EXPLORING THE "INTANGIBLE" THROUGH ICT

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Abstract

In recent times in most EU countries educational policies encourage schools to sustain and promote awareness of local cultures and heritage; as a consequence, spreading knowledge about local traditions is becoming a target also for educators, who need suitable tools and pedagogies, as well as appropriate sources of information.

This paper refers to those cultural expressions that are defined by UNESCO as ICH (Intangible Cultural Heritage) and argues that ICT-based tools can contribute to their diffusion and to the "passing down" to the new generations of the rare know- how behind them.

After briefly dealing with the concept of ICH and its value within local communities, the paper refers, as an example, to *Cantu a Tenore*, a typical singing expression from Sardinia-Italy which is listed in the "*Representative List of the Intangible Cultural Heritage of Humanity*". The *Cantu a Tenore* is a cultural practice that is not yet well known outside Sardinia and so far its transmission has been mainly based on practicing together with peers, looking at and listening to master singers.

Corrently, Net –Technologies can play a major role in supporting the diffusion of information regarding the *Cantu a Tenore* and also its "learning" and "transmission". This feeling is also widespread among the "living human treasures" themselves, namely in those humans who are the depositary of this peculiar and relevant cultural heritage.

As a matter of fact, on the one hand a huge amount of information and data (historical, geographical, technical, etc.) are accessible on the web and, on the other, web 2.0 tools can effectively contribute to spreading the rare

know- how behind *Cantu a Tenore* beyond the local communities, to reach learners, general public and researchers.

In addition, cutting edge ICT tools can well serve the scope of contributing to the transmission of specific skills to apprentices; the educational platform developed in the framework of the i-Treasures project (an Integrated Project co-financed under the 7th Framework Programme) is an outstanding example of how to exploit the potential of tools and technologies to this end.

Keywords: Cultural Heritage Education, web 2.0, Educational Technology, Innovation, Intangible Cultural Heritage.

1   INTRODUCTION

Following the promulgation of the Recommendation No. R (98) 5 of the Council of Europe to Member States[1], Cultural Heritage education has gradually assumed increased relevance both at national and international level [1], [2]. Of course the concept of "Cultural Heritage" is wide enough; it encompasses all those "things" that "*give a country, group or individual an identity: it can be archaeological, industrial, urban, rural or maritime, but it can also be literary, cinematographic, culinary or vestimentary…*".[2]

As a matter of fact "*culture is both the meanings and values which arise among distinctive social groups and classes, on the basis of their given historical conditions and relationships, through which they handle and respond to the conditions of existence; and as the lived traditions and practices through which those "understandings" are expressed and in which they are embodied*".

In this light, the relevance of spreading knowledge about local traditions is a target also for educators; recently the educational policies of most EU countries have been encouraging schools to sustain and promote awareness of local cultures and patrimonies, among which, in first place, those cultural expressions recognized by UNESCO as ICH (Intangible Cultural Heritage).

As a matter of fact, one decade ago, in 2003, UNESCO promulgated the Convention for the Safeguarding of the Intangible Cultural Heritage (ICH).

This key document [3]:

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[1] http://www.kultura.ejgv.euskadi.net/r46-4874/es/contenidos/informacion/manifiestos_patrimonio/es_8658/adjuntos/DOC56.pdf (accessed October, 2013).

[2] Council of Europe 1995 Cultural Heritage and its educational implications: a factor for tolerance, good citizenship and social integration http://www.coe.int/t/dg4/cultureheritage/heritage/resources/Publications/Pat_PC_36_en.pdf

- Defines "intangible cultural heritage" as "*the practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognize as part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity*"

- Highlights the urgent need to preserve/ safeguard traditional culture and traditional artistic expressions, where "safeguarding" means adopting "*measures aimed at ensuring the viability of the intangible cultural heritage, including the identification, documentation, research, preservation, protection, promotion, enhancement, transmission, particularly through formal and non-formal education, as well as the revitalization of the various aspects of such heritage*".

- Identifies the various elements of the world intangible cultural heritage present in different territories by means of two lists [4]: 1) The Representative List of the Intangible Cultural Heritage of Humanity and 2) the List of Expressions in Need of Urgent Safeguarding, including those ICH that require "urgent measures to keep them alive". Together with the two lists UNESCO is also providing the "Register of Best Safeguarding Practices" containing "programs, projects and activities that best reflect the principles and the objectives of the Convention".

In this paper we deal with the transmission modalities of ICH with the final aim of highlighting what is/could be the role of digital technologies to this end.

In doing so, we take as an example the *Cantu a Tenore*, a typical singing expression from Sardinia- Italy which is listed in the "Representative List of the Intangible Cultural Heritage of Humanity". Basically, the *Cantu a Tenore* is orally "passed down" and transmission is usually based on practicing together with peers, looking at and listening to the master singers.

In the following, after briefly illustrating the *Cantu a Tenore*, its historical background, main features and present diffusion in the territory we focus on its current transmission modalities (both traditional and enhanced by new media); at the end, we cast a glance at the possibilities offered by cutting- edge digital technologies as they are being employed in i-Treasure, an Integrated Project recently co-financed under the 7th Framework Programme (www.i-treasures.eu). Some final considerations are also made about the actual potential of digital technologies, their usability and applicability in the field of ICH.

2   THE CANTU A TENORE

The *Cantu a Tenore* is a four-part form of polyphonic singing that is orally transmitted and practiced in the central areas of the island of Sardinia in Italy.

The "*a Tenore*" choir is composed of four singers with different roles: a soloist (the "*boghe*"), who sings the text of a poem, and a three-part accompanying choir ("*su bassu, sa contra, su mesu boghe*") which supports the soloist usually using nonsense syllables (Fig.1). Actually, in the local dialects of several villages in central Sardinia, the meaning of the word "*tenore*" is closely related to the meaning of the word "*choir*".

Fig.1 Aspects of the *Cantu a Tenore* singing

Since, to date, the *Cantu a Tenore* has been mainly transmitted orally, it doesn't rely on rigid schemes, written scores or preset melodies.

The texts of the *Cantu a Tenore* are in Sardinian dialect and the repertoire comprises various sub-genres with different metrical, rhythmic and melodic features. The text itself of the song is not strictly predetermined: the execution encompasses melodic and harmonic formulas, well known among the cantors, which are combined following a "*canvas*" that can be varied by the soloist or by the choir as a whole (or also by the individual vocal parts). The use of specific nonsense syllables is one of the traits that characterize the different styles typical of each village.

2.1.1   Brief History

The *Cantu a Tenore* is a genre of traditional singing that many people in Sardinia claim as being native and dating back to the Nuragic era [5]; [6]. Actually, no reliable and effective historical evidence are available to support this legend. The first documents, in which a practice of singing similar to the *Cantu a Tenore*, is described, date back to the end of the 18th and to the first half of the 19th century [7]; [8]; [9]; [10]; [11]. The first audio recordings are those of the *Tenore di Dorgali* made in Milan in 1929 [12]. A comparison between the

practice of the "*a Tenore*" singing in present days and the recordings of the past (as well as descriptions given in the texts of the past centuries) shows that there is a continuity in the overall structure of the song but at the same time it also highlights that in recent decades we have been assisting at an ongoing evolution /re-shaping of the songs.

2.1.2 Main features

The *Cantu a Tenore* has a complex structure which is not easy to transmit: it is characterized by a particular shaping of the melodies sung by the soloist voice (*the boghe*). They are usually built upon a few tones (the ethnomusicologist Pietro Sassu wrote that the tritonic scale – Do-Re-Mi – is the kernel of most traditional Sardinian songs [13]) and sometimes presents a strong ornamentation and a typical vocal timbre. The three-part choir (*bassu*, *contra*, *mesu boghe*) supports the soloist in the *corfos*. The *corfos* usually consist of a quasi-homorhythmic accompaniment based on the technique of falsobordone ([14]). Taking into account the finalis of each voice in the *corfos*, the typical disposition of the parts in the a Tenore choir is shown in Fig. 2.
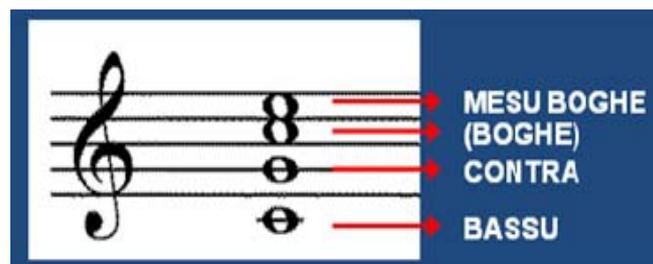

Fig.2 The usual disposition of the voices in the *Cantu a Tenore* at the end of the sections called *corfos*

The use of different vocal timbres is the main feature of the accompanying voices [15]; [16]. Moreover, the *bassu* and the *contra* use two different types of laryngeal constriction which yield characteristic vocal colours; as far as the *bassu* is concerned, it also produces the acoustic phenomenon of period-doubling [17].

2.1.3 Diffusion

Due to the difficulties in transmission, the areas where *Cantu a Tenore* is practiced are quite limited. Nevertheless, it is a living tradition in many villages of the Centre-North of Sardinia (see Fig. 3) [18], in particular, in the sub-regions called Barbagia and Baronia, where it is purported that the *Cantu a Tenore* originated.
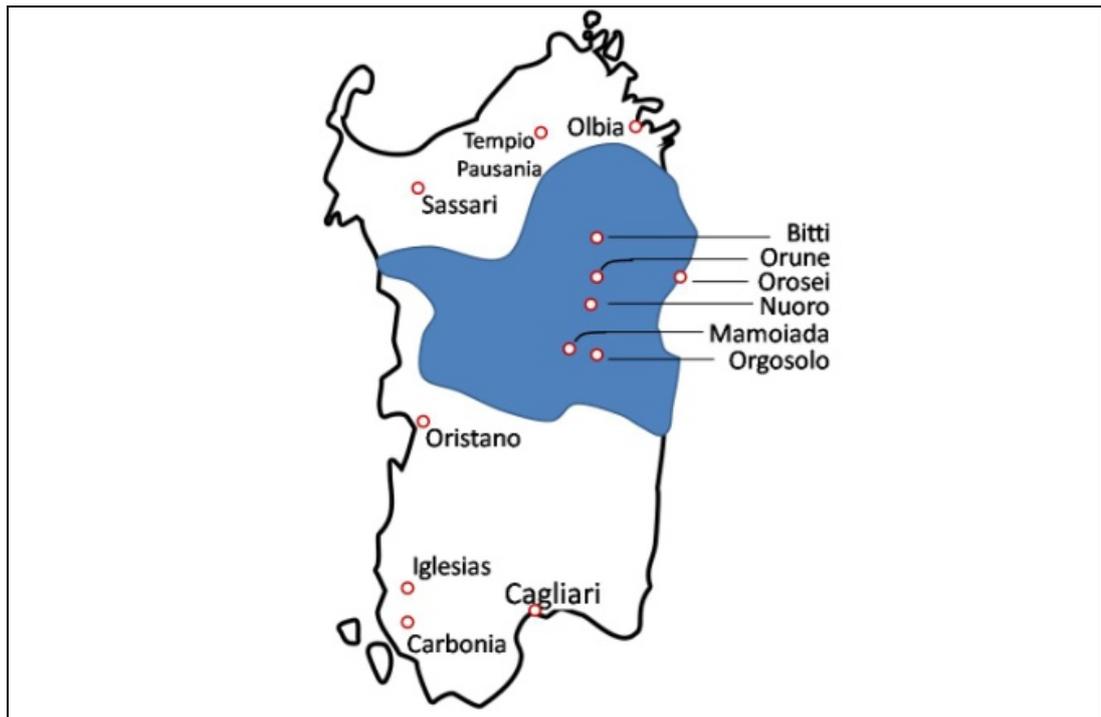
Fig. 3 Current geographical distribution of the *Cantu a Tenore* in Sardinia

Each village has its own melodies ("*modas*") and its peculiar styles of singing. The repertoire of some villages with rich and renowned tradition – like Bitti, Orgosolo, Orune, Orosei and a few others – is also well known outside the villages themselves.

The dissemination of the practice of *Cantu a Tenore* in other parts of Sardinia, outside the island, in Italy and abroad, is a very recent fact [19] and it is mostly due to Sardinian emigrants and/or to individual singers or researchers.

3 *CANTU A TENORE*: PROMOTION OF THE TRADITION AND TRANSMISSION MODALITIES

For a long time the promotion of the *Cantu a Tenore* tradition has taken place mainly at local level; By taking part in village life, people were able to listen to *Cantu a Tenore* singers' performances and learn about its history and features.

For years the spread of knowledge about *Cantu a Tenore* in schools has been mainly supported by individual initiatives of single teachers or headmasters and usually based on singers' live performances. Only recently have the local authorities financed more structured activities of diffusion in schools at regional level, based on concerts and live labs.

As to its transmission, from that said so far one can argue that this particular kind of artistic expression is not easy to transmit or learn, it requires a lot of exercise, time spent, vocal characteristics, determination, perseverance and personal involvement.

As a matter of fact, we must also stress that when we speak of learning the *Cantu a Tenore* we not only refer to the mere practice of the acquisition of the singing technique but rather to a set of single and community practices and knowledge that characterize the uniqueness of this artistic expression.

In the past it was only learnt by imitation, transmitted by looking at and listening to the master singers and by practicing together with peers (Fig. 4).

Fig. 4 Children "learning" from live performance

The situation has been evolving in recent times but has not changed much so far: although some dedicated schools have been founded at local level, these are mainly places where experienced singers sing together with young apprentices who learn by imitating them. Structured educational activities seem still to be lacking. To take a picture of the recent transmission modalities, recently (in 2013) 87 expert performers in *Cantu a Tenore* were interviewed by means of a dedicated questionnaire; one of the questions regarded how they had become a Tenore singers (Fig. 5).
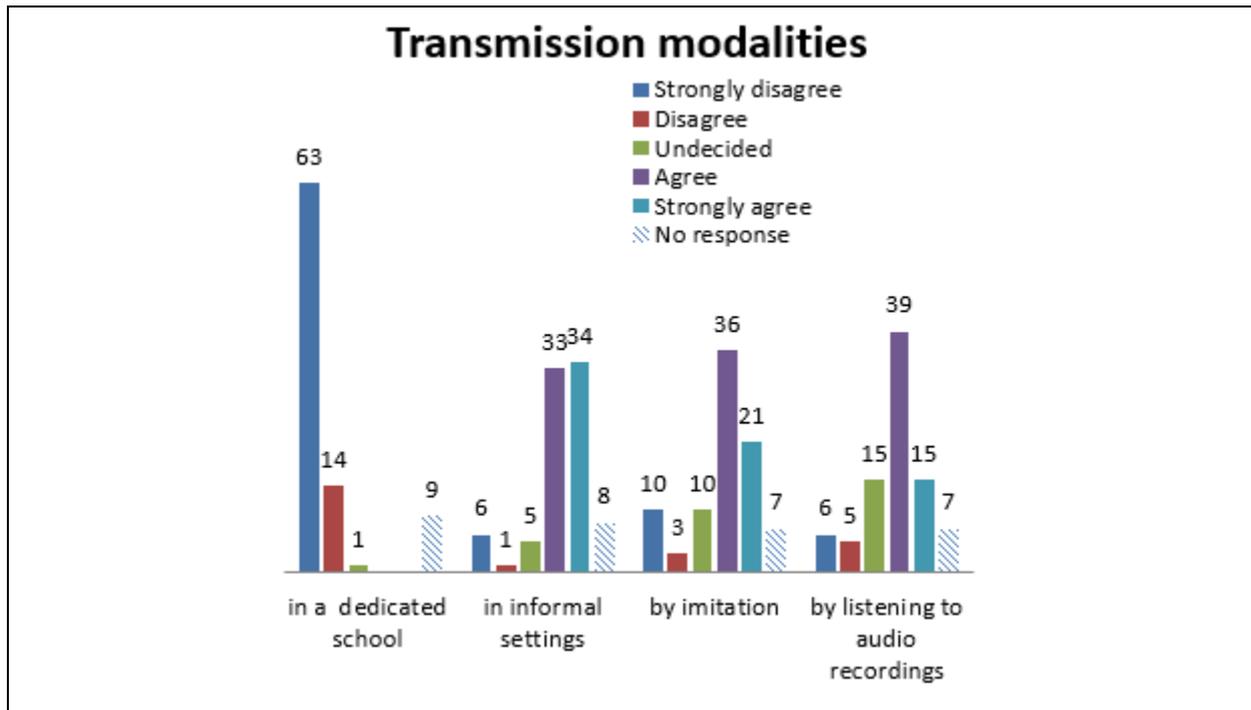
Fig. 5 How/where did you learn to perform "*Cantu a Tenore*"? Results of a questionnaire distributed to 87 expert performers

As expected, the results of the questionnaire showed that such a rare singing expression is mostly learnt in informal settings by imitating other experienced performers (i.e. considered "teachers", although in most cases they don't have any musical/academic background). Listening to audio recorders is also mentioned as a "suitable" tool rather than as a tool they themselves had widely adopted.

Actually, after the Seventies (the first disc was recorded in 1929 [20] and starting in the late fifties the audio recordings phenomenon became widespread) also the transmission of the techniques and of the repertoires of the *Cantu a Tenore* was affected by the diffusion of audio-recordings (particularly, tape cassettes).

According to many researchers, the diffusion of recordings has had a number of effects on the traditions themselves linked to the *Cantu a Tenore*. One of the most important is that the wide distribution of some recordings has strongly contributed to giving a particular fame to some village styles, groups or individual singers within the micro-world of the singers and sometimes even beyond [21], [22].

In more recent years, a large number of video recordings of *a Tenore* performances – both informal and on stage – are published via web, through dedicated websites and the YouTube channel (Fig.6) where at present 2480 videos are available offering a wide and variegated panorama of the different performances and techniques.
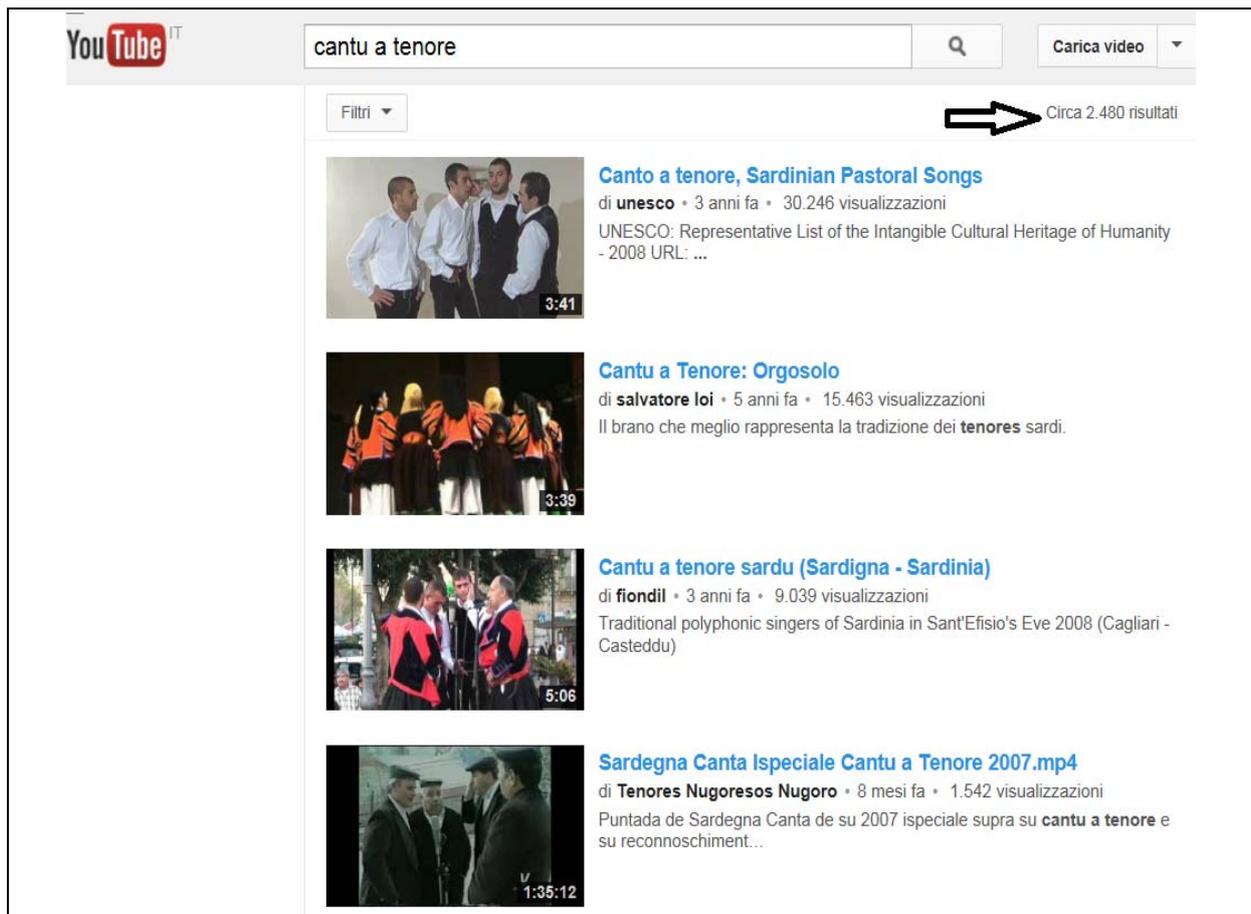
Fig. 6 Search results for *Cantu a Tenore* in You Tube (July, 2013)

Net technologies can be regarded as potentially effective catalyzers for furthering the spreading of knowledge around the Cantu a Tenore. Major social networks register dedicated activities: as an example, both in Facebook and in My Space several different pages and thematic groups exist that are quite active and populated, discuss general issues, refer to main events and performances, provide suitable links and offer the possibility of listening to a variety of performances.

If we cast a glance to Twitter (see Fig. 7) we see that tweets around *Cantu a Tenore* are quite frequent and, what's more interesting, they come from all over the world.
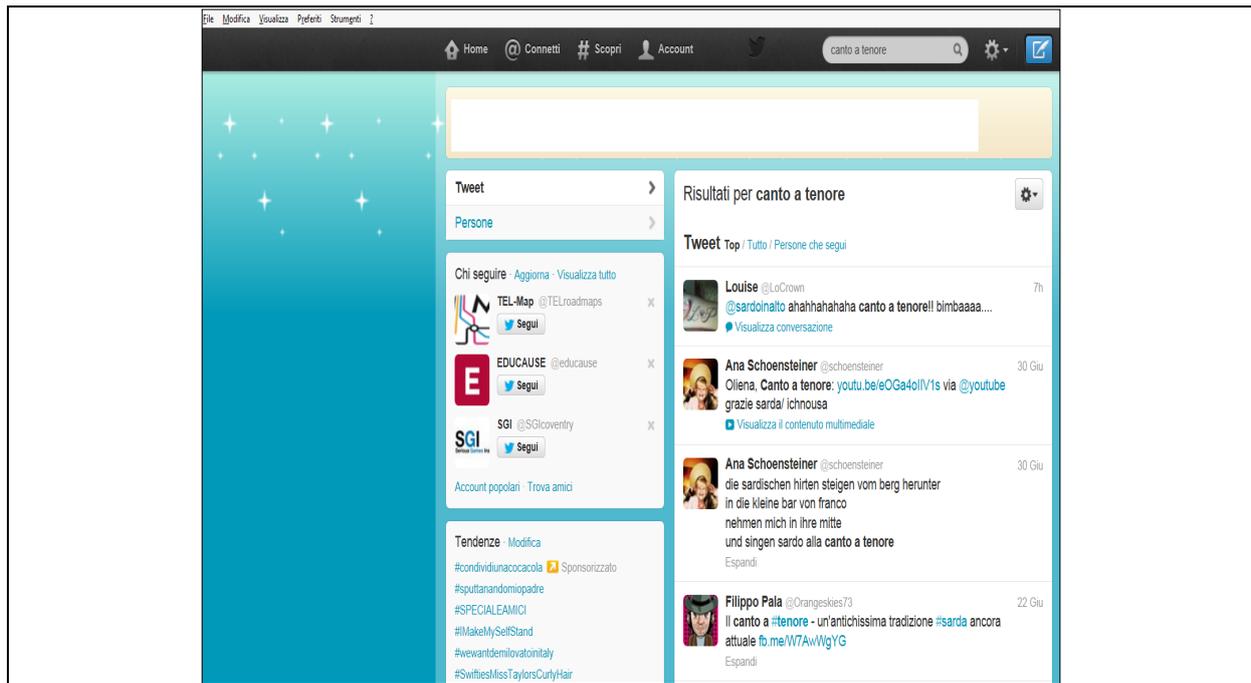
Fig. 7 Tweets related to *Cantu a Tenore*

4 AN INSIGHT INTO THE POTENTIAL OF CUTTING- EDGE DIGITAL TECHNOLOGIES FOR THE TRANSMISSION OF *CANTU A TENORE*

Currently, *Cantu a Tenore* is also being studied in the framework of the European Integrated Project i-Treasures, mentioned above. This project, which is part of the work program for the ICT theme (Information and Communication Technologies) of the FP7 (7th framework program), will make an in-depth use of cutting- edge ICT and sensor technologies.

In i-Treasures ICT will be employed with the ultimate aim of developing "*an open and extendable platform providing access to ICH resources, enabling knowledge exchange between researchers and contributing to the transmission of rare know-how from Living Human Treasures to apprentices*". This means that the project aims at going far beyond the mere ICT-enhanced dissemination; it rather relies on advanced technologies to support the transmission of the rare know- how behind ICHs and to facilitate the mastering of related abilities and competences.

Actually, the project will go beyond the mere digitization of cultural content and will adopt novel methodologies for the analysis and modeling of ICH so as to enhance the passing down of the rare know how to new generations.

In particular, in i-Treasures relevant and detailed information on the C*antu a Tenore* is obtained from expert performers and researchers in the field by means of interviews and dedicated questionnaires. Based on this information, key aspects and features of this ICH are "captured" by using advanced ICT and sensor technologies:

e.g.1) the specific vocal emission is analyzed by tracking the vocal tract of the singers during performance; 2) body motion, posture and movements are detected, coded and registered by means of advanced motion capture techniques; 3) interactions among singers are studied and emotions during performance are detected through Encephalogram analysis. A thorough process of modeling the available data is then carried out by relying on advanced Semantic Multimedia Analysis techniques.

This process will allow us to obtain an in-depth view of the various aspects, practicalities and technicalities underpinning the *Cantu a Tenore* and, what's more important, will allow us to reproduce the mechanisms involved and basically shape and direct the learning process of apprentices (also through avatars assuming the role of virtual exemplar performers).

The envisaged learning process is expected to take the learners beyond the concept of "learning by imitation" and will allow them to: 1) acquire relevant conceptual information in different formats (audio, video, narrative, etc.), 2) view in detail, each subject at his own pace, the performances of professional performers, 3) put oneself to the test, carrying out individual trials, receive appropriate feedback (in different formats e.g. audio or video as well) and hints so as to be able to adjust individual performance and reach increased levels of competence in an easier, quicker and more direct way.

Furthermore, in the project, ICT technologies will provide specific tools supporting the planning of the educational interventions and thus allow the setting up of appropriate reusable learning paths for each ICH.

All the above mentioned innovative methods, strongly based on innovative technologies and tools, are not of course meant to substitute but rather to complement the traditional learning/teaching methods; we can thus say that they offer a genuinely significant added value for the overall transmission of the ICH at hand.

5   CONCLUSIONS

We have tackled the issue of Cultural Heritage education by reflecting on the "learning and transmission" of local traditions and specific cultural expressions such as those that are part of the World Intangible Cultural Heritage.

In doing so, we have taken as an example the Sardinian *Cantu a Tenore* with the final aim of sharing some reflections on how innovative, and, in particular, digital technologies, can contribute to fostering the passing down of "intangible treasures" to the next generations.

The case in point has shown that much has still to be done in the field and that digital technologies can be adopted for a variety of different purposes: from capturing the "essentials" of a type of performance, up to analyzing and modeling relevant aspects of the ICH, and, finally to designing, modeling and delivering dedicated and possibly customized learning actions [23].

These realistic objectives take us far beyond the - still valuable - idea that ICT can serve the scope of spreading information and enriching content with multimedia assets.

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