.

The seniors were recruited from the local volunteering associations (the Botanical Group, the Group for Research on Spontaneous Orchids and the Archaeological and Paleontological Group in Livorno) operating in the context of the project "Occhi sulle Colline"; and with the help of the Museo di Storia Naturale del Mediterraneo (Natural History Museum). The INVOLEN project was initially presented at a public event for the European Parks Day on May 31st 2013, organised by Occhi delle Colline, in which many attendants were volunteers of the local associations. On this occasion a small group of seniors showed interest to participate and were recruited. Four seniors in total were actively involved in the learning experience. They participated in all meetings and demonstrated interest and a good cooperation spirit.

The environmental experts were recruited among the volunteers of the local associations (Livorno Botanical Group, Italian Group for Research of Wild Orchids, Livorno Archeological and Paleontological Group), which run many activities for nature protection, and the promotion of the protected area. The ICT experts were recruited from the IBIMET-CNR staff. The ICT experts guided the process of storyboard creation and game development in ARIS. The presence of the ICT experts was useful because they were able to make technical adjustments in the game and channel the imagination and creativity of the group in line with ARIS's real possibilities

Four facilitators were finally involved, partly from IBIMET-CNR staff (one of them also a WWF activist) and

partly teachers of the secondary school. The teachers were recruited by the school director among those more interested in the intergenerational learning methodology and in nature protection. The facilitators had mainly a managing role.

7.1.3 MANAGEMENT

All the pilot group members participated in almost all meetings. The two teachers were present alternatively, because the meetings were organised during school hours and sometimes during the teachers' class sessions. On the other hand, seniors attended all meetings. In total 28 meetings were held, including 3 planning meetings and two field trips. Meetings had an average duration of 2 hours each, although the introductory meetings (Units 1 and 2) and the meetings devoted to the collection of materials (Unit 3) were shorter, whereas the meetings for storyboard development (Unit 4) and game implementation (Unit 6) were longer.

Two half-day field trips were organised: one at the location selected to construct the game, in the Colognole aqueduct area; and one guided tour to the Cisternone, the main water tank in Livorno, the last relic of the Colognole aqueduct. The latter was organised in the context of the FAI (Fondo Ambiente Italiano) National Day and it became possible thanks to the parents who accompanied their kids.

The facilitators set the calendar of activities and sent regularly by e-mail the schedule for each meeting, and sometimes they assigned homework; they also organised interviews, classroom presentations and volunteering activities. The teachers were also responsible for the organisation of the field trips.

The core pilot group (eight students, four elders, four facilitators) focused on the story creation, the storyboard development and the game implementation. They met several times during school hours in a classroom equipped with IWB (Interactive Whiteboard or PC and beamer). Some

project activities were still implemented with the whole class (including the students who were not involved in the pilot course), such as: being an audience for the presentations made by the seniors, interviewing seniors and collecting information about the protected area, as well as drawing characters for the game animation and taking part in volunteering experiences and the field trips.

The bonding between generations took some time to materialise. During the first meetings, interaction between the two age groups was limited due to initial shyness and inhibition. As the project progressed, however, the cooperative spirit developed and the joint work became lively, proactive, polite and productive. The good interaction between the group members was enhanced by their personalities: open to dialogue, and keen to learn and teach. The most interactive meetings concerned the elaboration of the game storyboard, which was a long ongoing process, drawing on the endless imagination of the participants. The interviews were pleasant moments in which the group cohesion increased further: tales about personal experiences and hobbies (personal stories, photography, and fire-guard volunteering experiences in the protected area) helped to create empathy, while the presentations about the peculiarities of the protected area were useful to enrich knowledge and competences. It became also clear that the use of new technology appliances (cameras and aiding tools to make good pictures, but also iPads and smartphones) was a good way to make the two generations interact vividly.

Some lessons that were learnt during the piloting, concern the composition of the group and the number of meetings that realised the course:

- a) Reach the right balance in the pilot group. In the school context, balanced groups for intergenerational learning imply the inclusion of just a small number of students in the core activity. Therefore, the teachers suggested that a

core group would be formed and the remaining students of a class would work on activities that were complementary to the core group's work: drawing characters for the game, doing research and taking part in the experts' presentations about the area. Moreover, all students participated in the field trips and the final event at the school.

- b) Management of meetings. The expected time commitment of ICT experts and facilitators was indeed high. This was further necessitated by the time spent setting up the technical equipment, and dealing with the bureaucracy to organise field trips. To a large extent, the effectiveness of the course and the learning experience depended on the organisation of the meetings and the technical equipment available. Also, a positive factor that contributed to the success of the pilot course was that, thanks to the sensitivity of the school director and other teachers, the students who participated in the core pilot group were allowed to leave their classes in some occasions, to take part in the activities of the project.



7.1.4 INTERGENERATIONAL LEARNING

Many learning outcomes have been achieved during the piloting. Classroom presentations, interviews, field trips and volunteering experiences were the most effective moments for learning. Young and older participants learnt a lot about nature: protected species, flora and fauna of the protected area, the history of the aqueduct and life in the area in past times. The seniors provided a wealth of information and were compared to a 'human encyclopaedia'.



Conservation practices and environmental issues were mostly dealt with during the field visit in the area of the Colognole aqueduct and by the description of volunteering activities (research and monitoring of wild orchids, cleaning up activities) offered by the seniors, being members of the project Occhi sulle Colline. Also the seniors learnt from each other, being experts in different fields concerning nature and the environment in general.

Experts gave talks on the Provincial Park of Monti Livornesi and the history of the Colognole aqueduct, and also on the water management system. The seniors of the pilot group were also experts in several fields of nature in Monti Livornesi and gave talks about vegetation and ecosystems, protected species, fire protection systems, and human behaviour in natural environments. During the field trips, the participants understood how all these aspects are placed in a real context.

The conservation activities performed by all pilot group members provided indeed a further opportunity for exchanging experiences and competences between the generations. The INVOLEN pilot group was officially commissioned by the manager of the Provincial Park of Monti Livornesi to create attractive drawings for the information panels to be placed along the new paths in the Colognole area. The panels were intended to be instructive and encourage visitors to show respect for nature. The facilitators

and the seniors launched a sort of competition for drawings and sketches on different themes dealing with environmental issues. The best drawings were selected to be included in the information panels.

The main learning outcomes concerned knowledge about the area (nature and artefacts as a sign of local people's needs and activities in the past) and certain prominent environmental issues (neglect, management of garbage, acoustic pollution, protection of rare species, etc.). The seniors also raised their own awareness on the effectiveness of technologies as means of communication for transmitting knowledge and positive attitudes.

Moreover, the seniors learned, through intergenerational interaction, how to approach and communicate with the teenagers about environmental issues. At the same time, the seniors received some useful tips from the youngsters on technological issues (how to modify images, save objects and other technical aspects in ARIS) and on the use of modern devices, such as smart phones and tablets.

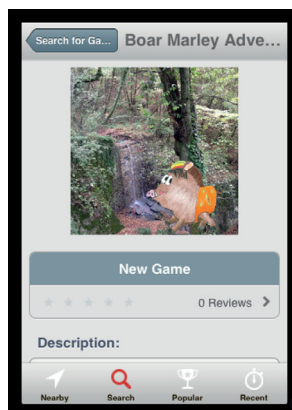


7.1.5 LOCATION BASED GAME

Development of the storyboard

The stories and the information provided by the seniors and experts were the basis for the creation of the game scenario and its storyboard. During the scenario-building meeting, each participant suggested ideas for the story (purpose, main characters, actions). The ideas were put to

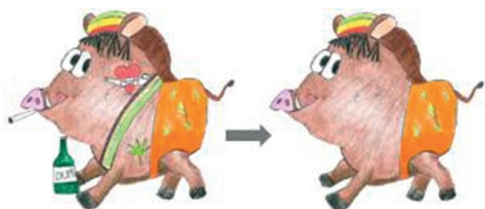
voting and the definitive character was thus determined: a dirty boar with a lot of bad vices. From that, it was easy to define the final story, which includes:



- The main character: Boar Marley (as a symbol of the local fauna)
- The purpose: to help Boar Marley get rid of his bad vices learnt from human beings
- Player actions: solving queries in geolocalised points along the trail (2 km) to make Boar Marley get rid of his vices. Queries can be questions posed by characters or objects obtained along the way

- Virtual characters: youngsters with bad manners, Eng. Poccianti, and Rossana and Iolanda (two seniors participating in the pilot group)

The game "Boar Marley's Adventure" aims to increase the players' respect and sensitivity toward nature. The objective of the game is to help Boar Marley get rid of the bad vices he has acquired from man and make him "clean". So, moving along



a path in the Colognole aqueduct area, the player reaches geolocalised points of interest in which he virtually meets various characters and answers their questions in order to collect the inventoried objects. The game also gives information about the aqueduct, vegetation, protected species etc.

Game implementation in Aris

The information gathered through the stories and presentations given by the experts and seniors was elaborated by the imagination of the pilot group. Once the characters and storyboard were defined, the pilot group was challenged to transfer this to the ARIS platform. The ARIS platform was studied and tested during the storyboard development, in order to get acquainted with the gaming possibilities it offers, as well as with its structure and functioning. The game is made by one quest with 4 queries, and every time the player solves a query, Boar Marley discards one bad vice. The game images are rich in drawings (characters, objects etc.), which were created by the young participants during the art lessons at school.

The equipment used during the units dedicated to the storyboard and the game development was:

- Internet connection (wi-fi) for iPad and PC
- at least one PC for operating the ARIS platform
- Beamer or IWB
- iPad or iPhone and cable-connector for iPad/iPhone to the beamer

It should be noted that working on iPads with wi-fi can be problematic when the wireless connection is weak and fails. In the pilot course, using the participants' personal smart phones for tethering solved the lack of wi-fi connection.



7.2 FRANCE

7.2.1 THE PROTECTED AREA: Dune area of Gâvres Quiberon

The dune area of Gâvres Quiberon was chosen for the pilot project. Located beside the sea in the south of Morbihan, this area houses a variety of rare flora and fauna. It is also a haven for birds and bats.

Indeed, the dunes offer shelter to a mosaic of habitats. Since 1997, a preservation project, as part of a "Opération Grand Site", has been implemented, piloted by the Syndicat Mixte du Grand Site Gâvres-Quiberon. In 2002, the dunes site has joined the Natura 2000 network.

The coastal flora includes many species: fungi, mosses, ferns, flowering plants. The *liparis* of Loesel, a rare variety of orchids, grows along the edge of the wetlands. The mudflats and the beach regularly welcome the gulls, waterfowl and shorebirds, migratory and wintering mainly.

The area has changed a lot over the last hundred years, both negatively and positively: as a result of the Second World War and the fortifications built along the coast, and also as a result of increased awareness of the area's vulnerability. Every effort has been made during the last twenty years to conserve and regenerate the area.

7.2.2 THE PILOT GROUP

The project staff approached youth leaders and nature guides situated around the dune area who were already working extensively with schools and young people. These professionals were able to link the project staff with a youth centre located in Belz, one of the municipalities bordering the protected area.

The young people aged between 11 and 18 who attended the Belz youth centre were asked to join the pilot group and the youth leader of the centre also agreed to take part in the piloting.

Seven young people aged from 11 to 14 years took part in the INVOLEN course and produced a game. The young people were interested in different aspects of the game. Some were particularly drawn to the technology-related aspect and were already quite competent in computing, whereas others (the younger ones) were simply keen to take part although they did not possess any particular IT skills. Only one of the seven was already interested in environmental protection and conservation of the dune area. None of the young people was familiar with the digital platforms used for the game.

Regarding the recruitment of seniors, the project staff also used their network to locate people who might be interested in the project. Four seniors, some of whom were already involved in the protection of the dunes, came forward. They were all interested in promoting the area using new technologies and in the opportunity offered to them to tell anecdotal stories (personal or otherwise) about the area. None of the four really had much computer knowhow.

Two facilitators and one project manager were involved in the pilot group. The first facilitator took care of the management of the group: planning of meetings, dates and schedule, location, snacks, calling youth on the phone to remind them about meetings; and trying to keep their motivation high. The other facilitator took care of the learning content



of meetings, including the technical part, the visit to the protected area, the booking of the computer room etc. There wasn't ICT expert, but this facilitator had also good ICT skills and acted as an ICT expert for the pilot

group. All decisions were made in agreement with the project manager, who was present at every meeting. The project manager also focused on the intergenerational aspect of the project (being an intergenerational learning expert herself) and encouraged the bonding between seniors and youth.

An environmental expert took part in several meetings during the pilot phase. At the beginning, to present the area, the environmental issues, the important locations and his job in the area: inform and educate the public about the preservation needs of the site. This expert organised the field visit of the group. He was also there to offer his views during the interviews of the seniors and the scenario creation, and ensure the coherence of the story regarding its environmental components.

7.2.3 MANAGEMENT

The group meetings were organised fortnightly on Wednesday afternoons, a time when the young people regularly came to the youth centre. At the beginning and the end of the project the participants took the opportunity of using the school holidays to spend longer periods of time together: every morning for a week. Each meeting lasted for three hours, from 14:00 to 17:00 pm. After the meeting,

a snack or a meal was offered. In total, 17 meetings were organised in 6 months: 3 during the first week, then one every two weeks, and to end the project, 5 meetings were held during the last week.

Two of these meetings were field trips in the protected area of Gâvre Quiberon: the first trip was led by the conservation expert, who explained the pertinent environmental issues, while the group members took photos and became familiar with the area. This trip was also combined with conservation activities; the second visit took place close to the end of the project, and gave the opportunity to the participants to playtest the game and make corrections as appropriate.

All the participants kept to this schedule throughout the pilot course (October to March) even though the project lasted for quite a long time and at some stages (e.g. during research) it seemed to interest the young people less than the other participants.

It is clear that the young people and the seniors took part in the project for different reasons: game creation was for the young the most important part of the project, while stories were the most interesting aspect for seniors. The group leaders tried at all times to ensure that nobody felt frustrated and that everyone felt able to contribute in their own way.

The project staff would have liked to see the seniors get more involved in the game creation, even though their stories did contribute considerably to the script, which was based on the stories. One of the main issues for the seniors was IT knowhow: they struggled to fully immerse themselves in the technical side of the project. The project staff came to the conclusion that perhaps they should have recruited seniors possessing already some technical knowhow, even if they didn't have any particular knowledge of the protected area. But of course, It would have been better to have a mixture of both!

It should be stressed also that the young people, in parallel to their initial enthusiasm for the technology side of the project, they developed an interest in the history and conservation of the protected area as well.

To achieve the necessary bonding between the generations, several joint activities were organised: a site visit, information and research on history, video interviews, (filmed and edited by the young people) etc.

For the game creation part, the young participants worked in pairs. Each pair of teenagers worked with a story told by one of the seniors. This strengthened the relationships between the young people and the seniors. Each story was used for a different part of the game. Moreover, at the final presentation of the game, a shared pride in taking part in the project together was visible in both groups, youth and seniors.

7.2.4 INTERGENERATIONAL LEARNING

The young people learned a great deal about the area, its environmental value and the reasons for its protection. Everyone also learned how to work in a group with different people whom they had not chosen to work with and who were sometimes very different from themselves. All the participants were dependent on each other for input. Everyone had a vital role to play in the project.



The first exchanges between the participants were shy and reserved, but the frequent meetings, joint work for a common project and sharing snack time, as well as meeting one another in the streets, had created a remarkable bonding.

Regarding nature and the conservation of the protected area, initially the project staff organised a visit to the area, providing detailed

information on the efforts that have been made to protect it. This visit was led by a group leader from the Gâvres joint association (syndicat mixte) and also allowed the group to take photos, which were used in the game.



While in the protected area, the group also took the opportunity to gather litter and clean the beach. The group members took part in the observation of nests and natural shelters of birds and bats.

In addition, the project staff created opportunities for the young people and seniors to talk together and exchange stories. The seniors brought along documents, postcards and history books about the area and its special features. The teenagers then put together a questionnaire, which they used for interviewing the seniors, trying to get them to talk about anecdotes and interesting stories focusing on the area. The project staff deliberately limited accounts about the area to a period dating back to 1930.

The pilot course also gave the opportunity to youth and seniors to change roles. Not only the youth had learnt from the seniors, but the seniors had also learned from the younger participants about games, ICT and mobile devices. The young people were particularly proud to organise and conduct the interviews of seniors; and moreover, they understood that without the senior's stories it would have been much more difficult to create a scenario and a game. The knowledge of the area was essential for the project, and the seniors were very happy to share this with the youngsters.



The young participants became, as they admitted, much more aware of the conservation issues of the area and of its history. Besides, the intergenerational exchange created respect and understanding between the generations, beyond all stereotypes.

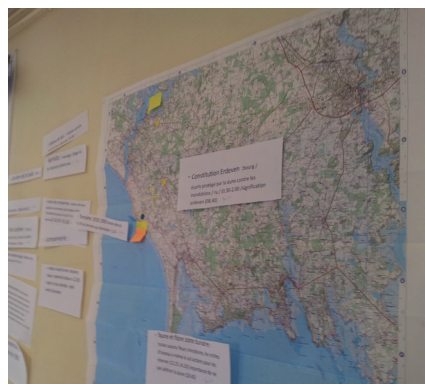
7.2.5 LOCATION BASED GAME

Development of the storyboard

The script was written once all the stories of the seniors had been recorded, listened to and noted down. Then the anecdotes and stories were superimposed on a general map of the site. The stories covered the area from Saint cado to Erdeven beach.

All the stories were displayed and a vote was taken to decide which ones were the most pertinent and could create a common theme for a walk. The project staff tried to create a balance between history accounts, personal anecdotes, general information about the site and so on.

By common agreement, each story was pegged to a specific place to represent a stage on the walk. Unfortunately, this meant that many of the stories went unused.



Several common themes and therefore scripts came out and here the group had to vote to decide which to go with. It was decided to choose 'The Involen quest: Théomaque's adventure': A young sailor returns home after several years at sea and discovers that his house has

been destroyed by storms. Certain objects precious to him have gone and he decides to set off to find them. His search takes him from Saint-cado to Erdeven beach and on the way he meets some older people who offer great help in finding his things and, at the same time, teach him about the importance of the area.

The teenagers drew a picture of Théomaque (a name arrived at through combining the names of different people in the group).

Then smaller groups were formed, each given the task of the technical construction of a stage of the game. The general framework of the game was defined in such a way as to give freedom to everyone in creating the story for their stage.

Game construction

The municipality of Belz provided the group with a multimedia space with five computers connected to the internet. This space was available whenever the group needed it (especially near the end of the project) and also meant that the group had somewhere to do screenings and put posters up on the walls.

One of the first intensive weeks was focused on getting to know the ARIS platform. The language difficulties the French have with English made the group unhappy to work with the game-development software in English. During the pilot stage the project staff discovered another platform in French, 'Enigmapp' which was therefore easier to get to grips with and gave the group members exactly what they were looking for. The interface is in French but can be translated in several languages, is intuitive, can create mini-games, etc.

It should be also noted that ARIS is currently



available on Apple devices only, whereas Enigmapp offers the choice to design games on Android and Apple. This helped a lot, given that most of the teenagers and seniors had Android and not Apple devices.



Nevertheless, in order to keep at pace with the other groups implementing the INVOLEN methodology, the French group created also a version of the game in ARIS.

On the left, the QR code offers access to the INVOLEN game.

7.3 GREECE

7.3.1 THE PROTECTED AREA: Vravrona Wetland

The Vravrona wetland is situated on the coast of Eastern Attica, and extends from the borders of the Vravrona archaeological site to the coastal zone, including the mouth of River Erasinos. In this area, Erasinos retains fresh water flow all year round. Several fish species live in these waters, from the rare and endangered Marathon Minnow to the common Mosquito Fish. Other common species include the Striped Terrapin, Marsh Frog, Grass Snake and Eel. The reedbeds that cover the banks of Erasinos are nesting sites of the Moorhen and the Water Rail, while Little Bitterns and other herons can be seen during migration. In the wet meadows, Glossy Ibis is a frequent sighting and passerines like the Nightingale sing from the dense shrubs and bushes that cover a large part of the wetland. Cultivated areas are very important for birds during spring and autumn migration, and the tree stands along the banks of Erasinos River are important resting sites for migrants like the Turtle Dove, Golden Oriole and Cuckoo. In the surrounding hills, birds of prey like the Long-legged Buzzard and the Short-toed Eagle are often seen. Finally, in the coastal area several species of Gulls, Terns, Herons, as well as the Kingfisher, can be seen fishing.

The presence of Man in Vravrona dates from the Neolithic period. The area became well known from 700 BC, when the Temple of Artemis was built. Every five years a procession, starting



from Acropolis and ending to Vravrona, signalled the opening of the religious feast of Great Vravronia. The temple was completely covered with mud and abandoned in 300 BC after a great storm. Land use has remained more or less the same since antiquity, with viniculture being the most prominent cultivation. There are also pistachio trees, olive trees and fig trees and various truck gardens.

7.3.2 THE PILOT GROUP

A secondary school in the town of Geraka, the 3rd Gymnasium of Geraka, situated not far from the protected area of Vravrona, was recruited for the pilot implementation of the INVOLEN project. The school agreed to include the INVOLEN project in the environmental education classes, which are held immediately after school hours, in the school premises; and one of the school teachers was officially assigned the role of lead facilitator. The seniors were recruited through a number of visits to the Old People's Day Centre in a nearby town, Markopoulo.

A larger than anticipated group of participants was involved in the piloting. The target group of young volunteers included 12 students 13 -15 years old (2nd and 3rd grade of Gymnasium). These students attended the optional environmental education class, scheduled by the school to run from 14:00 to 15:00 once a week. The seniors' group comprised 3 seniors recruited from the above mentioned day centre and was supplemented by 2 more members, the school's Headmaster and a member of the partner HOS's volunteers' network. The latter two members were also assigned the role of facilitator. The main facilitator came from the school's staff (an environmental education teacher) and was assisted by a member of the partner HOS's staff (an environmental education expert). Two ICT experts from partner PRISMA and two environmental experts from HOS also contributed to the pilot courses. In total, 27 people were involved in the pilot testing. The participants' presence varied

according to the topic of the meetings, since experts and additional facilitators were not necessary for every meeting. Thus, a group of 12 students, 3 seniors and 2 facilitators (17 in total) formed the core group, guided by environmental and ICT experts when needed.

7.3.3 MANAGEMENT

In Greece the pilot group met 15 times within a period of 5 months (October 2013 – March 2014) including one planning meeting and two field trips. The classroom meetings lasted for approximately one hour each. The field trips were organised at the beginning and the end of the course, and took 5-6 hours each, including about two hours of transportation and 3-4 hours of on-site work.

Due to the large size of the group, which included 15 volunteers, the participants were divided in smaller sub-groups and each sub-group worked independently. Initially, 5 smaller sub-groups were formed. In later meetings, they were reduced to 4 and during the final two units they were amalgamated in 2 groups, which undertook the development of two games, one game per group. Each member of the group was assigned a different task, but in many occasions, such as the creation of the storyboard, all the members of the team did their brainstorming together.

The junior and senior pilot group members were in the beginning rather shy to approach one another, as intergenerational learning is not





a frequent practice within the education system of Greece. The facilitators' contribution to building the cohesion of the group and the «breaking of the ice» was crucial. As the course progressed, the youth got more interested in the technology part, the ARIS platform and the production of the game, while the seniors were keener to transfer their knowledge and memories about their childhood and the protected area to the youngsters. The field visit to the Vravrona wetland created a very good opportunity for both groups to come together and talk about shared interests. The youth asked the seniors many questions about the area, and the seniors developed an interest to play the game, although their knowledge about technology was limited, realising how beautifully their stories came alive in a mobile game! Moreover, the conservation activities performed in the protected area, when the group

was playtesting the game, gave everybody the opportunity to share a common experience.

Two field trips to the protected area were carried out. In the first trip, a guided tour of the area by an expert was conducted. This visit aimed mainly at getting to know the area and collecting data for the creation of the game. Moreover, the seniors recollected stories and memories and shared them with everyone during the visit. The youth, on the other hand, had the chance to understand in situ the characteristics and the problems of the area. In the second

visit, three conservation activities were carried out: cleaning up the beach to save the birds nesting there; bird watching; and bird monitoring. The purpose of the first activity was to raise the volunteers' awareness on the difficulties that many species face every year when nesting on the beach, due to environmental pollution. The group cleaned up the beach from garbage and realised how many different types of human waste accumulate on it. The second and third activities aimed at collecting data on bird populations, providing information the bird associations with useful. All three activities brought all the participants closer to the world of birds and their habitats.

Some management problems inevitably occurred, as so many people with different time schedules had to be synchronised. However, most participants were eager to change or adjust their daily schedules to the timetable and deadlines imposed by the project, in order to have a successful result. Many group participants changed roles during the implementation and adjusted their contributions to the needs and dynamics of the team.

7.3.4 INTERGENERATIONAL LEARNING

The learning outcomes varied between the different age groups. Concerning the youth, a number of learning achievements was noted. In particular, students became familiar with the Vravrona wetland, its flora and fauna habitats and realised the importance of the Natura 2000 Network. They obtained significant information about the area from the seniors' stories, the environmental expert's presentations, the field trips at Vravrona wetland and from web research the groups conducted on their own. All participants, including seniors, developed an interest for conservation activities, came into contact with experienced nature conservation volunteers and understood the meaning of volunteering.

The young participants acquired ICT skills – especially in game design (use of a platform, file management, storyboard development etc) and became familiar with the safe and

pedagogical use of ICT tools. The creation of demo games and the play-testing sessions that took place on-site, as well as the homework in groups, were also important. All participants managed to work in groups effectively and learned to work together with people of different age.

The seniors gained satisfaction from the transformation of their stories to storyboards and mobile games; and at the same time they became a little more familiar with modern technology, ranging from mobile phones to tablets and laptops. It is also important to note that from the early meetings, the young participants showed respect to the seniors' narrations of personal experiences and appreciated the important contribution of the seniors in the creation of the game.

7.3.5 LOCATION BASED GAME

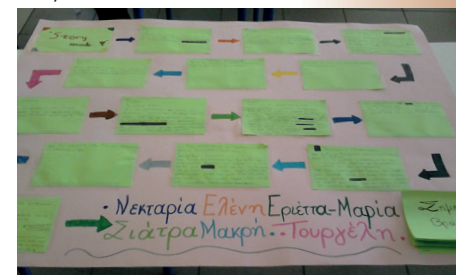
Development of the storyboard

The stories and the information passed on by seniors, facilitators and experts, in addition to the research that was done by the youth, were the basis for the creation of the storyboard. The ICT expert held a brainstorming exercise based on the seniors' stories. Based on this exercise, the storyboard and the scenario were elaborated. Using this technique, the young participants were able to select the most inspirational stories as a basis to the creation of their games. From the original 3-4 ideas and draft storyboards, two were finalised. The volunteers were provided with "post-it" papers and drawing material to work on their storyboards. The initial storyboards they produced had little relationship to conservation issues. Under the environmental

expert's guidance, the volunteers' groups added environmental conservation or cultural heritage content to their storyboards, without altering the game structure. For example: the story of the endemic fish species of Erasinios River "Marathon Minnow" which turned out to be an "endangered species" was included in both games; and the presence of the character of goddess Artemis in the game "Vravrona" was also added. Artemis was mentioned in the stories of the seniors in relation to the archaeological significance of the area. The seniors also narrated a myth about goddess Artemis, which inspired the main quest of the game "An adventurous journey in Vravrona".

The game "Vravrona" was designed to familiarise players with the natural environment of the area, raise their awareness on the area's environmental problems, and encourage them to think about solutions to these problems. The player becomes an "official" explorer, moves along a specific path, and receives information tips in the form of "Ecotips" while trying to discover the origin of the pollution problems of Erasinios River.

The game "An adventurous journey in Vravrona" was designed to raise players' awareness on the significance of the biodiversity of the area. The main character Lisa, tries to solve the mystery of an ecological crime in the Vravrona wetland. Lisa, with the help of her animal friends is trying to prevent the erosion of the wetland and the disappearance of the precious wildlife of Vravrona.



In both games the player meets different characters who assist him/her to save the Vravrona wetland and its animal and plant species. The scenarios of both games were based on the experts and senior's stories (Marathon Minnow etc), the archaeological heritage of Vravrona (goddess Artemis) and the local varieties of agricultural products (Vravrona tomato and fig).

Game implementation in ARIS

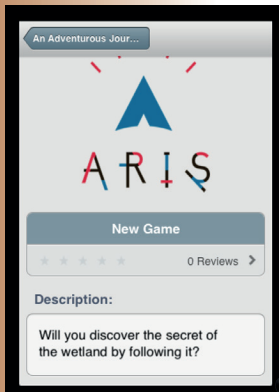
The storyboards were divided in steps and quests and they were transferred to the ARIS platform.

The following equipment was necessary during the meetings devoted to the storyboard and the game development:

- Internet connection (Wi-Fi) for iPad
- Computers for editing the games on the ARIS platform
- A beamer
- iPad or iPhone and cable-connector for iPad/iPhone to the beamer
- Voice recorder

The two games were playtested on-site, in the Vravrona protected area, using the two iPads provided by the project staff, with the help of a 3G connection.

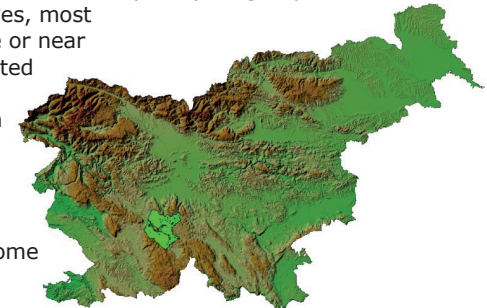
Technical problems were a hindrance occasionally, concerning the internet connection, the ARIS platform functionality and connectivity or the 3G coverage in the protected area. All participants were patient and overcame these problems by accepting to undertake some homework when it was necessary.



7.4 SLOVENIA

7.4.1 THE PROTECTED AREA: Notranjska Regional Park

Slovenia is a relatively small country but especially rich in natural treasures. 12% of its area is protected. The special focus of the INVOLIN piloting was on one of the three Slovenian regional parks, the Inner Carniola regional park (Notranjska Regijski Park) in the southwest part of Slovenia, bordered by the steep slopes of the Javorniki mountain range. This area was selected by the pilot group members themselves, most of whom live inside or near the selected protected area. The Park offers to visitors an amazing view: as one walks out of a vast mixed forest, he suddenly sees a wide karst plain, home to a disappearing lake.



The park is the home of many different habitats, representing a great diversity of fauna and flora which includes the shining spurge, the Carniolan primrose, the mountain pasque flower, 34 species of orchids, more than 250 bird species, 15 species of amphibians, endangered species of mammals (brown bear, wolf, lynx), 9 indigenous species of fish, varied fauna of invertebrates, more than 130 species of





butterflies, 500 species of moths, 700 species of beetles, 50 species of grasshoppers, 40 species of dragonflies... The varied cultural landscape of the Park is a result of centuries of human

interventions in harmony with nature. Old orchards and hay racks are typical. Numerous churches and other cultural heritage buildings can be seen in the Park. The intermittent Cerknica Lake is also included in the Park, resulting from the flooding of the karst plain. During the winter the lake freezes and during the summer it is possible to swim if the water level is sufficient. When the lake is dry, many picturesque karst features can be seen (like vertical sinkholes, estavelles, cave sinkholes etc.).

7.4.2 THE PILOT GROUP

A description of the INVOLEN project and a call to participate in the piloting activities were published in the local newspaper and internet media; moreover, invitations were sent to individuals and organisations that might have an interest in nature protection, volunteering or intergenerational learning. The project staff opted for a rather small group of participants, including young people from different schools (instead of recruiting a whole classroom from just one school) and seniors from different local associations. The aim was also to include in the pilot group young people of different ages. Facilitators Zvonko Belič and Polona Zevnik were moderating the course.

The learning process was participatory, so that all the group members contributed to exchange of knowledge, research, discussions and practical tasks. The facilitators had teaching experience, especially in andragogical²⁴ education, and competences in the fields of ICT and ecology. Altogether 20 participants were included in the piloting: 4 seniors, 7 youth, 2 facilitators, 3 NGO staff, 4 other volunteers (age 28 - 50) who were interested in the INVOLEN project and agreed to cooperate with the group. The group was mixed, very interesting and diverse concerning the background of its members. Some of the group members came from such professions as scholar, teacher, oenologist, forester, farmer, ecologist. During the pilot activities, the group tried to establish contact and connect with local associations, such as student organisations, the community *Agrarna skupnost Dolenja vas*, fishermen, the association for heritage interpretation *Zavod Parnas*, the society of rural women *Društvo podeželskih žena*, the public authority of *Notranjska Regional Park*, and the association for heritage *Društvo Lovrenc*.

7.4.3 MANAGEMENT

Before starting the INVOLEN pilot activities, the project staff identified the common areas of interest and the potential conflicts among the participants. Although conflicts between different stakeholders are not rare (e.g. between farmers, ornithologists or managers of power plants, etc.), in the pilot group all the participants expressed their wish to become involved with both nature conservation and lifelong learning and no difficulties were



²⁴ Andragogy refers to a set of participatory methods and techniques used to teach adults, based on exchange of experience, hands-on experience and peer learning, as advanced by Malcolm Knowles, 1980.



foreseen. To make the course interesting, and maintain the engagement and continuous activity of the individual volunteers during the meetings, the work units had to be organised and animated well, so that a lively learning process could be in place.

Thus, basket making was introduced in the first unit, to stimulate cooperation and exchange of skills among the participants. Emotional bondage was also achieved in this way. The elders were transferring their knowledge and experience about basket-weaving and told the other participants stories about how things were in 'the good old times'. In the next session, the opposite knowledge flow was introduced, i.e from youth to seniors. The young participants transferred their ICT knowledge to the elders, helping them to understand the devices of modern technology (smartphones, tablets, notebooks, ARIS platform). When talking about the environment, the pilot group discussed issues that were pertinent in the nearby protected area, so that all group members became aware of existing problems and challenges and were actively involved in finding alternative solutions for these problems. Also they were encouraged to explore existing stories and legends about the selected protected area. The concept of 'rewarding the volunteers' was introducing in the meetings, and coffee breaks and snacks of local homemade food with delicious taste and attractive look were offered.

The pilot group had 7 afternoon meetings in Cerknica and all of them were 4 hours long. The participants attended the meetings regularly. The group had one field visit that aimed to explore the environment of the selected protected area in the Notranjska Regional Park. The seniors shared their experiences with the team about private properties' management, landscape maintenance and farming carried out with respect to the indigenous flora and fauna. The youth did well in ICT tasks and game development. Some of the younger participants established contacts with local people, interviewed them and recorded more stories and legends about the protected area.

7.4.4 INTERGENERATIONAL LEARNING

The learning benefits for the pilot group were wide and varied: the participants learnt about biology, ethnology, environment, hydrology, heritage and even politics. For the young participants, knowledge about new topics led to forming new values. Also, developing special care and sensitivity towards nature, society and culture has been an important learning outcome for the youth. The seniors were given the opportunity to be active, to feel included in society, respected and important. They appreciated their mission to transfer knowledge and experience to the younger generation, and they had a good chance to successfully accomplish it. Learning by doing, especially in connection with nature, gave the group the opportunity to cultivate positive attitudes towards nature and natural habitats. At the same time, the learners pursued different learning objectives, like intuitive goal (content knowledge), process goals (obtaining skills and abilities to create the basket), affective goals (a sense of security, confidence, being accepted in the group), and psychomotor goals (coordination of body and mind).

In more detail, learning outcomes achieved through the INVOLEN piloting include:

- learning from each other
- working in groups

- developing skills for basket-weaving
- understanding and giving importance of traditional customs and volunteering
- understanding about the Earth's resources
- social contacts, intergeneration cooperation
- helping each other
- developing tolerance
- understanding about protected and vulnerable species in nature
- understanding why there are protected areas
- raising awareness about the environment
- developing sensitivity to nature, protected areas and especially local environment – democratic ecology
- developing special care for nature, society and culture
- developing ICT competences
- creating a scenario for a game with an environmental message

Information about the protected area was possible to get in different ways: by using the facilitators' knowledge, by including a local environmental expert from a public institution, by interviewing other local experts, by talking to local inhabitants, by asking the participating volunteers about their opinion.

In the Slovenian course, basket-weaving was chosen as an activity with a potential to enhance the transfer of knowledge from seniors to youth and give an interesting start to a lively project. By creating baskets, the pilot group was encouraged to cooperate and exchange knowledge about crafting skills, as they were practiced by local inhabitants in the past. Besides promoting an ancient craft, the participants learned about an aspect of intangible culture, i.e. about certain activities carried out by past generations, which had a positive effect on the landscape.

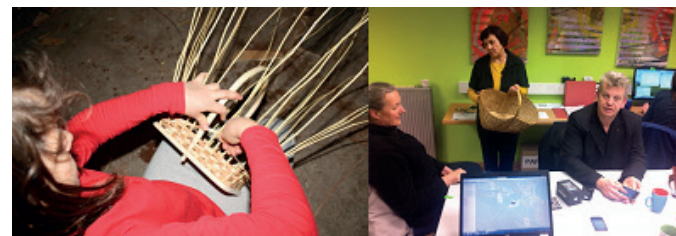
The facilitators together with local inhabitants-volunteers collected the necessary materials for basket-making in advance and brought the necessary equipment to the meeting place. Then the seniors showed to the younger participants how to weave a basket. Basket weaving is an ancient activity that past generations were practicing in winter, when nature is resting and people do not have to work in their fields. Weaving baskets enhances one's sensitivity towards nature as it is strongly linked to biodiversity: it is important to know what plants, when and where could be collected to be used for basket weaving. Following this session, the participants agreed that this traditional craft could also potentially represent an opportunity to create new jobs for young people, or enrich training courses that are available in farms and tourism destinations. During this activity the bonding of the pilot group was achieved.



7.4.5 LOCATION BASED GAME

Development of the storyboard

The topic for the game was selected by discussion not only within the pilot group, but also between the group and local inhabitants of the selected area. For the game Dolenja



vas in touch with ancestors, no script was written. The group members were listening to stories about the local inhabitants, the environment and customs of the past. The pilot group had the task to do research about the selected protected area and discover stories about it, either from local people or from written sources. Some of the young volunteers interviewed local residents to find out stories and fairy tales, while others made a research in books and websites. After collecting the stories and interpreting them, the pilot group members formed an idea about the content and the scenario of an educational game to be created on the ARIS platform. The pilot group members decided to show in the game some features of an old village, Dolenja vas, that is situated near the selected protected area Notranjska Regional Park. The game scenario was agreed through discussion and the storyboard was formed on a white board.

The points and features the group wanted to include in the story were drawn on the board, and later the most important ones were selected to be shown in the game. Then the group members wrote some simple and short sentences that would guide the player and help him/her to complete the game. As NATURA 2000 fully recognises that man is an integral part of nature and the two work best in partnership with one another, the aim of the game was to spread the word that local people live in constant interaction with their surrounding environment, and have an obligation to act in a sustainable way in order to protect nature. The game also aimed to encourage the sustainable use of water resources and the preservation of existing species and habitats while respecting the local socio-economic and cultural context.

The game Dolenja vas in touch with ancestors talks about an old karstic village with water resources and describes how people were using water in a sustainable way. The player is welcome to the village and told to explore it to try and find how local inhabitants used water resources in the past. The player meets a character (Lili), she gives a tip to go and find a water

tower and a fire station. When the player finds the tower, he gets its description and an explanation why it was built there and how the tower was used in the past. Later, the player has to find also some other features, like a trough (the old times object where cattle were drinking from), a bridge with a special shape and a webpage. The game also includes information about the activities of the local community and talks about the "dance on water" (this is a special event that local inhabitants organise every summer: they build a special stage on water, where they perform various acts).

The game implementation in ARIS

After finalising the game scenario, the group created the game using the ARIS editor. The facilitators had already become familiar with the ARIS platform, and through webinars they were able to explain and teach other participants. The resources used for the game development included:

- classroom for the meetings (the size of the classroom depends on the number of participants attending the course),
- Internet connection in the classroom (preferably wi-fi),
- iDevices like iPhone, iPad or iPod (one device per 3 persons),
- whiteboard,
- hotspot that offers Internet access over a wireless local area network (to test the game in the field),
- notebooks or PCs (one device per 4 persons),
- for youngsters up to 18 years old, parents had to provide permission that children can sign up and be photographed,
- insurance (important especially when going to the field visit),
- wi-fi connection in the classroom and during the meetings (or hotspot with the connection),
- big pin-up panels,
- software to connect iDevice with projector (iTools for



example), or supported cable,

The pilot group in Slovenia did not face any special problems. In the beginning some difficulties regarding the operation of the ARIS platform were encountered by the group

members, but they were soon overcome. Here the facilitator's role proved to be significant. Also, the ICT expert's availability was crucial (this role can be also played by a teacher/facilitator with high motivation who learns to use ARIS and becomes competent to teach it to the group members).

Both youth and seniors were active at all stages of the game development. The young people were much stronger at the technical part, but the seniors contributed to all the other stages, from planning, content development and playtesting on-site. The group first tried to play the game on the same day as it was created, by paying a visit to the protected area of Notranjska Regional Park. Some adjustments were deemed necessary, and after these adjustments were made, the group playtested the game in the field again and celebrated the final game version.

7.5 HUNGARY

7.5.1 THE PROTECTED AREA: Dead Rába

The Hungarian partner tried to identify a protected area, which could offer a learning environment for preserving the landscape, and could trigger innovative solutions. The NATURA 2000 site of the Dead Rába was chosen, which is located close to Győr. The location of the protected area made also the field visits by the project participants easier during the pilot phase.

The natural environment of the Dead Rába is a part of the Fertő-Hanság National Park and is located south-west of Győr in the suburban zone of the town. The protected area is closely connected to water, and indeed was created after the river Rába regulation was performed in 1888, to avoid flooding. One of the banks of the river Rába was cut across at that time, and a tributary was created in order to divert the water to a non-residential area during flooding periods. The area between the river and the tributary has been shaped as a deep meadow, full of different species of plants and animals. This area also hosts numerous extremely rare aquatic invertebrates, of which only 1-2 are known populations within the Carpathian basin or even in Central Europe. Besides the high diversity of habitats, the surroundings form a landscape of significant value, which has to be preserved and protected. The main challenges concerning this area are the modification of the reed population, the assurance of adequate water supply, the preservation and improvement of water quality and the protection of the habitat diversity.



Near the National Park, a number of civil organisations are active. The aim of these organisations is to protect the

landscape and provide environmental education. Thus, one of the main objectives of the INVOLEN project, i.e. raising both the younger and the older generations' environmental awareness, came close to the remit and interests of these organisations.

7.5.2 THE PILOT GROUP

The headmaster of a primary eco-school was contacted through personal relationship. Volunteering and environmental education has not been a novelty for the school, given that the latter has been included in the school's interests for a long time. As an eco-school, it has encouraged a large number of environmental and conservation activities over the past years. The project staff contacted also other schools by activating their local networks, and finally five primary and secondary schools were recruited for the pilot phase.

Although all the recruited schools supported the INVOLEN project, it was decided to run the pilot course outside the school context, to assure greater flexibility and give the opportunity to students of different schools to participate. Thus, with the exception of the first meeting, all other meetings were held during out-of-school hours on Friday afternoons and Saturday mornings. This schedule was felt by some participants to be very demanding, and affected the number of participants who completed the course

Altogether 19 students were recruited, between the 5th and the 10th class (aged between 12 and 16). As most of the pilot group meetings were held outside the school hours with a very strict schedule, it was inevitable that only those students who were really committed (10 students) attended until the end of the pilot phase. Five schools were involved: Móricz Zsigmond Primary School, Révai Miklós Secondary School, Kazinczy Ferenc Secondary School; Péterfy Sándor Evangelistic School; and Fekete István Primary School.

3 seniors were also recruited, two of whom were

grandparents of teenagers taking part in the project, while the third one was an expert of the area (being a geographer and a nature photographer), who provided a lot of help, especially during the field visits and the nature conservation activities.

The Hungarian pilot group had two facilitators: a teacher and a graduate student. Both of them were engaged in environmental protection and education. They acted as moderators, dealt with ICT issues, motivated and encouraged the participants.

The directorate of the Fertő Hanság National Park has also been informed about the INVOLEN project, endorsed the initiative and offered an expert (the supervisor of the pilot area) to take part in the course and explain the environmental issues that are important at present in the National Park and in the Dead Rába.

7.5.3 MANAGEMENT

The reduction in the number of the pilot group participants proved to be a positive factor for the effectiveness of the course. The only problem that had to be faced was that, due to the very strict time schedule of the meetings, which took place after school hours, not everyone could attend every meeting.

The pilot group participants held altogether 8 meetings, with an average duration of three hours. The Hungarian pilot actions took place in three locations: at the Móricz Zsigmond Primary School, at the premises of the partner Hungarian Academy of Sciences – Centre for Economic and Regional Studies (HAS-CERS) and in the protected area of Dead Rába. The equipment used during the pilot course was provided either by the school (computers with internet connection and projector) or by the partner institution (computers with internet connection, iPad and projector).

The mixed age group of the students did not cause any

serious problem. The students from different ages took part in a new experience together, were learning together and created a game together. This experience developed a strong bond among the students, as all of them had good ideas and contributed to the activities of the course.

The bonding between the generations proved to be a longer process. The two units that mostly contributed to the elimination of the barriers between younger and older participants were definitely the story-telling unit and the field visit. During these two meetings, the students learned to listen to the elders, and realised how much they can learn from them.

The role of the facilitators was very important. Their task was to maintain the discussion, to encourage the two generations to open to each other. It is also important that the facilitator has to be aware of the competences of the youngsters and seniors involved in the project. Some students needed more encouragement than others, some students (and elders) needed more time to express their creativity. It is crucial for the pilot group to have enough time to get to know each other. As the field visit is a perfect occasion for getting the generations closer, it is recommended to place this unit at an early stage within the course.



The pilot participants worked together during most of the meetings, sharing their ideas and discussing with each other. During the story-telling unit, the young

participants formulated small groups in order to create their own questions and then interview the seniors about their experiences which related to the pilot area and other environmental issues. During the game development, work in small groups and clear task allocation among the participants proved to be an effective method. Thus, the pilot group saved time and everyone had the chance to identify the tasks that fitted best their skills and interests.

The biggest problem during the pilot phase was the absence of the seniors during the story creation and the game development meetings, although in previous meetings they had provided input for the game through their stories. However, the reason for their absence was not lack of interest, but personal constraints, doubled with the lack of flexibility regarding the timing of the meetings, because of the strict time-schedule of the course.

7.5.4 INTERGENERATIONAL LEARNING

INVOLLEN created a very productive learning environment during the pilot phase. There were several learning outcomes achieved.

- Environmental issues: the main task of the INVOLLEN course was to raise the awareness of different generations for the environment. During the discussions with elders, the field visit, the lecture of the environmental expert, students and elders definitely paid attention to the importance of environmental protection.
- Conservation practices: the pilot group learned what they can do for the protection of the environment. In the guided tour, which was



conducted during the field visit, the participants got to know many species of the area, and the problems the local ecosystem is facing. They also received some practical conservation advice: for example, they were taught the frog-saving method, which all participants could practice in the future.

- Technology issues: the ICT part was new to all pilot participants. Although they got to know how to handle the platform of ARIS, the most important learning outcome concerned the handling of the information they gathered and its transformation to a serious game. In other words: how to pass on this knowledge to others in a creative and enjoyable manner.

Furthermore, through the intergenerational learning, the young participants learned to listen to the elders, and the latter were glad to share their knowledge and experience. The seniors had many instructive stories to tell the other participants about the selected area and the importance of the environment.

During the field visit, the two generations got closer to each other. The field visit was led by an expert on the area and one of the seniors. They led the young volunteers across the area surrounding the Dead Rába, explaining the ecosystems and showing to them the most typical animals and plants. During the field visit, the young participants asked questions about the evolution of the area, about the most important problems, and the different conservation activities they could undertake. The guided tour was successful from several points of view. On the one hand, environmental education was linked with practical conservation activities that can be pursued by the volunteers in the long run. On the other hand, the volunteers gathered information about the area, which they could, in turn, transfer to others; and, of course the input from the guided tour was also successfully used during the development of the storyboard for the game.

7.5.5 LOCATION BASED GAME

Development of the storyboard

Creating the storyboard was the part of the pilot course the youngsters enjoyed the most. At the first part, with the help of the facilitators, the young participants listed the stories of the seniors and all other information about the conservation of the protected area. After that, they examined the photographs taken during the field visit to get more ideas about the story of the game. It was the joint decision of the pilot group to create an informative game about the protected area: they wanted to develop a game which would transmit their knowledge about the Dead Rába.

A big piece of paper, pens and pencils were used to create the draft storyboard. As characters, the group members chose four animals, which are specific to the protected area: the gopher, the unka frog, the otter and the merops. In order to make the game interesting, several conversations were planned with the animals. During each conversation the player receives information about the area, either in the form of a video, or as a description or a simple presentation. After the player read or watched the information, he/she would

be awarded a present, provided by the animals. During the development of the story, many details were talked over: the order of appearance of the animals; the information they provides; and the presents they

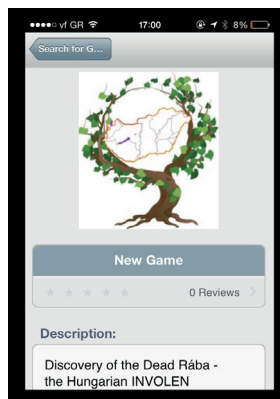


give. As the ideas developed, the young participants and the facilitators drew the storyboard on paper and wrote captions.

The storyboard was developed with the help of the seniors and the environmental expert, who gave the necessary input in the form of different stories. For the creation of the game, 6 stories were used, either told by seniors or by the environmental expert. Some of the stories had a general message to convey, aiming to raise awareness (for example stressing everybody's responsibility for environmental protection). Other stories gave a description and understanding of the characters (like Oliver, the otter), or advice (for example not to bother the animals, or not to collect protected plants). The practical information and conservation input gained from the environmental expert during the course was also included in the storyboard (for example the Guide of the protected plants or the method of frog saving).

Game implementation in ARIS

For the development of the game, the library of the Research Institute of Regional Studies of West Hungary, in Győr was used, equipped with 12 computers and internet connection. Moreover, one iPad with wi-fi connection, a mobile phone hotspot and a projector were used.



Regarding the technical issues, the Hungarian pilot group had problems with the internet connection during the ICT training, as the connection was very slow. This increased significantly the time needed to complete the task. This problem

could only be solved by more students sitting at the same computer. This also meant consequently, that not all the students were able to try the ARIS platform out. However, during the game development phase, this did not prove to be a problem, as not all the volunteers were interested in the ICT-part of the game creation. Those who had undertaken other tasks, did not need a computer. Another technical problem was the lack of enough iOS devices for the playtesting of the game, which meant that playtesting was limited to the last meeting.

It would be thus advisable, for repeating the INVOLLEN course, to secure an appropriate place in advance, with the required number of computers, a fast internet connection and at least 3-4 iOS devices at hand.

ANNEX I: Questionnaires for competences and learning needs identification

1. YOUTH

**Intergenerational Learning for Nature Conservation Volunteers
LLP Programme – GRUNDTVIG Multilateral projects**

Competences Questionnaire 1: Youth

Date: ../../....

City, area

1. Full name: [optional]

2. Year at secondary school:

3. Have you taken classes/projects at school with an environmental education component?

Name the most important/ give a short description

.....
.....

4. Have you participated in voluntary nature conservation activities in [name of the area]? Please explain.

☐ Yes – please describe briefly

.....
.....

☐ No - please mention any other voluntary experience you may have that relates to nature conservation

.....
.....



5. Have you been involved in voluntary activities with seniors before?

☐ Yes – please describe briefly (positive and negative points)

.....
.....

☐ No

6. Do you know the protected area well?

☐ very well

☐ fairly well

☐ not very well

☐ not at all

7. What would you choose to show to your friends if they visited the protected area?

Please write here:
.....

8. What do you expect to gain from participating in this project?

☐ help to protect the (area)

☐ contribute to the wise exploitation of the (area)

☐ raise awareness of the local community regarding the protected area

☐ improve my ICT/mobile phone gaming skills

☐ improve my knowledge of nature conservation

☐ improve my environmental education school marks

☐ other – please explain
.....

9 After the focus group discussion, do you have a clearer picture of the following:

a. What are the main conservation issues in the area?

☐ very clear picture

☐ fairly clear picture

☐ not very clear picture

☐ none at all

b. What actions need to be taken up to protect the area?

- | | |
|---|---|
| <input type="checkbox"/> very clear picture | <input type="checkbox"/> fairly clear picture |
| <input type="checkbox"/> not very clear picture | <input type="checkbox"/> none at all |

c. How these actions will be of help to the area?

- | | |
|---|---|
| <input type="checkbox"/> very clear picture | <input type="checkbox"/> fairly clear picture |
| <input type="checkbox"/> not very clear picture | <input type="checkbox"/> none at all |

9. What else would you like to know to improve your capacity to participate in this project?

a. Regarding nature conservation of the area

- ☐ What are the conservation needs of the area now
- ☐ How the conservation needs are scientifically explained (e.g. information about specific species of flora and/or fauna)
- ☐ Information about traditional conservation
- ☐ Information about modern conservation techniques
- ☐ Information about the history of the protected area
- ☐ other – please explain

b. Regarding ICT and in particular online / mobile gaming

- ☐ How to use a smartphone / tablet for games (iPhone, iPad)
- ☐ How to create / edit multimedia content (movies, pictures)
- ☐ How to use the ARIS location-based game development platform
- ☐ How to use alternative location-based game development platforms (e.g. HUNTZZ)
- ☐ How to develop a mobile game scenario / interactive narrative
- ☐ other – please explain

c. Regarding cooperation with seniors

- ☐ How to exploit the experience and stories of seniors to create a narrative about the area
- ☐ How to cooperate with seniors using ICT/mobile phone technology
- ☐ If need be, how to help seniors to use ICT Mobile phone technology



- ☐ How to combine traditional and modern conservation techniques
- ☐ other – please explain

d. How can I contribute as a volunteer?

- ☐ Participate in cleanup activities for the protected area
- ☐ Participate in planting and/or bird nesting etc activities in the area
- ☐ Learn more about nature and history of the area and act as a guide for my family, friends and neighbours
- ☐ other – please explain

e. Other comments you would like to make

.....

.....

.....

.....

.....

2. SENIORS

Intergenerational Learning for Nature Conservation Volunteers

LLP Programme – GRUNDTVIG Multilateral projects

Competences Questionnaire 2: Seniors

Date: ../../....

City, area

1. Full name:

2. Age:

3. Profession:

4. Have you participated in voluntary nature conservation activities in [insert name of the area]?

Please explain.

☐ Yes – please describe briefly

.....
.....

☐ No - please mention any other voluntary experience you may have that relates to nature conservation

.....
.....

5. Have you been involved in voluntary activities with teenagers before?

☐ Yes – please describe briefly (positive and negative points)

.....
.....

☐ No

6. Do you know the protected area well?

- | | |
|--|--------------------------------------|
| <input type="checkbox"/> very well | <input type="checkbox"/> fairly well |
| <input type="checkbox"/> not very well | <input type="checkbox"/> not at all |

7. Can you tell us a little more about your experience from this area?

7a. Have you been involved yourself in any productive activities in the area (e.g. agriculture, hunting, fishing etc.)?

- | | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

7b. Do you know:

- ☐ how the area was exploited by the local population two generations back (e.g. agriculture, hunting, fishing etc)?
- ☐ how local communities dealt with nature conservation problems two generations back?
- ☐ local stories or legends about the area and its ecological value?

8. What do you expect to gain from participating in this project?

- ☐ help to protect the (name of the area)
- ☐ contribute to the wise exploitation of the (area)
- ☐ raise awareness of the local community regarding the protected area
- ☐ improve my ICT skills
- ☐ improve my knowledge of nature protection
- ☐ develop my volunteering
- ☐ enjoyment from the exchange with teenagers
- ☐ other – please explain

9. After the focus group discussion, do you have a clearer picture of the following:

a. What are the main conservation issues in the area?

- | | |
|---|---|
| <input type="checkbox"/> very clear picture | <input type="checkbox"/> fairly clear picture |
| <input type="checkbox"/> not very clear picture | <input type="checkbox"/> none at all |

b. What actions need to be taken up to protect the area?

- | | |
|---|---|
| <input type="checkbox"/> very clear picture | <input type="checkbox"/> fairly clear picture |
| <input type="checkbox"/> not very clear picture | <input type="checkbox"/> none at all |

c. How these actions will be of help to the area?

- | | |
|---|---|
| <input type="checkbox"/> very clear picture | <input type="checkbox"/> fairly clear picture |
| <input type="checkbox"/> not very clear picture | <input type="checkbox"/> none at all |

10. What else would you like to know to improve your capacity to participate in this project?

a. Regarding nature conservation of the area

- ☐ What are the conservation needs of the area now
- ☐ How the conservation needs are scientifically explained (e.g. information about specific species of flora and/or fauna)
- ☐ Information about modern conservation techniques
- ☐ other – please explain

b. Regarding ICT and in particular online / mobile gaming

- How to use a smartphone / tablet (iPhone, iPad)
- How to create / edit multimedia content (movies, pictures)
- How to use the ARIS location-based game development platform
- How to use alternative location-based game development platforms (e.g. HUNTZZ)
- How to develop a mobile game scenario / interactive narrative
- ☐ other – please explain

c. Regarding cooperation with teenagers

- ☐ How to help young people to learn from my stories
- ☐ How to cooperate with teenagers using ICT/mobile phone technology
- ☐ How to explain traditional conservation techniques to young people
- ☐ other – please explain



d. Regarding participating in voluntary activity in nature conservation

- ☐ How to become a guardian of the protected area
- ☐ How to encourage activities for the benefit of biodiversity in the area (e.g. planting / bird nesting or other) activities in the area
- ☐ How to act as a guide of the nature and history of the protected area
- ☐ other – please explain

.....

e. Other comments you would like to make

.....

.....

.....

.....

.....

3. LEARNING FACILITATORS

**Intergenerational Learning for Nature Conservation Volunteers
LLP Programme – GRUNDTVIG Multilateral projects**

Competences Questionnaire 3: Facilitators

Date: ../../....

City, area

1. Full name:

2. Education qualifications:

(e.g. degree in Physics, biology etc, postgraduate specialisation, if applicable)

.....

3. Position:

☐ teacher

☐ NGO staff

☐ other (specify)

4. Have you participated in voluntary nature conservation activities in [name of the area]? Please explain.

☐ Yes – please describe briefly

.....

.....

☐ No - please mention any other voluntary experience you may have that relates to nature conservation

.....

.....

5. Do you know the protected area well?

☐ very well

☐ fairly well

☐ not very well

☐ not at all

6. Do you have experience of inter-generational learning?²⁵

- ☐ Yes, a lot ☐ Yes, some
☐ No

If the answer is Yes, please specify: What kind of intergenerational learning? which ages were involved?

.....

7. What do you expect to gain from participating in this project?

- ☐ help to protect the (area)
☐ contribute to the wise exploitation of the (area)
☐ raise awareness of the local community regarding the protected area
☐ improve my ICT skills
☐ improve my knowledge of nature protection
☐ improve my teaching skills
☐ gather material for my classes / education activities
☐ gain experience in intergenerational learning
☐ other – please explain

.....

8. After the focus group discussion, do you have a clearer picture of the following:

a. What are the main conservation issues in the area?

- ☐ very clear picture ☐ fairly clear picture
☐ not very clear picture ☐ none at all

²⁵ "Intergenerational Learning (IL) describes the way that people of all ages can learn together and from each other. IL is an important part of Lifelong Learning, where the generations work together to gain skills, values and knowledge. Beyond the transfer of knowledge, IL fosters reciprocal learning relationships between different generations and helps to develop social capital and social cohesion in our ageing societies. IL is one way of addressing the significant demographic change we are experiencing across Europe and is as a way of enhancing intergenerational solidarity through intergenerational practice (IP).

The aim of IP is to bring together people from different generations in purposeful, mutually beneficial activities, which promote greater understanding and respect between generations and contributes to building communities and neighbourhoods where people respect each other and are better connected. IP is inclusive, building on the positive resources that both the younger and older generations have to offer each other and those around them". Source: www.enilnet.eu

b. What actions need to be taken up to protect the area?

- | | |
|---|---|
| <input type="checkbox"/> very clear picture | <input type="checkbox"/> fairly clear picture |
| <input type="checkbox"/> not very clear picture | <input type="checkbox"/> none at all |

c. How these actions will be of help to the area?

- | | |
|---|---|
| <input type="checkbox"/> very clear picture | <input type="checkbox"/> fairly clear picture |
| <input type="checkbox"/> not very clear picture | <input type="checkbox"/> none at all |

9. What else would you like to know to improve your capacity to participate in this project?

a. Regarding nature conservation of the area

- ☐ What are the conservation needs of the area now
- ☐ How the conservation needs are scientifically explained (e.g. information about specific species of flora and/or fauna)
- ☐ Information about traditional conservation techniques
- ☐ Information about modern conservation techniques
- ☐ Information about the history of the protected area
- ☐ other – please explain

b. Regarding ICT and in particular online / mobile gaming

- ☐ How to use a smartphone / tablet (iPhone, iPad)
- ☐ How to create / edit multimedia content (movies, pictures)
- ☐ How to use the ARIS location-based game development platform
- ☐ How to use alternative location-based game development platforms (e.g. HUNTZZ)
- ☐ How to develop a mobile game scenario / interactive narrative
- ☐ other – please explain

c. Regarding intergenerational learning

- ☐ How to help young people to learn from seniors' stories
- ☐ How to help seniors to take advantage of young people knowledge about ICT
- ☐ How to animate cooperation between the different age groups



- ☐ How to facilitate the development of ICT content / applications by seniors and youth
- ☐ other – please explain

d. Regarding promoting and coordinating voluntary activity in nature conservation

- ☐ How to organise clean up activities for the protected area
- ☐ How to organise conservation activities (e.g. planting and/or bird nesting etc) in the protected area
- ☐ How to encourage students, and senior volunteers to learn more about the nature and history of the area and act as guides for their family/friends
- ☐ other – please explain

e. Other comments you would like to make

.....

.....

.....

.....

.....

ANNEX II. The course evaluation questionnaires

1. YOUTH

Intergenerational Learning for Nature Conservation Volunteers
LLP Programme – GRUNDTVIG Multilateral projects

Evaluation Form 1: Youth

Unit ... Date: ../../....

City, area

1. Name: [optional]

2. Class:

3. Do you think that the meeting today has met its purpose?

☐ Yes, a lot

☐ Yes, quite

☐ Not much

☐ Not at all

Do you have any remarks? Please note here:

.....
.....

4. What did you learn today?

A) In relation to the environment

Please note here:

.....

B) In relation to the older volunteers

Please note here:

.....

C) In relation to ICT and game design

Please note here:

.....

.....

6. How would you evaluate the collaboration during the meeting?

A) With the other students

- | | |
|---------------------------------------|------------------------------------|
| <input type="checkbox"/> Excellent | <input type="checkbox"/> Very good |
| <input type="checkbox"/> Satisfactory | <input type="checkbox"/> Poor |

B) With the older volunteers

- | | |
|---------------------------------------|------------------------------------|
| <input type="checkbox"/> Excellent | <input type="checkbox"/> Very good |
| <input type="checkbox"/> Satisfactory | <input type="checkbox"/> Poor |

C) With the learning facilitators

- | | |
|---------------------------------------|------------------------------------|
| <input type="checkbox"/> Excellent | <input type="checkbox"/> Very good |
| <input type="checkbox"/> Satisfactory | <input type="checkbox"/> Poor |

7. Any other comments:

.....

.....

.....

.....

2. SENIORS

Intergenerational Learning for Nature Conservation Volunteers

LLP Programme – GRUNDTVIG Multilateral projects

Evaluation Form 2: Adult volunteers

Unit ... Date: .././....

City, area

1. Name:

2. Age:

3. Profession:

4. Do you think that the meeting today has met its purpose?

☐ Yes, a lot

☐ Yes, quite

☐ Not much

☐ Not at all

Do you have any remarks? Please note here:

.....
.....

5. What did you learn today?

A) In relation to the environment

Please note here:

.....

B) In relation to the older volunteers

Please note here:

.....

C) In relation to ICT and game design

Please note here:

.....

6. How would you evaluate the collaboration during the meeting?

A) With the students

- | | |
|---------------------------------------|------------------------------------|
| <input type="checkbox"/> Excellent | <input type="checkbox"/> Very good |
| <input type="checkbox"/> Satisfactory | <input type="checkbox"/> Poor |

B) With the older volunteers

- | | |
|---------------------------------------|------------------------------------|
| <input type="checkbox"/> Excellent | <input type="checkbox"/> Very good |
| <input type="checkbox"/> Satisfactory | <input type="checkbox"/> Poor |

C) With the learning facilitators

- | | |
|---------------------------------------|------------------------------------|
| <input type="checkbox"/> Excellent | <input type="checkbox"/> Very good |
| <input type="checkbox"/> Satisfactory | <input type="checkbox"/> Poor |

7. Any other comments:

.....

.....

.....

.....

3. LEARNING FACILITATORS

Intergenerational Learning for Nature Conservation Volunteers
LLP Programme – GRUNDTVIG Multilateral projects

Evaluation Form 3: Facilitators

Unit ... Date: .././....

City, area

1. Name:

2. Position:.....

☐ Teacher ☐ NGO staff

☐ Other (please, specify)

3. Do you think that the meeting today has met its purpose?

☐ Yes, a lot ☐ Yes, quite

☐ Not much ☐ Not at all

Do you have any remarks? Please note here:

.....
.....

4. What was the response according to your opinion?

A) of the students

☐ Enthusiastic ☐ Slightly interested

☐ Very interested ☐ Indifferent

B) of the seniors

☐ Enthusiastic ☐ Slightly interested

☐ Very interested ☐ Indifferent

5. What was in your opinion the learning result of the meeting?

A) In relation to the environment

Please note here:

.....

B) In relation to intergenerational learning

Please note here:

.....

C) In relation to ICT and game design

Please note here:

.....

6. How would you evaluate the collaboration during the meeting?

A) Among the students

- | | |
|---------------------------------------|------------------------------------|
| <input type="checkbox"/> Excellent | <input type="checkbox"/> Very good |
| <input type="checkbox"/> Satisfactory | <input type="checkbox"/> Poor |

B) Between the students and the seniors

- | | |
|---------------------------------------|------------------------------------|
| <input type="checkbox"/> Excellent | <input type="checkbox"/> Very good |
| <input type="checkbox"/> Satisfactory | <input type="checkbox"/> Poor |

C) Between the learning facilitators and the students

- | | |
|---------------------------------------|------------------------------------|
| <input type="checkbox"/> Excellent | <input type="checkbox"/> Very good |
| <input type="checkbox"/> Satisfactory | <input type="checkbox"/> Poor |

D) Between the facilitators and the seniors

- | | |
|---------------------------------------|------------------------------------|
| <input type="checkbox"/> Excellent | <input type="checkbox"/> Very good |
| <input type="checkbox"/> Satisfactory | <input type="checkbox"/> Poor |

7. Any other comments:

.....

.....

.....

.....

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