

THEME 5 - WP15

Increasing awareness on scientific and social relevance of ERIs: a *serious gaming* approach

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The **ENVRIplus** *scientific gaming*

TARGET => Secondary school students, teachers and school communities

WHAT => Challenging school students to learn more about science, the scientific method, the activity and social impact of ERIs through innovative pedagogical approach

HOW => Actively involving students in science, addressing scientific problems, designing and running experiments, drawing results and ...gaming

APPROACH => Learning by doing, situated learning, ICT, motivational incentive, peer review

STRUCTURE =>

1. 'Carry out a research project'
2. The online competition


APPLICATION => events, tournaments, demo

The Scientific Game components


THE PROJECT

NULL HYPOTHESIS

The Leonardo's man is only a model for art

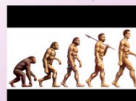


THE LEONARDO'S MAN
In the XV century Leonardo da Vinci drew "L'uomo vitruviano". In this drawing Leonardo wrote what should be the proportions between the different parts of the body so that we get a perfect man. We can read: "L'altezza totale, coincide con la distanza che, a braccia aperte, separa la punta di ciascun dito medio (fig. 4). In questo modo, l'uomo che assume questa posizione, è inscrivibile in un quadrato". So Leonardo claimed that the ratio between the height and the opening of the arms should be equal to 1.



L'uomo vitruviano
- Leonardo da Vinci XVth century

Height and evolution
The height is certainly a very important factor in the evolution of man. In fact, the Australopithecus was only 120 cm high, 150 cm homo habilis, and Homo sapiens 160-170 cm. So we think that we can be higher constituted an advantage to primitive man.



Furthermore we know that:
1 - In the last century, women and men are becoming higher.
2 - The individual's height in the human species is a genetic characteristic, but the realization of the genetic potential strongly depends on the life style conditions and resource availability.
3 - In the human species, we can observe a big genetic polymorphism.

QUESTION - so we can ask:
The height is a intraspecific variable, as well as the extent of opening of the arms. The ratio of height opening of the arms is a variable or a constant?

2 - NULL HYPOTHESIS
The Leonardo's man is only a model for art.

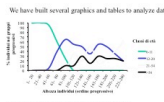
3 - THE OBJECTIVE
We want to study an aspect of intraspecific diversity through the measure of the height, of the opening of the arms and the ratio between these parameters.

4 - METHOD
We built a heterogeneous sample by age and sex; we measured the height and arm span, and calculated the ratio.

So we divided the population of Carabian in four classes: children (from 1 until 11 years), teenagers (from 12 to 20), adults (from 21 to 50) and adults over 50.

Then, we parted into groups and decided what age class to measure. We also chose the day, the time and the place to take measure, in this way we avoided to measure the same people again.

5 - RESULTS
We have built several graphics and tables to analyze data.



DETERMINATION OF RESULTS IN THE DIFFERENT AGE CLASSES



class	age	number of individuals	range of heights	range of arms opening	heights/arms ratio range
1	1-11 years	15	110-140	100-120	1.00-1.10
2	12-20 years	15	140-160	120-140	1.00-1.10
3	21-50 years	15	160-180	140-160	1.00-1.10
4	over 50 years	15	180-200	160-180	1.00-1.10

class	age	mean individual height (H)	mean opening of arms (A)	mean ratio (H/A)
1	1-11 years	125.0	110.0	1.14
2	12-20 years	150.0	130.0	1.15
3	21-50 years	170.0	150.0	1.13
4	over 50 years	190.0	170.0	1.12


CONCLUSION
In our species, the height and the arm opening show changes with age and between sexes much larger than the changes we have observed for the arm opening/height ratio, which approaches 1 as individuals reach the adult age.

According to these experimental results, showing that linear body dimensions change at similar rates with the individual growth and their ratio tends to remain constant, the "Uomo Vitruviano" is not empty an artistic model. Therefore, our null hypothesis can be rejected.

THE ONLINE GAME

THE RESEARCH GAME



UNIVERSITÀ DEL SALENTO

Hi Admin !

You have decided to have an experience as a researcher!

You are interested in **Ecology, Ecosystems and Biodiversity**.

Congratulations!

ENVRIplus is recruiting for its **Research Groups**. So our research interests fit with yours.

You could be employed as a researcher by our University if you can demonstrate how to use scientific method to explore biodiversity.

START

4th ENVRI week
May 15th -19th , 2017 – Grenoble

The Scientific Game Platform



[HOME](#)
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[COMMUNITY](#)
[PROJECTS](#)
[DOCUMENTATION](#)
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ENVRI COMMUNITY
 The Community of
 Environmental
 Research Infrastructures



Welcome to virtual platform of the ENVRI community

ENVRI is the community of the Environmental research infrastructures, projects and networks as well as other stakeholders interested in the environmental research infrastructure matters



JOIN



DISCOVER



LEARN



WIKI



ADD



English (en) ~

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Welcome to the ENVRI
 community Training
 platform

Know More →



SCIENTIFIC GAMING

The ENVRIplus game focuses on the scientific methodology (i.e., the e-learning goal), specifically it is oriented on scientific/ecological contents.



TUTORIALS

The tutorials are practical guides for different subjects such as training programming



COMMUNITY SUPPORT

The Community Support is an interactive space to engage with the our community and forum in order to get a direct feedback

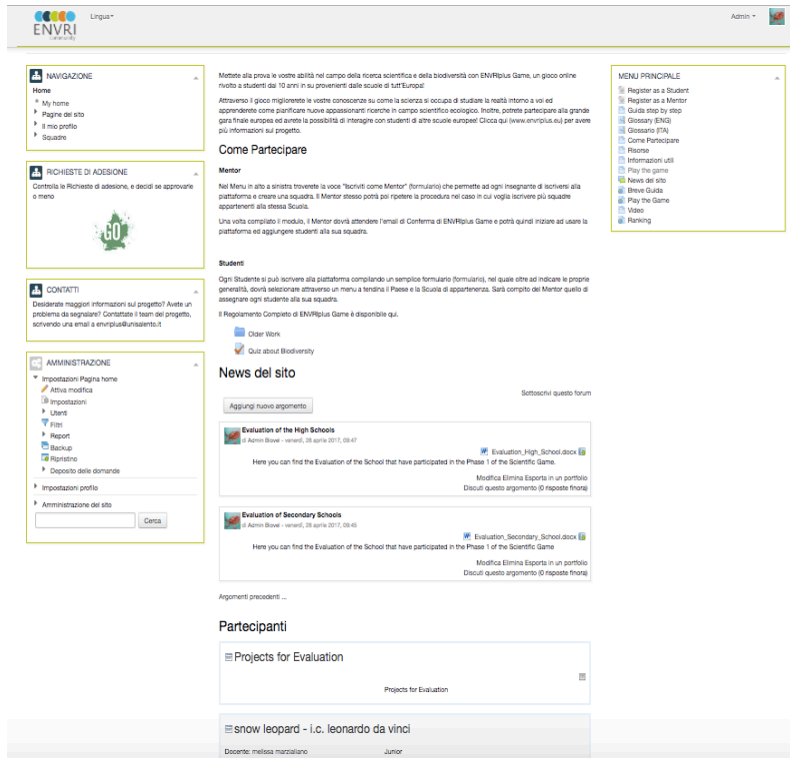


HELP-DESK

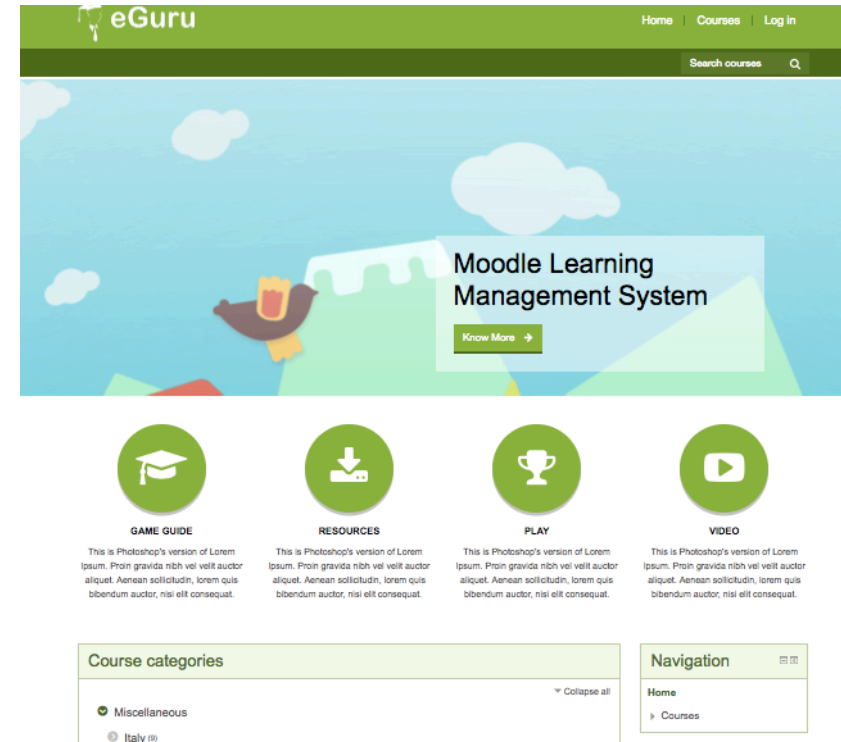
Do you need help? Get in contact with our HelpDesk

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The Scientific Game Platform



The screenshot shows the ENVRI community website. It features a top navigation bar with the ENVRI logo and a 'Lingua' dropdown. The main content area is divided into several sections: 'NAVIGAZIONE' (Navigation) with links to Home, My home, Page del sito, Il mio profilo, and Squadre; 'RICHIESTE DI ADESIONE' (Requests for admission) with a 'Mentor' section and a 'Student' section; 'CONATTI' (Contacts) with a 'Contattaci' (Contact us) section; 'AMMINISTRAZIONE' (Administration) with a 'Gestisci questo forum' section; and 'Partecipanti' (Participants) with a 'Projects for Evaluation' section. The 'Mentor' section includes a 'Come Partecipare' (How to participate) link. The 'Student' section includes a 'Come Partecipare' (How to participate) link. The 'CONATTI' section includes a 'Contattaci' (Contact us) link. The 'AMMINISTRAZIONE' section includes a 'Gestisci questo forum' link. The 'Partecipanti' section includes a 'Projects for Evaluation' link.

The screenshot shows the eGuru Moodle Learning Management System interface. It features a top navigation bar with the eGuru logo and links to Home, Courses, and Log in. The main content area is divided into several sections: 'Moodle Learning Management System' with a 'Know More' button; 'GAME GUIDE' with a 'This is Photoshop's version of Lorem Ipsum' text; 'RESOURCES' with a 'This is Photoshop's version of Lorem Ipsum' text; 'PLAY' with a 'This is Photoshop's version of Lorem Ipsum' text; and 'VIDEO' with a 'This is Photoshop's version of Lorem Ipsum' text. The 'GAME GUIDE' section includes a 'GAME GUIDE' link. The 'RESOURCES' section includes a 'RESOURCES' link. The 'PLAY' section includes a 'PLAY' link. The 'VIDEO' section includes a 'VIDEO' link.

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The Scientific Game Mini-Pilot

A prototype of the Scientific Game

PLANNED Mini Pilot (2016-2017)

Italian schools running the prototype

REALIZED Mini-Pilot (2016-2017)

⇒ **12 Senior and Junior Schools and 4 Countries registered on the platform**

⇒ **6 Senior and Junior Schools and 2 Countries run the Mini-Pilot of the game**

Order topics ...

Participants

Projects for Evaluation	
Projects for Evaluation	
<div> <div> snow leopard - I.C. Leonardo da Vinci </div> <div> Teacher: melissa marzialano </div> <div> Junior </div> </div>	
<div> <div>LEONARDO' S SCIENTISTS - ISTITUTO COMPRENSIVO LEONARDO DA VINCI</div> <div>Teacher: maria carla andriani</div> <div>Junior</div> </div>	
<div> <div>Butterflies' Team - Secondary school Lefkimmis</div> <div>Teacher: Spyros Gkiris</div> <div>Senior</div> </div>	
<div> <div>Curious - Konotop Gymnasia</div> <div>Teacher: Olga Savchenko</div> <div>Senior</div> </div>	
<div> <div>The Thinkers - St Theresa Secondary School</div> <div></div> <div>Senior</div> </div>	
<div> <div>Ionio-1 - 2o Geniko Lykeio Kerkiras</div> <div>Teacher: Panagiotis Dimasianos</div> <div>Senior</div> </div>	
<div> <div>Gaia Team - I.C. "G. Falcone e P. Borsellino" Soleto sede Zoll</div> <div>Teacher: paola polimeno</div> <div>Junior</div> </div>	
<div> <div>Four Hydrogens - Liceo Scientifico C. De Giorgi</div> <div>Teacher: Tina Cappelli</div> <div>Senior</div> </div>	
<div> <div>Science's players - Leonardo Da Vinci</div> <div>Teacher: angela lacerra</div> <div>Junior</div> </div>	
<div> <div>Green Team - ȘCOALA GIMNAZIALĂ, NR. 56 BUCUREȘTI</div> <div>Teacher: POPA MONICA-VIORELA</div> <div>Senior</div> </div>	
<div> <div>3ABA - Istituto di Istruzione Superiore "Gabriele d'Annunzio"</div> <div>Teacher: Monica Schiavich</div> <div>Senior</div> </div>	
<div> <div>snow leopards - I.C. LEONARDO DA VINCI</div> <div>Teacher: maria carla andriani</div> <div>Junior</div> </div>	
<div> <div>Savina's team - Istituto test</div> <div>Teacher: Savina Test</div> <div>Senior</div> </div>	
<div> <div>INGVteam - Istituto Nazionale di Geofisica e Vulcanologia</div> <div>Teacher: Anna De Santis</div> <div>Senior</div> </div>	

*4th ENVRI week
May 15th -19th , 2017 – Grenoble*

The Mini-Pilot projects



WE ARE LIKE "UOMO VITRUVIANO"?

Leonardo's scientists - I.C. Leonardo da Vinci - Cavallino - Lecce - Italy

1 - INTRODUCTION

THE LEONARDO'S MAN



L'uomo vitruviano - Leonardo da Vinci XVth century

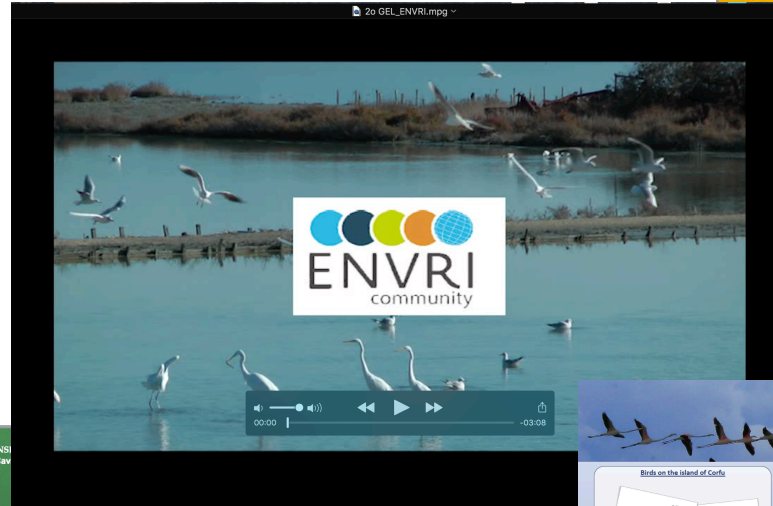
In the XVth century Leonardo da Vinci drew "L'uomo vitruviano". In this drawing Leonardo wrote what should be the proportions between the different parts of the body so that we got a perfect man. We can read: "L'altezza totale, coincide con la distanza che, a braccia aperte, separa la punta di ciascun dito medio (fig. 4). In questo modo, l'uomo che assume questa posizione, è inscrivibile in un quadrato." So Leonardo claimed that the ratio between the height and the opening of the arms should be equal to 1.



ISTITUTO COMPRENSIVO
Via Tegolanti - 73024 Cavallino

Biodiversity in our garden

A project realized by "The snow leopard"



Butterflies and their habitat



Secondary School Lefkimmis
Butterflies' Team

Ionio-1 team (2o GEL KERKIRAS)

Env. Educ. Centre of Corfu

Birds on the island of Corfu



OUR OBJECTIVES

To observe the main species of birds on Corfu
To discover the various ecosystems on the island and which species are found there...
Examining BIODIVERSITY



Our methodology...

Taking pictures in various places
Choosing 20 species including both migratory and not migratory birds
Mapping where we found most of them in 5 different days in March
Analysing the statistics



Our theoretical background : The Biology curriculum
A visit at the Env. Educ. Centre at Lefkimmis, Southern Corfu to attend a related seminar



Population Comparison for some species in various ecosystems on the island of Corfu



The first column that lists the species and all numbers have been kept and back available for working their final in the next number official biodiversity



2o GEL KERKIRAS - ENVRI TEAM

March 2017

4th ENVRI week

May 15th -19th , 2017 – Grenoble

The Mini-Pilot evaluation system

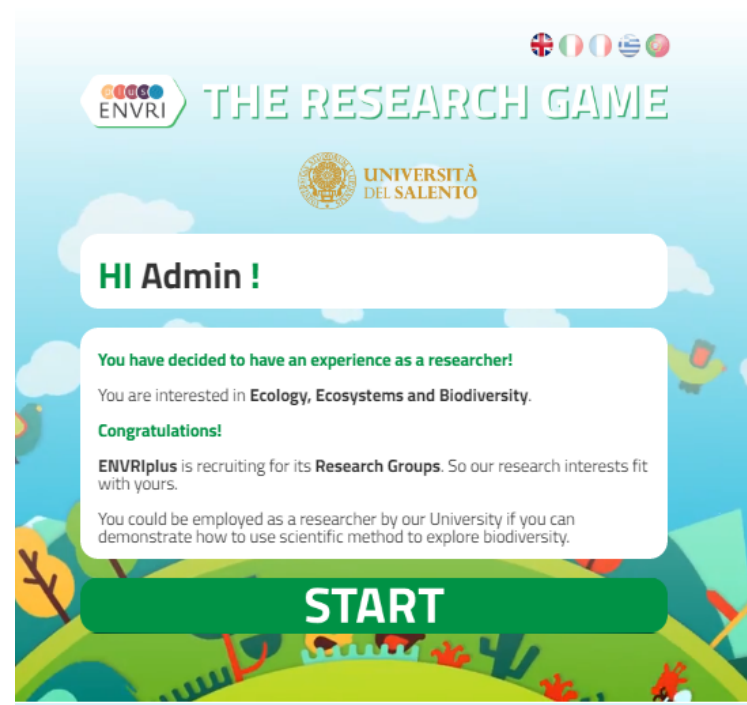
THE PROJECT

Project evaluation criteria

- ⇒ Problem definition (*up to 4 points*)
- ⇒ Hypothesis formulation and coherence with the scientific method (*up to 4*)
- ⇒ Clarity of the presentation (*up to 8*)
- ⇒ Results' presentation and conclusions (*up to 6*)
- ⇒ Communication skills, (*up to 8*)

THE ONLINE GAME

Game evaluation criteria mistakes & time



The **Mini-Pilot** evaluation by players

QUESTIONS	YES	NO
Do you think that the initial presentation of the game is sufficiently clear?	85%	15%
Did you like the graphic interface of the game?	98%	2%
Did you find the game is entertaining?	90%	10%
Did you find term, which you do not know the meaning?	100%	0%
Did you have difficulties in playing the game?	78%	22%
Did you like the images of the game?	89%	11%
Did the platform provide useful content, information and glossary?	75%	25%
Did the interactive parts of the game work properly?	93%	7%
Do you think that the information of the game's Phases on the platform are described properly?	87%	13%
Was the game able to teach you the scientific method?	97%	3%
Do you think that learning the scientific method was entertaining?	100%	0%
Did you play the game before the final online competition?	81%	19%
Would you like to repeat this experience next year?	100%	0%

The Mini-Pilot WINNERS

THE JUNIOR TEAM

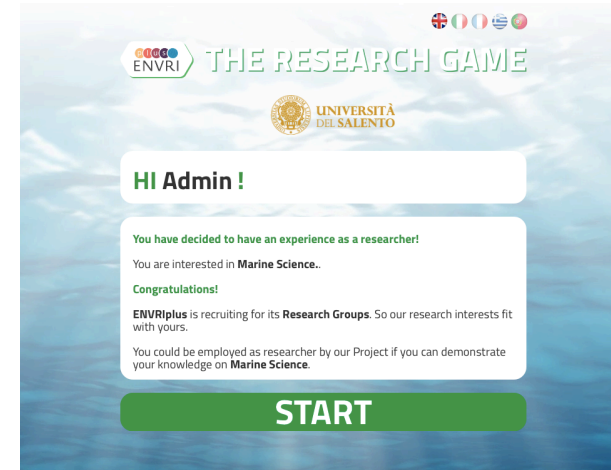


THE JUNIOR & SENIOR TEAMS

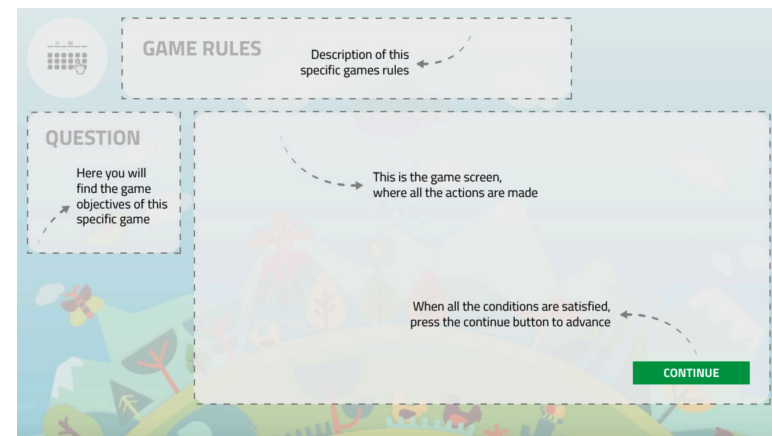


The ENVRIplus 2017-2018 Scientific Game

- ⇒ Three **Domains** involved: Biosphere, Marine, Solid Earth;
- ⇒ User-friendly tool for game implementation to enlarge **Domain & ERI** participation
- ⇒ **EMSO, EPOS, Euro-Argo, GROOM, LifeWatch** already involved, **ANAE, EGI, SIOS** & others in the process to decide involvement



type	objective	question	set	answer	body	buttons	sets	captions	images
"quizgame"	"obj_1"	"Can you make the difference between Marine (Physical oceanography, Biogeochemistry, ...)"	"Physical oceanography, Biogeochemistry, ..."	"Gulf Stream, Phytoplankton bloom, Breeding behaviors, Sea level rise"					
"dragdropset"	"obj_1"	"Identify Ocean Variables versus Processes."		"[0, 0, 0, 0, 1, 1, 1, 1]"			"[Variables, Processes]"		
"hangman"	"obj_2"	"Anchored line of sensors which measure Ocean variables at fixed point."		"mooring"					
"hangman"	"obj_2"	"Instrument that measures the daily sea level variations."		"tide gauge"					
"quizgame"	"obj_2"	"Reconstruct the chain of observations."	"[Variables, 'Proxy', 'Sensor', 'Platform]"	"[Chlorophyll concentration, 'Ocean color', 'Radiometer', 'Satellite]"					
"dragdropimage"	"obj_3"	"Platform versus Sensor, roll over each picture for it's name."		"[0, 0, 0, 0, 1, 1, 1, 1]"			"[Platform, 'Sensor]"		
"shortquestion"	"obj_3"	"Recognize trend or processus."							
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