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

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

IO2 - Intellectual Output 2

Objects and Practices of Clothing in multicultural and stratified neo-communities

Type of Output: OER - Open Educational Resource

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Introduction

The 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 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 reconstructing, recovering and enhancing 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 Civilization, according to the historiographic approach of the eminent French academic Fernand Braudel¹ :

Intellectual Output 1: Food and Nutrition

Intellectual Output 2: Clothing and Fashion

Intellectual Output 3: Tools and Objects of Work;

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 civilization framework, to be achieved through the historical-philosophical, linguistic, humanistic and religious curricular disciplines

¹Essential 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



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- 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.



IO2: Educational programme on Objects and Practices of Clothing, in view of education to citizenship and intercultural dialogue

This product consists of a multidisciplinary didactic programme on FASHION and CLOTHING Objects and Practices in school classrooms, understood as new multicultural learning communities, where native and migrant students live and learn in a non-unique 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 delocalized experiences of the project partners, classified as follows:

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



		and electronics	reconstruction of Valencian ethnographic and agricultural heritage	
	Portugal	EPAQL - Escola Profissional Agricola "Quinta da Lageosa" , Covilhã, dedicated to vocational courses in equine management, agricultural production management, agricultural machinery operator	Museu Camara Municipal de Povia de Varzim, Oporto , 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 civilisation 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'.²

Within the characteristic traits of an ethnic group, clothing and fashion, understood as the way of appearing and the style with which one presents oneself to others, is certainly one of the main elements expressing the cultural identity of a people, through which people recognize their belonging and rootedness to a culture and a territory.

Today, class composition in schools is more heterogeneous than ever in terms of ethnic origin, and we are witnessing the emergence of new multicultural and stratified learning communities, where pupils come into contact with other clothes, textiles, fashion garments and styles with which they contaminate each other, giving rise to a new food culture.

FASHION and CLOTHING is identified as an INDICATOR of CIVILIZATION, taking as reference the so-called "ARTS" teaching disciplines, i.e. of a humanistic nature, relating to the historical-philosophical, legal-economic, linguistic-literary areas as well as to religious studies, for the definition of the criteria and conceptual perimeter that identify it.

The methodology adopted involves leading pupils towards a reflective analysis of the characteristics and components of the new multicultural communities in which they find themselves learning and living, as a priority theme in terms of inclusive teaching, encouraging

² F. Braudel, *Il mondo attuale*, Turin (Einaudi) 1963



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them to get to know themselves and their own food culture of origin first and foremost, and at the same time to understand and appreciate, measuring them against their own identity and cultural system of reference, the clothes and fashion items of cultures 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 this is done by regularly carrying out the STEM and ARTS curricular curriculum, delivered face-to-face and/or facilitated by teachers in an experiential *project work* mode.

Product Output 2, 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 that emerged from the work, in order to create a varied and multivocal holographic image of the cultural artefacts, aimed at enhancing the pupils' digital skills (technological partner).

The Output 2 curriculum consists of 6 sub-activities, which are replicable and transferable to other contexts depending on the EQF level (VET diploma, secondary school or tertiary level) and on 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, on the material, value and identity elements linked to FASHION and CLOTHING of their own culture (activity led by the expert methodologist and the school teachers)

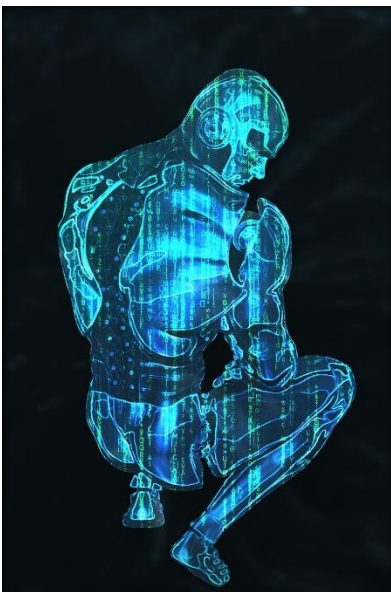


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- c) Provision of the interview in peer-to-peer mode, with a view to project work self-managed by the pupils with the facilitation of the teachers, in small mono-ethnic groups interviewing other groups of different ethnicities, or in an intergenerational key (pupils interviewing their parents, aunts, uncles or grandparents on the subject of clothes traditions)
- d) systematisation 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 multi-vocal image of the food culture of the new multicultural community represented by the class group, and for the acquisition of democratic participation and active citizenship skills (activity led by the teachers and the methodological expert)

Holograms and holographic projectors: what are they?



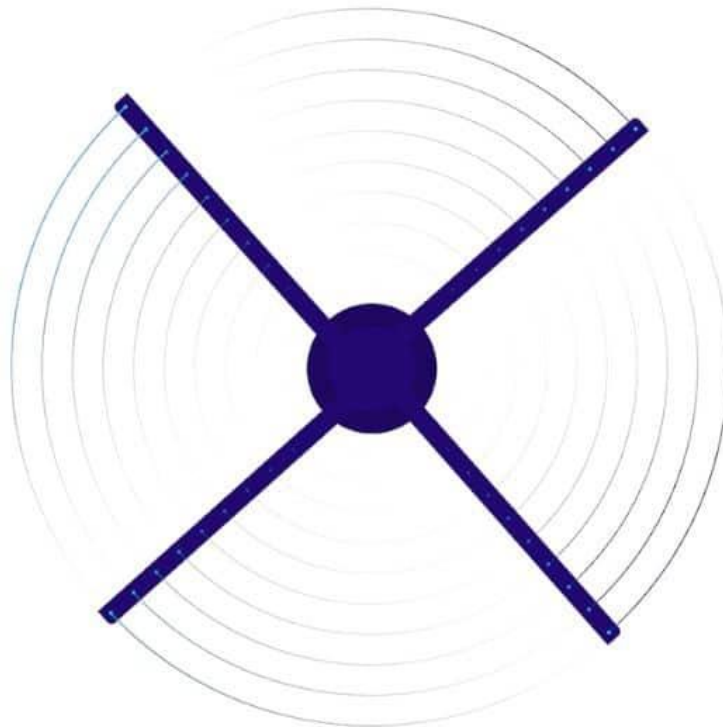
According to a simple, intuitive and useful definition for educational purposes, a hologram can be identified as an interfering wave figure (or pattern) obtained through the use of a laser, having the specificity of creating a three-dimensional photographic effect: a hologram, unlike normal photographs,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



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The operation of the holographic projector³ 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.

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



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Phases and activities of the learning programme on the Indicator of Civilization "Clothing".

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 systematisation 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, on the material, value and identity elements linked to FASHION and CLOTHING of their own culture (activity led by the expert methodologist and the school teachers)
- c) Provision of the interview in peer-to-peer mode, with a view to project work self-managed by the pupils with the facilitation of the teachers, in small mono-ethnic groups interviewing other small groups of different ethnicities, or in an intergenerational key (pupils interviewing their parents, aunts, uncles or grandparents on the subject of food traditions)

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, in order 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,



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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. A majority is 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.

Design of a structured interview on FASHION and CLOTHING from a multicultural perspective.

The activity is carried out by the methodological coordinator, who is an expert in learning processes, together with the humanities teachers of the schools (language and literature, history and philosophy, religion) and the cultural operators involved in museum education.

The aim of the activity is to set up an interview model⁴ that brings out the:

- the style and fashion of young people in classes at school, from an intra-generational perspective, aimed at identifying the teenagers' value universe around clothing;
- Trends or influencing factors such as social media and influencers, the world of entertainment;
- socio-cultural contexts (special occasions, family events or religious celebrations) that influence clothing;
- differences between the clothes one wears at home and the clothes one wears in different social situations;
- the emotional value or cultural belonging of a particular item of clothing or accessory that has belonged to other family members or been handed down from generation to generation;
- the perception of the difference in style and fashion today compared to that of their parents or grandparents.

⁴ The full format of the clothing interview can be found at the end of this document in the "Appendix" section.



There was also a section devoted to interviews with older members of families, such as parents or grandparents, aimed at getting students to reflect on the evolution of fashion and the different attribution of cultural or identity values to clothing itself, with particular reference to the cultural changes that migration phenomena often entail. The students, both native and migrant, were in fact invited to ask their parents or grandparents some questions such as:

- perception of the greater freedom given to young people today to choose their own clothing, and their judgement on this;
- evolution of identity or cultural value expressed through style and clothing
- elements of cross-cultural contamination determined by the fashions and style of clothes;
- identification of items of clothing particularly significant for their culture of origin;
- identification of textiles, fashion or garments typical of a region and links with the material, cultural and economic history of that region.

Administration of the interview at school in a project work perspective. 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 students to think about fashion and clothing in their own tradition, and to bring out the underlying cultural elements and values, both personal and collective.
- 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 the way in which the interview should be conducted: it is possible to envisage peer-to-peer interviews conducted by the 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, talk about their traditions and tell their stories, talking about family or local customs related to clothes, hairstyles or accessories for everyday life, but especially for special occasions or religious celebrations. 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, uncles, grandparents or other relatives, from whom they collect testimonies, stories, photographs or clothes and accessories related to fashion and the style of the contexts in which it occurs.

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

Lesson 1 (2h)	Teacher: IRC (Catholic Religious Education).
	Objectives: introduction and focus on Output 2, role of fashion and



	clothing in today's society, influence on daily life.
	Methodology: frontal lesson followed by discussion.
	Contents: types of clothing in the countries of interest, customs and traditions.
	Exercises/tasks for students: proposal for comparison and discussion in the family of typical clothing and costumes.
Lesson 2 (2h)	Teacher: IRC (Catholic Religious Education).
	Objectives: collection of first ideas in brainstorming mode.
	Methodology: work in groups, discussion and sharing of initial ideas.
	Contents: exposition of what emerged from the research carried out in the family regarding everyday clothing, traditional clothing in the areas of origin, practices, customs and use of particular accessories.
	Assessment methods: relevance of interventions, correctness of behaviour with a view to openness to comparison.
	Results: First interesting discussion on the meaning that society and the individual give to the way we dress.
Lesson 3 (2h)	Teacher: IRC (Catholic Religious Education).
	Objectives: to understand the reasons for the use of certain items of clothing or the same garment in different cultural and religious traditions with a view to openness and respect for the freedoms of each tradition.
	Methodology: frontal lesson followed by discussion.
	Contents: hijab and other garments as a symbol of cultural belonging. Link with the role of women in different cultural traditions.
	Assessment methods: relevance of the interventions, correctness of behaviour during the debate with a view to openness to discussion.
	Problems: not so much problems as sensitive issues, preconceptions to be deconstructed.

In order to ensure full inclusiveness, a similar and parallel programme has been foreseen to take place in the "Alternative to Catholic Religion" hour, to intercept students of other religions/cultures.

Lesson 1 2h	Teacher: Alternative to Catholicism
	Objectives: introduction of the project and definition of the various operational steps.
	Methodology: teacher's explanation followed by questions from pupils.
	Contents: types of clothing in the countries of interest, customs and traditions.



	Tasks for students: evaluation and discussion in the family of clothing, typical customs and practices used in the countries of origin.
Lesson 2 (2h)	Teacher: Alternative to Catholicism
	Objectives: collection of first ideas in brainstorming mode.
	Methodology: work in groups, discussion and sharing of initial ideas
	Contents: exposition of what emerged from the research carried out in the family regarding clothing, practices, objects and typical costumes.
	Assessment methods: relevance of interventions, correctness of behaviour with a view to openness to comparison.
	Results: First interesting discussion on the meaning that society and the individual give to the way we dress.
Lesson 3 (4h)	Teacher: Alternative to Catholicism
	Objective: to carry out the questionnaire "Fashion Objects and Practices".
	Contents: Reading and carrying out of the questionnaire "Objects and Practices of Clothing and Fashion" with discussion among pupils from different cultures.
	Assessment methods: relevance of the interventions, correctness of behaviour during the debate with a view to openness to discussion.
	Problems: not so much problems as sensitive issues, preconceptions to be deconstructed.
Lesson 4 (2h)	Teacher: Alternative to Catholicism
	Aims: Writing answers to the questionnaire "Objects and Practices of Clothing and Fashion".
	Methodology: work in groups.
	Contents: development of interviews "Objects and Practices of Clothing and Fashion" with discussion between pupils from different cultures.
	Assessment methods: relevance of interventions, correctness of behaviour with a view to openness to comparison.
	Results: answers full of ideas and content, collection and description of several traditional and everyday garments and some accessories.
	Methodology: work in skimming and selection groups.
	Contents: data collected and processed.
	Assessment methods: correctness and relevance in the expression and writing of the interview.
	Results: Interview

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 fashion and clothing in a cultural and intercultural context. All the teaching



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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:

-interviews [with students, in written form](#), drawn up in small groups representing local Emilian culture, Central Asian culture (Italy, Sri Lanka, Pakistan), and Islamic culture (particularly North African)

-video [interview on the fashion and clothing traditions](#) of India and Senegal, subtitled in English, self-conducted by three students of migrant origin, accessible from the [YouTube Channel "Inclumap Erasmus"](#).

-presentations [prepared by the students](#), with images, photographs and descriptions of Italian, Senegalese, Albanian and Peruvian fashion traditions. This is a particularly effective teaching method in the case of students with little knowledge of Italian and/or a low level of literacy, but who have a rich cultural heritage and a desire to share it with their peers.

Geographical area 'Lombardia', Italy:

-interviews with students, in the [form of group brainstorming](#) sessions, with both native and migrant students, to gather comparative insights into clothing traditions and values from an intercultural perspective

-Presentation by students on [collecting and researching fashion and clothing traditions from an intercultural perspective](#)

video [on the different fashion](#) and clothing [traditions](#) represented at school, subtitled in English, self-produced by the students themselves, accessible from the [YouTube channel "Inclumap Erasmus"](#).

Geographical area "Generalitat Valenciana", Spain:

The methodology adopted here is particularly useful in cases where the target students are reluctant to be involved in interviews, either in video or written form, because they are reluctant or embarrassed to expose their own traditions in terms of clothing and style in presenting themselves to others, especially in the case of migrant students. The following activities, planned and guided by the teachers but with a strong interactive and experiential component, can prove



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capable of encouraging the involvement and participation of students with a low level of literacy, schooling and motivation to study. In the shared folder you can consult:

- [interviews carried out anonymously with students](#), either native or from South America in particular, a particularly significant proportion of whom attend the "C.F. Folgado" Training Centre in Valencia.

- [didactic activity linked to prejudice and its forms](#), which are often conveyed by preconceptions and preconceived notions linked to people's appearance, clothing and the way they present themselves. In particular, the concept of the "urban tribe" as a micro-culture of belonging and identification, through the sharing of a specific code of meaning and conformism, often expressed by the adoption of a particular style, hairstyle, accessories and clothes, was explored.

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

-[Individual](#) interviews [with students](#), in written form, to document the tradition of fashion, clothing and the mechanisms of adaptation during migratory phenomena: two female students from former African colonies (São Tomé and Príncipe and Angola), currently attending the EPAQL institute, were interviewed.

-STEAM subject teachers' work on the [didactic programme for Output 2](#), with particular reference to elements of traditional Portuguese clothing, represented by a rag doll, called [Boneca](#), wrapped in a woollen cloak used to protect oneself from the freezing winter winds of the Portuguese mountains.

-self-produced video to illustrate the [local fashion traditions of the past](#): a woman dressed according to local costume, with an apron and a hat, kneading bread with the tools and manual procedure typical of the production process in the past.

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, unaggregated and unprocessed data emerging from the didactic activities carried out at school, the museums, together with the Methodological Coordinator, can propose a critical reading of the values, personal experiences, individual and collective experiences of the students, determined by the cultural belonging of each of them, around the theme of fashion, style, clothing and the appearance with which they present themselves to others, in a multi-ethnic comparison. As a methodological approach, it is preferable to assign each territorial museum the task of evaluating the work of the school located in the same area, in a regional or national logic.



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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, can look for, identify and enhance 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, while native students have a greater need to be prompted on the subject in order to produce reflections on it.
- b. ability of pupils to identify garments, styles and clothes typical of their own culture. Again, in general, pupils easily manage to produce examples of clothes typical of their own culture. However, the strong pressure for conformism and assimilation that the host culture exerts on migrants must be underlined: in situations related to school, afternoon activities or sports, migrant pupils tend to adopt a more neutral style of dress that can bring them into line with the general context of their peers. On the contrary, in social contexts reserved for their own community, religious celebrations or special occasions, traditional ethnic clothing is very common.
- c. students' ability to identify the link between clothing fabrics and yarns and the territory of origin, or the origin of a fabric from another territory, the link with the history, geographical conformation and economic development of a given region. This is an aspect that is not immediately understood by the students, and which requires special explanation by the teachers so that the students grasp the link between territory, history and economy. Generally, students with a migrant background are more aware of and attentive to putting the evolution of the traditions of their own culture into a diachronic perspective, as the physical distance from their country of origin prompts them to reflect on the meaning of their roots.
- d. students' ability to identify personal, social and collective values associated with wearing certain clothes or accessories and presenting themselves to others with a certain appearance. At times, students may need to be challenged with key questions to help them contextualise the collective and social meaning associated with the tradition of fashion and dress. For example, what are the family, work or civic or religious occasions that require the adoption of a particular way of dressing and hairstyling; what importance and identity value do pupils attach to maintaining these traditions for their own lives.

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 called "Inclu.ma.p. EU Project - Open Material":

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



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- [Virtual visit to the Como Silk Museum](#), repository of the traditions and history of the local textile industry, which saw its heyday between the 17th and early 20th centuries.
- [Presentation of the traditional popular clothing](#) of the peasants and craftsmen of the Valencian region between the 18th and 19th centuries.



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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 designed 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.

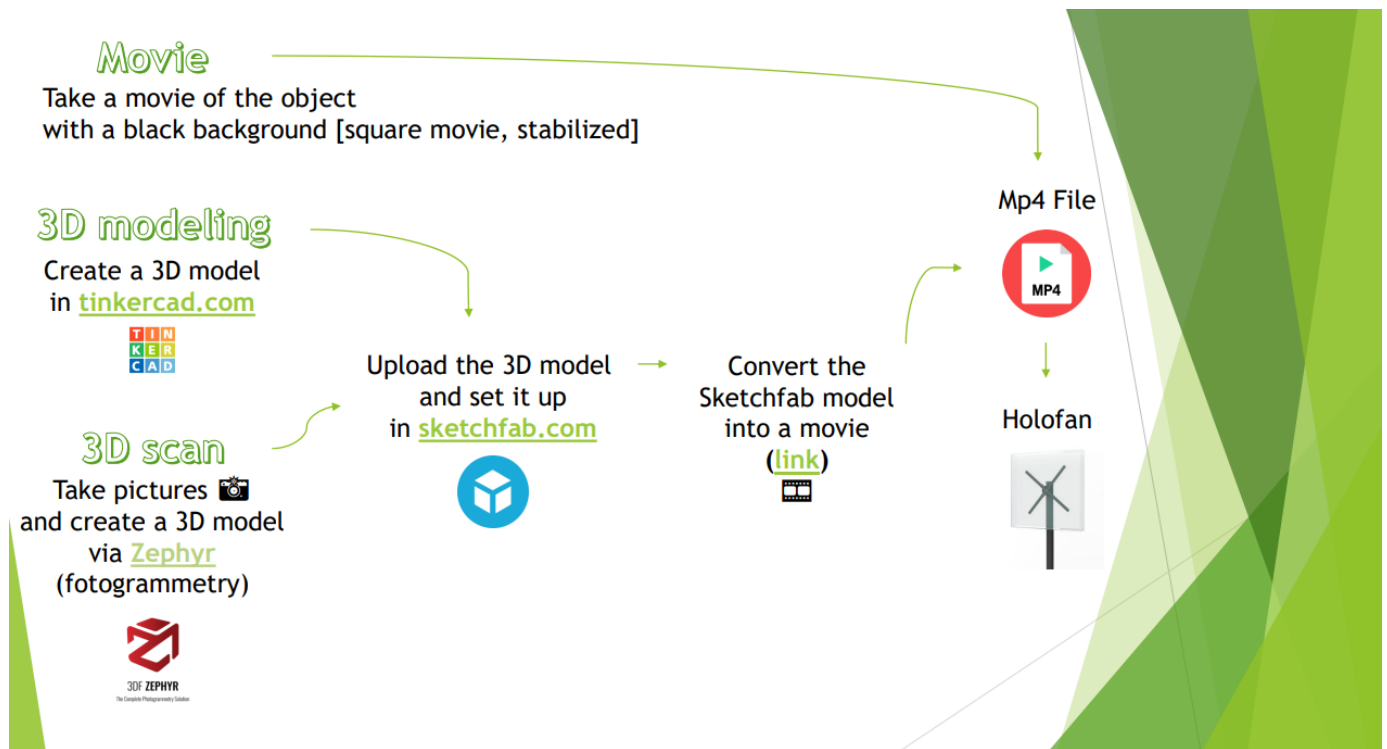


The first fundamental concept that teachers themselves should understand is that the hologram, or holographic projection, is the result of modelling three-dimensional digital images. The hologram is obtained through a series of more or less complex steps linked to the disciplines of 3D design, photogrammetry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

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



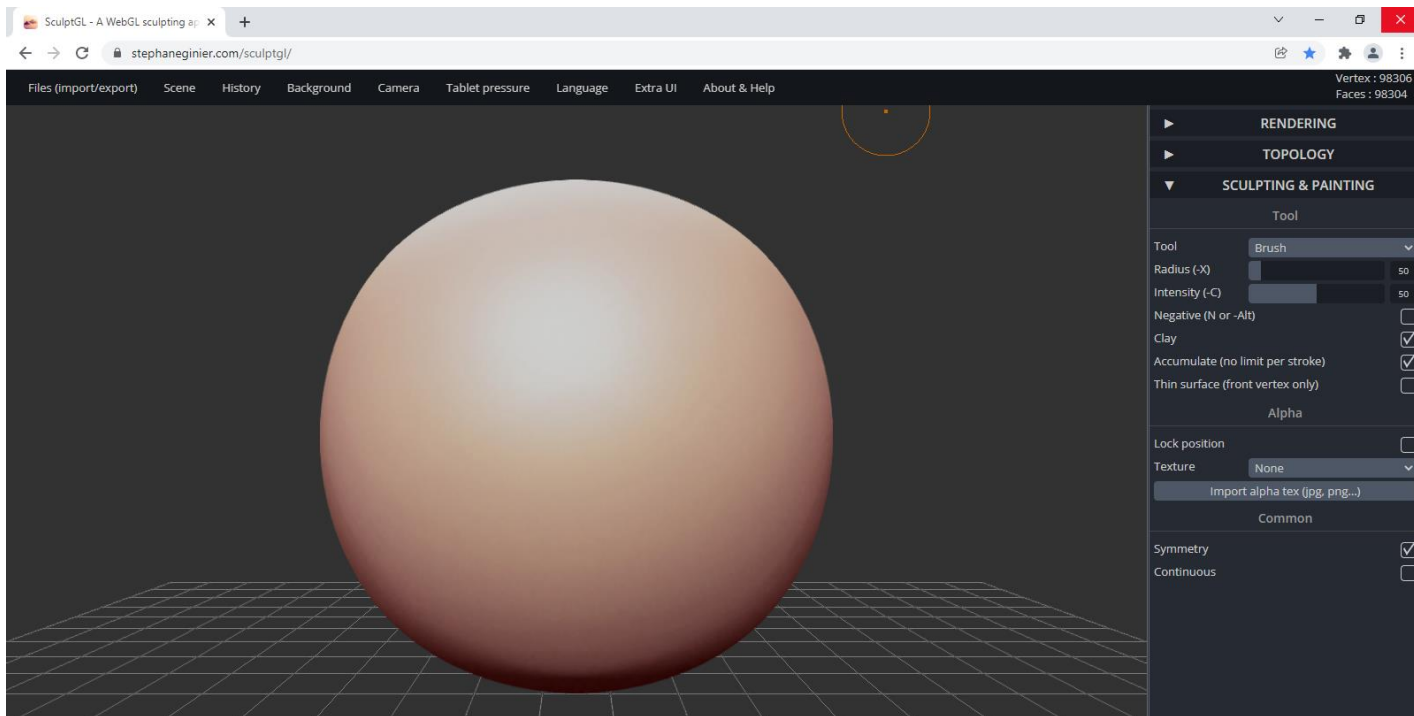
Methodology #2	Procedure	Material	Target students	Minimum Duration
<p>3D drawing in Tinkercad</p>  	<p>The teacher proposes that the class draw three-dimensional objects on Tinkercad, an open and free platform for simplified 3D modelling, from solids and geometric shapes that can be modelled.</p> <p>2. The model can then be exported locally in .obj or .stl file format (this functionality is included in the Tinkercad platform).</p> <p>3.The file must be uploaded to the free Sketchfab 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 Sketchfab, you need to access Sketchfab Labs/Experiments, to create a video format file.</p> <p>5. The video is ready to be broadcast to the HoloFan and to launch the hologram</p>	<p>Computer station with access to internet browsing.</p> <p>Creation of a free Tinkercad and Sketchfab 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>	<p>8 hours</p>



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





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
Photogrammetry and 3D Scanning with Zephyr 3D Free software	1. The teacher proposes that the class take 360° photographs of a three-dimensional object, taking care to note all the angles and to take at	Digital camera Computer station with access to internet browsing.	Students with medium to high basic level skills, with excellent motivation and a flair for 3D	12 hours



 <p>3DF ZEPHYR The Complete Photogrammetry Solution</p> 	<p>least 50 photographs of each object.</p> <p>2. From Zephyr 3D interface, create a new project importing the set of pictures taken at point 1), obtaining in this way a "sparse point cloud".</p> <p>3. 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.</p> <p>3.The file must be uploaded to the free Sketchfab 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 Sketchfab, you need to access Sketchfab Labs/Experiments, 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>Free version of Zephyr 3D software to download to your computer or laptop</p> <p>Creation of a free Sketchfab account for each user by registering on the portal or logging in with a Google account</p>	<p>modelling and computer skills.</p> <p>Students attending STEM or non-STEM fields of study, of EQF levels not lower than 3.</p>	
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Models of the educational programme carried out for phase #3. Example 1.

The programme proposed below has been implemented by students in the three-year course of the Graphic Design/Fashion System Technician course, whose curricula already include 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)
20% Teachers introduce: - working method -project objectives -project development	60% -Use of the holographic projector -Use of 3D programmes (CAD, Tinkercad, Sketchfab) - Videomaking (interviews, preparatory videos and photos for holograms)	20% Students worked at home and at school both in groups and individually to: -interviews with relatives -writing and editing of interview texts - research, collection and revision of texts and images

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

Input prerequisites	-skills in the use of basic software -Proficiency in IT tools
Objectives of specific learning [related to the part part of 3D design / holographic projection]	-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
Results of learning [Technical skills]	Some of the students know how to use 3D Design: Tinkercad, Sketchfab; can process images with Zephyr 3D, can process videos to be projected with the holographic projector



Implementation	<ol style="list-style-type: none">1) 3D Design: TinkerCad, Sketchfab2) Image processing - photogrammetry: Zephyr 3D3) Video processing to be projected in later stages with the holographic projector
Practical Organisation / Logistics	<p>The activities took place in the computer lab and the photo lab; tools and equipment were controlled by the teachers and the computer technician on duty.</p> <p>The current rules displayed in the laboratories were followed, in addition to the local pandemic protocol.</p>
Problems	<p>The topics proposed were not particularly complex for the students as they had already covered some of them in their curriculum lessons. However, using Zephyr 3D is more time-consuming and more complex for the students.</p>
Methods of assessing students' work and performance	<p>Interest, commitment shown in autonomous and class work, as well as the progression of these aspects from the starting point of the project were assessed.</p>
Soft skills / intercultural competences to be developed	<ul style="list-style-type: none">-skills in collaborative work, research and development of original ideas-ability to open up to different European cultures, sharing different habits and characteristics
Duration in hours	30



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.

Frontal lessons 8 hours <u>50%</u>	Interactive lessons 4 hours <u>25%</u>	Project work pupil led (Self-managed work by students) 4 hours <u>25%</u>
Project introduction. Cultural insights.	Collection of images. Zephyr 3D processing. Preparation for use of the holographic projector. Interview footage.	Group work. Interviews.

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

Input prerequisites	<ul style="list-style-type: none"> • Basic camera skills. • Basic computer skills. • Basic skills on sharing tools (OneDrive...). • Basic knowledge of geometry and graphics (solid angle, perspective, shadows...).
Specific learning objectives Related to the 3D drawing / holographic projections part	<ul style="list-style-type: none"> • The functioning of the holographic projector, optical and neurological aspects (perception of three-dimensionality, persistence of the image on the retina, etc.). • Rendering of cultural and technical topics using 3D images. • Rendering of cultural and technical topics using a holographic projector.
Learning outcomes [Technical skills]	<ul style="list-style-type: none"> • The functioning of the holographic projector, optical and neurological aspects (perception of three-dimensionality, persistence of the image on the retina, etc.). • Rendering of cultural and technical topics using 3D images. • Rendering of cultural and technical topics using a holographic projector.
Implementation	1) Image processing - photogrammetry: Zephyr 3D.



		2) Processing of videos to be projected in later stages with the holographic projector.
Practical Organisation / Logistics		The Zephyr 3D processing part was carried out in the electronics laboratory where the computer equipped with the software is installed and partly remotely, during distance learning periods. The subsequent part on the use of the holographic projector was developed in our institute's virtual reality laboratory. Technological tools, equipment and licences were checked by the technical staff of our institute. The holographic projector is located in a classroom that can only be accessed by a teacher. Given the objective delicacy of the instrument, the projector was installed in a sheltered corner, with a black background, in an elevated position.
Problems		Problems related to health emergencies: classes not always present at school.
Methods of assessing students' work and achievement		Questionnaires, direct observation.
Soft skills / intercultural competences to be developed		Communication skills for working in a team, goal-oriented commitment, degree of involvement in an innovative technique.
Duration		16-20 hours



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Examples of teaching activities carried out.

Also because of the Covid emergency, which has interrupted school activities on several occasions, different types of educational activities have been proposed, which can also be used remotely, all aimed at developing 3D digital images on the theme of fashion and clothing in a cultural and intercultural context. All the teaching documentation is accessible for consultation and downloading in open mode, in the folder called "Inclumap EU Project - Open Material":

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

Geographical Area "Emilia-Romagna", Italy:

Photogrammetric reconstructions of typical teenage fashion items, either by photographic reproduction or by video exported by Zephyr 3D software and transmitted to the holographic projector. Below is an example of a sneaker reproduced by 3D scanning (photogrammetry):



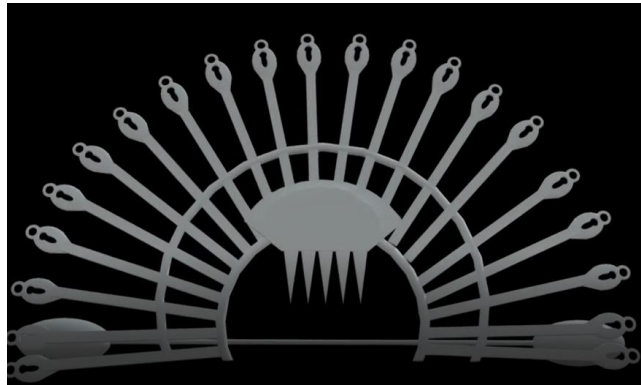
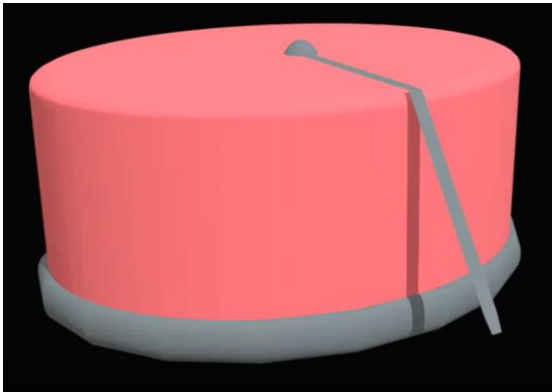
Geographical area 'Lombardia', Italy:

3D drawings of traditional clothing and decorative accessories designed by students using Tinkercad software, with videos that can be transmitted to the holographic projector

Video of the set up of the garments previously drawn in 3D by the students in preparation for the holographic projection



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Videos on Holographic Projections of 3D Modelled Objects:

Part 1: <https://www.youtube.com/watch?v=Qy8Cz7HY460>

Part 2: <https://www.youtube.com/watch?v=11aHiXhxlrA>

Geographical area "Generalitat Valenciana", Spain:

Preparatory videos for holographic projection were made by placing the object on a turntable, or turntable, against a black background. The students selected everyday clothing items for their generation, such as sweatshirts, hats and shoes. The photogrammetric or 3D drawing reproduction of garments from the past is more complex because of the computer skills that need to be developed, but it is possible here too.



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

[Photogrammetric repro](#)ductions of traditional garments, Here is the example of the *Camisola Poveira*, an embroidered shirt typical of the fishing village of Povoa de Varzim, decorated with symbols identifying identity belonging to a specific social group, reproduced by 3D scanning (photogrammetry):



Also reproduced by photogrammetry and video footage was the *Boneca*, a traditional rag doll, dressed as a woman in the mountain villages of the *Castelo Branco* area, where the freezing winter winds forced heavy cloaks to be made.

The students also made a backstage video shoot, called "[Shooting the Boneca](#)."



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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.

Indeed, given the growing trends 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 from their own, provides young people with the tools to live at ease and integrate into civil society, participating fully in it and contributing to its developments 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.

Humanities 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: ethnographic research activities involving students and their families in interviews on clothing, textiles, accessories and fashion traditions of their culture of origin or belonging are useful for this purpose.

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 civilizational framework that emerges from ethnographic research activity. 3D drawing, 3D modelling and holographic projection of multicultural clothes, 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 2 - 'Clothing Objects and Practices'

Interview on clothing, accessories, clothing styles and fashion trends Present among school students For a comparison between generations of young people and adults

Part 1. Questions for Young People (asked by students to students)

1. In your everyday life (school, afternoon activities etc.) is there someone or something that inspires you in terms of clothing, hairstyle, make-up or accessories? For example, is there a YouTuber, Influencer, public figure or trend that inspires you?
2. On special occasions, holidays or occasions that are particularly important to you, how do you dress? Are there any special clothes or accessories that you wear? Are they different from those you wear in everyday life?
3. In the case of clothes/accessories for "special occasions", who or what influences you in your choice? Is there a stronger role for you from the family, or social conventions, that pushes you to adopt a different style or clothing than in everyday life?
4. When you are at home, do you wear different clothes or adopt a different style than when you walk in the street, at school, or in other public places?

Or

When you get ready to go to school or go to public places, is there anything you wear that is not part of the clothing of all your peers but is fundamental to your culture of origin?

Or

When you are in your country of origin, do you wear different clothes than when you are in Italy / Spain / Portugal...?

5. Do you or your relatives habitually wear clothes or accessories that have a particular socio-cultural significance, if so tell us which?

Or

Do you own clothes or accessories made by a family member? Or any particularly significant, precious or emotionally valuable accessories handed down to you by your parents, grandparents or relatives?



6. Compared to the adults in your family (parents, aunts, uncles, grandparents...), do you think there is a certain difference in style, fashion, clothes with the generation of young people to which you belong?
7. Do you know of any traditional garments that are no longer in use today? (For example, in Parma and the Bassa Padana, men used to wear the "Tabarro" in winter. See photo by Giovannino Guareschi, famous author of "Mondo Piccolo" and creator of the characters Don Camillo and Peppone)

Part 2. Questions for Adults (asked by the students to their parents, aunts, uncles, grandparents etc)

8. Do you think that the way young people dress and style themselves today is very different from your generation? In what way? What are the main differences?
9. Do you think that young people today are more free to choose their own style of clothing than in the past? Is this good or bad in your opinion?
10. In your opinion, do the way you dress, the way you look and your style express important personal values? Or an identity / cultural belonging of the person? In what way?
11. Are there any clothes and/or accessories that you consider particularly significant for your culture? What are they?
12. (With respect to question 11) What fabric or material are they made of? Who used to make these clothes or produce these objects? With what traditional tools and/or machinery? Through what processes?
13. Can you say why certain types of textiles are produced in your territory/region/area of origin? Are there particular breeding or cultivation traditions that have made the processing of natural fibres possible? Or were they imported through trade and exchange with other peoples?

----- INSTRUCTIONS FOR USE-----

Objective of the interview

Collect opinions, experiences, points of view, drawings, photographs relating to fashion, clothes, accessories and clothing styles of the students belonging to the class/group involved in the experiment, inviting them to compare their own experience, sensitivity, approach with that of their parents or grandparents (proposed objective: comparison between generations within the same ethnic group, with the aim of uniting students, even those belonging to different ethnic groups, as young people rather than radicalising differences).



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Expected results / interview outcomes

- Get a descriptive picture of the traditions related to clothes, fashion, clothing styles of 3 different cultures/ethnic groups for each school.
- Identify and collect "objects" (clothing, garments, accessories expressing fashion trends) that can be drawn in 3D and then projected with the holographic projector for each of the ethnic groups/cultures collected.
- To identify and collect objects that, when projected holographically, give a composite, layered, plural and multi-ethnic image of the class or group of students involved.

How to conduct the interview

- Identifying 3 different ethnic groups in the class/pupil group: 1 native group + 2 groups of migrant origin (first or second generation)
- Interviewing each of the 3 identified ethnic groups using this format, possibly adapted to the characteristics of the context
- The interview can be carried out by an individual student with a peer (e.g. an Italian/Valencian/Portuguese student interviewing a student of foreign origin) or by a group of students with another group of students, or by a group of students with a group of family members, parents or grandparents or other adults, or in any other way identified by the schools.
- The interview can be conducted orally, with transcription of notes, or it can be recorded/filmed.