Title and acronym: Using Mobile Augmented Reality Games to develop key competences through learning about sustainable development   [UMARG]

Project type: Erasmus+ KA2 Project, Strategic Partnership for School Education

Ref. no.: 2019-1-RO01-KA201-063778

Promoter /**Coordinator:** University of Pitești, Romania

Duration: 01/12/2019 to 30/11/2021

Total project grant: 247.844 Euro

Total expenditure (grant) for the University of Pitești: 38.321 Euro

Local coordinator for the University of Piteşti: Assoc. Professor Dr. Georgeta CHIRLEȘAN

 Summary:

        As globalization continues to confront the European Union with new challenges, each citizen will need a wide range of skills to adapt flexibly to a rapidly changing and highly

interconnected world.

These skills emerge today as key to allow people develop good-quality jobs and fulfil their potential as confident, active citizens. Based on the European Commission's reports, early acquisition of these skills is the foundation for the development of higher, more complex skills which are needed to drive creativity and innovation. Education in its dual role, both social and economic, has a key role to play in ensuring that Europe's citizens acquire the skills needed to enable them to adapt. Implementing key competences in schools involves not only specifying them in curricula, but also developing structures, innovative teaching methods as well as proper ICT tools that are open to teachers and students. Given their cross-curricular nature, this involves a whole-school planning. According to the European association KeyConet (Key competence Network in School Education), the key themes in teaching Key Competences for the 21st century relate to creating meaningful education based on real problems and engagement, interdisciplinary environments that enhance learners' experiences

through goal-directed, active, authentic and collaborative tasks.

Mobile Augmented Reality Games (MARG) are gaming environments that embed virtual, location specific and contextual information into a physical site. These games require mobile or ubiquitous computing devices, such as hand-held computers or cellular phones, to enable game participants to access this virtual information. Instead of putting people in an artificial world, these games augment the physical world by embedding them with digital data, networking and communication abilities, and enhanced properties providing at the same time in-situ or inquiry-based learning experiences.

Research on the use of MARG has shown potential benefits in fostering key competences such as collaboration, critical thinking, problem solving, social and civic competences as well as cultural awareness. However, there is a lack of an organized effort to sum up the potential benefits of these games and more importantly to incorporate them in the teaching practice as teachers' toolkit to foster students' key competences.

The UMARG is a KA2 Erasmus+ project in the field of Strategic Partnerships for School Education promoting innovation. It will involve the cooperation of 8 partners (4 Higher Education/Researcher Institutes and 4 schools) from four different European countries (Romania, Greece, Cyprus, Netherlands).

Objectives:

The UMARG project objectives are to:

• Explore examples of MARG for learning in the aspects of developing students' key competences;

• Contribute to developing and implementing innovative technologies in formal or informal settings by developing user guidelines of MARG tools;

• Develop a learning design framework for teaching the following key competences through MARG:

a) civic competences such as critical thinking, active citizenship, respect for differences;

b) digital competences such as information and data literacy, communication and collaboration and problem solving.

• Make use of the existing AR games platforms and provide educators with the necessary technical knowledge to create their own content for fostering students' key competences through learning about sustainable development;

• Provide educators with the tools and methodology to implement, evaluate and assess key competences of their students as well as act as educators-researchers through action research

based education.

Outcomes:

UMARG project is methodologically structured to fully support the production of the following 5 intellectual outputs:

IO1: An Augmented reality Teaching Toolkit including research on the available technologies and digital tools, users' instructions, comparison of the available digital tools for the creation of Mobile Augmented Reality Games.

IO2: A learning design framework for MARG and educational scenarios: including research on the available instructional designs, delimitation of design guidelines, transformation of the design criteria towards the target competences and skills; 20 MARG designed by the participating teachers towards the development of digital and civic competences of students in the context of sustainable development. These scenarios will be available in an open-access repository for use by other educators across Europe.

IO3: 20 Mobile Augmented Reality Games, developed by the participating teachers, available in free-to-use AR platforms, that can be played by students and help them develop their digital and civic competences as well their transversal skills.

IO4: Implementation and a research report on the MARG intervention in the teaching practice that will evaluate the added value of these games in teaching key competencies.

IO5: A MARG21 MOOC which will provide European educators with training and online learning

experience.

Partnership:

1. Universitatea din Pitești, Romania (coordinator)
2. Școala Gimnazială "Mircea cel Bătrân" Pitești, Romania
3. Rijksuniversiteit Groningen, Netherlands
4. Stichting voor openbaar voortgezet onderwijs Noorden Midden-Drenthe, Netherlands
5. Panepistimio Aigaiou, Greece
6. Ekpaideftiki Etairia Rodou, Greece
7. Centre for Advancement of Research and Development in Educational Technology, Cyprus
8. Dimotiko Scholeio Apostolou Louka, Cyprus
9.

Website : www.umarg.eu

Newsletters:

[Newsletter 1 in EN](#)

[Newsletter 1 in RO](#)

[Poster in EN](#)

[Poster in RO](#)

[Newsletter 2 in EN](#)

[Newsletter 2 in RO](#)

[Press Release in EN](#)

[Press Release in RO](#)

[Newsletter 3 in EN](#)

[Newsletter 3 in RO](#)

[Newsletter 4 in EN](#)

Newsletter 4 in RO

Flyer in EN

Flyer in RO

-          Title and acronym: Using Mobile Augmented Reality Games to develop key com petences

through learning about sustainable development
[UMARG]

Project type
: Erasmus+ KA2 Project, Strategic Partnership for School Education

Ref. no.:
2019-1-RO01-KA201-063778

Promoter /Coordinator:
University of Pitești, Romania

Duration:
01/12/2019 to 30/11/2021

Total project grant: 247.844 Euro

Total expenditure (grant) for the University of Pitești: 38.321 Euro

Local coordinator for the University of Piteşti: Assoc. Professor Dr. Georgeta CHIRLEȘAN

Summary:

As
globalization
continues
to
confront
the
European
Union
with

new
challenges,
each

citizen
will
need
a
wide
range
of
skills
to
adapt
flexibly
to
a
rapidly
changing
and
highly

interconnected world.

These
skills
emerge
today
as
key
to
allow
people
develop
good-quality
jobs
and
fulfil

their
potential
as
confident,
active
citizens.
Based

on
the
European
Commission's
reports,

early
acquisition
of
t
hese
skills
is
the
founda
tion
for
t
he
development
of
higher,
m
ore

complex
skills
which
are
needed
to
drive
creativity
and
innovation.
Education
in
its
dual
role,

both social
and
economic,
has a
key

role to
play
in ensuring
that
Europe's citizens
acquire the

skills
needed
to
enable
them
to
adapt. Implementing
key
competences
in
schools
involves
not

only specifying them in curricula,
but also developing structures, innovative
teaching methods

as well
as
proper ICT
tools
that
are open
to
teachers and
students.
Given
their cross-curricular

nature,
this
involves
a
whole-school
planning.
According
to
the

European association

KeyConet (Key competence Network in School Education), the key themes in teaching Key

Competences for the 21st century rel ate to creating meaningful education based on real

problems and engagement, interdisciplinary environments that enhance learners' experiences

through goal-directed, active, authentic and collaborative tasks.

Mobile Augmented Reality Games (MARG) are gaming environments that embed

virtual,
location
specific
and
contextual
information
into
a
physical
site.
These
games
require

mobile
or
ubiquitous
computing
devices,
such
as
hand-held
computers
or
cellular
phones,
to

enable
game
participants
to
access
this
virtual
information.
Instead
of
putting
people
in
an

artificial
world,

these
games
augment
the
physical
world
by
embedding
them
with
digital

data,
networking
and
communication
abilities,
and
enhanced
properties
providing
at
the
same

time in-situ or inquiry-based learning experiences.

Research
on
the
use
of
MARG
has
shown
potential
benefits
in
fostering
key

competences
such
as
collaboration,
critical

thinking,
problem
solving,
social
and
civic

competences
as
well
as
cultural
awareness.
However,
there
is
a
lack
of
an
organized
effort
to

sum
up
the
potential
benefits
of
these
games
and
more
importantly
to
incorporate
them
in
the

teaching practice as teachers' toolkit to foster students' key competences.

The
UMARG
is

a
KA2
Erasmus+
project
in
the
field
of
Strategic
Partnerships
for

School
Education
promoting
innovation.
It
will
involve
the
cooperation
of
8
partners
(4

Higher
Education/Researcher
Institutes
and
4
schools)
from four
different
European
countries

(Romania, Greece, Cyprus, Netherlands).

Objectives:

The UMARG project objectives are to:

•
Explore
examples

of
MARG
for
learning
in
the
aspects
of
developing
students'
key

competences;

-        • Contribute to developing and implementing innovative technologies in formal or informal

settings by developing user guidelines of MARG tools;

•
Develop
a
learning
design
framework
for
teaching
the
following
key
competences
through

MARG:

a) civic competences such as critical thinking, active
citi
zenship, respect for differences;

b)

digital
competences
such
as
information
and
data
literacy,
communication
and

collaboration and problem solving.

•
Make
use
of
the
existing
AR
games
platforms
and
provide
educators
with
the
necessary

technical
knowledge
to
create
their
own
content
for
fo
stering
students'
key
competences

through learning about sustainable development;

•

Provide
educators
with
the
tools
and
methodology
to
implement,
evaluate
and
assess
key

competences of their students as well as act as educators-researchers through action
re
search

based education.

Outcomes:

UMARG
project
is
methodologically
structured
to
fully
support
the
production
of
the

following 5 intellectual outputs:

IO1:
An Augmented
reality
Teaching
Toolkit including
research
on the
available

technologies
and digital
tools, users'
instructions, comparison
of the
available
digital tools
for

the creation of Mobile Augmented Reality Games.

IO2:
A
learni
ng
design
framework
for
MARG
and
educational
scenarios:
includi
ng
research

on
the
availa
ble
instructional
designs,
delimitation
of
design
guidelines,
transformation
of
the

design
criteri
a
towards
the
target

competences
and
skill
s;
20
M
ARG
designed
by
the

participating teachers towards the
development of digital and civic competences of
students in

the
context
of
sustainable
development.
These
scenarios
will
be
available
in
an
open-access

repository for use by other educators across Europe.

IO3:
20 Mobile Augmented Reality
Games, developed by the participating teachers, available

in
free-to-use
AR
platforms,
that
can
be
played
by
students
and

help
them
develop
their

digital and civic competences as well their transversal skills.

IO4:
Implementation and a research report on the MARG intervention in the teaching practice

that will evaluate the added value of these games in teaching key competencies.

IO5:
A
MA
R
G21
MOOC
which
will
provide
European
educators
with
training
and
online

learning experience.

Partnership:

1.
Universitatea din Pitești, Romania (coordinator)

2.
Școala Gimnazială "Mircea cel Bătrân" Pitești, Romania

3.
Rijksuniversiteit Groningen, Netherlands

4.
Stichting voor openbaar voortgezet onderwijs Noorden Midden-Drenthe, Netherlands

5.
Panepistimio Aigaiou, Greece

6.
Ekpaideftiki Etairia Rodou, Greece

7.
Centre for Advancement of Research and Development in Educational Technology,

Cyprus

8.
Dimotiko Scholeio Apostolou Louka, Cyprus