WM: “WEARABLE METHODOLOGY” A NEW METHODOLOGY BASED ON THE USE OF INNOVATIVE TECHNOLOGIES FOR EDUCATION
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GUIDE TO APPLY WEARABLE METHODOLOGY

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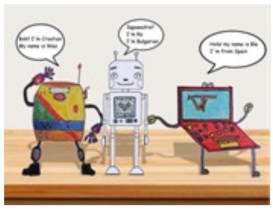

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PROJECT SUMMARY

The ERASMUS + "Wearable methodology" project a new methodology based on the use of innovative technologies for education, will be developed by four European partners, two partners from Spain, Anton Diaz School and the University of Castilla La Mancha, another partner of Bulgaria St. Kliment Ohridski School, and another partner Zoranić Croatia Petar Nin School.

They share the same innovative and transformative concerns in education, and the need to adapt the teaching-learning to the new information and communications technology and the need to exchange experiences and search for new methodological formulas to improve students' academic performance and motivation toward learning, improving basic skills of students and especially on foreign language (English), this will also be a goal for teachers, improve their English skill.

For this, the project involves the design of a new methodology, which we have called: Wearable Methodology (WM).

Based primarily on the idea that the introduction of new technologies is already in our daily life, pupils and teachers use these tools regularly. But we found inconvenient for educational use, these problems are given because working with computers is usually individually, ie student-computer or teacher-computer, rarely we found them on network or allow us to perform activities in which students focus on the learning content, rather than the tool they are using.

The WM methodology would be developed with this project allows interaction and not virtual collaboration of student-student, student-environment, student-teacher and is based on experimental student learning, plus technology, it allows diversity, respecting the rhythm of each student, also allows active and participatory learning using cooperative learning strategies and even a learning designed by the student, the teacher's role change to a mere learning coordinator. This WM can improve students' motivation as he will be the center of learning.

Teachers and students design and implement activities with the use of the software. For the use of the Internet and technology Wearable things, you need a classroom with sensors, chip, whiteboard, projector, internet, tablets and wearable (bracelet) one for each student. School classroom with these characteristics will be create in each School, which we have called: "Wearable Aula", where teachers and students can use WM.

02 PROJECT SUMMARY

Free software along with the educational activities will be available on the project's blog, together with the explanatory Teaching Guide, how to use it and how to design new activities tailored to school pupils who want to use it. In addition, the Guide will include a study of the results obtained in relation to motivation and school failure.

For project coordination working committees will be made, each committee shall be composed of one representative from each partner. All working documents will be available for all participants.

Five transnational meetings are scheduled for coordination and evaluation of the project, training meeting for school teachers to show them how to use the software properly and University teachers will acquire knowledge about child psychology, educational methodologies and on curricular activities that will be most suitable for primary school students to develop basic skills in them and to achieve the objectives proposed in the project.

Four Multipliers Events will be made for the dissemination of the project WM, an event organized by each partner.

Regional Conference Project Erasmus + "Wearable methodology" a new methodology based on the use of innovative technologies for education. In Spain and Croatia.

Smart learning workshop in Spain.

New educational Approaches developed in Erasmus + Project in Bulgaria.

The impact expected is that school performance and student motivation improve, reducing the rate of school failure in our schools, and thus also lower the dropout rate in secondary education in our rural areas. When young people in a locality achieve secondary education, the community benefits from it, to social, cultural and economic level.

INTRODUCTION

School failure in Primary Education and Early Childhood Education is a high risk factor for students to leave Secondary Education, and we think that from the early stages of education is where you have to intervene to prevent an early abandonment of schooling. A common characteristic of the partner centers is the fight for these causes, which is why collaboratively we will work to lower school failure rates and improve the academic performance of students in our geographical areas.

The Erasmus + project aims to find solutions to the problems of different European educational centers, such as: school failure, low academic performance, low motivation for student learning, through the development of a new methodology with the use of Wearables in the classroom and through cooperation between different EU institutions for the meeting and exchange of enriching experiences.

Wearable Methodology is a new methodology based on the use of innovative technologies for education. In order to create a SmartClassroom or a "Wearable Classroom", that is, an interactive classroom composed of technological elements such as sensors, chips, blackboard, projector, internet, tablets and wearables, etc.

The main objectives are the following:

-To allow the interaction and non-virtual collaboration of student-student, student with the educational environment, student-teacher based on the experimental learning of the students together with the use of technology.

- Allow active and participatory learning through cooperative learning.

-The role of the teacher changes to a mere learning coordinator.

-Improve motivation through student-centered learning to increase student engagement.

The use of Wearable Methodology together with other cooperative methodologies aim to improve the teaching-learning process for the development of key competences:

a) Linguistic communication. b) Mathematical competence and basic competences in science and technology. c) Digital competence. d) Learning to learn. e) Social and civic competences. f) Sense of initiative and entrepreneurial spirit. g) Awareness and cultural expressions.

03 PSYCHOPEDAGOGICAL FOUNDATION OF THE WEARABLE METHODOLOGY

For the design and development of the Wearable Methodology (WM), we rely on different psychological and / or psychopedagogical theories.

Humanistic psychology.

Humanistic psychology is one of the most important schools of thought in psychology. From there, Abraham Maslow (with his popular Pyramid of Maslow) or Rollo May defended a positive vision of the human being, according to which we are all capable of becoming the kind of people we want.

The personality theory of Carl Rogers is an example of this vital optimism brought to psychology and philosophy.

The motivation for learning is one of the main challenges of formal education and one of the priorities of this project. According to humanist theories, motivation, curiosity and the searching for the means for learning to take place, together with the association between people, make real learning possible. The importance of both the human and material context is one of the foundations of the WM. The methodology introduces a fundamental element, the environment in which it is developed, the WM classroom, whose space and environment, together with the shared task will be the basis for the improvement of motivation and curiosity towards new learning.

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Socio-constructivist theories.

Based on many of Vygotsky's ideas, they also consider learning as a personal process of building new knowledge from previous knowledge (instrumental activity), but inseparable from the situation in which it occurs. It emphasizes the following aspects:

1.- The Importance of social interaction: Learning is a social experience where context is very important and language plays a basic role as a mediating tool.

With the use of the WM, the students work in small teams and need an effective communication between them and a pooling to reach the final agreement: the answer-wise.

2.- Incidence in the zone of proximal development, in which the interaction with the specialists and with the equals can offer a "scaffolding" where the apprentice can rely on.

In the ordinary classroom, the students work the previous contents, necessary to facilitate the response of wearables activities. The methodology can be used for the evaluation of previous learning, for the learning of new concepts or for the final evaluation of the acquired competences.

In turn, the constructivism of Piaget and Brunet, consider that learning is a continuous process of creation that occur in a social context and relationship and that new learning is based on previous learning (Vygotsky).

These theories define a training environment, such as one that considers the possibility of content construction, the testing of forms of organization aimed at an objective, and that allows and promotes collaboration between people.

The WM aims to create an environment in which students can move freely, can collaborate with each other and develop learning strategies for themselves.

1.- Learning by discovery. The perspective of learning by discovery, developed by J. Bruner, attaches great importance to the direct activity of students on reality.

2.- Meaningful learning (D. Ausubel, J. Novak) postulates that learning must be meaningful, not rote, and for this, the new knowledge must be related to the previous knowledge that the apprentice possesses. Faced with Bruner's discovery learning, he defends learning by reception where the teacher structures the contents and the activities to be carried out so that the knowledge is meaningful for the students

Conditions for learning:

- Logical significance (can be related to previous knowledge).
- Psychological significance (adaptation to student development).
- Active attitude and motivation.
- Relation of new knowledge with previous knowledge. The mind is like a propositional network where learning is to establish semantic relationships.
- Use of previous organizers that facilitate the activation of previous knowledge related to the learning that you want to perform.
- Integrative differentiation-reconciliation that generates a comprehensive memorization.
- Functionality of learning that have interest are useful.

One of the possibilities offered by the WM is the use of real objects and the in-teaction with them. The student is the protagonist and acquires an active and partcipatory role which ranges from the choice of the concepts he wants to learn, through the realization and design of intelligent objects, to the self-evaluation of what has been learned.

METHODS APPLIED TO CLASS MANAGEMENT

Methods focused on positive behavior: They follow the principles of reinforce-ment. In the educational context ;one of the most powerful reinforcers is the teacher's attention (for example, praise). In this sense, reinforcement of desirable behavior accompanied by non-reinforcement of undesirable behavior can be even more effective.

Vicarious reinforcement can also be very effective in class. The reinforcement of the model exerts a positive influence on the observer's own behavior.

The group methods. They are based on reinforcing the behavior of the group as a whole. There are two possibilities: reinforcement of the whole class based on the behavior of a single student, and reinforcement of each student rewarding each and every one depending on the behavior (cards or contingency contracts).

The dynamics of groups.
Group dynamics is a sociological designation to indicate changes in a group of people whose participants seek to strengthen their mutual relationships, since they are important, being in contact with each other, and with collective, conti-nuous and active attitudes.

The North American psychologist of German origin Kurt Lewin, was the pioneer in the study of the groups, developing the field theory of behavior. He based it not only in the study of individual behavior but also allowing the interpretation of group and social phenomena.

The WM is based on group dynamics to establish the positive relationship bet-ween the students that make up the small group and the interactions between the small groups.

04 USES OF THE WM

(THROUGH THE LEARNING PROCESS)

The method "Wearable Methodology" is a new methodology based on the use of innovative technologies for education and especially by using portable information technology devices in teaching English. The methodology is based on a similar pedagogical approach called Free Work Stations. The WM develops and integrates different alternative teaching strategies in order to create motivating environment in the classroom and to involve new technology in educational process. The WM lessons and activities can be used very successfully in each classroom not only as additional form of teaching but also for teaching or revising different categories integrated in the regular school material.

In foreign language education Wearable Methodology is used as a method of self - improvement and self-absorption of language structures using games and competitive elements. In relation to the selected activities and learning tasks, it is a kind of alternative and innovative way to teach students basic language structures leading to significant improvement of their language skills. The didactic materials can be prepared by the teachers according to their needs.

The model of Wearable Methodology is structured in order to reinforce knowledge and skills in global themes such as Numbers and Letters, Food and Beverages, Nature - Seasons, Clothing, School Supplies, Furniture, Flora and Fauna and all topics integrated in the school material. In a WM lesson learners may look into different lexical and grammar structures. They can make educational activities related to school supplies, activities and preparation for first school day, seasons, fruit and vegetables, colors etc. They will think about words and ideas connected to the different abilities that they can improve and learn at school. Then they will work in groups to produce sentences.

The new wearable methodology can be successfully applied during the regular classes for improving and revising previously taught structures not only in English Language but also in Mathematics, Languages, Nature, Geography, History, Music etc.

Learning Objectives:

To consolidate the knowledge and skills that students have learned in the regular classes.

To develop skills for working in groups - team work.

To develop skills for self-monitoring and evaluation of acquired knowledge.

To develop skills in intermodal application of the acquired material.

To develop skills to use information sources: textbooks, dictionary, diagrams, visual materials.

05 HOW TO USE THE WEARABLE METHODOLOGY

05.1 SET UP THE COMPONENTS.

We have designed this section with the purpose of using the wearable methodology in any classroom, where the necessary elements are described step by step and how to install them in any classroom.

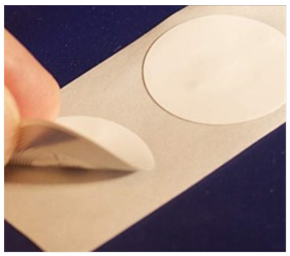
DEVICES

To use the wearable methodology, if the bracelets are not available, you can use other resources such as mobiles or tablets, as long as they have NFC readings.

Near Field Communication (NFC)

It is needed to record the information in the objects that you will use, to record you need to acquire NFCs (they are really cheap).

NFCs are chips in which we can record the information that we want, these chips carry a sticker, so it is very easy to paste them into objects or cards.



NFC

To record the information you can download the application NFC Tools. This technology allows writing and reading the NFCs,

Application NFC Tools

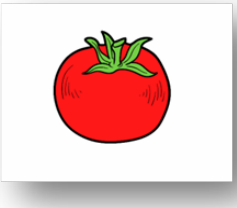
05.2 Itelligent Objects

These objects, which we have put the NFCs, we call intelligent objects.

You can see the tutorial to learn how to record the information in them.

Tutorial video.

To read them, the same application can be used.

 Real object	 Toy	 Flash card

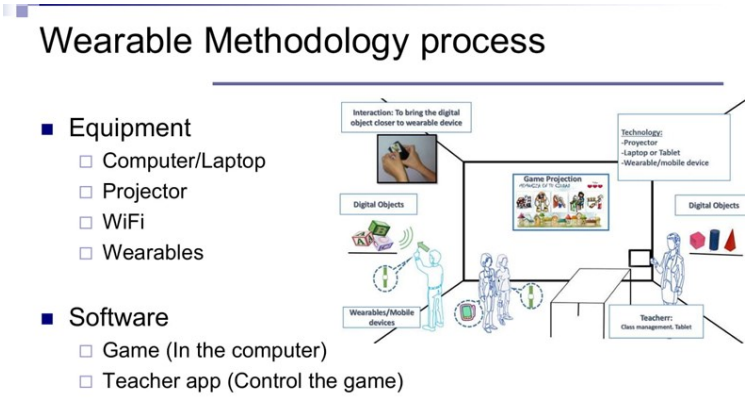
The objects can be real, toy or card (eg tomato). In any of them you can paste the NFC.

The drawings to make the cards are in power-point (on the website) or in pdf (activities …) ready to use and to print.

FILES

View annex 1. The annex 1 explains how the WM works with smartphones or tables (without bracelets).

05.3 SET UP THE GAME IN A CLASSROOM



05.3.1 EQUIPMENT

Computer/laptop where the teacher can control the game, to start the computer/laptop has to be connected to the internet, it is also needed to have wifi.

Projector connects with the computer or laptop so all the students can follow and watch the game.

Wearable Objects (see intelligent Objects)*

05.3.2 Software (IO1)

The game software has two parts, it must be open either on screen, on a blackboard or on TV.

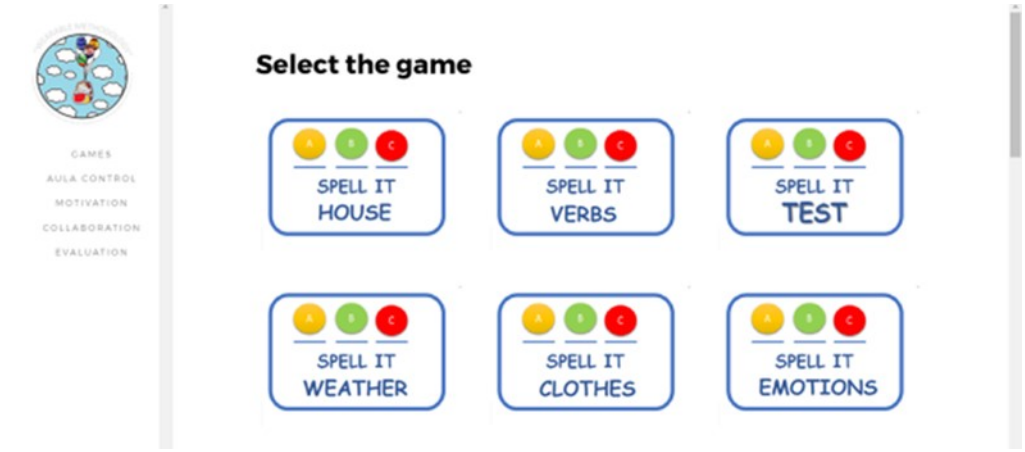
We recommend to use Google Chrome if it is possible.

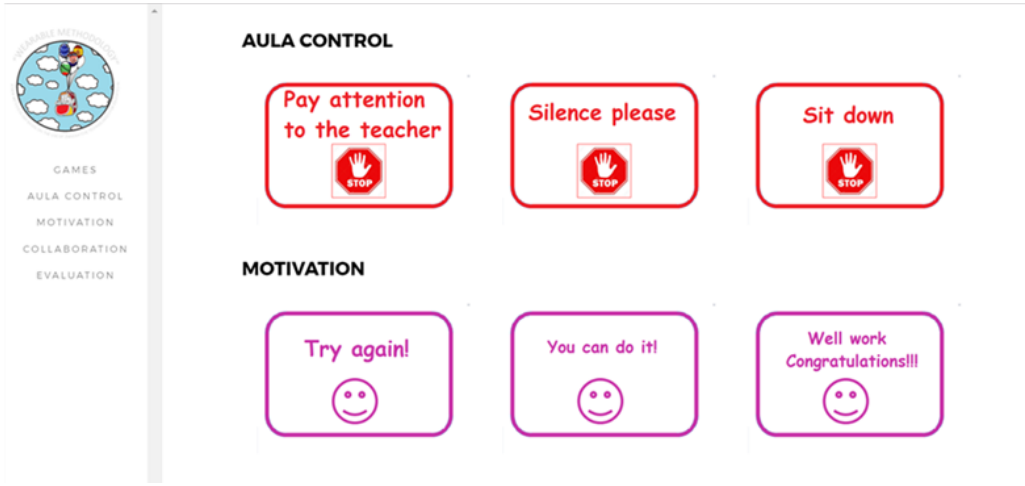
Part 1: Game control. The teacher can have it open on the same computer, but **it** is more advisable to have it on another device (mobile, tablet, computer ...), so that the game is more dynamic. Thus the teacher can visualize the two screens at the same time.

This application allows the teacher to have access to:

All Games
Aula Control
Motivation
Collaboration

[Next link is the teacher application to control the Wearable activities]





Part 2: Game and students' screen

Once the teacher has opened the control panel it can be selected the game he wants and another tab will open with the game.

Link to students' screen

IMPORTANT: Both links should be opened at the same time to be able to use the Control Game

http://game.wearablemethodology.eu:8080/games.html#
http://game.wearablemethodology.eu/

05.4 Let’s play

05.4.1 Divide the students

The activities are designed to play in teams in a collaborative way, the tasks are dealt between the components of the team (assistant, Object Search, place objects in the panel, Team coordinator...). When a team member does not know or can not do their homework, the assistant can work with him to finish the proposed task. When a team is struggling, the teacher can tell the team that they have completed the activities to help them.

Divide the students into 5 teams corresponding with each colour in the game (red, blue, yellow, green and orange)

Teams should sit down together in a collaborative way.

05.4.2 Explain the game

The teacher explain the game and the main goal of each game. It is recommend to play games related with the tasks that have been seen in ordinary class.

The teacher distribute the Digital Objects between the groups or in a middle point in the classroom so the students can move around the classroom.

Each group must find the digital objects that correspond to their color.

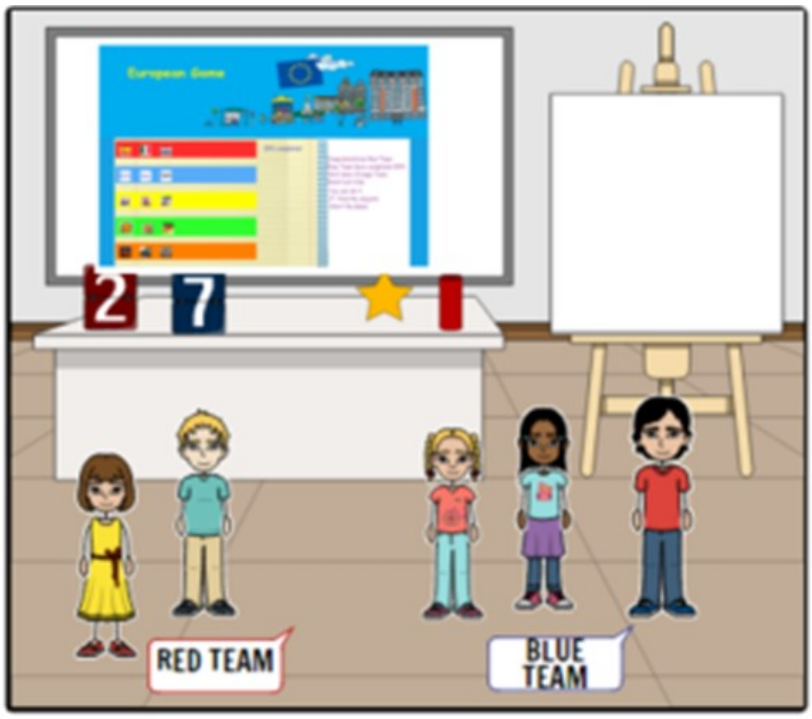
Por example:

In this case the students in the blue team should look for the Monuments of Spain between all the digital objects and pass though the bracelets, phones or Tablet and if it is correct will appear in the game.

05.4.3 Play

Once everything is placed, students can start playing and move around the space to look for the smart objects corresponding to their color.

The teacher can help with the game control and send motivational messages to the students, encourage a group that helps another who is not finished, etc...



Game is proyected on the wall. Teams must to find the digitized objects in the Wearable Classroom. They must interact to bring the digitized object closer to wearable(bracelet)

The following video is an example of students playing in the classroom.

LINK

06 WEARABLE ACTIVITIES

06.1 SPANISH CULTURE: FOOD

06.1 SPANISH CULTURE: FOOD

06.2 SPANISH CULTURE: CITIES

06.2 SPANISH CULTURE: CITIES

06.3 SPANISH CULTURE: MONUMENTS

06.3 SPANISH CULTURE: MONUMENTS

06.4 SPANISH CULTURE: RIVERS

06.4 SPANISH CULTURE: RIVERS

06.5 EUROPEAN CITIES: ITALY

COLISEUM (ROME)

TOWER OF PISA (PISA)

PACE ARCH (MILAN)

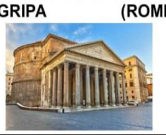
BASILICA OF SAN MARCOS (VENICE)

CLOCK TOWER (VENICE)

CATHEDRAL OF SANTA MARIA DE FIORE (FLORENCE)

PONTE VECCHIO (FLORENCE)

PANTHEON DE AGRIPA (ROME)



PALACE DUCAL (VENICE)

1

06.5 EUROPEAN CITIES: ITALY

06.6 EUROPEAN CITIES: GERMANY

06.6 EUROPEAN CITIES: GERMANY

06.7 EUROPEAN CITIES: PORTUGAL

06.7 EUROPEAN CITIES: PORTUGAL

06.8 EUROPEAN CITIES: HOLLAND

1

06.8 EUROPEAN CITIES: HOLLAND

06.9 EUROPEAN CITIES: GREECE

06.9 EUROPEAN CITIES: GREECE

06.10 EUROPEAN CITIES: FRANCE

06.10 EUROPEAN CITIES: FRANCE

06.11 EUROPEAN CITIES: FINLAND

ESPOO

PORI

MIKKELI

OULU

KUOPIO

LAHTI

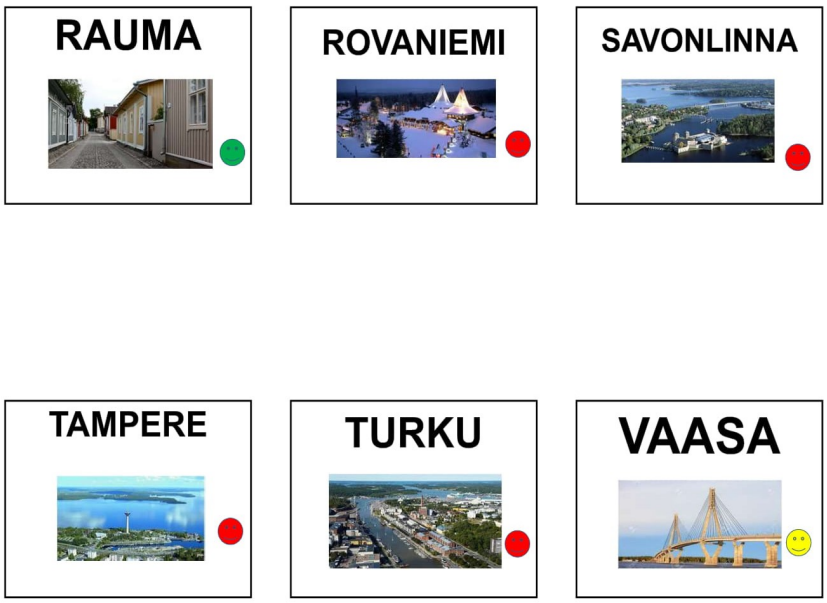
HELSINKI

KIRKKONUMMI

PORVOO

1

06.11 EUROPEAN CITIES: FINLAND



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06.12 EUROPEAN CITIES: SWEDEN

BORAS

UMEA

VÄSTERAS

ÖREBRO

MALMÖ

LINKÖPING

HELSINGBORG

VADSTENA

HALMSTAD

1

06.12 EUROPEAN CITIES: SWEDEN

SKANSEN (DJURGÄRDEN)

JUNIBACKEN (STOCKHOLMO)

SKEPPSHOLMEN (STOCKHOLMO)

TRÄDGÄRDSFÖRENINGEN (GOTEMBURGH)

TURNING TORSO (MALMÖ)

WALDEMARSUDDE (STOCKHOLMO)

06.13 EUROPEAN CITIES: CZECH REPUBLIC

STARÉ MESTO (PRAGA)

PRAZSKÝ HRAD-CASTLE (PRAHA)

MALÁ STRANA
CHARLES BRIDGE (PRAHA)

JOSEFOV–JEWISH QUARTER (PRAHA)

CESKÝ RAJ-BOHEMIAN PARADISE

HISTORIC CENTRE OF TELC (TELC)

KATEDRALA SVATECHO VITA (PRAHA)

VILLA TUGENDHAT (BRNO)

KROMERIZ CASTLE (KROMERIZ)

06.13 EUROPEAN CITIES: CZECH REPUBLIC

SKANSEN (DJURGÄRDEN)

JUNIBACKEN (STOCKHOLMO)

SKEPPSHOLMEN (STOCKHOLMO)

TRÄDGÄRDSFÖRENINGEN (GOTEMBURGH)

TURNING TORSO (MALMÖ)

WALDEMARSUDDE (STOCKHOLMO)

06.14 EUROPEAN MONUMENTS:

CZECH REPUBLIC

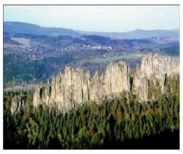
STARÉ MESTO (PRAGA)

PRAZSKÝ HRAD-CASTLE (PRAHA)

MALÁ STRANA
CHARLES BRIDGE (PRAHA)

JOSEFOV–JEWISH QUARTER (PRAHA)

CESKÝ RAJ-BOHEMIAN PARADISE



HISTORIC CENTRE OF TELC (TELC)

KATEDRALA SVATECHO VITA (PRAHA)

VILLA TUGENDHAT (BRNO)

KROMERIZ CASTLE (KROMERIZ)

06.14

EUROPEAN MONUMENTS:

CZECH REPUBLIC

ST. JOHN OF NEPOMUK´S CHURCH (ZELENÁ HORA)

BASILICA OF ST. PROCOPIUS (TREBÍC)

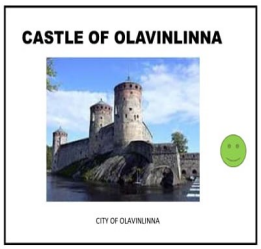
HISTORICAL VILLAGE RESERVATION (HOLASOVICE)

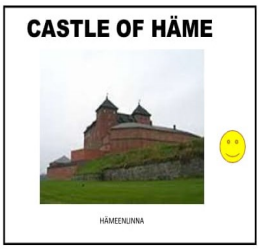
HOLY TRINITY COLUMN (OLOMOUC)

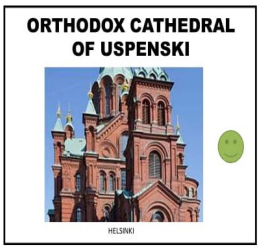
GARDENS AND CASTLE (LITOMYSL)

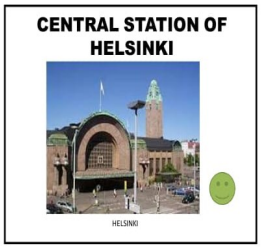
ST. BARBARA´S CHURCH (KUTNA HORA)

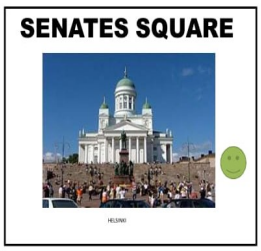
06.15 EUROPEAN MONUMENTS: FINLAND



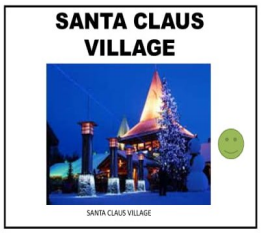


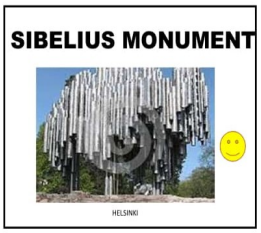






06.15 EUROPEAN MONUMENTS: FINLAND





06.16 EUROPEAN MONUMENTS: FRANCE

06.16 EUROPEAN MONUMENTS: FRANCE

06.17 EUROPEAN MONUMENTS: GERMANY

06.17 EUROPEAN MONUMENTS: GERMANY

06.18 EUROPEAN MONUMENTS: GREECE

ACROPOLIS

CNOSOS PALACE

ERECTERION

HEFESTION

LYCABETTUS MOUNTAIN

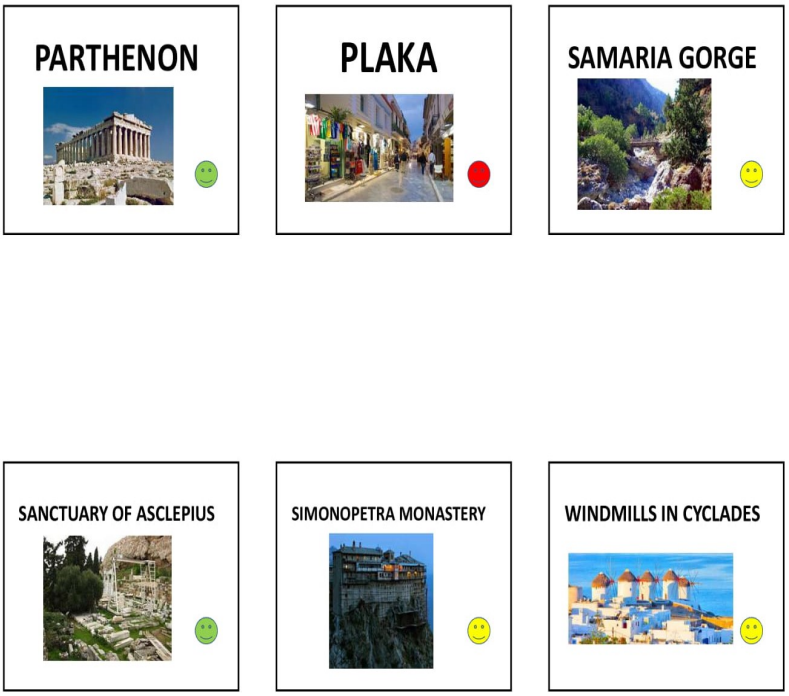
METEORA

MONASTERY OF SAINT JOHN THE THEOLOGIAN

NATIONAL ARCHAEOLOGICAL MUSEUM OF ATHENS

PALACE OF THE GRAND MASTER OF THE KNIGHTS

06.18 EUROPEAN MONUMENTS: GREECE



06.19 EUROPEAN MONUMENTS: HOLLAND

RIJKSMUSEUM

AMSTERDAM

ANAFRANK HOUSE

AMSTERDAM

MAURITSHUIS

LA HAYA

EFTELING

KAATSHEUVEL

JORDAAN

AMSTERDAM

AMSTELKRING

AMSTERDAM

ZUIDERZEEMUSEUM

ENKHUIZEN

BINNENHOF

LA HAYA

ERASMUSBRUG

ROTTERDAM

06.19 EUROPEAN MONUMENTS: HOLLAND

REMBRANDTMUSEUM

AMSTERDAM

BOIJMANS VAN BEUNINGEN

ROTTERDAM

OUDEKERK

AMSTERDAM

PLAZA DAM

AMSTERDAM

RIDDERZAAL

LA HAYA

CATHEDRAL UTRECHT

06.20 EUROPEAN MONUMENTS: ITALY

COLISEUM (ROME)

TOWER OF PISA (PISA)

PACE ARCH (MILAN)

BASILICA OF SAN MARCOS (VENICE)

CLOCK TOWER (VENICE)

CATHEDRAL OF SANTA MARIA DE FIORE (FLORENCE)

PONTE VECCHIO (FLORENCE)

PANTHEON DE AGRIPA (ROME)

PALACE DUCAL (VENICE)

06.20 EUROPEAN MONUMENTS: ITALY

06.21 EUROPEAN MONUMENTS: PORTUGAL

BELEM TOWER

COIMBRA UNIVERSITY

EVORA'S ROMANE TEMPLE

CONIMBRIJA'S RUINS

JERONIMO'S MONASTERY (LISBOA)

CHRIST CONVENT (TOMAR)

GUIMARAES' CASTLE

LISBOA'S BRIDGE

SINTRA'S PALACE

06.21 EUROPEAN MONUMENTS: PORTUGAL

BATALHA'S MONASTERY

OBIDOS' CASTLE

ALCOBAÇA'S MONASTERY

ALMOROUL'S CASTLE(VILA NOVA DA BARQUINHA)

NATIONAL PALACE (MAFRA)

PRIEST'S TOWER

06.22 EUROPEAN MONUMENTS: SWEDEN

ALVSBORG FORTRESS(GÖTEBORG)

CASTLE DE KALMAR (KALMAR)

GAMLA STAN (STOCKHOLMO)

KONSERTHUSET (STOCKHOLMO)

LIVRUSTKAMMAREN (STOCKHOLMO)

MODERN MUSEET (STOCKHOLMO)

PALACE DE DROTTNINGHOLM (ISLAND DE LOVÖN)

PARK NATIONAL DE ABISKO (NORRBOTTEN)

RIDDARHOLMEN (STOCKHOLMO)

06.22 EUROPEAN MONUMENTS: SWEDEN

SKANSEN (DJURGÄRDEN)

JUNIBACKEN (STOCKHOLMO)

SKEPPSHOLMEN (STOCKHOLMO)

TRÄDGÄRDSFÖRENINGEN (GOTEMBURGH)

TURNING TORSO (MALMÖ)

WALDEMARSUDDE (STOCKHOLMO)

06.23 EUROPEAN FOOD: CZECH REPUBLIC

KNEDLIKY

CESKÁ BRAMBOROVÁ

RUSKE VEJCE

PRAZSKA SUNKA

UTOPENEC

BRAMBORÁKY

GOULASH

KNUCKLE

SMAZENY SYR

06.23 EUROPEAN FOOD: CZECH REPUBLIC

VEPRO KNEDLO ZELO

SVÍCKOVÁ

OVOCNÉ KNEDLÍKY

MEDOVNÍK

PLZENSKÝ PRAZDROJ

KOLÁCEK

06.24 EUROPEAN FOOD: FINLAND

CREAM BUNS

COILED OF CINNAMON

POTATOES WITH RICE

PIE OF CHEESE WITH SALMON

BUN OF CINNAMON WITH CREAM

FINNISH MILLS

BREAD OF CHEESE WITH BLUEBERRY OF THE MARSH

STUFFED ROLLED OF FISH

POTATOES WITH HERRING

06.24 EUROPEAN FOOD: FINLAND

MOOSE WILD FRUITS

STUFFED CAKE OF POTATOES AND WILD FRUITS

FINNISH SAUSAGES

SOUP OF SMOKEDSALMON

BLUEBERRY PIE

SALMON WITHBLUEBERRY

06.25 EUROPEAN FOOD: FRANCE

06.25 EUROPEAN FOOD: FRANCE

06.26 EUROPEAN FOOD: GERMANY

06.26 EUROPEAN FOOD: GERMANY

06.27 EUROPEAN FOOD: GREECE

BAKLAVA

COURGETTE BALLS

FASOLADA

FETA

GREEK YOGURT

MOUSSAKA

PASTITSIO

SALATA JORIÁTIKI

SOUVLAKI

06.27 EUROPEAN FOOD: GREECE

SPANAKOPITA 	TARAMOSALATA 	TIROPITA 
TZATZIKI 	YEMISTA 	DOLMADES 

06.28 EUROPEAN FOOD: HOLLAND

RIJSTTAFEL

STAMPPOT

ERWTENSOEP

BITTERBALLEN

STROOPWAFELS

POFFERTJES

APPELFLAP

ROOKWORST

KROKETTEN

06.28 EUROPEAN FOOD: HOLLAND

TOMPOEZEN

LEKKERBEK

BOERENKOOL

GROENTESOEP

HUTSPOT

OLIEBOLLEN

06.29 EUROPEAN FOOD: ITALY

TIRAMISU

RISOTTO

CARPACCIO

PIZZA

OSSO BUCO

CAPPUCCINO

SPAGHETTI

MINESTRONE

PANINI

06.29 EUROPEAN FOOD: ITALY

PANNA COTTA

BOLOGNESE SAUCE

PANETTONE

CARBONARA SAUCE

LASAGNE

CANNELLONI

06.30 EUROPEAN FOOD: PORTUGAL

PAELLA

FLOUR FITTERS

ASTURIAN BEANS

PIQUILLO PEPPERS

IBERIC HAM

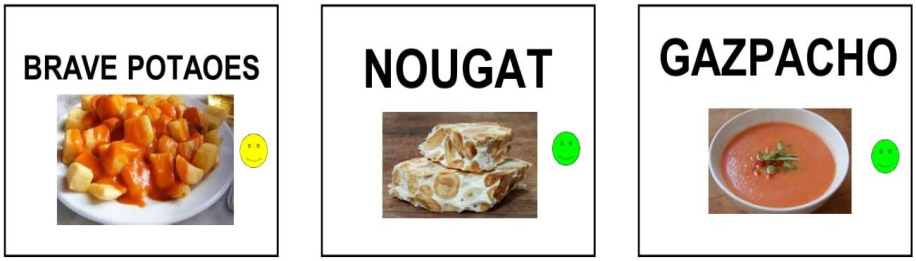
POTAGE

GALICIAN OCTOPUS

SPANISH RATATOUILLE

CRUMBS

06.30 EUROPEAN FOOD: PORTUGAL



06.31 EUROPEAN FOOD: SWEDEN

GRAVAD LAX

HJORTRONPARFAIT

KALL INKOKT LAX

KANELBULLAR

KAVRING

KROPPKAKOR

NYPONSOPPA

PEPPARKAKOR

RAGGMUNK

06.31 EUROPEAN FOOD: SWEDEN

SAFFRANSBULLAR

SEMLA

SILLTALLRIK

SMÖRGASTARTA

STRÖMMINGSLADOR

TOAST SKAGEN

06.32 EUROPEAN RIVERS: CZECH REPUBLIC

ELBE RIVER

MOLDAVA RIVER

OHRE RIVER

MORAVA RIVER

ODER RIVER

LIPNO LAKE

JIZERA RIVER

CERNE LAKE

BEROUNKA RIVER

06.32 EUROPEAN RIVERS: CZECH REPUBLIC

CHABAROVICE LAKE

BEZDREV LAKE

PRASILSKE JEREZO LAKE

SVRATKA RIVER

RADBUZA RIVER

LUZNICE RIVER

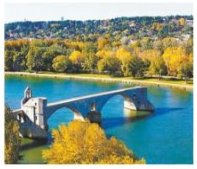
06.33 EUROPEAN RIVERS: FINLAND

SEINE RIVER

LOIRA RIVER

LAKE LEMAN

RODANO RIVER



NORTH SEA

ENGLISH CHANNEL

ATLANTIC OCEAN

MEDITERRANEAN SEA

DORDOÑA RIVER

06.33 EUROPEAN RIVERS: FINLAND

GARONA RIVER

ADOUR RIVER

LAKE OF ANNECY

LAKE PAVIN

LAKE LE BOURGET

WHITE LAKE

06.34 EUROPEAN RIVERS: FRANCE

06.34 EUROPEAN RIVERS: FRANCE

06.35 EUROPEAN RIVERS: GERMANY

06.35 EUROPEAN RIVERS: GERMANY

06.36 EUROPEAN RIVERS: GREECE

06.36 EUROPEAN RIVERS: GREECE

LAKE VEGORITIDA

MYLOPOTAMOS RIVER

NEDA RIVER

NESTOS RIVER

PINEIOS RIVER

SPERCHIOS RIVER

06.37 EUROPEAN RIVERS: HOLLAND

MOSA RIVER

RIN RIVER

WAAL RIVER

ESCALDA RIVER

AMSTEL RIVER

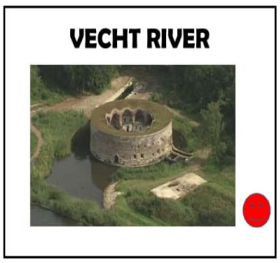
SPAARNE

OUDE RIJN RIVER

GOUWE RIVER

IJSSEL RIVER

06.37 EUROPEAN RIVERS: HOLLAND



06.38 EUROPEAN RIVERS: ITALY

TIBER RIVER

PO RIVER

ADIGIO RIVER

ARNO RIVER

LAKE COMO

LAKE GARDA

LAKE ORTA

LAKE MAGGIORE

TIRRENO SEA

06.38 EUROPEAN RIVERS: ITALY

06.39 EUROPEAN RIVERS: PORTUGAL

ATLANTIC OCEAN

TAJO RIVER

MIÑO RIVER

DUERO RIVER

GUADIANA RIVER

MONDEGO RIVER

TAMEGA RIVER

VOUGA RIVER

AVE RIVER

06.39 EUROPEAN RIVERS: PORTUGAL

BRANCO RIVER

OBIDOS' LAKE

CARVAO LAKE

BLUE LAKE

FIRE LAKE

SANTIAGO'S LAKE

06.40 EUROPEAN RIVERS: SWEDEN

HJÄLMAREN

KLARA

LJUSTERÖ

LULE

MALAREN

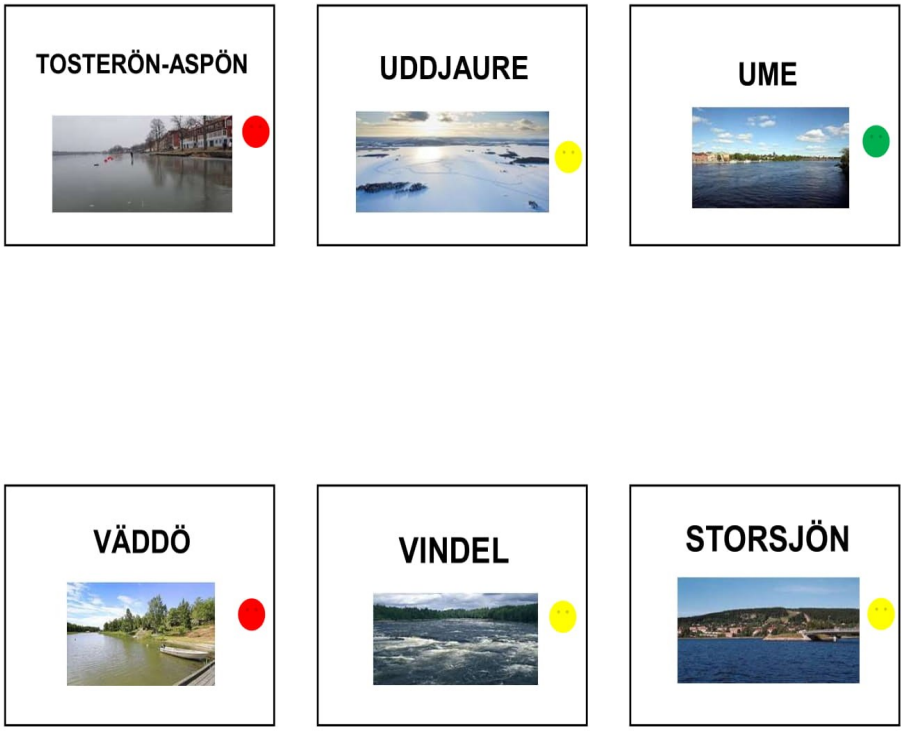
ORSASJÖN

SVARTSJÖLANDET

TJÖRN

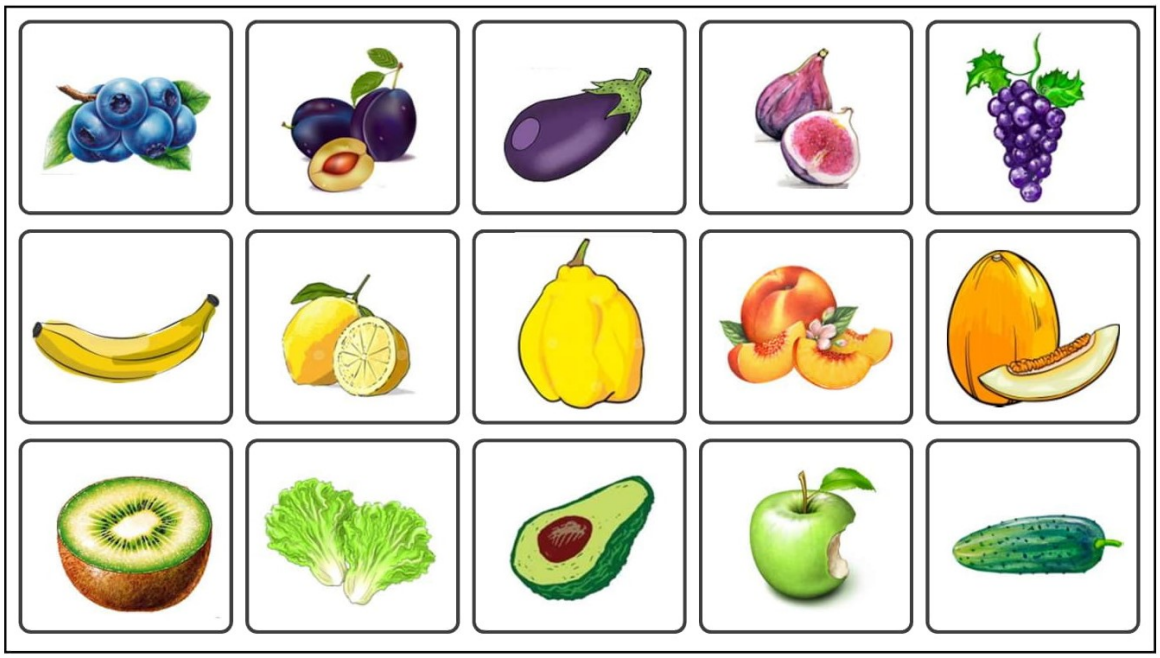
TORNE

06.40 EUROPEAN RIVERS: SWEDEN



06.41 ENGLISH LEARNING

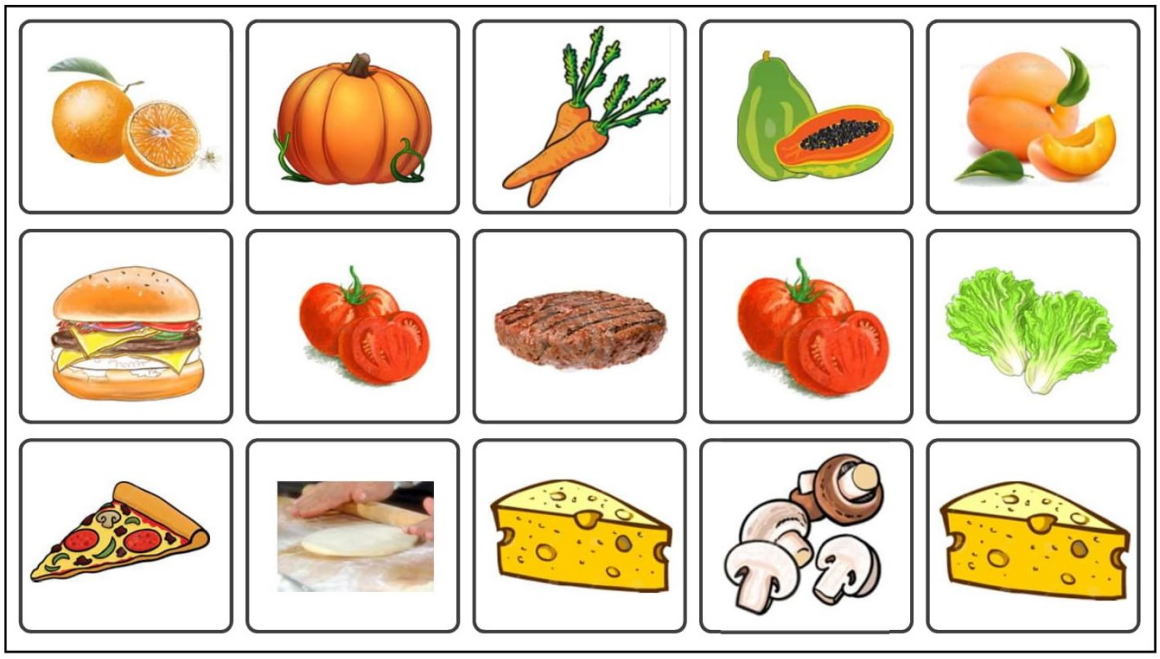
06.41 ENGLISH LEARNING



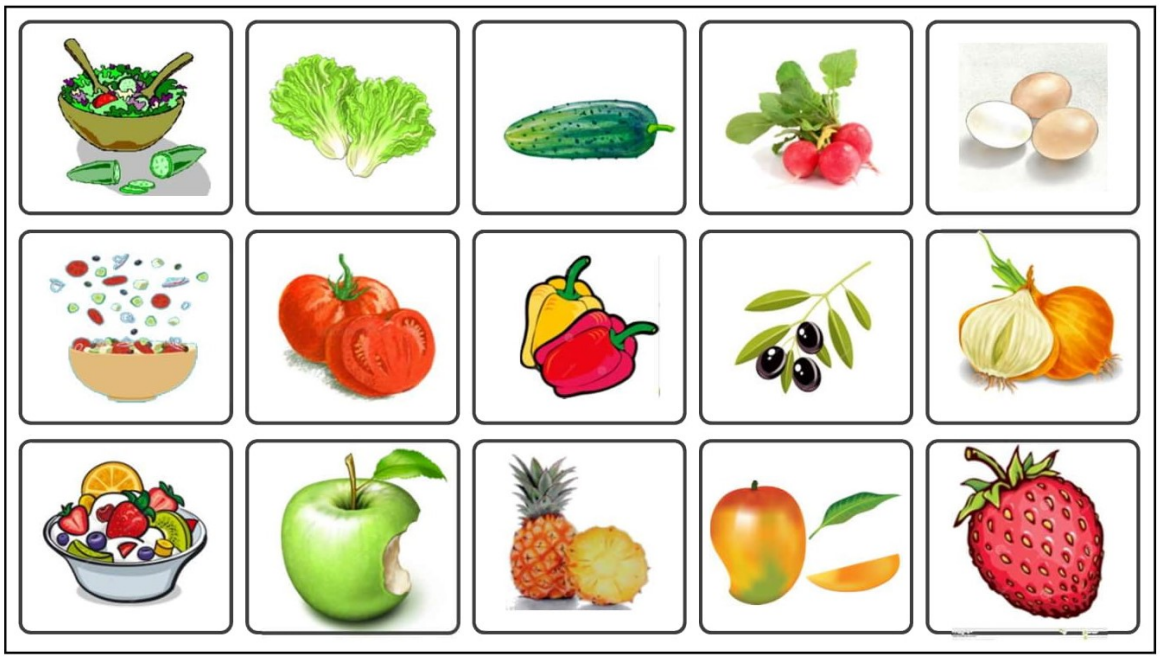
Strawberry	Tomato	Cherry	Beetroot	Watermelon
Blueberry	Plum	Eggplant	Fig	Grapes
Banana	Lemon	Quince	Peach	Melon

06.41 ENGLISH LEARNING

Kiwi	Lettuce	Avocado	Apple	Cucumber
Orange	Pumpkin	Carrot	Papaya	Apricot



06.41 ENGLISH LEARNING



06.42 ENGLISH LEARNING: SPELL IT

06.43 MATHS GAME

07 WEARABLE CLASSROOM

Research about educational spaces

Something that is not new if we take into account that the Italian educator and pedagogue, Maria Montessori had already created a complete method that was based on the active learning of the students at the beginning of the 20th century, where the decoration of the classroom had of great importance and teachers play a guiding role. For Maria Montessori, the decoration or the atmosphere in which the child moves must be designed so that the child develops his social, emotional and intellectual skills. The basic principles of classroom decoration according to Montessori's method are: bright and warm spaces, include plants, art, music and books and there are not traditional desks, but work spaces.

Therefore, if we consider the contribution of the previous author, and thanks to our experience as teachers, we conclude that a good educational space is essential for the integral development of our students. For this reason, Rosan Bosch, a designer of educational spaces, proposes the elimination of current educational spaces because they kill the creativity of children. They can not move or express themselves freely. So, she proposes the creation of learning landscapes, with different learning situations and different materials. The different things stimulate you as a person. "Intrinsic motivation is the most powerful force", says this designer.

On the other hand, following this same idea Francisco Mora an international reference of Neuroeducation, stands out the importance of emotions in learning. Everything we are, think, feel and learn is the result of our brain in constant interaction with our body and the environment, he explains. He gives us the tools and basic keys that Neuroscience offers to improve learning and memory, always from the human side. Francisco Mora maintains that all the important changes that happen in our societies is when "we recognize and accept that the human is what education makes of him", highlighting the central role of teachers. So, all this will be possible or will be achieved if the work space is a place that invites you to dream, to create, to think, to reflect and especially a space that invites you to learn.

OUR WEARABLE CLASSROOM

In order to implement the methodology in the centers of all the partners participating in this project, we have decided to create a classroom (educational space) in each center with some characteristics common to all of them:

Funny
Active learning
Free movement
Cooperative learning
Efficient Space
Flexible
Inclusive
Emotional Space

The clasrooms have been desing with 5 parts:
Zone 1: House
Zone 2: Square
Zone 3: Bench
Zone 4: Windows
Zone 5: Wall

Zona 1: House
In each classroom there have been created 5 zones (houses) differentiated by colors, this zone allows the students to work in group in a collaborative way.
Zone 2: Square
In the centre of the classroom, open spaces of meeting or assembly have been created. This zone can be used to explain the tasks to be performed or to share the ideas at the end of the activity.
Zona 3: Bench
In the centre of the classroom, open spaces of meeting or assembly have been created. This zone can be used to explain the tasks to be performed or to share the ideas at the end of the activity.
Zone 4: Windows
In this area the panel is placed with the intelligent objects that students use.
Zone 5: Wall
It is the screen where the game is projected.

Photographs

WEARABLE CLASSROOM IN CROATIA

WEARABLE CLASSROOM IN BULGARIA

WEARABLE CLASSROOM IN SPAIN

08 ATTENTION TO DIVERSITY

The partner schools of the project educate students with specific needs of educational support. The wearable methodology aims to be inclusive, meaning that all students regardless of their needs can learn through it.

The way of working is through images, something that facilitates the understanding of concepts through the visual channel. This way of working is highly recommended for students with Autism Spectrum Disorder, for immigrant students who unknown the language, for students with reading and writing disorders and all those who have learning problems related to communication.

The Wearable Classroom, together with the methodology, allows the students to move around the space. According to the guidelines for attending ADHD students in the classroom, the wearable methodology meets expectations, the activity is structured, it allows the exit to hyperactivity and impulsivity, learning occurs while the students are moving, the task is intense and in a short time, after each activity the students have time to move, jump, clap ... this allows the relaxation and concentration for the next activity.

There have been no studies or research on how wearable methodology improves performance in students with specific educational support needs, we can only rely on our experience as teachers of students with needs and in the observation in the wearable classroom of these students.

What we can ensure is that it is an inclusive methodology, which can be adapted to the level of the group of students that carries out the activity, which is collaborative and participatory and that would be included within the methodological trend of gamification of education.

09 EVALUATION AND RESULTS OF THE DATA

The present report is aimed at evaluating and reviewing the results from WM project in both quantitative and qualitative aspects. The data has been collected at the three partner schools in Spain, Croatia and Bulgaria. Teachers and students have been voting through our application for evaluating the effects and results after completing their regular WM classes and after having used WM software and WM classrooms. The students and teachers had to answer the following questions

- Do you like the classroom?

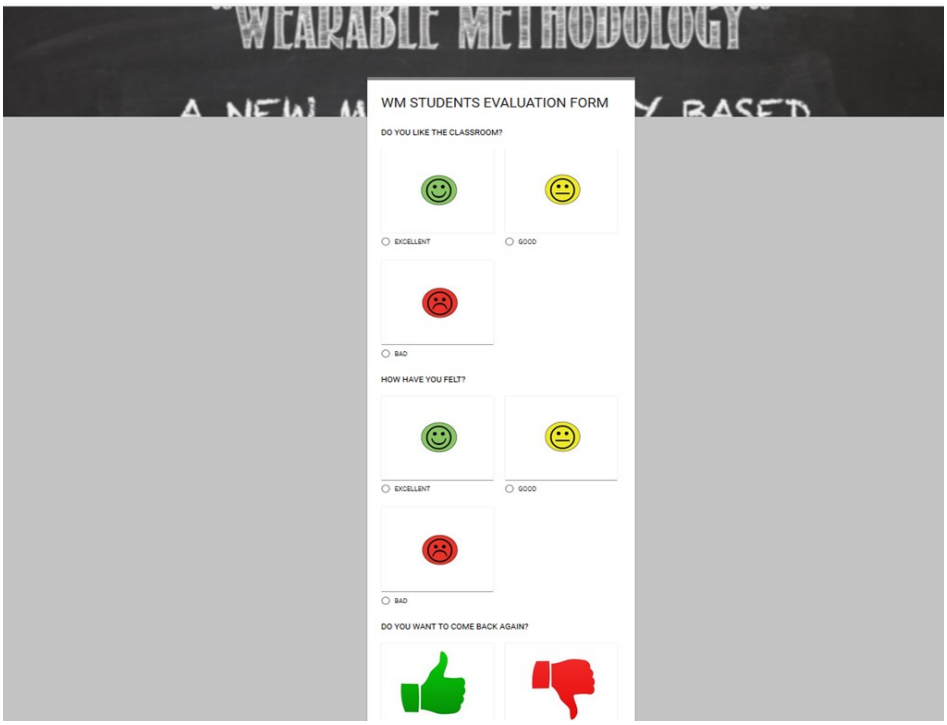
- How have you felt?

- Do you want to come back again?

- Where are you from?

The evaluation have been done to a representative number of students.

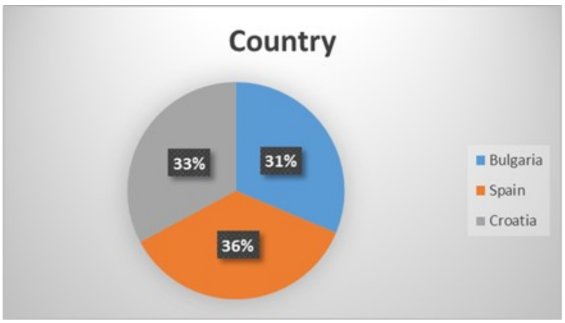
To facilitate the evaluation we have created on google drive a google form which allow us to collect all the answers on line



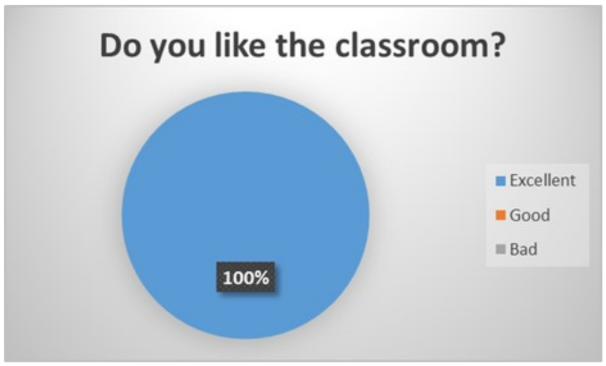
09 EVALUATION AND RESULTS OF THE DATA

The total number of students and teachers who took part in the survey is 67 including the participants from the three partner countries - Spain, Croatia and Bulgaria. The proportions of respondents according to their country of origin are as follows - 33 per cent from Spain, 31 per cent from Bulgaria and 36 per cent from Croatia. These percentages account for the numbers of students and teachers from each school involved in the project activities.

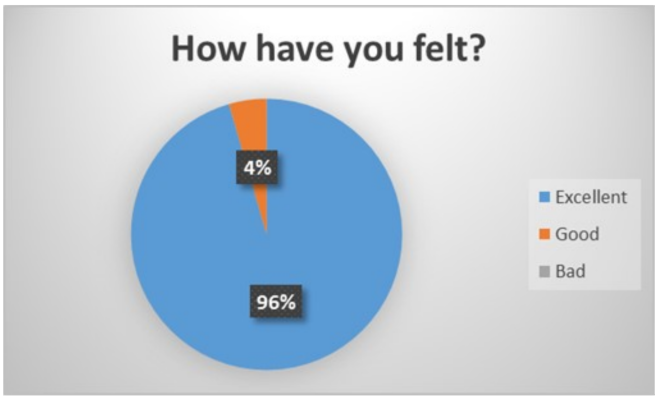
The online survey was carried out by the teachers responsible to lead WM lessons and to contribute to the Didactic Units with their competence and experience.



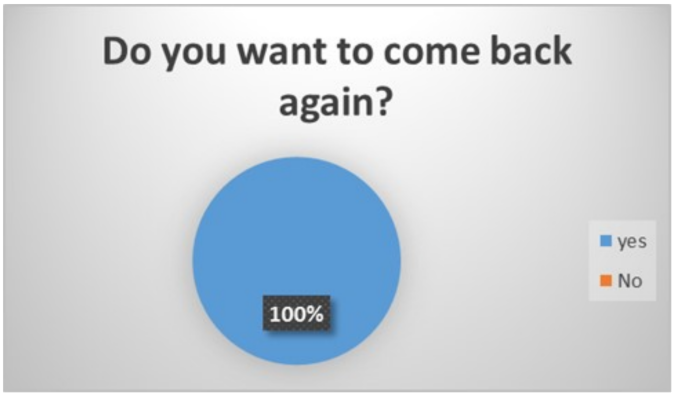
It is noticeable that all the participants who have been attending WM lessons in WM classrooms answered that they have liked the WM classroom. This approval of 100 per cent is a clear proof for the effect of the Wearable environment in the classrooms specially designed and constructed at the beginning of the project. The concept of creating a room which represents the natural environment with relax zones, working stations for the teams of students and open space for collaboration with the teachers and team members proved to be affective and motivating for pupils and teachers. The fact that nobody said that they did not like the room proves that the innovative methodology, together with the motivating environment enable students and teachers to work and study with pleasure.



Similarly to above figures the pie chart presenting the feelings of participants in WM activities shows great positive attitude towards the new Wearable Methodology. Taking under consideration the proportion of respondents who have answered that they have felt excellent while using the innovative software in WM classroom / 96 per cent / we can confidently that the innovative methodology contributes significantly to increasing motivation at school, improving students knowledge, creating a great sense of collaboration and happiness among all the participants in each WM lesson. The relationships student-student, teacher - student and teacher-teacher have become closer, cooperative and the general interest in learning has been increased.



The most striking feature of our evaluation of results is related to the question - Do you want to come back again? All of the students and teachers have said YES. The figure of 100 per cent desire to keep on having WM lessons shows the potential of the innovative teaching strategy called Wearable Methodology and the readiness of teachers and students to continue developing and upgrading the software so that it can be successfully applied in Maths, Geography, English and all the other general subjects classes



09 EVALUATION AND RESULTS OF THE DATA

Overall, the evaluation of results shows dramatic increase in teachers and students satisfaction while having WM lessons, improvement in classroom cooperation, developing digital competence of students and teachers, enriching English language vocabulary and communication skills.

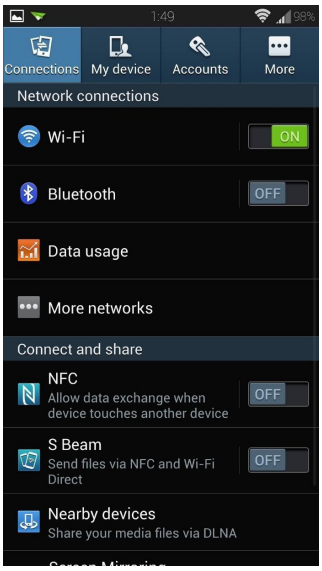
The results that will have long time effect and will remain at partner schools over time are the three WM classrooms - in Spain, Croatia and Bulgaria. The students from each school will use the classrooms for their WM lessons and games, developing their creativity, enriching their knowledge and improving their collaborative skills.

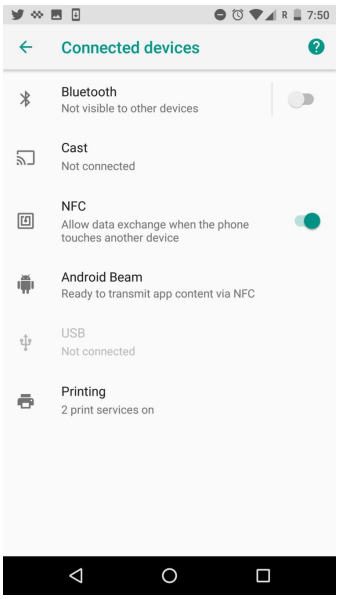
The activities and the Didactic Units which have been created and integrated in WM will be used by students and teachers and freely accessed by other institutions, schools, universities. The integration of WM in the classroom is undoubtedly a good innovative teaching practice and it will be used in the future to increase each school performance.

10

ANNEX 1. HOW TO USED WM APP.

How to install Wearable app
1º. Firstly, check in your mobile device if NFC service is enable. if it is disabled, please enable it





http://www.i3a.uclm.es/wearablemethodology/index.php/page1-2/

In the link : **Wearables and mobile application**

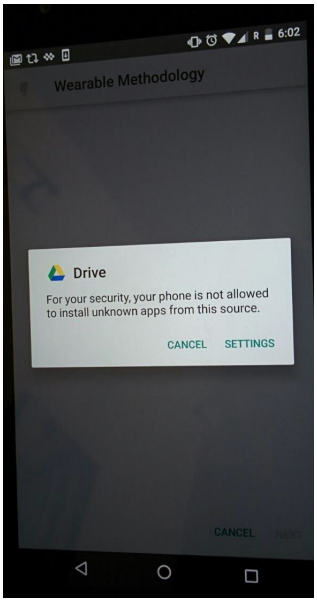
Another link: https://drive.google.com/file/d/1JWnEF9AYYhk5uxTvfib5RbgIG__9FvvP/view

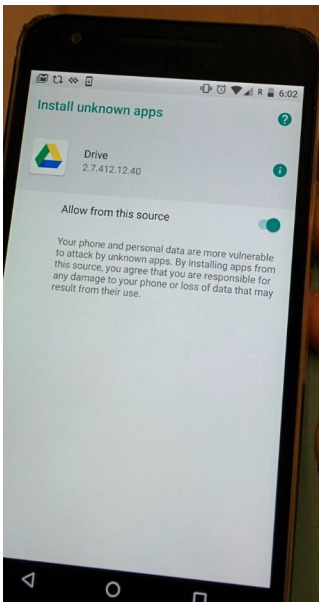
You can either download the APK file on your mobile device to get started, download an APK file using either Google Chrome or the stock Android browser. Next, go to your app drawer and click Downloads; here you will find the file you just downloaded. Open the file and install the app.

3º If the app has been installed skip this step.
If the mobile devices cannot install it (You must accept unknown sources).
Enabling this function is a piece of cake—simply go to **Settings -> Security**

Just check Unknown sources and you're all set. Now that you're ready to install anything.

10 ANNEXED 1. HOW TO USED WM APP.

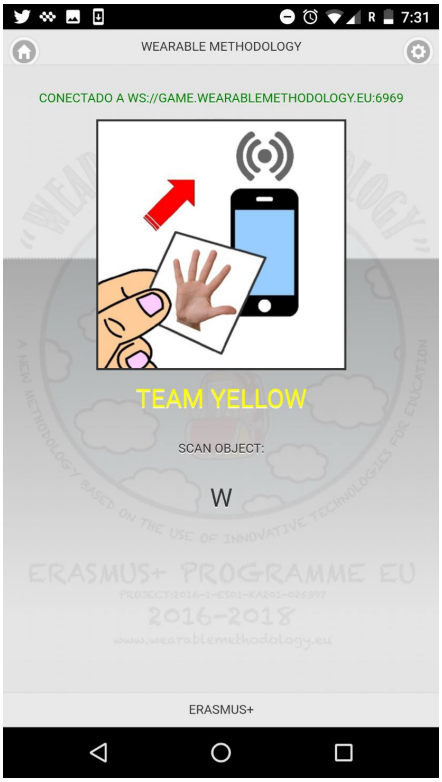




How to use Wearable Methodology app (it's been installed previously)

Wearable Methodology APP

10 ANNEXED 1. HOW TO USED WM APP.

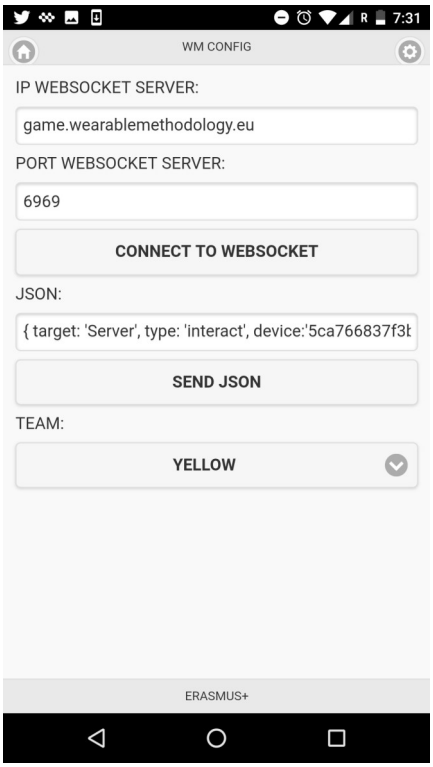


Settings Button.

You can select the team and connect to the application.

The sentence must be in green colour.

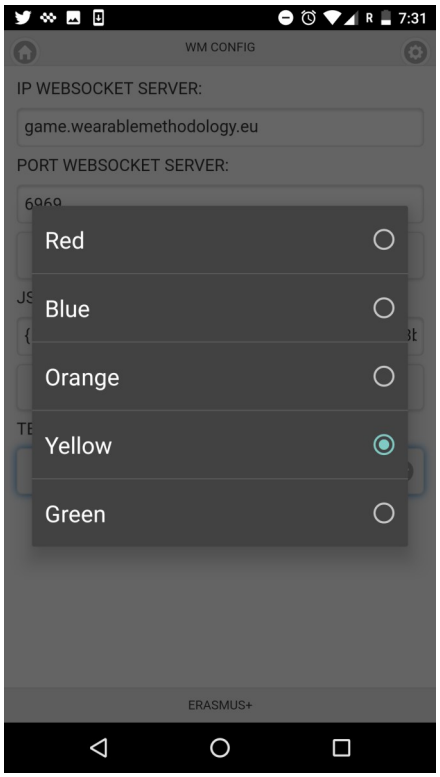
If it is in red colour. You must select the button in the left corner (similar to settings).



Connect to the application

Select team colour

10 ANNEXED 1. HOW TO USED WM APP.



GUIDE TO WM: “WEARABLE METHODOLOGY” A NEW METHODOLOGY BASED ON THE USE OF INNOVATIVE TECHNOLOGIES FOR EDUCATION

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