



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



Project No. 2019-1-IT02-KA201-062851

**INCLU.MA.P. 'Inclusion Through Material Culture and Holographic Projections'.**

**IO4 - Intellectual Output 4**

**Objects and Practices of Housing and Everyday Life in Multicultural and Stratified  
Neo-Communities**

**Type of Output: OER - Open Educational Resource**

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## Introduction

The project INCLU. MA. P. project involved 4 secondary schools (both general education and VET) with a percentage of foreign students, first or second generation migrants, between 10% and 30%, distributed between Italy, Spain, Portugal, South European countries that have been exposed to migration and cultural contamination for centuries thanks to contacts with Mediterranean populations, to which migratory flows from former colonies or by sea have been added, particularly in the last 10 years, making these countries a target for many migrants seeking access to the EU.

The overall aim of the project was to develop active citizenship and intercultural dialogue skills in about 320 secondary school students, to enable all of them, native and migrant, to contribute to the formation of communities inspired by the values of respect, mutual knowledge and appreciation, and democracy, starting from school life, through the creation of multicultural and stratified learning communities.

The objective was pursued through the design and testing of four interdisciplinary didactic programmes, aimed at the reconstruction, recovery and valorisation of the traditional heritage related to the material culture of all the students, natives and migrants, who make up the melting-pot of the new multi-ethnic learning communities; each programme was dedicated to an indicator related to the Framework of Civilisation, according to the historiographic approach of the eminent French academic Fernand Braudel<sup>1</sup> :

Intellectual Output 1: Food and Nutrition

Intellectual Output 2: Clothing and Fashion

Intellectual Output 3: Labour Tools and Practices;

Intellectual Output 4: Housing and Objects of Everyday Life.

Specific objectives of each of the four programmes were:

-collection, analysis and documentation of the specific indicator within the civilisation framework, to be achieved through the historical-philosophical, linguistic, humanistic and religious curricular disciplines

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<sup>1</sup>Essential bibliography on historiographical method, material culture and civilisation frameworks:

F. Braudel, *La Méditerranée et le Monde Méditerranéen à l'époque de Philippe II*, 1949

F. Braudel, *Ecrits sur l'Histoire*, 1969

F. Braudel, *Le Monde actuel - Histoire et civilisation*, 1963, reissued in 1987 with the title *Grammaire des civilisations*

F. Braudel, *Les Mémoires de la Méditerranée*, 1998

- reconstruction of the multi-ethnic/multicultural picture obtained for each civilization indicator, carried out within the STEM curriculum, through the use of 3D digital image modelling and the holographic projector, organized as project work managed in increasing autonomy by the students themselves, aimed at reproducing a descriptive "multi-faceted" image of the multicultural neocommunity in which they learn and live.

The preferred methodological approach was Service Learning, which allows to combine the learning of curricular disciplines such as history/philosophy, linguistics on the one hand, and STEM on the other, with the approach of service to one's own community of reference, of which the students detect a need and together, in a collaborative way, work to offer a solution to the common problem of the whole social/civil group.

The reconstruction of the 4 indicators of material culture related to the civilization framework by the schools must be assisted, on the one hand, by an expert methodologist in learning and training processes, and by ethnographic / historical / material civilization museums belonging to the various regions or geographical areas and competent on at least one or more indicators, while on the other hand, from the technological point of view it must be supported at least by a partner expert in digital image modelling and holographic technologies applied to teaching.

## IO4: Objects and Practices of Living and Everyday Life didactic programme with a view to education for citizenship and intercultural dialogue

This product consists of a multidisciplinary didactic programme on Objects and Practices of Housing and Everyday Life in school classrooms as new multicultural learning communities, where native and migrant students live and learn in a non-universal and non-unidirectional context, where valuing difference and inclusion are key factors for the academic and educational success of all pupils, especially those with fewer opportunities due to socio-cultural or economic disadvantage.

The programme is released as an OER (Open Educational Resource) and has been designed as a reusable model with a view to transferability and replicability.

The Output represents the synthesis of the convergences and divergences of the plural and delocalised experiences of the project partners, classified as follows:

Coordinator and expert Methodologist	Country	School Institute	Museum	Digital Technology Expert
<a href="#">Cisita Parma scarl</a> , management and vocational training centre for young people and workers	Italy	<a href="#">IISS "C.E. Gadda"</a> in Fornovo-Langhirano (Parma), scientific high school (applied sciences), technical economic institute, computer school and professional institute for Maintenance and Technical Assistance	<a href="#">Food Museums of the Province of Parma</a> , dedicated to the collection of the food culture of the Emilian territory	<a href="#">Gruppo Scuola</a> Coop. Soc. of Parma, equipped with communal spaces and equipment dedicated to 3D modelling and printing, holographic projections
		<a href="#">IISS. "P. Carcano" of Como</a> , scientific high school (applied science), artistic high school, technical institute of fashion system, graphics and communication, chemistry, materials and biotechnology	<a href="#">Como Silk Museum</a> , dedicated to the history of the textile industry and tradition in the Lombardy region	
	Spain	<a href="#">Folgado" Vocational Training Centre</a> in Valencia, dedicated to courses in metallurgy, welding, mechanical manufacturing,	<a href="#">Museu Comarcal de l'Horta Sud 'Josep Ferris March'</a> in Torrent, Valencia, dedicated to the reconstruction of	

		electricity and electronics	Valencian ethnographic and agricultural heritage	
	Portugal	<a href="#">EPAQL - Escola Profissional Agricola "Quinta da Lageosa"</a> , Covilhã, dedicated to professional courses in equine management, agricultural production management, agricultural machinery operator	<a href="#">Museu Camara Municipal de Povia de Varzim, Oporto</a> , dedicated to the recovery and enhancement of the material culture of ancient fishermen and farmers	

What is a framework of civilization? Following Fernand Braudel, whom we take as a scientific reference, a framework of civilization can be defined as "the set of characteristic features of the collective life of a human group or an age. Thus we can speak of the civilization of Athens in the 5th century, or of the French civilization in the century of Louis XIV."<sup>2</sup>

Within the characteristic features of an ethnic group, the forms of living, both from the point of view of architectural structures and the style of view, are certainly one of the main elements that express the cultural identity of a people, through which people recognize their belonging and rootedness to a culture and a territory.

In schools today, class composition is more heterogeneous than ever in terms of ethnic origin, so much so that we are witnessing the emergence of new multicultural and stratified learning communities, in which pupils come into contact with lifestyles and objects/accessories with which they contaminate each other, giving rise to a new sub-culture.

The objects and practices of HOUSING and DAILY LIFE are identified as a INDICATOR of CIVILIZATION, taking as reference the so-called "ARTS" didactic disciplines, i.e. of a humanistic nature, relating to the historical-philosophical, legal-economic, linguistic-literary areas as well as religious studies, for the definition of the criteria and conceptual perimeter that identify it.

The methodology adopted involves leading the pupils towards a reflexive analysis of the characteristics and components of the new multicultural communities in which they themselves find themselves learning and living, as a priority theme in terms of inclusive teaching, stimulating them to get to know themselves first and foremost, the forms of living and lifestyles typical of their own culture of origin, and at the same time to understand and validate, measuring them against their

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<sup>2</sup> F. Braudel, *The World Today*, Turin (Einaudi) 1963

own identity and cultural system of reference, the forms of the home and objects of everyday life that they see represented by their foreign classmates, first-generation immigrants or second-generation immigrants.

The INCLU.MA.P model, however, uses the STEAM approach for the multidisciplinary educational integration of mathematical-technical-scientific subjects (known as STEM at international level) in a *Service Learning* perspective. According to this methodology, pupils activate personal, extra-curricular resources and curricular knowledge/skills to address a problem *solving* issue, related to a problem that exists in the social context and whose solution can benefit themselves and their community. All of this is done through the regular STEM and ARTS curricular curriculum, delivered face-to-face and/or facilitated by teachers in an experiential *project-work* mode.

Product Output 4, as well as all other project Outputs, has 3 basic phases:

- 1) Phase of reflexive reconstruction of the constituent elements of the cultural heritage of the class group in its multicultural variety and diversity, according to an ARTS approach led by school teachers, in the form of brainstorming, moderated class discussions and *peer-to-peer* interviews
- 2) Systematization and interpretation of the elements emerging from the pupils' brainstorming activities. Using the anthropological, ethnographic and historiographic method of museum research, reconstruction of the framework of multiethnic civilization emerging in the new learning communities at school (museum operators)
- 3) With the help of the STEM disciplines, design, 3D drawing and digital modelling of the objects emerged from the work, to create a varied and multivocal holographic image of the cultural artefacts, aimed at enhancing the pupils' digital skills (technology partner).

The Output 4 curriculum consists of 6 sub-activities, which are replicable and transferable to other contexts depending on the EQF levels (VET diploma, secondary school or tertiary level) and the fields of study:

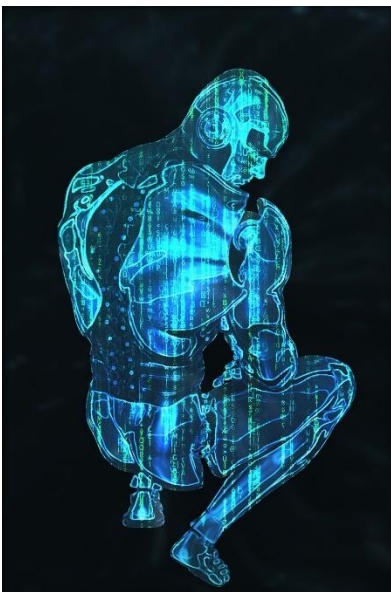
- a) identification of the criteria for defining, within the class group involved in the experiment, the boundaries and characteristics of the new multicultural learning communities (Activity led by school teachers)
- b) design of a structured interview, to be administered to the pupils, concerning the material, value and identity elements linked to the objects and practices of the HOME and DAILY LIFE of their own culture (activity led by the expert methodologist and the school teachers)
- c) Provision of the interview in peer-to-peer mode, in the context of project work self-managed by the pupils with the facilitation of the teachers, in small mono-ethnic groups interviewing other groups of different ethnicity, or in an intergenerational key (pupils interviewing their parents, uncles or grandparents on the topic of home and daily life).

d) systematization of the elements emerging from the interviews and definition of the value and multi-ethnic framework emerging from the interviews by the partner museums, according to the ethnographic collection method

(e) design, from a STEM perspective, of digital experimentation for 3D drawing and 3D photogrammetry for the preparation of 3D digital images suitable for holographic projection (activity led by the technological expert)

f) Provision of the STEM didactic experimentation on 3D drawing and photogrammetry as preparatory steps to the subsequent holographic projection, aimed at the restitution of a composite and multivocal image of the culture of the new multiethnic community represented by the class group, and for the acquisition of competences of democratic participation and active citizenship (activity led by the teachers and the methodological expert).

### **Holograms and holographic projectors: what are they?**

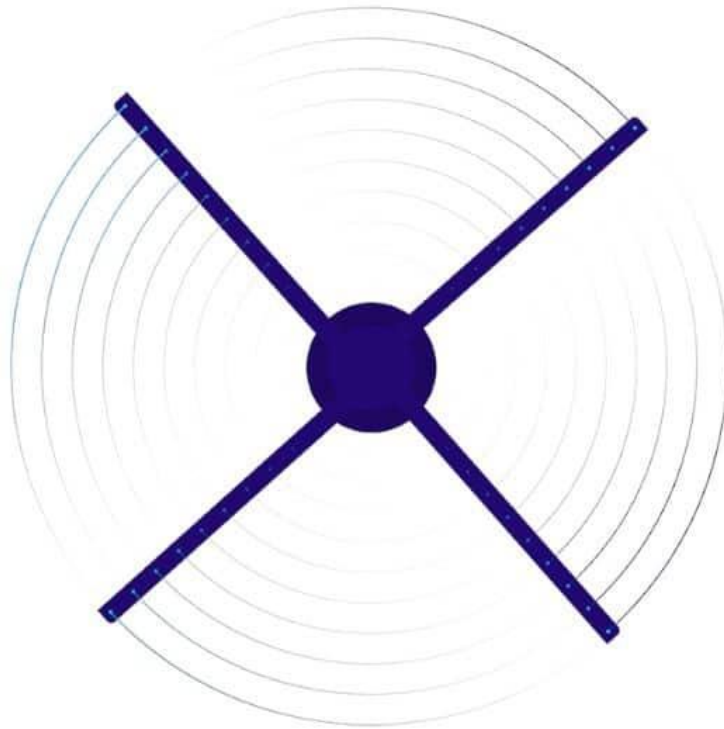


According to a simple, intuitive and useful definition for educational purposes, a hologram can be identified as an interfering wave figure (or pattern) obtained through the use of a laser, having the specificity of creating a three-dimensional photographic effect: a hologram, unlike normal photographs, shows us a three-dimensional representation of the projected object.

However, the holographic image must be designed with special software that can prepare the digital image itself to take on the 3D dimension that gives the typical effect that a hologram assumes, of being suspended and impalpable in the air.

The holographic projector, better known as the *Holofan*, can be a very sophisticated and expensive piece of equipment if you use it for professional purposes. However, for educational experimentation purposes, it is possible to use a four-bladed device, similar to a fan, which can be connected to computer software and is easily available on the market from around 400 euros.





The operation of the holographic projector<sup>3</sup> is quite simple to explain: on each of the four arms is installed a very high number of LED lights that turn on, change colour and turn off at very high speed. Speed is the key: the LEDs change colour quickly, and the blades turn quickly. At high rotation speed, the blades become invisible to the human eye, and the disc they form is a flat surface where the LEDs that turn on and off at high speed reproduce images and videos. The effect of depth, which is what explains how a 3D holographic projector works, is given by transparency.

The Holofan can be made up of several parts: the rotor (consisting of the 4 rotating blades), the motor module, a bracket to fix the holographic projector to a wall or panel, and possibly a remote control unit.

To protect the safety of users, especially students and minors, the area around the holographic projector should be cordoned off with Plexiglas panels or protective barriers to prevent inexperienced users from bringing their hands or faces close to the high-speed rotating blades and injuring themselves.

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<sup>3</sup> The images depicting the holographic projector are taken from the <https://vetrinadigitale.it/blog/come-funziona-un-proiettore-olografico-3d/> website.



Rotor

Motor Module



Wall Bracket



Remote control



## **Phases and activities of the learning programme on the Indicator of Civilization "Housing and Daily Life Objects".**

As mentioned above, the curriculum consists of three basic phases:

- 1) Exploratory phase, of investigation, reconstruction and re-appropriation of elements of native and migrant material culture by students
- 2) Phase of systematization of the data emerged and definition of the value and cultural framework of the new multicultural class communities, by the participating museums
- 3) Teaching experimentation phase, led by teachers, linked to 3D modelling and holographic projection of the objects identified in phase 1)

Each phase includes sub-activities led by the expert methodologist, the teachers and the technological expert, but also entrusted to the students' self-management and ability to work in groups.

### ***Phase #1: Exploration, investigation, reconstruction of native and migrant material culture by students.***

In this phase, the programme includes several sub-activities:

- a) Identification of the criteria for defining, within the class group involved in the experiment, the boundaries and characteristics of the new multicultural learning communities (Activity led by school teachers).
- b) design of a structured interview, to be administered to the pupils, concerning the material, value and identity elements linked to the forms of HOUSING and to the objects of DAILY LIFE of their own culture (activity led by the expert methodologist and the school teachers).
- c) Provision of the interview in peer-to-peer mode, in the context of project work self-managed by the pupils with the facilitation of the teachers, in small mono-ethnic groups interviewing other groups of different ethnicity, or in an intergenerational key (pupils interviewing their parents, aunts, uncles or grandparents on the topic of home and daily lifestyle).

### **Criteria for defining the boundaries of new multicultural communities-classes.**

It is particularly effective to involve class groups, or mixed groups of several classes, in which at least 30% of the students are of foreign origin, first or second generation migrants, to constitute an element of cultural diversity with respect to the native culture of the place where the school is located. In the case of greater cultural/ethnic uniformity of the group involved, it is possible to consider regional origins within a single country, highlighting phenomena of internal migration south/north or islands/continent. Moreover, the experimentation is particularly effective if at least 30% of the total number of pupils involved have a type of disadvantage that makes them at risk of dropping out of school or being marginalized - cultural, socio-economic, language barriers. It is

advisable for the activity to be conducted collectively by teachers belonging to the Class Council, in order to adopt widely shared criteria for the involvement of students in the experiment.

With regard to the groups involved in the experiment, the ethnic composition for each country was as follows:

-Italy: 70% of Italian origin. The majority are from Emilia and Lombardy, with a large number of students from southern and island Italy. 30% of migrant students are of Balkan and Eastern European origin (Romania, Moldova, Ukraine), North African (Tunisia and Morocco in particular), Central Africa (Nigeria, Ivory Coast, Senegal, Ghana), Central Asia (India, Pakistan, Bangladesh, Sri Lanka), Far East (China), Latin America.

-Spain: 60% of students are of Spanish origin, of which some are Castilian-speaking and most are Valencian and Catalan-speaking. The remaining 50% of students come from Latin America (Mexico in particular) and South America (former Spanish-speaking colonies), and from North Africa (Morocco in particular, due to geographical contiguity) and Central Africa (Nigeria, Ivory Coast, Senegal, Ghana).

-Portugal: 70% are of mainland Portuguese origin. The remaining 30% come from the islands (Madeira), the former African colonies of Sao Tome and Principe and Angola, while a part represents a Roma minority permanently settled in the country.

**Planning of educational activities and a structured interview on objects and practices of HABITATION and DAILY LIFE from a multicultural perspective.** The activity is carried out by the methodological co-ordinator, who is an expert in learning processes, together with the humanities teachers of the schools (language and literature, history and philosophy, religion) and cultural workers involved in museum education.

The aim of the activity is to trigger in the students a reflective process on the different types, forms and architectures of the house, understood as a dwelling, a physical space that characterizes the urban or rural settlement, at different latitudes of the world, as well as its links with the geographical, climatic, cultural and economic conformation of the territory in which it is located; At an individual level, however, a further objective of the activity is to facilitate the students' reflective process, in a multicultural key, on the value and identity meaning in their eyes of the objects or spaces of everyday life that they use most frequently or intensively, or to which they feel most attached, such as the objects they keep in their bedrooms.

In order to maximize the opportunities for educational exploitation of Output 4, schools were given a customizable outline for setting up classroom research activities on the objects and practices of HOUSING and DAILY LIFE and on how to discuss and collect evidence (brainstorming).

Teaching material<sup>4</sup> is available in the appendix and offers three possibilities for implementation:

1. Research on the house as architecture, a work of civil engineering that varies in structure, form and style from country to country.

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<sup>4</sup> The full format of the teaching materials can be found at the end of this document in the "Appendix" section.

Suggested activities:

-research into different architectural styles and structures around the world, with possible insights into art history.

-relationship between civil architecture (houses) and industrial architecture (factories), how the two influenced each other

2. Home understood as spaces in which the domestic environment is organized and structured, including spaces dedicated to work (including smart working). Functions and roles of rooms in the home, adjoining spaces and outdoor courtyards or gardens.

Suggested activities:

-Analysis of the spaces in which the domestic environment is organized in the different cultures represented by the class group

-Family concept expressed: implicit or explicit family roles of family members and traditional and/or current trades or domestic work

-Comparison on a horizontal, geographical level between the different cultures of origin of the students

-Comparison on a vertical, historical level between the different structure of households and the concept of family in the past (e.g. grandparents, ancestors) and today

3. Focus on everyday objects, e.g. the student's room as a space of identification, appropriation, identity construction of teenagers.

Suggested activities:

Students from different cultural backgrounds describe their room. How is it organized? Is it shared with brothers or sisters? Which objects, furnishings, pieces of furniture are part of it? Are there objects which represent a link with the past? Or the link with other places or lands of origin? Objects representing religious faith or cultural identity?

**Comparative research activities and school-based interview administration with a view to project work.** The activity should be planned and carried out by teachers of humanistic subjects (linguistic, historical-philosophical, religion), taking care to foresee several distinct moments in carrying out the activities:

-an initial brainstorming session and class discussion, led by the teachers, to introduce the activity, get the students to reflect on the objects and practices of the home and daily life of their own family and cultural traditions, and to bring out the underlying identity and values, at both a personal and collective level

-division of the class group (or group of participating students) into at least 3 sub-groups of at least 6/7 pupils each, each representing a different culture/ethnicity, of which one pertaining to the native/local culture and two pertaining to a migrant culture

-identification and proposal of comparative research or interviewing methods: it is possible to envisage peer-to-peer interviews conducted by students, in which each mono-ethnic group interviews another group from a different culture; it is also possible to design and conduct video-interviews, in which several students, representing a variety of national and regional cultures, tell their traditions and tell their stories, talking about family or local stories relating to the home, work practices and typical objects that represent them. Finally, a further possibility is to involve pupils and families in the structured interview, with pupils taking on the role of interviewers of their parents, aunts, uncles, grandparents or other relatives, from whom they collect testimonies, stories, objects and photographs related to their life and work history in relation to the living space.

*Example of a model programme carried out for phase #1.*

The target groups were students from the Liceo Artistico / Istituto Tecnico (Graphic Design and Communication option).

<b>Lessons 1,2,3</b>	Teachers: English teacher and Chemistry teacher -referents of the project
	Objectives: presentation of the Inclu.ma.p. project; working method
	Methodology: Frontal lesson with video presentation of the Inclu.ma.p. project. group brainstorming related to the deliverables foreseen for Output4
	Contents: The Erasmus+ Programme and European projects: introduction - ongoing Erasmus+ school projects - value of intercultural exchange - methods for collecting and sharing information - videomaking software
	Exercises/tasks for students: information gathering, interviews related to the traditional management of home and work spaces, creation of text captions in preparation for the video.

	Outcomes: all students prepare an interview by collecting information from relatives and friends
	Problems: all the students in the class prepare a text for the video, some of them late, some of them not very thoroughly.
<b>Lessons 4-5</b>	Teachers: English teacher and Chemistry teacher - project referents
	Objectives: making videos of students' bedrooms
	Methodology: individual work in class and at home / correction of texts commentary, evaluation of the videos made, sharing of the critical points highlighted
	Contents: reworking of collected interviews and preparation of videos
	Exercises/tasks for students: making self-produced videos
	Evaluation methods: interest and participation
	Results: one video for each student involved
	Problems: even the videos reflect the quality of the more or less in-depth texts
<b>Lesson 6</b>	Teachers: English teacher and Chemistry teacher - project referents
	Objective: sharing with the whole class group and final commentary on the work carried out.
	Contents: Exposure and discussion of the students' different insights into the objects in the house; collective evaluation among peers and between students and teachers, of the positive and negative aspects of the project
	Methodology: interactive classroom discussion
	Achievements: knowledge and awareness of results

*Further example of a programme carried out for phase #1.*

The recipients were students of the Metalworking Course of the C.F. Folgado Training Centre in Valencia (vocational course).

<b>Lesson 1</b>	Teacher: Teacher of Communication and Society I
Inclu. ma. p. Introduction	<p>Objectives:</p> <ul style="list-style-type: none"> <li>-Understanding of the objectives of the Inclu. ma. p. project. project, in particular IO4 (objects for the home and everyday life).</li> <li>-Facilitation of cultural and intercultural dialogue of students with their classmates and families.</li> <li>-Detection and diagnosis of the cultural diversity of the class.</li> </ul>
Discussion, reflection and interviews	<p>Methodology:</p> <ul style="list-style-type: none"> <li>- Frontal lesson to explain the Inclu. ma. p. project and the approach to IO4 through the resources available on the YouTube channel.</li> <li>- Group activity: brainstorming ideas and questions for the interview that will be given to the families.</li> <li>- Individual interviews about the types of homes and objects in the daily lives of students and their families from an intercultural perspective.</li> </ul> <p>The questionnaire aims to make an initial diagnosis and to open a cultural dialogue between student-student and student-family.</p>
	<p>Contents:</p> <ul style="list-style-type: none"> <li>- Introduction to the Inclu. ma. p. project and illustration of the programme carried out in the previous phases.</li> <li>- Projection of a video about "l'Horta" in Valencia. Analysis of the differences between housing and lifestyle in the city compared to rural areas.</li> <li>- Designing interviews for home and assignment review.</li> </ul>
	<p>Exercises/tasks for students:</p> <ol style="list-style-type: none"> <li>1. Projection of a video</li> <li>2. Questions and discussion.</li> <li>3. Designing interview questions</li> </ol> <p>1. Video:</p> <p><a href="https://www.youtube.com/watch?v=j6441MrNkFU&amp;t=68s">Castellar-L Oliveral - Horta, València, Albufera - YouTube</a></p> <p><a href="https://www.youtube.com/watch?v=j6441MrNkFU&amp;t=68s">https://www.youtube.com/watch?v=j6441MrNkFU&amp;t=68s</a></p>





2. Questions for students and group discussion:

- What differences can be found in the landscape in urban and rural areas?
- What types of houses can be identified?
- How do you think people live in each area? What lifestyle do they have?
- Where do you think it is best to live? Why?
- Do you think this type of accommodation can be found all over the world? Do you know any from another country that we don't have in Valencia?

3. Designing the interview

*Questions related to:*

Type of accommodation where students and their relatives live.

The environment in which the house is located.

Objects decorating the students' room and the rest of the house.

Illustration of the daily routine, the daily activities of the students.

Evaluation methods:

- Interview completed at home for each student.

	<ul style="list-style-type: none"> <li>- Motivation, participation and commitment to the tasks assigned.</li> </ul>
	<p>Results:</p> <ul style="list-style-type: none"> <li>- Structure of the interview designed in class (brainstorming of ideas)</li> <li>- Interview to be completed at home by each student.</li> </ul>
	<p>Problems:</p> <p>Students are generally not able to elaborate detailed answers to the questions, or are reluctant to talk openly about the characteristics of their own home and daily habits.</p>
<b>Lesson 2</b>	Teachers: Communication and Society Teacher and Vocational Training Teacher
Map analysis	<p>Objectives:</p> <ul style="list-style-type: none"> <li>- Learn about the origin of the three most important districts of the city of Valencia.</li> <li>- Analyse the differences between the formation of one district and another.</li> <li>- Identifying urban elements typical of the different civilisations that have succeeded one another in the city</li> </ul>
	<p>Methodology:</p> <ul style="list-style-type: none"> <li>- Frontal lesson: <ul style="list-style-type: none"> <li>- Introduction to the interpretation of urban maps.</li> </ul> </li> </ul> <p>Individual activity:</p> <ul style="list-style-type: none"> <li>- Searching for information and writing a text commenting on the city map activity.</li> </ul> <p>Group activities:</p> <ul style="list-style-type: none"> <li>- Sharing results with the rest of classmates</li> </ul>
	<p>Exercises/tasks for students:</p> <p>Activity 1. To analyse the urban map of Valencia, look for more information and write a textual commentary on the history of these three main neighbourhoods: Casco Antiguo de Valencia (Ciutat Vella), Ensanche and Ruzafa.</p> <p>Students can use the map to indicate where the districts are.</p>



Evaluation methods:

- Active participation.
- Completion of the activity.
- Communication and respect for the working group.

Problems:

- Many students copied each other while completing written assignments, to avoid having to search for information on the Internet.
- Some students did not understand the exercise or the objective.

**Lesson 3**

Teachers: Communication and Society Teacher and Vocational Training Teacher

Housing analysis

Objectives:

- Understanding the different types of housing in the world and the materials used depending on the climate and resources in the area.
- Understanding the lifestyle of the inhabitants of different countries in relation to the type of accommodation.

	<ul style="list-style-type: none"> <li>- Understanding how different types of accommodation represent cultural elements</li> <li>- Understanding how certain types of accommodation are similar in different countries with different cultures</li> </ul>
	<p>Methodology:</p> <ul style="list-style-type: none"> <li>- Frontal lesson: Introduction</li> <li>- Individual activity: Questions</li> <li>- Group activities:</li> </ul> <p>With the help of some photographs of typical houses that can be found around the world, the students had to identify, locate and place them on the map.</p>
	<p>Exercises/tasks for students:</p> <ol style="list-style-type: none"> <li>1. Write down all the types of accommodation you know and indicate where they can be found in the world.</li> <li>2. Using photographs of typical houses from all over the world, identify, locate and place them on the map.</li> </ol>
	<p>Evaluation methods:</p> <ul style="list-style-type: none"> <li>- Active participation.</li> <li>- Completion of individual activity.</li> <li>- Respect for speaking time.</li> <li>- Communication and respect with the team and different opinions.</li> </ul>
	<p>Results:</p>



Problems:

It is difficult for students to express themselves politely to each other and to respect different opinions.

Students rarely complete their homework.

<p><b>Lesson 4</b></p> <p>Daily life in l'Horta.</p> <p>The invisible and neglected role of women in rural areas.</p>	<p>Teachers: Vocational teachers</p> <p>Objectives:</p> <ul style="list-style-type: none"> <li>- Getting to know the invisible role of women in l'Horta - particularly in the "Partida de Dalt", "Campanar" and "el Pouet".</li> <li>- Get to know the typical houses and lifestyle of l'Horta.</li> <li>- Analysing how the city has changed in recent years and reflecting on changing lifestyles and urban development.</li> </ul> <p>Methodology:</p> <ul style="list-style-type: none"> <li>- Video projection and discussion.</li> </ul> <p>Contents:</p> <p>This is a documentary about women who live or have lived in l'Horta. Through their stories, their practices, knowledge and life experiences are</p>
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finally portrayed, and the masculinised image we often have of this rural area is challenged. The documentary starts from the memory of the women and their subjectivities in order to claim, starting from their daily lives, the invisible knowledge that has been part of the construction of the territory, and presents itself as a tool from which to rethink the present. The documentary takes a critical look at the model of urban development implemented in recent decades.

Exercises/tasks for students:

Watch the documentary and then start a discussion.



Evaluation methods:

- Participation in the documentary and correct attitude during the screening
- Each student should ask at least one follow-up question on the proposed content.

Problems:

It was difficult for the students to remain silent during the video.

In general, students did not identify with the video or the theme.

**Lesson 5**

Teachers: Communication and Society Teacher and Vocational Training Teacher

Objectives:

- Getting to know the traditional way of life from everyday objects.

<p>"La peça intrusa': finding intrusive objects in the collection of the Museu de l'Horta Sud</p> <p>3D video production</p>	<ul style="list-style-type: none"> <li>- Reflecting on human relations with the environment</li> <li>- Analysing changes in lifestyles during the 20th century</li> <li>- Reflect on the impact of technological change on the environment and social relations.</li> </ul>
	<p>Methodology:</p> <p>Frontal lesson based on introduction to:</p> <ul style="list-style-type: none"> <li>- relationship of human groups with the environment</li> <li>- social relations</li> <li>- worldview</li> <li>- cultural change</li> </ul>
	<p>Group activities:</p> <ul style="list-style-type: none"> <li>- Interactive activity: "La peça intrusa" (The intruder)</li> <li>-</li> </ul> <p>Interactive lesson</p> <ul style="list-style-type: none"> <li>- 3D video recording of traditional objects from the Museu Comarcal de l'Horta Sud, Torrent, Valencia</li> </ul>
	<p>Contents:</p> <ul style="list-style-type: none"> <li>- Traditional accommodation as home and work space</li> <li>- Gender relations: the role of women in domestic economy, education, health... Women's rights and duties in traditional society.</li> <li>- The family: marriage and family property, parental relations, extended family versus nuclear family, new family types today</li> <li>- Leisure and communications</li> <li>- Traditional food: forms of food supply, food processing, preservation methods, traditional recipes and prepared meals, globalisation.</li> <li>- Water supply and availability</li> <li>- Waste management</li> <li>- Relationship with the environment and animals</li> <li>- Production technologies</li> </ul>
<p>Exercises/tasks for students:</p> <ul style="list-style-type: none"> <li>- In the museum there are four spaces that represent a moment of everyday life in the last century. There is the kitchen, the master bedroom, the dining room and the oil production room.</li> </ul>	

- Pupils have to indicate which anachronistic objects from the current era have crept into the scenarios. When they identify them, they are asked a series of questions.

## LA PEÇA INTRUSA

### DORMITORI DE MATRIMONI

#### **PECES:**

1. SABÓ
2. RELLOTGE
3. BIBERÓ
4. TARJETA DE CRÈDIT
5. BOLQUER

#### **TEMES:**

##### 1- SABÓ: HIGIENE :

com es rentaven abans?

hi havia dutxa? quins eren els hàbits higiènics? d'on recollien el aigua? Quantes vegades es dutxaven? tots els dies?

##### 2.- RELLOTGE: TEMPS:

Eixida del sol- dia / nit. L'hora de treball. Só de les campanes: l'hora, les morts, els dies festius.

##### 3.-BIBERÓ / BOLQUER : FAMILIA / PAPER DE LA DONA

Perquè penseu que és anacrònic? ¿ quins són els canvis que han hagut amb l'introducció del biberó? Qui és dedicava a cuidar als xiquets de la família? Quins eren els tipus de famílies que hi havia? Quins rols adoptava la dona en la família?

##### 4.-TARGETA DE CRÈDIT: L'ECONOMIA

¿On es guardaven els diners, les coses de valor abans? Quines eren les formes de pagament que utilitzaven?

### MENJADOR

**PECES:** TELÈFON  
CALEFACCIÓ  
PLATS  
LLANTERNA  
COCACOLA

#### **TEMES:**

##### 1.-TELÈFON: COMUNICACIÓ/TECNOLOGÍA

Xq és anacrònic? Com es comunicaven abans? De quina manera es feia en aquell moment?x a q gastem el telèfon ara? Quins son els tipus de tecnologia que teniu en el vostre menjador que no hi ha en aquesta casa?



Com s'entretenien abans? Quin tius d'oci hi havia? Tenien temps d'oci?  
Penseu que era tan important com ara? Xq? Refranys, cançons?

## 2.- CALEFACCIÓ:

Les fonts d'energia abans quins eren? Com calfaven els diferents espais?  
eren els elements que utilitzaven x calfar? I les instal·lacions elèctriques?  
endolls?

## 3.- PLATS: MATERIALS/ RECICLATGE/ CONSUMISME

Quins eren els materials que utilitzaven? Quan es trenca algo que fem  
reparem? Ho reciclem?

## 4.-LLANTERNA: ILLUMINACIÓ

Xq és anacrònic? En que funciona? Quines eren les peces que utilitzaven  
abans x a il·luminar les cases o quan eixien al patí?

Quins són els altres tipus de il·luminació que hi ha en aquesta casa que  
que no és de l'època?

## 5.- COCACOLA.-

Xq és anacrònic? Quins són els tipus de begudes que hi havia? La coca  
es bevia en llauna?

## DORMITORI DE FADRÍ

### **PECES:**

1. CAMIÓ
2. ROBOT
3. JOC DE TAULA
4. IMPERMEABLE
5. CONTES
6. LLIBRE DE TEXT

### **TEMES:**

1. CAMIÓ:/2 ROBOT: LES JOGUINES. Tipus: piles, tecnològics.  
Quins són els materials dels joguets?

Quins són els joguets que penseu que hi havia abans? Hi havia tanta  
varietat? .( no comprats, els joguets els feien a casa els pares.)

3.Joc de taula. Oci

4. Impermeable: Indumentària

Material Varietat

Globalització

Penseu q este tipus de vestimenta existí abans? Xq no? Xq sí? ( No hi ha  
xarxa de transport q tenim ara. L'abastiment dels materials provenia de  
que tenien al voltant)

Then, when the activity is over, the students will choose typical objects from the 20th century, among those provided by the Museum, to make a 3D video recording.

Evaluation methods:

- Proactive participation
- Interest and motivation through questions.

Exercises/tasks for students:













Evaluation methods:

- Proactive participation
- Interest and motivation through questions.



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### Examples of teaching activities carried out.

Also because of the Covid emergency, which has interrupted school activities on several occasions, various types of educational activities have been proposed, including those that can be used remotely, all aimed at collecting testimonies, experiences and personal or group reflections on the theme of the home and objects of daily life from a cultural and intercultural perspective. All the didactic documentation is accessible for consultation and download in open mode, in the folder called "Inclumap EU Project - Open Material":

<https://drive.google.com/drive/folders/1yerNYB9UvOO0DBq8RnrFP6VwLs1ZjdYk>

#### Geographical Area "Emilia-Romagna", Italy:

-students' work, in the [form of a powerpoint presentation](#), on objects of everyday life of ancient tradition, such as an oil lamp, found in the students' homes as they belonged to previous generations; or objects that belonged to their parents, such as music cassettes, and their evolution up to the present day.

#### Geographical area 'Lombardia', Italy:

- [individual essays by native and migrant students](#) who, through the form of a written report accompanied by images, describe their bedroom, the organization of their study and work space in relation to the pandemic and distance learning, and objects of particular significance to them, also in a multicultural context.

video in [English, self-produced by the students themselves](#), describing their rooms and their most significant objects, accessible from the [YouTube channel "Inclumap Erasmus"](#).

#### Geographical area "Generalitat Valenciana", Spain:

The [Inclumap EU project - Open](#) Material folder hosts the didactic material, presentations and photographs related to the activity on the architecture of houses at different latitudes in the world, the urban conformation of the city of Valencia and the surrounding rural formations known as "l'Horta", and their cultural significance. The methodology adopted here is particularly useful in cases where target students are resistant to being involved in interviews, either in video or written form, due to reluctance or embarrassment to expose their experiences around their homes and lifestyle, especially in the case of migrant students. The activities proposed below, set up and guided by teachers but with a strong interactive and experiential component, can prove capable of encouraging the involvement and participation of students even with a low level of literacy, schooling and motivation to study.





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Geographical Area "Castelo Branco" and "Povoa de Varzim", Portugal:

-a didactic programme on the reconstruction of the domestic and working space typical of the maritime villages of the Atlantic coast and the fishermen's civilisation of Povoa de Varzim, through the [self-produced video by the EPAQL school](#) illustrating the typical environments of the 19th and 20th centuries as reconstructed by the Povoa de Varzim Museum.

- [Video on the process](#) of traditional [bread making](#), self-made by the students in traditional dress, documenting the steps of kneading, filling and baking in the stone oven.



**Phase #2. Systematisation of the data emerged and definition of the value and cultural framework of the new multicultural class communities, by the participating museums.** Starting from the raw, non-aggregated and non-reprocessed data emerging from the educational activities carried out at school, the museums, together with the Methodological Coordinator, can propose a critical reading of the value elements inherent in the organization of domestic space, of the personal and collective experience of the students, determined by the cultural belonging of each, reconstructed through the objects of common use in daily life, in a key of multiethnic comparison.

As a methodological approach, it is preferred to assign to each territorial museum the task of evaluating the work of the school located in the same area, in a regional or national logic. However, it is also possible to match museum and school on the basis of the sector most covered by the museum (e.g. Ethnographic Museum, Food Museum, Silk Museum, Museum of Agricultural Civilization) and of the study courses offered by the educational institutions, also in a transnational logic.

The elements that the Museums, each according to its specificity and vocation, have sought out, identified and valorized in the students' work are the following:

a. students' ability to identify with a culture or territory. In general, students are aware of their cultural origin. However, the sense of identification is greater for students with a migrant or mixed origin, whereas native students have a greater need to be prompted on the subject in order to produce reflections on it.

b. students' ability to corroborate the family history and the evolution through the generations of the economic, professional, social and technological conditions related to the type of housing and objects of daily use. Also in this case, in general, the pupils easily manage, once they receive the delivery, to reconstruct the economic and technological evolution of their own culture, through the changes of the housing forms within the social context. This process is more immediate for students of non-EU origin or for native students (Italian, Spanish, Portuguese) who have a family history characterised by internal migration within the same country, or who have experienced significant socio-economic progress or cultural emancipation. Conversely, native students with families that have been in the country for at least two generations are more unlikely to grasp the cultural depth and personal relevance of changes in living spaces and objects of daily life.

c. students' ability to identify the link between forms of housing and the territory of origin, or the link with the history, geographical conformation and economic development of a given region. This aspect is not immediately understood by the students and requires a special explanation by the teachers in order for the students to grasp the link between territory, history and economy. Generally, pupils with a migrant background are more aware and attentive to putting the evolution of livelihoods, technology, economics and the social order of their own culture into a diachronic perspective, as the physical distance from their country of origin makes them reflect on the meaning of their roots.



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As an example of the activities carried out, it is possible to consult and download the documentation, released in open mode, at the following links, within the folder named "Inclumap EU Project - Open Material":

<https://drive.google.com/drive/folders/1yerNYB9UvOO0DBq8RnrFP6VwLs1ZidYk>

- In-depth study material on the [rural complex 'Corte di Giarola'](#), testifying to the flourishing of rural monastic architectural complexes in the Middle Ages and Modern Age, in the area of Parma, Italy
- [Videography](#) on the conformation of the rural conglomerates of the Valencian region known as 'Horta' and the mobile structures dedicated to agricultural work.
- [Bibliographic study of the 'Siglas Poveiras'](#), the coded symbols that distinguished fishing families from the 17th century onwards in the Atlantic coast region.
- Video that takes the viewer on [a virtual visit, commented in English](#), of the Povia de Varzim Museum.



**Phase #3. Didactic experimentation, led by the teachers, linked to 3D modelling and holographic projection of the objects identified in phase #1.**

This experimentation phase must, at least initially, be planned and set up by the teachers, from a teacher-led perspective. There are in fact many variables which determine the objectives, the contents, the approach and ultimately the educational success of the teaching activity.

First and foremost, it is essential that the teachers in charge of planning and delivering teaching activities are trained in the use of technology, and that they are familiar with a variety of methodologies, teaching approaches and techniques to achieve the educational objective, depending on the level of competence of the students, the course they are attending, and their willingness to learn and to get involved.

**The hologram and holographic projection as a point of arrival, not of departure.**

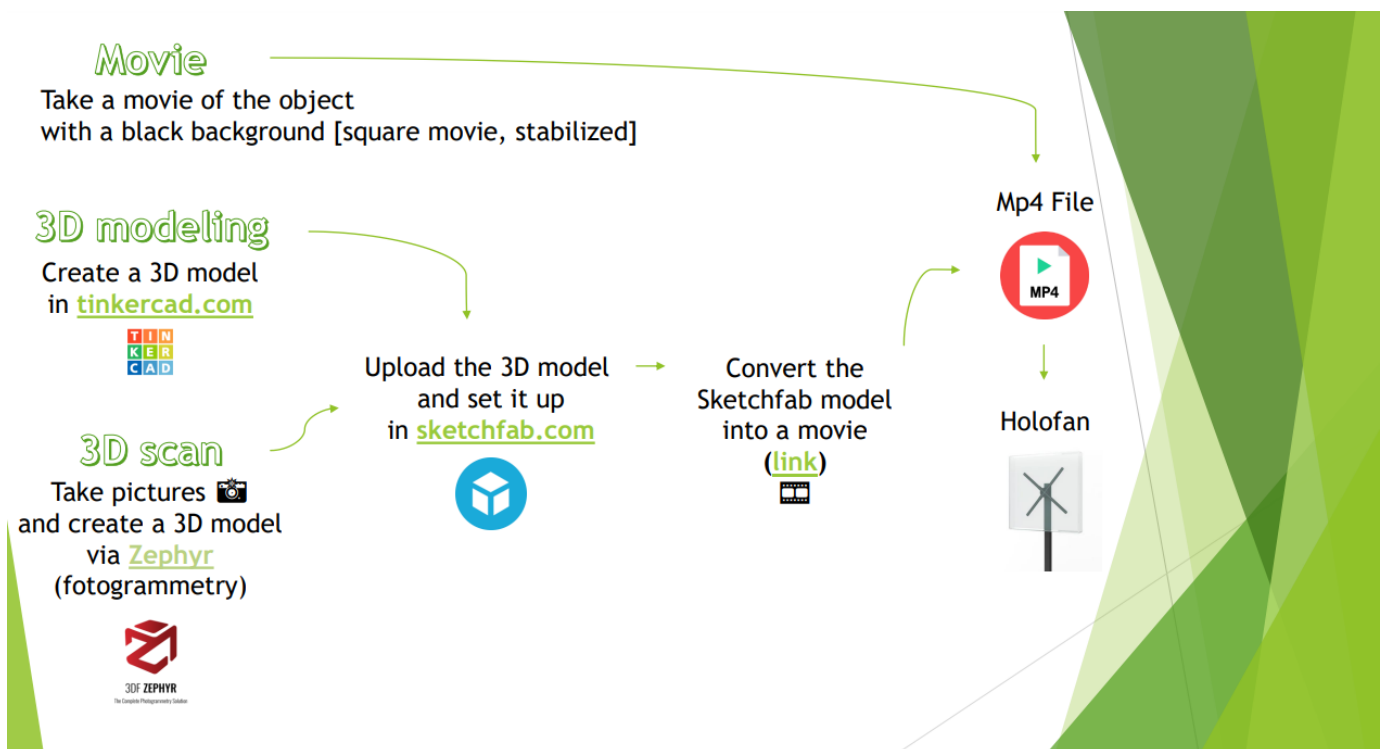


The first fundamental concept that teachers themselves should understand is that the hologram, or holographic projection, is the result of modelling three-dimensional digital images. The hologram is obtained through a series of more or less complex steps linked to the disciplines of 3D design, photogrammetry and digital video.



Therefore, it is essential that at least one IT and/or technology teacher is involved in the design and delivery of the activity.



There are three main ways of achieving holographic projection, illustrated in the in-depth material available in open mode in the Google Drive [Tutorials](#) folder - [3D Modelling, Photogrammetry & Holograms](#).



In order of increasing difficulty, they can be listed:

Methodology #1	Procedure	Material	Target students	Minimum Duration
Rotating video of selected object	A 360° video, lasting approximately 10 seconds, of the object to be holographically projected is shot.  The object must rotate on itself and the background must be completely black.	Camera, camcorder or smartphone  Rotating plate to allow 360° shooting of the object (e.g. an old record player)	Students with basic level skills, with little aptitude for 3D modelling and computer skills.  Students attending non-STEM fields of study or EQF levels below 3.	1 hour

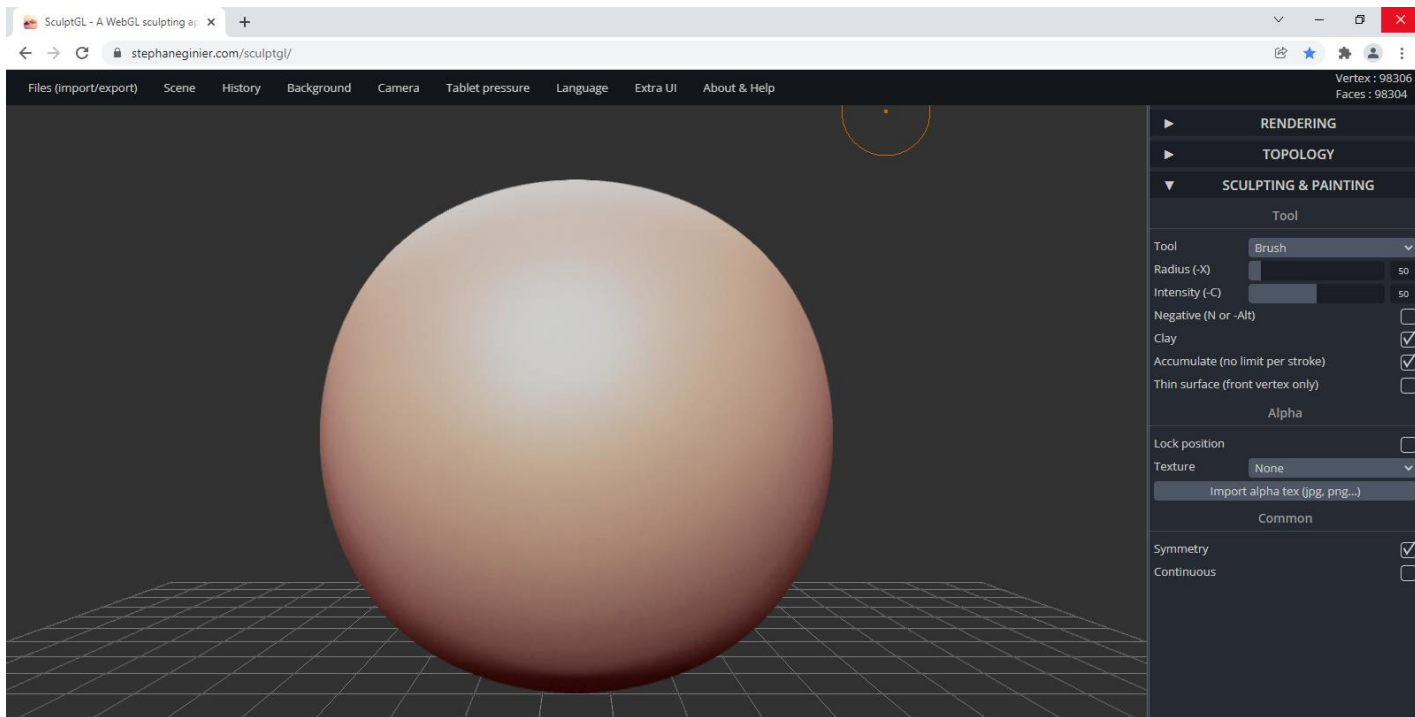


Methodology #2	Procedure	Material	Target students	Minimum Duration
3D drawing in <a href="#">Tinkercad</a>  	<p>The teacher proposes that the class draw three-dimensional objects on <a href="#">Tinkercad</a>, an open and free platform for simplified 3D modelling, from solids and geometric shapes that can be modelled.</p> <p>2. The model can then be exported locally in .obj or .stl file format (this functionality is included in the <a href="#">Tinkercad</a> platform).</p> <p>3. The file must be uploaded to the free <a href="#">Sketchfab</a> repository, which allows you to create a personal portfolio that can be shared with the community.</p> <p>4. Once the model has been created on <a href="#">Sketchfab</a>, you need to access <a href="#">Sketchfab Labs/Experiments</a>, to create a video format file.</p> <p>5. The video is ready to be transmitted to the HoloFan and to launch the hologram</p>	<p>Computer station with access to internet browsing.</p> <p>Creation of a free <a href="#">Tinkercad</a> and <a href="#">Sketchfab</a> account for each user by registering on the portal or logging in with a Google account</p>	<p>Students with good basic level skills, good aptitude for 3D modelling and computer skills.</p> <p>Students in STEM or non-STEM fields of study, including those at EQF levels below 3.</p>	8 hours

An alternative, but essentially equivalent 3D modelling tool to Tinkercad is the free [SculptGL](#) portal, dedicated to Stephan Eginier's **3D Sculpting** technique.





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The portal, which is freely accessible without a login and at no cost, allows you to work on the sphere by modelling it with your computer mouse, shaping shapes and objects of various types, adding special visual effects, material, rendering, colour, transparency and brightness.

The special import/export function allows you to save your work in . obj or . stl format, or even export the model directly to Sketchfab, and then proceed to generate the video for subsequent holographic projection.



Methodology #3	Procedure	Material	Target students	Minimum Duration
<p>Photogrammetry and 3D Scanning with <a href="#">Zephyr 3D Free</a> software</p>  	<ol style="list-style-type: none"> <li>The teacher proposes that the class take 360° photographs of a three-dimensional object, taking care to note all the angles and taking at least 50 photographs of each object.</li> <li>From <a href="#">Zephyr 3D</a> interface, create a new project importing the set of pictures taken at point 1), obtaining in this way a "sparse point cloud".</li> <li>Click on the Workflow menu → 3D Model Generation to obtain the "mesh" of the object, i.e. its 3D scan, which can be improved with the "textured mesh generation" function. The model can then be exported locally in .obj or .glb file format.</li> <li>The file must be uploaded to the free <a href="#">Sketchfab</a> repository, which allows you to create a personal portfolio that can be shared with the community.</li> <li>Once the model has been created on <a href="#">Sketchfab</a>, you need to access <a href="#">Sketchfab</a></li> </ol>	<p>Digital camera</p> <p>Computer station with access to internet browsing.</p> <p>Free version of <a href="#">Zephyr 3D</a> software to download to your computer or laptop</p> <p>Creation of a free <a href="#">Sketchfab</a> account for each user by registering on the portal or logging in with a Google account</p>	<p>Students with medium to high basic level skills, with excellent motivation and a flair for 3D modelling and computer skills.</p> <p>Students attending STEM or non-STEM fields of study, of EQF levels not lower than 3.</p>	<p>12 hours</p>





	<p><a href="#">Labs/Experiments</a>, to create a video format file.</p> <p>5. The video is ready to be transmitted to the HoloFan and to launch the hologram</p>			
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*Models of the educational programme carried out for phase #3. Example 1.*

The programme proposed below was implemented by students in the three-year course of the Liceo Artistico's Graphic Design/Communication curriculum, which already includes the teaching of information technology. From the point of view of programming and teaching methodology, three different criteria can be distinguished, including phase #1 of cultural investigation.

Frontal lessons	Interactive lessons	Project work pupil led (Self-managed work by students)
<p>20% of the total</p> <p>Teachers introduce:</p> <ul style="list-style-type: none"> <li>- working method</li> <li>-project objectives</li> <li>-project development</li> </ul>	<p>60% of total</p> <ul style="list-style-type: none"> <li>-Use of the holographic projector</li> <li>-Use of 3D programmes (CAD, Tinkercad, Sketchfab)</li> <li>-Videomaking (interviews, videos and preparatory photos for the holograms)</li> </ul>	<p>20% of the total</p> <p>Students have worked at home and at school both in groups and individually to:</p> <ul style="list-style-type: none"> <li>-interviews with relatives</li> <li>-writing and editing of interview texts</li> <li>-research, collection and revision of texts and images</li> </ul>

In order to replicate the course of holographic experimentation, the following programme model can be implemented.

Input prerequisites	<p>Skills/knowledge that students should have in order to participate effectively in the experiment:</p> <ul style="list-style-type: none"> <li>-skills in the use of basic software</li> <li>-Proficiency in IT tools</li> </ul>
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Specific learning objectives related to the 3D drawing / holographic projection part	-use computer tools to solve significant problems in general but, in particular, related to the study of the other disciplines -Use Tinkercad and Sketchfab software; -start image processing with Zephyr 3D
Learning outcomes [Technical skills]	3D modelling: use of TinkerCad and Sketchfab software; 3D scanning: image processing with Zephyr 3D; Video: processing video images to be projected with the holographic projector
Implementation	1) 3D Design: TinkerCad, Sketchfab 2) Image processing - photogrammetry: Zephyr 3D 3) Video processing to be projected in later stages with the holographic projector
Practical/Logistics Organisation	The activities took place in the computer lab and in the photo lab; access to tools and equipment was controlled by the teachers in charge of this part of the project. The current rules displayed in the laboratories were followed in addition to the protocol for the pandemic
Problems	The topics proposed were not particularly difficult for the students as they had already dealt with some of them in the curriculum lessons. However, the use of Zephyr 3D is long and more complex for the students. Behaviour was always correct and commitment adequate. A small group is particularly interested in pursuing the development of images and holograms.
Duration	30 hours



*Models of the educational programme carried out for phase #3. Example 2.*

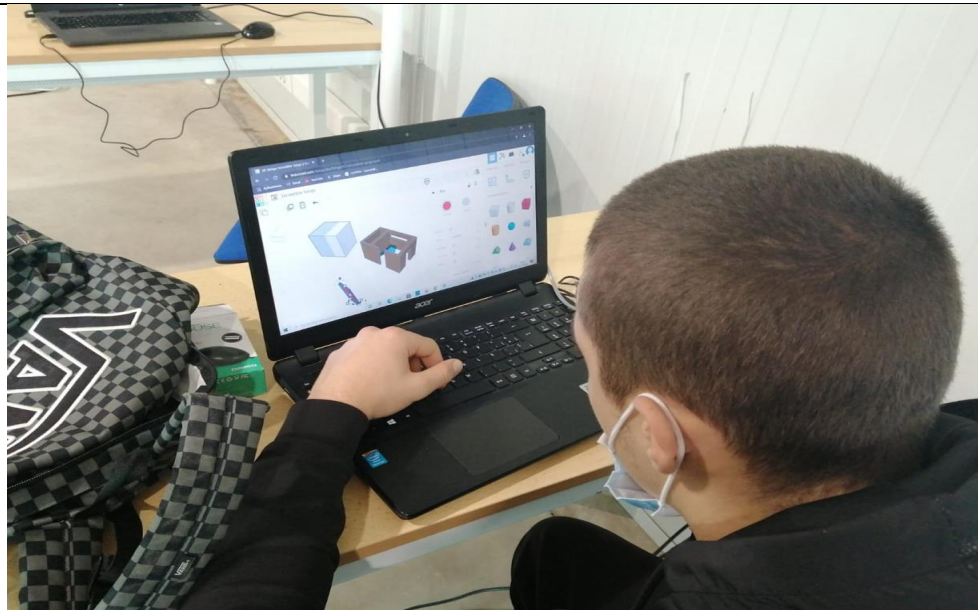
The programme proposed below was implemented by students in the upper three years of vocational training in the metalworking sector. From the point of view of programming and teaching methodology, three different criteria can be distinguished, including phase #1 of cultural investigation.

Lectures	Interactive lessons	Project work pupil led (Self-managed work by students)
Total: 20% (5 h)	Total: 40% (10 h)	Total: 40% (10 h)
<p>The importance of the home and everyday life as a further expression of material culture.</p> <p>Introduction to the correct reading of an urban and topographic map.</p> <p>Introduction to house types according to climate and culture.</p> <p>Introduction of climates in the world.</p> <p>Introduction to the materials used to build a house according to the resources of a country.</p> <p>Basic information on what lifestyle is and how it has changed over the centuries.</p> <p>Fundamentals of Tinkercad and Sketchfab.</p>	<p>The holographic projector was used to display the final output of the work done throughout IO4</p> <p>Tinkercad and Sketchfab were used to design, edit features and publish a bedroom and a Christmas tree. Before designing the final output, some preparation and practice lessons were needed.</p> <p>The realisation of the 3D videos (.mp4) of everyday objects from the 20th century was done after the museum visit.</p>	<p>15% of the class work was a reflective dynamic achieved through debate (under an assembly approach) and problem solving through collaborative games</p> <p>20% of the workshops were carried out individually after an explanation by the teacher</p> <p>5% of the group work was devoted to thinking about how to make the final video.</p>



In order to replicate the course of holographic experimentation, the following programme model can be implemented.

Lesson 1:	Teachers: Applied science teachers.
Fundamentals of 3D design (Tinkercad)	<p>Objectives:</p> <ul style="list-style-type: none"> <li>- Introduction and review of how to use Tinkercad.</li> <li>- Instructions on how to create a bedroom with measurements and some tips</li> </ul>
	<ul style="list-style-type: none"> <li>- Methodology: Interactive lesson with experiential learning using digital methods</li> </ul>
Bedroom design (Tinkercad)	<p>Contents:</p> <ul style="list-style-type: none"> <li>- 3D modelling (Tinkercad)</li> </ul>
	<p>Exercises/tasks for students:</p> <ul style="list-style-type: none"> <li>-Designing simple objects to gain familiarity with practice.</li> <li>-Try to draw a model and some features of their bedroom</li> </ul>
	<p>Evaluation methods:</p> <ul style="list-style-type: none"> <li>- Completion of the task.</li> <li>- Attitude: Proactivity and commitment to class and to the task at hand</li> </ul>
	<p>Results:</p>



Problems:

It is difficult for students to concentrate on the task for a long time. They talk and interrupt in class and have problems following instructions.

Lesson 2:

Teachers: Applied science teachers.

Fundamentals  
of 3D design  
(Tinkercad)

Objectives:

- Review of how to use Tinkercad.
- Instructions on how to make a Christmas tree with measurements and some tips

Christmas tree  
drawing  
(Tinkercad)

Methodology:

Experiential learning with digital methods

Contents:

- 3D modelling (Tinkercad)

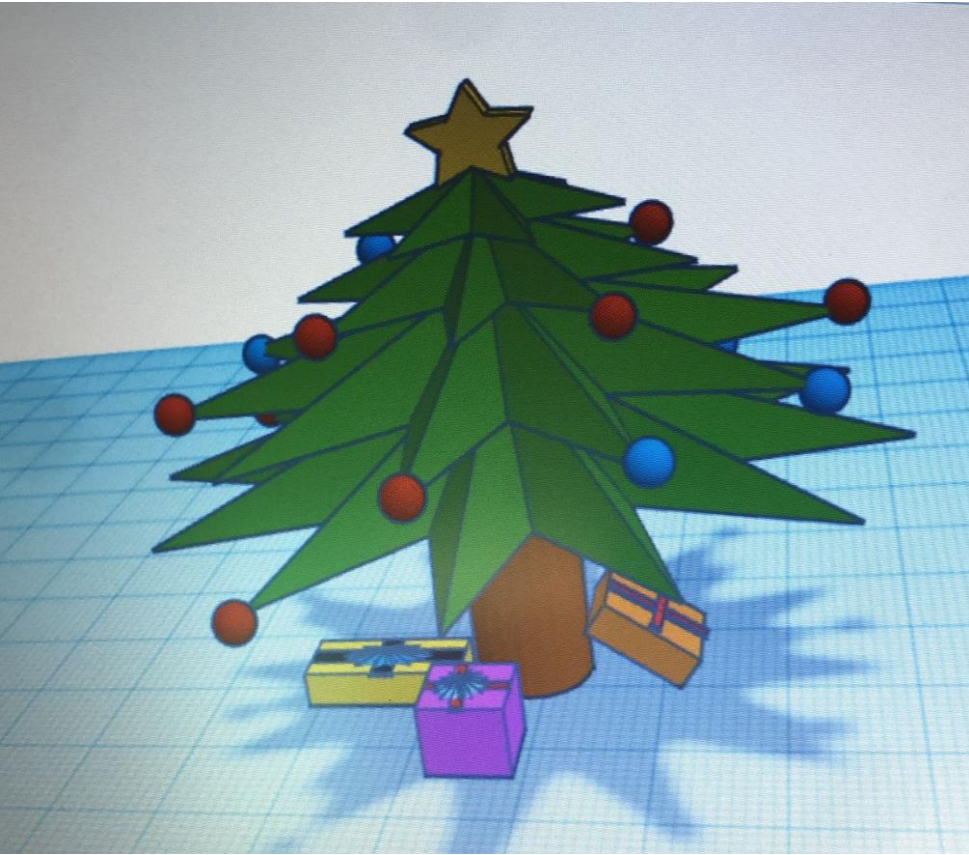
Exercises/tasks for students:

Designing simple objects to become familiar with Tinkercad.  
Try to draw a model of a Christmas tree as an object reflecting our daily life at Christmas time.

Evaluation methods:

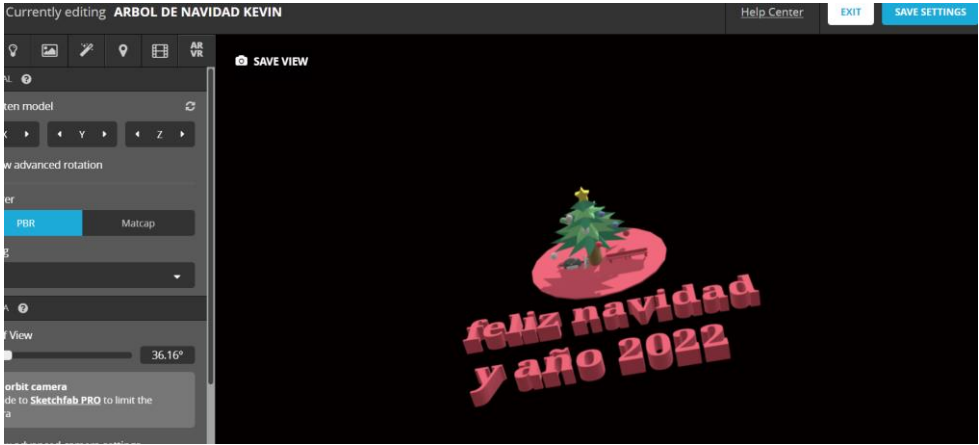
- Completion of the assignment. Delivery of a 3D drawing for each student.



	<ul style="list-style-type: none"> <li>- Attitude: Proactivity and commitment in class and to the task at hand</li> </ul>
	<p><b>Results:</b></p> 
	<p><b>Problems:</b></p> <p>It is difficult for students to concentrate on the task for a long time.</p> <p>They talk and interrupt in class and have problems following instructions.</p>

Lesson 3:	Teachers: Applied science teachers
Video	<p><b>Objectives:</b></p> <ul style="list-style-type: none"> <li>- Conversion of 3D projects (bedroom and Christmas tree) to video through SketchFab.</li> </ul>



conversion and Sketchfab publishing)	<p>Methodology:</p> <p>Experiential learning with digital methods</p>
	<p>Contents:</p> <ul style="list-style-type: none"> <li>- 3D modelling (Tinkercad)</li> <li>- Exporting and sharing (SketchFab)</li> <li>- Video editing (Sketchfab)</li> <li>- Display as holograms</li> </ul>
	<p>Evaluation methods:</p> <ul style="list-style-type: none"> <li>- Completion of the assignment. Delivery of a 3D drawing for each student.</li> <li>- Attitude: Proactivity and engagement in class and with the task at hand</li> </ul>
	<p><b>Results:</b></p> 
	<p>Problems:</p> <p>It is difficult for students to concentrate on the task for a long time.</p> <p>They talk and interrupt in class and have problems following instructions</p>

**Examples of teaching activities carried out.**

Also because of the Covid emergency, which has interrupted school activities on several occasions, various types of educational activities have been proposed, which can also be used remotely, all aimed at the development of 3D digital images on the theme of the home and objects of everyday life in a cultural and intercultural context. All the didactic documentation is accessible for



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consultation and download in open mode, in the folder called "Inclu. ma. p. EU Project - Open Material":

<https://drive.google.com/drive/folders/1yerNYB9UvOO0DBq8RnrFP6VwLs1ZjdYk>

Geographical Area "Emilia-Romagna", Italy:

Digital reconstructions of objects of everyday life from the students' experience, through photographic reproduction.

Geographical area 'Lombardia', Italy:

3D drawings and digital reproductions of everyday objects designed by the students using both Tinkercad software and digital videos that can be transmitted to the holographic projector.







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Geographical area "Generalitat Valenciana", Spain:

[3D models](#), obtained by digital drawing on Tinkercad software, of images relating to students' bedrooms; [rotating videos](#) for the digital reproduction of everyday objects from the beginning of the 20th century, belonging to the collection of the Museu Comarcal de l'Horta Sud in Torrent, Valencia. The models can be exported by Tinkercad or Zephyr 3D software and transmitted to the holographic projector.



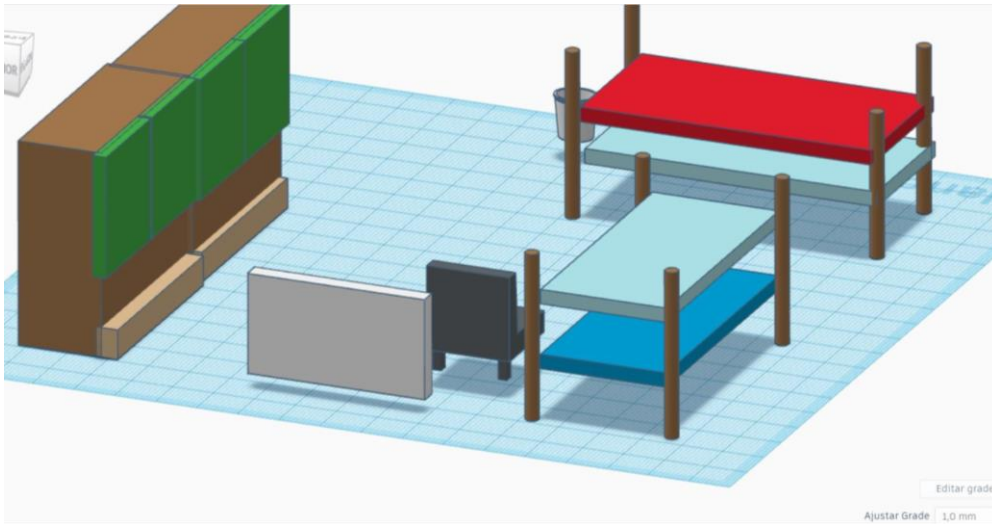
Geographical Area "Castelo Branco" and "Povoa de Varzim", Portugal :



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Digital [reproductions](#), obtained by digital drawing on Tinkercad software, of the architectural structure of the Museu Municipal da Povoia de Varzim and the domestic environments represented therein. The models can be exported from Tinkercad or Zephyr 3D software and transmitted to the holographic projector.



Videos of the three-dimensional Tinkercad model of the Museum are also available, both [the colour model exported in Sketchfab](#) and the [Icecream software](#).



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## Conclusion

This document is intended to offer secondary school teachers, both general and technical-professional, and educational and training process staff, open-ended teaching material to be replicated in order to design, in educational contexts, teaching programmes aimed at developing intercultural dialogue and active citizenship skills.

Given the growing trend towards multiculturalism and the formation of ethnically and culturally heterogeneous classrooms throughout Europe, it is believed that educating students to know how to live in multi-stratified societies and to know how to relate to peers and adults of different origins, cultures and backgrounds gives young people the tools to live at ease and integrate into civil society, participating fully in it and contributing to its development with confidence and purposefulness.

Given the general objectives of the project, i.e. the development of multicultural competences, the Inclu.ma.p. project aims to achieve them through the implementation of a didactic programme that can be delivered according to the STEAM approach, involving both humanistic subjects and technical-scientific curricular subjects in any field of study or educational level.

Humanistic subjects such as local or foreign language and literature, history, civic education, geography, religion, offer the possibility to identify cultural aspects related to different civilizations, as well as to validate them in a perspective of mutual knowledge and appreciation: to this end, research activities on world architecture, on the organization of spaces within the domestic environment, in a diachronic perspective with respect to the evolution of social uses over generations, and on the characterization of the space with which teenagers most identify, i.e. their own room, are useful.

STEM subjects, in particular computer science and technical drawing disciplines, are useful for creating visible and concrete images of the more theoretical and general cultural and civilization framework that emerges from ethnographic research activity. 3D drawing, 3D modelling and holographic projection of objects from the home and everyday life, in fact, makes it possible to create a composite image, or a set of images, that renders the complexity, variety and thick description of the civil society in which young people find themselves learning and living.



## Appendix

### INTELLECTUAL OUTPUT 4 - "HOME AND OBJECTS OF EVERYDAY LIFE".

*Proposed approaches to the design of teaching activities, as chosen by schools*

*involving the humanities and the arts,*

*aimed at identifying objects or images relating to the home and everyday life,*

*with a view to valorising different ethnic groups*

*that make up the class group or civil society*

#### **Approach I**

**House understood as architecture**, a work of civil engineering that varies in structure, form and style from country to country.

#### Possible activities

Researching independently, or with the guidance of teachers or museums, different architectural styles and structures around the world, with possible in-depth study of art history.  
Enhancement of forms and architecture of buildings and dwellings representative of the ethnic/regional groups present in the class group, or in civil society

**Relationship between civil architecture (houses) and industrial architecture (factories)**, how the two influenced each other. Ex: in Como the typical houses were formed by narrow and long buildings, so the first "industries" had the same structure and this influenced the shape of some machineries such as the "torcitoio" which in the Como area is not circular (see Leonardo's classic "torcitoio") but narrow and long in order to "enter" the factories.

#### **Approach II**

**Home understood as spaces** in which **the domestic environment** is organized and structured. Functions and roles of the rooms of the house, the adjoining spaces and courtyards or outdoor gardens.



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**Working spaces** in the home, from farmsteads, farms etc. where living and working spaces were mixed (e.g. silkworms were bred by farmers in stables or in the home - kitchen or bedroom), to manor farms where the owner's house is annexed to the factory building, to smart working.

#### Possible activities

- a. Analysis of the spaces in which the domestic environment is organized in the different cultures represented by the class group.
- b. Concept of the family as expressed: implicit or explicit family roles of family members and traditional and/or current trades or jobs in the household
- c. Horizontal, geographical comparison of students' different cultures of origin
- d. Comparison on a vertical, historical level between the different structure of domestic environments and concept of family in the past (e.g. grandparents, ancestors) and today

#### **Approach III**

Focus on everyday objects, e.g. the **student's room** as a space of identification, appropriation, identity construction of teenagers.

#### Possible activities

Students from different cultural backgrounds describe their room. How is it organized? Is it shared with brothers or sisters? Which objects, furnishings, pieces of furniture are part of it? Are there objects which represent a link with the past? Or the link with other places or lands of origin? Objects representing religious faith or cultural identity?