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INCLU.MA.P.

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

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

IO1 – Intellectual Output 1
Objects & Practices of Food in the new multicultural and stratified communities

Output Type: OER – Open Educational Resource

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Summary

Introduction

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, southern European countries exposed for centuries to migration and cultural contamination thanks to contacts with Mediterranean populations, to which have been added, particularly in the last 10 years, migratory flows from former colonies or by sea, making these countries a target for many migrants seeking access to the EU.

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

The objective was pursued through the design and testing of 4 interdisciplinary educational programmes, aimed at the reconstruction, recovery and valorization of the traditional heritage related to the material culture of all 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 scholar Fernand Braudel[1]:

Intellectual Output 1: Food and Nutrition

Intellectual Output 2: Clothing and Fashion

Intellectual Output 3: Professions and Objects of Work;

Intellectual Output 4: Housing and Objects of Daily Life.

Specific objectives of each of the 4 programmes were:

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

- reconstruction of the multi-ethnic/multicultural framework obtained for each civilisation indicator, carried out within the STEM curriculum, through the use of 3D digital image modelling of the holographic projector, organised as project work managed in increasing autonomy by the students themselves, aimed at reproducing a descriptive "multi-faceted" image of the multicultural neocommunity where 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

[1] Essential bibliography on historiographical methodology, material culture & framework of civilization:
F. Braudel, *La Méditerranée et le Monde Méditerranéen a l'époque de Philippe II*, 1949
F. Braudel, *Ecrits sur l'Histoire*, 1969
F. Braudel, *Le Monde Actuel - Histoire et civilisation*, 1963, riedited in 1987 under the title *Grammaire des Civilisations*
F. Braudel, *Les Mémoires de la Méditerranée*, 1998

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 framework of civilization 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 from the technological point of view it must be supported at least by a partner expert in digital modelling of images and holographic technologies applied to teaching.

IO1: Didactic program related to Objects and Practices of Food, in view of education to citizenship and intercultural dialogue

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

The program is released in open mode in the form of 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 decentralized experiences of the project partners, classified as follows:

Coordinator and methodological expert	Country	School	Museum	Expert in Digital Technologies
Cisita Parma scarl, center for managerial training and vocation education for young people and for workers	Italy	IISS "C.E. Gadda" based in Fornovo-Langhirano (Parma), High School for Science, Economics, Informatics and Vocational Institute for Maintenance and Technical Assistance	Musei del Cibo della Provincia di Parma, collecting traditional food culture from the emilian territory	Gruppo Scuola Coop. Soc. based in Parma, with educational and study area locations granted by the city council and equipped with 3D printing technologies, 3D modelling softwares and holographic projectors
		IISS. "P. Carcano" based in Como, High School for Science, Arts, Fashion System, Graphic and Communication, Chemistry and Biotechnology	Museo della Seta di Como, focusing on the industrial history and on the textile tradition of Lombardy	
	Spain	Centro di Formazione Professionale "Folgado" based in Valencia, with courses in metallurgy, welding, mechanical fabrication, electricity and electronics	Museu Comarcal de l'Horta Sud "Josep Ferris March" based in Torrent, Valencia, focusing on the reconstruction of the etnographic	

			and agriculture valencian heritage	
	Portugal	EPAQL – Escola Profissional Agricola "Quinta da Lageosa", Covilhã, with vocational courses in horse management, management of agricultural production, operators of agricultural machinery	Museu Camara Municipal de Povoa de Varzim, Porto, preserving and promoting the material culture of the ancient fishermen and farmers	

What is a Framework of Civilisation? 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 will speak of the civilisation of Athens in the 5th century, or of the French civilisation in the century of Louis XIV"[2].
Within the characteristic traits of an ethnic group, food is certainly one of the main elements expressing the cultural identity of a people, through which people recognise 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, and we are witnessing the emergence of new multicultural and stratified learning communities in which pupils come into contact with other foods, dishes, ingredients and flavours with which they contaminate each other, giving rise to a new food culture.

FOOD and NUTRITION are identified as an INDICATOR of CIVILISATION, with reference to the so-called "ARTS" teaching disciplines, i.e. those 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 find themselves learning and living, as a priority theme in terms of inclusive teaching, stimulating 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 foods, flavours and smells of the food cultures they see represented by their foreign classmates, first-generation immigrants or second-generation immigrants.

[2] F. Braudel, Il mondo attuale, Torino (Einaudi) 1963

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.

Output 1, as well as all other project Outputs, has 3 fundamental phases:

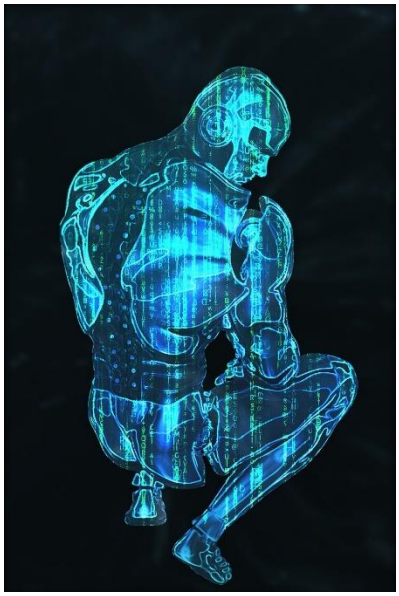
1) Reflective reconstruction phase of the basic elements of the cultural heritage of the class group in its multicultural variety and diversity, according to an ARTS approach led by school teachers, in the form of brainstorming, moderated class discussions and *peer-to-peer* interviews
2) Systematisation and interpretation of the elements emerging from the pupils' brainstorming activities. Using the anthropological, ethnographic and historiographical method of museum research, reconstruction of the multi-ethnic civilisation framework emerging in the new learning communities at school (museum workers).
3) With the help of STEM disciplines, design, 3D drawing and digital modelling of the objects, food and dishes that emerged from the work, to create a variegated and multivocal holographic image of cultural artefacts, aimed at enhancing pupils' digital skills (technological partner).

Output 1 didactic programme is made up of 6 sub-activities, which can be replicated and transferred to other contexts according to the EQF levels (VET diploma, secondary school or tertiary level) and the study courses:

a) identification of the criteria for defining, within the class group involved in the experimentation, 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 elements, values and identity linked to FOOD and FOOD-related aspects of their own culture (activity led by the expert methodologist and the school teachers)
c) carrying out 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 ethnic groups, or in an intergenerational key (students interviewing their parents, aunts, uncles or grandparents on the subject of food 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 method of ethnographic collection

e) planning, from a STEM perspective, of the digital experimentation for 3D drawing and 3D photogrammetry for the preparation of three-dimensional digital images suitable for holographic projection (activity led by the technological expert)
f) provision of the STEM didactic experimentation related to 3D drawing and photogrammetry as preparatory steps for the subsequent holographic projection, aimed at the restitution of a composite and multivocal 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).

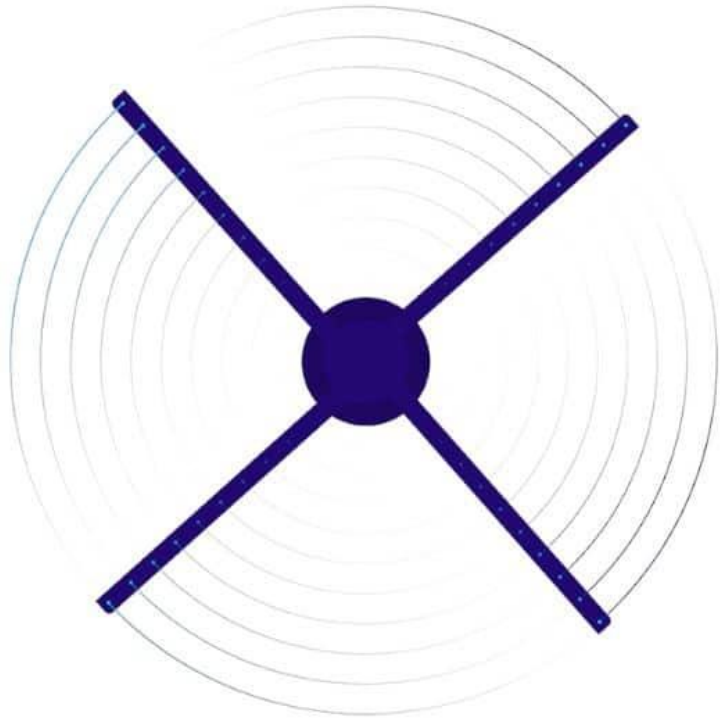
Holograms and holographic projectors: what is this?



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 capable of preparing 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 EUR.



The mechanism of the holographic projector is[3] quite simple to explain:
each of the four arms is fitted with a very large number of LED lights that switch on, change colour and switch 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 support to fix the holographic projector to a wall or panel, and possibly a remote control unit.
To protect the safety of users, particularly 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] Imaging portraying the holographic projector are taken from the website https://vetrinadigitale.it/blog/come-funziona-un-proiettore-olografico-3d/


Rotor
Motor Module
Wall Bracket
Remote control

Phases and activity of the Didactic Programme
About the Indicator of Civilization "Food&Nutrition"

As mentioned above, the teaching programme consists of three fundamental phases:

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

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

Phase #1: Exploration, research, reconstruction by the students of the local and migrant material culture.
In this phase the programme envisages 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 the school teachers)
b) design of a structured interview, to be administered to the pupils, on the material elements, values and identity linked to FOOD and NUTRITION related aspects 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 groups of different ethnicities, or in an intergenerational key (students interviewing their parents, aunts, uncles or grandparents on the subject of food traditions)

Criteria of definition of the borders of the 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 marginalised - 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.
As regards the groups involved in the experiment, the ethnic composition for each country was as follows:
-Italy: 70% of Italian origin. Majority from Emilia and Lombardy, with a large representation 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 African (Nigeria, Ivory Coast, Senegal, Ghana), Central Asian (India, Pakistan, Bangladesh, Sri Lanka), Far Eastern (China), Latin America.
-Spain: 60% of Spanish origin, of which some are Castilian-speaking and most 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.

Designing a structured interview about FOOD & NUTRITION from a multicultural perspective.
The activity is carried out by the methodological coordinator, an expert in learning processes, together with humanities teachers from the schools (language and literature, history and philosophy, religion) and cultural workers involved in museum education.
The objective of the activity is to set up a model interview[4] able to highlight:
-food and culinary traditions (recipes, typical dishes, specialities) with which students identify, regardless of their origin or belonging to a local or migrant culture

-the socio-cultural contexts (special occasions, family events or religious celebrations) in which traditional foods are consumed

-the social and family roles involved in the process, sometimes the ritual, of food preparation

-typical traditional objects and equipment for the preparation of local/regional dishes

- the values of cultural belonging and identity that traditional food conveys

-the link between food, territory, geographical and geopolitical conformation, economic and production activities

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

-the cultural contaminations that have led to new contacts between peoples throughout history, and the introduction of new food ingredients

Distributing the interview at school from a project work perspective. The activity should be designed and delivered by teachers of humanistic subjects (linguistic, historical-philosophical, religion), taking care to provide several distinct moments in the development of the activities:

-an initial brainstorming session and class discussion, led by the teachers, aimed at introducing the activity, getting students to reflect on food and nutrition in their own tradition, and bringing out the underlying cultural elements and values, both at a personal and collective level

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

-identification and proposal of ways of conducting the interview: 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 lunches and dinners 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, aunts, uncles, grandparents or other relatives, from whom they collect testimonies, stories and recipes relating to traditional cooking and the contexts in which it occurs.

Example of a model-program implemented for phase #1.

Lesson 1 (2 hours+2 hours) With 2 different groups	Teacher: Catholic Religion
	Objectives: introduction of the project and definition of the ethnic groups and/or the participating fields of study (e.g. Indian youth group, Muslim student group, Italian student group, high school, or technical or vocational field of study)
	Methodology: frontal lesson. Presentation of the project by the teacher, explanation of the project steps and development of the project as an interdisciplinary unit "Cultures at the table - food as intercultural dialogue" (extra-curricular activity for vocational students). Space for questions from pupils.
	Contents: food culture, customs, typical dishes - examples and first comparisons

	Exercises/tasks for students: Start comparing in the family about typical dishes and culinary traditions of the areas of origin (also different regions for Italian children).
Lesson 2 (2 hours)	Teacher: Catholic Religion
	Objectives: collection of pupils' ideas and reflections on the theme "Food and culture".
	Methodology: work in groups, discussion and sharing of initial ideas.
	Contents: exposition of what emerged from the research carried out in the family regarding culinary customs, typical products and dishes and the relationships between dishes and local resources.
	Assessment methods: relevance of interventions, correctness of behaviour with a view to openness to comparison. Assessment in the learning unit "Cultures at the table - food as intercultural dialogue".
	Results: First comparison of different traditions belonging to the same geographical areas.
Lesson 3 (2 hours+2 hours) With 2 different groups	Teacher: Catholic Religion
	Objectives: to understand the motivations behind the precepts and dietary rules of 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: Food norms and precepts of different cultural/religious traditions.
	Assessment methods: relevance of the interventions, correctness of behaviour with a view to openness to comparison. Evaluation of the learning unit "Cultures at the table - food as intercultural dialogue".
Lesson 4 (4 hours)	Teacher: Catholic Religion
	Objectives: development of interviews "Objects and practices of Food and Nutrition" (group of Italian, Indian, Muslim students)
	Methodology: group work - Italian, Indian, Muslim students
	Contents: development of interviews "Objects and practices of Food and Nutrition" with discussion among students from different cultures.
	Assessment methods: relevance of the interventions, correctness of the behaviour with a view to openness to comparison. Evaluation in the Didactic Unit "Cultures at the table - food as intercultural dialogue".

	Results: responses full of ideas and content, collection and description of numerous dishes.
Lesson 5 (2hours)	Teacher: Catholic Religion
	Objectives: writing the interview on "Objects and practices of food and nutrition".
	Methodology: selecting the most relevant group to participate in the activity
	Contents: data collected and re-elaborated
	Assessment methods: correctness and pertinence in the expression and writing of the interview. Evaluation in the Didactic Unit "Cultures at the table - food as intercultural dialogue".
	Results: peer-to-peer interviews and video interviews.

In order to guarantee full inclusiveness, a similar and parallel programme was planned to be carried out in the "Alternative to Catholic Religion" hour, to intercept students of other religions/cultures.

Lesson 1 (2 hours)	Teacher: Alternative to Catholic Religion
	Objectives: introduction of the project and definition of the ethnic groups and/or the study courses involved (e.g. Indian youth group, Muslim student group, Italian student group, high school, or technical or professional study course).
	Methodology: explanation by the teacher followed by questions from the pupils.
	Contents: food culture, customs, typical products and dishes.
	Exercises/tasks for students: family discussion of typical dishes cooked and mainly consumed in their culinary culture.
	Assessment methods: the topics covered are included and assessed in the learning unit "Cultures at the table".
	Results: the pupils, in collaboration with their families, produced pictures of the dishes, showing that they understood the meaning of the project.
Lesson 2 (2 hours)	Teacher: Alternative to Catholic Religion
	Objectives: to collect ideas and reflections from the pupils on the theme "Food and culture".

	Methodology: division into groups, discussion and sharing of ideas.
	Contents: presentation of what emerged from the research carried out in the family regarding culinary customs, typical products and dishes.
	Exercises/tasks for the students: producing pictures of typical dishes of their land.
	Methods of evaluation: the topics covered are included and evaluated in the learning unit "Cultures at the table"
Lesson 3 (4 hours)	Teacher: Alternative to Catholic Religion
	Objectives: to carry out the questionnaire "Objects and Practices of Food and Nutrition".
	Methodology: division into groups.
	Contents: reading and carrying out the questionnaire "Objects and Practices of Food and Eating" with discussion between pupils from different cultures.
	Methods of evaluation: the topics covered are included and evaluated in the teaching unit "Cultures at the table".
	Results: the pupils, in collaboration with their families, produced pictures of the dishes, showing that they understood the meaning of the project.
Lesson 4 (2 hours)	Teacher: Alternative to Catholic Religion
	Objectives: to draw up answers to the questionnaire "Objects and Practices of Food and Nutrition".
	Methodology: division into groups.
	Contents: revision of the answers given and discussed in the recent lessons, to the questionnaire "Objects and Practices of Food and Nutrition".
	Assessment methods: the topics covered are included and assessed in the learning unit "Cultures at the table".

Examples of didactic activities carried out in the partnership.

Also because of the Covid emergency, which interrupted school activities on several occasions, various types of educational activities have been proposed, which can also be used remotely, all aimed at collecting testimonies, experiences and personal or group reflections on the theme of food 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:

-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 Indian food traditions, subtitled in English, self-conducted by two students of Indian origin, accessible from the YouTube Channel "Inclumap Erasmus".

-presentations prepared by the students, with images, photographs and descriptions of typical recipes from Central Asia (India and Sri Lanka). This teaching method is particularly effective 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 written form, developed in small groups representing the local Lombardy food culture, Sardinian culture and Algerian culture

-video interview on the food traditions represented at school, subtitled in English, self-conducted 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 target students are reluctant to be involved in interviews, whether in video or written form, because they are reluctant or embarrassed to expose their beliefs or experiences around food, 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, may prove capable of encouraging the involvement and participation of students, even those with a low level of literacy, schooling and motivation to

study. In the shared folder you can see examples of the "Street Food" activity and the Workshop dedicated to Chocolate, a particularly significant ingredient due to the strong South American component among the students attending the "C.F. Folgado" Training Centre in Valencia.

1. Street Food in the world. Ingredients and dishes that are considered typical of one place but are also eaten in other regions and countries of the world.

2. Agricultural calendar. Fruit and vegetables grown in the Valencia area but whose origin is not Valencian, or vice versa.

3. Chocolate workshop. Teachers introduced the origin of chocolate and recipes in which chocolate is used in a versatile way.

4. Cooking utensils. Cooking utensils traditionally used in Valencia and their possible synergies with utensils used in other countries of the world.

Geographical Area “Castelo Branco” and “Povoa de Varzim”, Portugal:

-Individual interviews with the students, in written form, documenting mainland Portuguese, island Portuguese, the culture of the former African colonies (São Tomé e Principe and Angola), and the culture of the Roma community living in Portugal.

-video interview self-conducted by the two African students, questioning each other and telling about the food traditions of São Tomé e Principe and Angola, accessible from the YouTube Channel "Inclumap Erasmus".

-video presentation of traditional Portuguese recipes cooked live by the students, using the traditional ingredient of Tomato

-presentation written by the students, accompanied by photographs and recipes, to illustrate the food traditions described in the interviews

Phase #2. Systematisation of the data that 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 in the school, the museums, together with the Methodological Coordinator, propose a critical reading of the values, personal experiences, individual and collective experiences of the students, determined by the cultural belonging of each, around the theme of food and nutrition, in a multi-ethnic context.

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 Civilisation) 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 valorised in the students' work are the following:

a. students' ability to identify themselves with a culture or territory they belong to. Generally speaking, students are well 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 challenged on the issue in order to produce reflections on it.

b. students' ability to identify dishes, recipes, food ingredients typical of their own cultural tradition. Again, in general, pupils can easily produce examples of typical dishes from their own culture. However, in some cases, especially related to a disadvantaged socio-economic context, to the poverty of cultural stimuli and to situations of segregation with a relative loss of social ties or loosening of one's sense of cultural identification, it is possible to detect a tendency to identify themselves with fast-food foods and more related to a globalised context, where tradition and elements of cultural belonging do not play a predominant role.

c. students' ability to identify the link between food ingredients and the territory of origin, or the origin of an ingredient from another territory, the link with the history, geographical conformation and economic development of a given region. This is an aspect that is not readily understood by students and requires special explanation by teachers so that pupils grasp the link between territory, history and food. Generally it is students with a migrant background who are more aware of and attentive to putting the evolution of the food traditions of their own culture into a diachronic perspective, because 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 the act of preparing and eating food. Sometimes students may need to be challenged with key questions to help them contextualise the collective and social meaning associated with food traditions. For example, what are the family occasions on which typical foods and dishes are eaten; what are the civil or religious festivities associated with particular celebrations culminating in particularly elaborate lunches or dinners; what importance and significance do pupils usually attach to maintaining such 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, in the folder called "Inclumap EU Project - Open Material":

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

- Identification of the cultural values around food that emerged from the work of students in Italian schools

- Re-elaboration of the cultural framework of reference, with respect to the context of Northern Italy and migrant cultures represented there.

- Elements characterising the Valencian cultural heritage (Spain), with particular reference to food traditions

- Elements characterising the Portuguese cultural heritage, with particular reference to the Northern/Atlantic area and food traditions

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

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

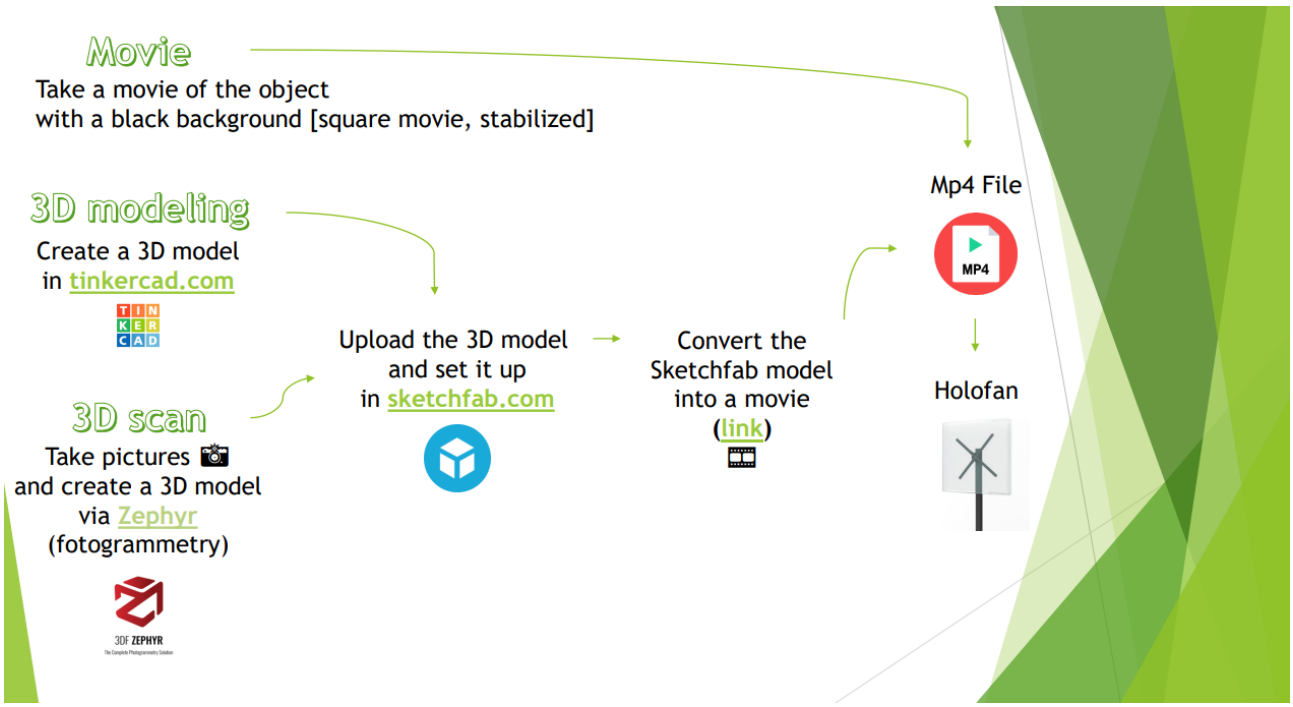
First and foremost, it is essential that the teachers responsible for planning and delivering teaching activities are trained in the use of technology, and that they are familiar with different methodologies, teaching approaches and techniques that enable them to achieve the educational objective, depending on the level of competence of the students, the course they are attending, and the willingness to learn and get involved that the students themselves show.

The hologram and holographic projection as the point of arrival, not the starting point.

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.

For this reason, 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 steps to arrive to the holographic projections, illustrated in the learning material available in open mode in the Google Drive folder [Tutorials – 3D Modelling, Photogrammetry & Holograms.]

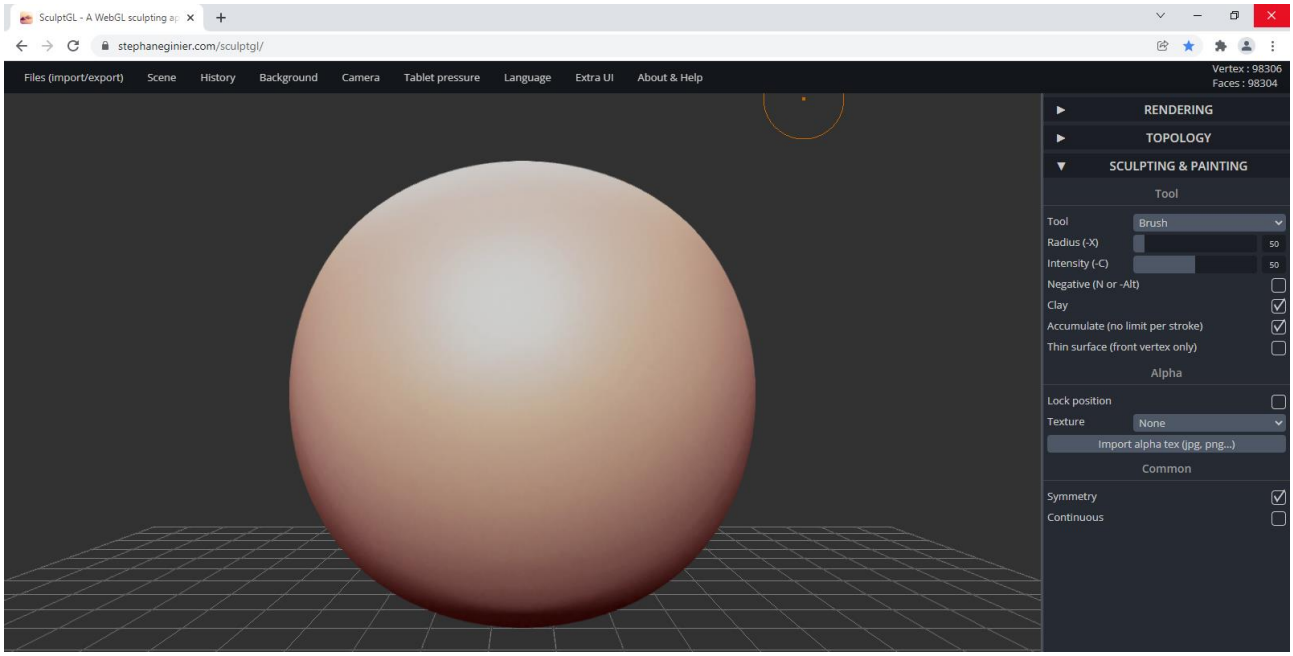


In order of increasing difficulty, we can consider:

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

Methodology #2	Procedure	Material	Target Student	Minimum Duration
3D Design using Tinkercad	1.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. 2. The model can then be exported locally in .obj or .stl file format (the functionality is included in the Tinkercad platform). 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. 4.Once the model is created on Sketchfab, you need to access Sketchfab Labs/Experiments, to create a video format file. 5. The video is ready to be transmitted to the HoloFan and to launch the hologram.	Computer workstation with access to internet browsing. Creation of a free Tynkercad and Sketchfab account for each user by registering on the portal or logging in with a Google account.	Students with good basic level skills, with good aptitude for 3D modelling and computer skills. Students attending STEM or non-STEM courses, including those at EQF levels below 3.	8 hrs

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



The portal, freely accessible without login and at no cost, allows you to work on the sphere by modelling it with the computer mouse, modelling 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 Student**	**Minimum Duration**
Photogrammetry & 3D Scanning with the software Zephyr 3D Free	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 least 50 photographs of each object.	Digital Camera Computer workstation with internet access. Free version of Zephyr 3D software to download to your	Students with medium to high basic level skills, with excellent motivation and a flair for 3D modelling and computer skills.	12 hours

3DF ZEPHYR The Complete Photogrammetry Solution	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". 3. Clicking on Workflow 3D Model Generation menu, you obtain the "mesh" of the object, that is its 3D scan, that can be improved with the "textured mesh generation" function. The model can then be exported locally in .obj or .glb file format. 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. 4.Once the model is created on Sketchfab, you need to access Sketchfab Labs/Experiments, to create a video format file. 5. The video is ready to be transmitted to the HoloFan and to launch the hologram.	computer or laptop Creation of a free Sketchfab account for each user by registering on the portal or logging in with a Google account	Students in STEM or non-STEM fields of study, with EQF levels not lower than 3.	

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 Arts/Communication specialization, whose curriculum 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	Pupil-led Project work (managed by students)
20% out of the total Teachers introduce: - working method -project objectives -development of the project	60% out of the total -Use of holographic projector -Use of 3D programs (CAD, Tinkercad, Sketchfab) -Videomaking (interviews, preparatory videos and photos for holograms)	20% out of the total Students worked at home and at school both in groups and individually on -interviews with relatives -writing and editing interview texts -researching, collecting and editing texts and images

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

Entry prerequisites	Skills/knowledge that students should have in order to participate effectively in the experiment: -skills in using basic software -mastery of IT tools
Specific Learning objectives related to 3D design/ holographic projections	-use IT tools to solve significant problems in general but, in particular, related to the study of other disciplines -use the software Tinkercad and Sketchfab; -start image processing with Zephyr 3D
Learning Results [Technical Skills]	3D modelling: use of TinkerCad, 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 at a later stage with the holographic projector
Practical/Logistical Organization	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, as well as 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 their 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 continuing the development of images and holograms
Duration	30 hours

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

The syllabus 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 2 hours	Interactive Lessons 10 hours	Pupil-led Project work (managed by students)
About 10% out of the total Teachers introduce: - working method -project objectives -development of the project	40% out of the total Two sessions (4 hours) to learn how to use the softwares Tinkercad and SketchFab. Two sessions (4 hours) to design and shoot the videos for later transmission to the holographic projector. One session (2 hours) to generate the video playlist and to teach students how to play the videos thanks to the holographic projector	50% out of the total Most activities were carried out using active learning methodologies based on group work. based on group work. 4 hours of individual work: responding to interviews on Food, completing the activities pe rewrite. 8 hours of group work, using 3D drawing of the food in Tinkercad, and designing video images.

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

Entry prerequisites	Skills/knowledge that students should have in order to participate effectively in the experiment: Basic computer skills. Microsoft Office skills. Video recording techniques (mp4) through mobile phones and tablets. tablets. Use of Drive to upload files in the correct format
Specific Learning objectives related to 3D design/ holographic projections	Generation of 3D images through mp4 recorded videos.
Learning Results [Technical Skills]	Use of a turntable for 3D scanning of small objects. Principles of holographic projector operation
Implementation	Processing of videos to be later projected with the holographic projector
Practical/Logistical Organization	The videos of ceramic pieces and culinary items typical of Valencian culture were made thanks to the museum's exhibition. The drawings were created by the students from home during the pandemic. The students mainly used their mobile phones to create the drawings through Tinkercad. During the training and experimentation work in the classroom, the teachers were responsible for checking the technology and licences. Individual design work remotely from home, due to the pandemic, could not be controlled. The holographic projector was kept in a classroom with restricted access and was only used under the supervision of the tutor responsible for the activity.
Problems	Generalised difficulties related to teaching discontinuity during the pandemic and understanding how the technology works. Constant vigilance was necessary due to the risk of the equipment being misused. As only a few people could operate the projector during the process, the rest of the group tended to lose concentration. Difficulty working with the whole group to test the projector, so we had to work in groups. projector, so we had to work in small groups.
Duration	20 hours

Examples of teaching activities carried out.

Partly because of the Covid emergency, which has interrupted school activities on several occasions, various types of teaching activities have been proposed, including those that can be used remotely, all aimed at developing 3D digital images on the theme of food in a cultural and intercultural context. All the teaching 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

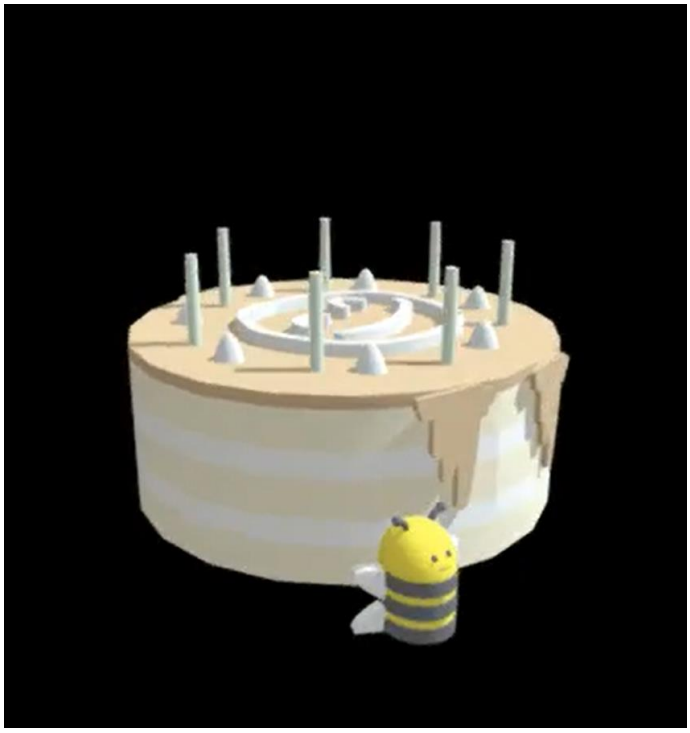
Geographical Area “Emilia-Romagna”, Italy:

Photogrammetric reconstructions of typical foods of the Italian territory, both through photographic reproduction and through video exported by Zephyr 3D software and transmitted to the holographic projector. Here is an example of a slice of salted cake reproduced by 3D scanning (photogrammetry):

Geographical Area “Lombardia”, Italy:

-3D drawings of cakes designed by students using Tinkercad software, with videos that can be transmitted to the holographic projector

-Video of holographic projection of food previously drawn in 3D by students



Geographical Area “Generalitat Valenciana”, Spain:

Preparatory videos for the holographic projection, made by placing the object on a turntable, or turntable, against a black background. Typical objects of the traditional Valencian culinary art were selected: a cheese press, a coffee grinder, an olive oil press and a wheat flour container, reproduced from the photographs below.

Geographical Area “Castelo Branco” & “Povoa de Varzim”, Portugal:

Photogrammetric reproductions of typical foods from the Portuguese territory and former colonies, either by photographic reproduction or by video exported by the Zephyr 3D software and

transmitted to the holographic projector. Below is an example of a typical African chilli pepper from the former Portuguese colonies reproduced by 3D scanning (photogrammetry):

Conclusion

This document is intended to offer secondary school teachers, both general and technical-professional, and educational and training staff, open-ended teaching materials 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 heterogeneous ethnic-cultural contexts in school classrooms across Europe, it is believed that educating students to know how to live in multi-layered societies and to know how to relate to peers and adults of different origins, cultures and backgrounds offers 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.

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 civilisations, 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 food and culinary 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 civilisation framework that emerges from ethnographic research activities. 3D drawing, 3D modelling and holographic projection of multicultural food and dishes, 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

Interview about food, traditions and values
Related to the typical and traditional dishes / recipes of nations, countries and regional areas

If the interview is addressed to students:

1. If you had to prepare a meal for other students, belonging to another culture, with the purpose of letting them know the traditions of your own country / region / culture, which dishes would you cook?

Otherwise, if the interview is addressed to adults, this could be an alternative:

2. When a feast or celebration occurs in your family or in your community, are there any special dishes or food that you are used to eat? What are the typical dishes or recipes you find on the table?

3. Who prepares these foods? Is there a ritual, a tradition, or a custom that is respected for the preparation of this typical food in days before the celebration? Can you think of any specific utensils, trays, pots, serving dishes which it is traditional to cook or present and serve these special food with?

4.Would you be able to break down these typical dishes into their main ingredients? Which are they?

5.Why do you think those ingredients are used in your area/region/country? What is the geographical or morphological conformation of these territories? Which natural resources can you identify in this area? Are there communication routes / harbours / rivers in your territory that historically may have favoured the commercial exchange and the arrival of new ingredients?

6.Are there any ingredients in these dishes that do not originate from the territory, that were not once cultivated in agriculture, but were later imported from abroad and that have become part of the tradition? Or types of meat/fish that were not used for cooking, and that were later introduced into animal breeding practices? Can you tell the story of how this happened? Do you have any memories, anecdotes about it? Or something you've heard from others?

7.What does it mean for you today to eat these traditional dishes? What is the difference for you between a quick meal from everyday life and a festive day's lunch/dinner? Do you usually give a value, a particular meaning to this tradition? Which one?

8. [If the interview is addressed to students/young people. Otherwise, the following question can be eliminated]

Are you able to prepare the dishes of your tradition? Would you be willing to learn to cook them? Do you think that it is important to continue the tradition of cooking the typical dishes? If not, why?

9.If you consider other food traditions than your own culture of origin, do you find differences and/or similarities? Or can you find dishes, ingredients or customs that bind together two different cultures? Which ones?

10.Think about the names of the traditional dishes/recipes in your territory. Is there any name, term, word, expression that might come from a foreign language or word? (For example in Parma there is traditional dish called “Sacrao”, a word that comes from “Sauer Kraut” term in German language. It is a cabbage and vinegar based recipe that goes together with pork meat).

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

Purpose of the Interview

To collect testimonies, stories, memories, photographs, drawings, and/or reflections and points of view relating to food, ingredients, recipes, tastes, typical dishes, as well as to the culture of a certain territory or ethnical group.

Expected result / output of the interview

-Obtaining a descriptive picture of the food culture of 3 different cultures/ethnic groups for each School.

-Identifying and collecting "objects" (food, typical dishes, ingredients) that can be drawn in 3D and then projected with the holographic projector for each of the ethnic/ cultural groups collected.

- Identifying and collecting objects that, once represented with the holographic projector, give a diverse, stratified, plural and multiethnic image of the class or group of students involved.

How to organize the interview

- Identifying 3 different ethnic groups in the class / group of pupils: 1 native group + 2 groups with migrant origin (first or second generation)

- Interviewing through the present format each of the 3 ethnic groups identified (you are allowed to adapt / edit the present format according to the specific context of your School)

- The interview can be carried out by a single student to another single student according to a peer-to-peer approach (e.g. Italian/Valencian/Portuguese student interviewing a student of foreign origin) or by a group of students to another group of students, or by a group of students to a group of family members or "grandparents", or in another way identified by the Schools.

- The interview can be done orally, with transcription of the notes, or it can be recorded / filmed with a camera.