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## **INTANGIBLE CULTURAL HERITAGE: TOWARDS COLLABORATIVE PLANNING OF EDUCATIONAL INTERVENTIONS**

Michela Ott\*, Francesca Maria Dagnino, Francesca Pozzi

Institute for Education Technology of Italian National Research Council (ITD-CNR), Via De Marini 6, 16149, Genova, Italy

\*Corresponding author.

Voice: +390106475358

Fax: +390106475300

E-mail address: ott@itd.cnr.it

**Abstract:** The paper discusses how to design innovative educational interventions in the field of Intangible Cultural Heritage (ICH). This field is peculiar, as it is characterized by the urgency to preserve and disseminate some of the most peculiar intangible artistic expressions, especially those at risk of disappearing; so far these cultural expressions have been passed down mainly through imitation and oral tradition, so now technologies can play a role in fostering their preservation and documentation. Drawing on the discussion held in recent years in the field of Technology Enhanced Learning (TEL), the paper describes a web-based tool aimed to support the collaborative design and planning of innovative ICT-based learning/teaching activities in ICH education. While providing an overview of the main functionalities of such a tool, the paper solicits some reflections on how TEL approaches, techniques and tools can fruitfully be employed to sustain ICH education.

**Keywords:** Technology Enhanced Learning, Pedagogical planning, Learning design, Intangible Cultural Heritage, Collaboration, Co-planning.

### **1. INTRODUCTION**

The protection and promotion of cultural heritage has become a core aspect of European and international cultural policies, especially in recent decades. This attention regards not only “tangible” but also “intangible” heritage, which includes: “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” (UNESCO, 2003).

Some of these traditions, after having long survived, are now threatened by globalization, which is causing a loss of interest in local cultural traditions. The awareness of the urgent need to safeguard these intangible cultural expressions, led UNESCO to promulgate in 2003 the Convention for the Safeguarding of Intangible Heritage (ICH) and to publish yearly a “List of Intangible Cultural Heritage in Need of Urgent Safeguarding” and a “Representative List of the Intangible Cultural Heritage of Humanity”. These efforts go in the direction of ensuring the survival of ICH expressions, by means of the identification, preservation, protection, promotion and transmission (particularly through formal and non-formal education) as well as their revitalization (UNESCO, 2003).

Education plays an important role to guarantee a future for these endangered habits, customs and practices that so far have been passed down mainly by means of personal exchanges and oral tradition.

A thorough review of literature and existing projects (Pozzi, Alivizatou, Ott, Dagnino, & Antonaci, 2013) highlights that, following the UNESCO recommendations, efforts have been made in the field of preservation, through projects carried out by international organizations in partnership with national governments. The majority of these projects, though, seem to follow an archival and encyclopedic approach to the documentation of intangible heritage rather than being oriented towards its dissemination and transmission. A few projects, driven primarily by or for the benefit of local communities, have been carried out (Colace et al., 2013) aimed at the transmission and dissemination among practitioners, while it seems that structured and wide-scope educational attempts directed to rare know-how teaching and learning are still very limited (Drigas & Pouliou 2013).

In this perspective, the i-Treasures project, whose experience is reported in this paper, is trying to fill this gap, by developing novel methodologies and new technological paradigms for the analysis and modelling of some intangible cultural expressions, with the final aim of offering innovative and effective teaching and learning solutions which go beyond simple documentation and preservation.

The challenge in the project consists of designing effective learning activities in fields where there is often no consolidated know-how nor standardized ways of teaching and this can be done only by coordinating the effort of many people coming from very different fields (expert performers, technologists, methodologists, etc.) and supporting them in the collaborative definition of possible learning paths. In this scenario, collaboration among all these actors plays a crucial role and the creation of communities of practice

(Wenger, 1998) in the various ICH fields is one of the main outcomes the project is trying to achieve. Specific research efforts have been made in the past few years in the TEL sector to support the design of innovative educational interventions (Persico et al., 2013) and to improve collaboration and exchange of ideas among educators (Earp, Ott & Pozzi, 2013; Psarras, 2007).

Starting from these experiences, which are rooted on the one hand on the learning design research field (Conole, 2013), and on the other on the computer supported collaborative learning field (Dillenbourg, 1999; Kanuka & Anderson, 1999; Cognition and Technology Group at Vanderbilt, 1991; Scardamalia & Bereiter, 1994; Romero & Lambropoulos, 2011; Pozzi & Persico, 2011), in the i-Treasures project a system has been developed, with the specific aim of supporting the collaborative effort of designing effective educational intervention in the ICH field.

In the following, we outline some key aspects of the i-Treasures project; then we discuss the related work and existing literature in the field of supporting design and delivery of innovative learning interventions across the intertwined concepts of “pedagogical planning” and “learning design”. Lastly, we sketch out the main features of the online system developed (the Pedagogical Planner), which is oriented to the collaborative design and description of learning processes.

## **2. CONTEXT: THE i-TREASURES PROJECT**

i-Treasures (“Capturing the Intangible Cultural Heritage and Learning the Rare Know-How of Living Human Treasures”) is an Integrated Project (IP) co-funded within the European Union 7th Framework Programme. Its final aim is to create the conditions for establishing new teaching/learning practices in the field of ICH, thus supporting the “passing down” of the rare know how to new generations.

i-Treasures considers a number of different ICH expressions, belonging to four different areas (singing, dancing, music and craftsmanship). Each use case has been further instantiated in different “sub-use cases”, namely:

- singing: Cantu a Tenore, Canto in Paghjella, Byzantine music and Human BeatBox;
- dancing: Tsamiko, Căluș, Walloon and contemporary dances;
- craftsmanship: the art of pottery in Greece and France;
- music: contemporary music composition.

The i-Treasures core mission is thus to sustain and foster the transmission of these ICH expressions, by making in-depth and innovative use of cutting-edge technologies. In particular, i-Treasures adopts new methods and technologies (optical, depth or inertial sensors, electroglottograph and electroencephalogram sensors, etc.) to “capture” key aspects of the different ICH expressions and transform them into reliable/manageable data by means of advanced semantic multimedia analysis techniques and the subsequent process of data fusion. The resulting i-Treasures platform builds on these data and offers the possibility to access different types of contents (e.g. text, audio, images, video, 3D graphics). Besides, it also offers a learning environment, able to enhance training and evaluation of the learner’s performance by means of sensorimotor learning. This affordance gives the learner the opportunity to practice a dance, or singing, and receive immediate and personalized feedback about the quality of her/his performance, so as to improve her/his level of competences and practical skills. Summing up, we can say that the i-Treasures platform represents a genuine novelty in a field where educational practices are not yet well consolidated (Ott & Pozzi, 2011). It is meant to create the conditions for implementing and testing new teaching/learning practices, which expose the learners to multimodal and multisensory learning opportunities.

In order to make the most of this, sound educational learning paths need to be designed and planned and this needs to be done collaboratively by a variety of experts in different fields (multiple content areas, ICT, education). To this aim, an online tool supporting the process of co-design, the Pedagogical Planner, has been developed in the project framework. The conceived paths will be the first stage in the creation of courses that will be delivered through the platform itself. Courses, which pivot on the platform affordances and tools, will be then delivered to real learners and experts, in order to evaluate their effectiveness, as well as the ability of the platform to enhance significant teaching/learning processes in the ICH field.

### **3. THEORETICAL BACKGROUND**

The introduction of any kind of innovation into learning processes (i.e. new technologies and related approaches) calls for a redefinition not just of contents and learning goals, but also of the overall teaching methodology and learning management. Thus, in contexts like i-Treasures, where innovative tools are being adopted, the design of the entire teaching/learning process is more critical with respect to more “traditional”

contexts, so to allow fully embracing new potential and managing new complexity (Koper, 2006; Reigeluth, 1996; 1997).

In i-Treasures, particular attention is, then, devoted to the design and planning of the actions to support the teaching/learning of ICH. This learning design phase (Conole, Dyke, Oliver, & Seal, 2004), is essential to make the most of the available cutting-edge technologies, especially because most of them have never been used in these ICH contexts.

Looking at the Technology Enhanced Learning (TEL) research field, one can see that one of the most active research threads focuses exactly on how to support teachers engaged in the design of teaching/ learning environments based on innovative tools, contents and methods (Persico et al., 2013; Pozzi, Ceregini, Dagnino, Ott, & Tavella, 2014).

Such a specific research area is also known as “learning design” (Conole, 2013), or even “pedagogical planning” (Cameron, 2008). The former is more oriented to the definition of approaches and tools to support teachers in representing, sharing and delivering their design ideas, the latter is more focused on the support to be provided to the teacher when s/he is engaged in the decisional phase of the design process.

In particular, according to Conole (2013):

Learning design is a methodology for enabling teachers/designers to make more informed decisions in how they go about designing learning activities and interventions, which is pedagogically informed and makes effective use of appropriate resources and technologies. This includes the design of resources and individual learning activities right up to curriculum-level design. A key principle is to help make the design process more explicit and shareable. Learning design as an area of research and development includes both gathering empirical evidence to understand the design process, as well as the development of a range of resource, tools and activities. (p. 7)

Pedagogical planning is more aimed at supporting pedagogical reflection (Bottino et al., 2008; Hatton & Smith, 1995; Watters & Diezmann, 2006) and thus sustaining teachers’ professional (and personal) development. It also fosters a maieutic process through which authors could gain full awareness of the pedagogical rationale underlying their design choices (Beetham & Sharpe, 2007; Britain, 2007; Olimpo et al., 2010).

Actually, the boundaries between these two areas (learning design and pedagogical planning) are not clear cut and, consequently, the activity of learning design and/or pedagogical planning and its outcome (namely the final design /plan) have been represented in a variety of ways that in part reflect their relative scope and degree of formalization.

Within the TEL research field great effort has also been devoted to the development of ICT-based tools embodying these concepts. For example, the IMS Learning Design (IMS-LD) specification, one of the most significant initiatives in this area, “aims to represent the learning design of units of learning in a semantic, formal and machine interpretable way” (Koper, 2006). Based on this specification, a number of tools (e.g. Reload) have been implemented to deliver designs to students. Similarly, another well-established learning design-inspired application is the Learning Activity Management System (LAMS), a system for designing and building activity sequences that can be enacted online with direct learner participation (Dalziel, 2003). Other tools coming from the learning design research field aim to represent and then share the design idea, especially in view of re-use. For example, tools such as WebCollage (Hernández-Leo et al., 2006; Strijbos, Martens, & Jochems, 2004) reify the concept of “design patterns” (Alexander, Ishikawa, & Silverstein, 1977). Here the emphasis is on describing patterns of (collaborative) learning structure such as (brainstorming, jigsaw, etc.), that might be suitably adopted to meet specific goals, and on using this as a sort of basic building block for constructing an instantiated learning design.

Other experiences, such as CompediumLD (Conole et al., 2008), Cloudworks (<http://cloudworks.ac.uk/>) or CADMOS (Retalis & Papasalouros, 2005), follow the same line, i.e. to support representation and sharing of learning designs.

Other tools, instead, reify the concept of “pedagogical plan”, such as for example, Phoebe (<http://www.phoebe.ox.ac.uk/>) and Course Map (<http://goo.gl/SKMKIO>). In this area, in recent years, also the Institute for Educational Technology of the Italian National Research Council (ITD CNR) has produced a number of ICT- based pedagogical planners (Olimpo et al., 2010; Bottino, Ott, & Tavella, 2011; Earp, Ott, & Pozzi, 2013).

Furthermore, within this research thread an emphasis has been given to the aspect of co-design, i.e. supporting groups of people to collaboratively design educational interventions. In this line, recently, a European project has been funded under the Lifelong Learning Programme (LLP), called METIS

(<http://www.metis-project.org/>); the project acknowledges the importance of the social dimension of the design process, as well as the lack of integrated tools able to support the whole design process. Consequently, an Integrated Learning Design Environment (ILDE) is being developed in the project framework, supporting the creation of communities of designers, able to share ideas and co-construct common design artefacts. Moreover, the ILDE integrates existing free and open source software solutions, so as to support the whole design lifecycle, from the initial phases of macro-design, down to the micro-design of each learning activity, up to the delivery of activities to students.

In line with these experiences, the i-Treasures project wants to provide a contribution to the TEL research field, by developing an online tool able to support the whole process (from macro-design, to micro-design and then delivery) of innovative teaching/learning interventions in the area of ICH education. This is done by allowing groups of experts to interact and share common design artefacts in a collaborative design effort.

#### **4. THE i-TREASURES PEDAGOGICAL PLANNER**

The Pedagogical Planner (PP) tool developed in the framework of i-Treasures is a teacher-oriented online tool, through which designers construct ‘pedagogical plans’, i.e. design objects helping to take into account relevant aspects of the learning/teaching process (Bottino et al., 2008), such as the contents, the population to be addressed, the learning objectives to be reached, etc. They also describe how concretely the process should be carried out to be as effective as possible and by means of which tools (Conole et al., 2004). Thus, the i-Treasures pedagogical plans include information about the target population, the learning context, the learning objectives and the contents, the proposed activities and strategies, as well as a detailed work-plan (subdivided into fine grained activities), including indications on how the whole experience could be monitored and evaluated. In i-Treasures, pedagogical plans have been used as:

- conceptual tools oriented to foster pedagogical reflection on the various elements at play and the interactions between them, with the aim of ensuring that these form part of a coherent, manageable whole;
- collaborative instruments, able to enhance exchange and cooperation among all the actors involved in the design process;
- practical tools nurturing the creation of actual learning situations for learners, oriented to testing the educational materials and tools developed in the project and the related methodologies;

- serviceable tools, enabling the sharing and re-use of pedagogical ideas, concepts and methods.

#### 4.1 PP main features

As already mentioned, the PP tool is the result of previous experiences in the field of pedagogical planning (Bottino, Ott, & Tavella, 2010; Olimpo et al., 2010) and was consistently adapted in order to satisfy the specific requirements of the i-Treasures project.

The i-Treasures pedagogical plans can be conceptually seen as subdivided into three sections (Fig. 1):

- meta-information about the plan (i.e. title, author, specific area);
- key aspects of the plan (where basic information about the plan, such as potential users, objectives and contents are provided);
- activity flow (where the flow of the learning activities to be carried out and details for each activity are provided).

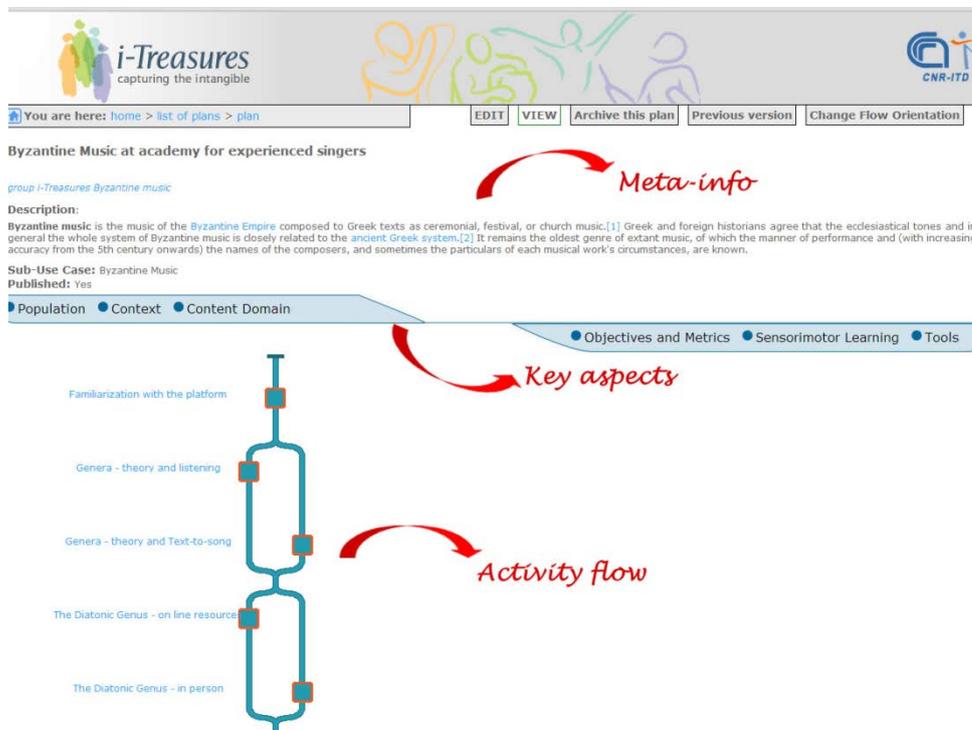


Figure 1. The three main sections of the i-Treasures pedagogical plan

Going into details, in the first section some meta-information about the plan are provided: title, authors, area, brief description of the core contents and information about the status of the plan (published or not).

In the second section of the plan, one can find the description of:

- the target “Population”: the category of subjects for whom the plan could be conceived. In particular, here information about the population Type are provided (e.g. school students, students in a music/dancing academy, general public etc...), the Age and the Pre-requisites (if any);
- the learning “Context”: the learning situation/environment where the educational intervention can be carried out. In particular, the Type of context should be specified (e.g. school, territorial school, museum, etc.), the Constraints (if any), the Timing and the Setting;
- the “Content domain”: here the main aim of the plan is described and the map of contents, as this has been conceived by the domain expert, is provided;
- the “Objectives and Metrics”: here information is provided about the main learning goals the plan is meant to reach, plus the criteria to monitor and evaluate the teaching/learning process (during and after the enactment);
- the “Tools”: the i-Treasures tools and the features of the platform that could be used during the enactment phase.

In the third section of the plan, one can find the flow of the activities foreseen in the plan. Each activity is then described in terms of:

- Objectives: under this area, the general idea and the specific objectives are described.
- Orchestration: the setting is described (namely where the activity should be carried out and the essential equipment) and the instructions for students are provided (namely how students should carry out the activity).
- Tools and Resources: under this area, the tools and resources (such as video or audio resources, together with the functionalities of the platform to use in order to carry out the activity) are given.
- Evaluation Criteria: the criteria to be adopted in order to evaluate the effectiveness of the activity.

#### *4.2 Co-planning in the PP*

As already mentioned, the tool has been conceived so as to support collaborative interactions among the various actors in the project. As a matter of fact, the i-Treasures project is interdisciplinary in nature and the

competences at play are widely distributed among different actors/ participants. Each content expert has specific knowledge in a single domain area (dance, music etc...), educationalists have the methodological competence needed to structure the educational interventions while technological partners have the capability to decide whether and how to make the best possible use of technology to support the delivery of specific contents, following specific educational approaches. Actually, the i-Treasures pedagogical plans were designed and built up in a collaborative way, thanks to the continuous interaction of partners with different expertise in the common effort of co-creating new knowledge (Romero & Lambropoulous, 2011) and devising new related methodologies.

The plan creation followed different steps: initially, the domain experts provided basic data for the plan, then educational technologists proposed a set of learning strategies and structured activities for each plan, along with suitable resources and appropriate evaluation metrics. Technology experts followed the whole process to guarantee the compliance and appropriateness of the technological choices with the available/required technologies; they also monitored and assessed the suitability and interoperability of the ICT tools adopted. A functionality allowing reciprocal comments was also available, so that each actor could provide feedback on the work done by others; in this way all the partners and experts closely collaborated to produce the final versions of the plans.

#### *4.3 From pedagogical plans to educational scenarios*

As already mentioned, pedagogical plans are preliminary to the definition of the corresponding educational scenarios in a Learning Management System (LMS), where learners will carry out the proposed activities. This means that each learning situation envisaged by the i-Treasures experts and described in the dedicated pedagogical plan, is then “translated” into an “actual” learning path, that can be adopted (and customized) by other teachers/designers/experts and is subsequently delivered to their students.

This means that all the information contained in each plan (flow of activities, resources and tools to be used, etc.) is “transferred” into the LMS and used to build the corresponding educational scenario in the LMS. The flow is instantiated in separate activities and each activity in the PP corresponds to an activity in the LMS; all the information contained in the plan regarding how the activity is structured and should be carried out (objectives, orchestration, resources and tools, evaluation, etc.) feed the corresponding activity in the LMS.

Some descriptive information is presented as texts (such as orchestration) others (such as tools and resources) are instantiated in the LMS.

Even if a correspondence between plan and scenario exists, the opportunity to make use of each plan is not restricted to teachers/experts who face an identical learning situation; the designer/teacher who knows the context of application of the scenario, will be allowed to customize/tune the scenario to a finer grain of detail. For example, given that pedagogical plans may include alternative activities or – more generically – activities conditioned to some prior event, the designer/teacher will make the final decisions about what activities/resources should be delivered to students in the specific context at hand.

This implies that – potentially – there is a one-to-many relationship between pedagogical plans and educational scenarios (i.e. one pedagogical plan may inform/nurture more than one educational scenario in the LMS).

Another affordance the platform will offer to its users, is the possibility not only of customizing and then delivering existing exemplar plans/scenarios, but also to create new plans/scenarios starting from blocks/modules already available.

Thus in i-Treasures a platform is built, able to support the whole design lifecycle of an educational intervention, from the macro-design and pedagogical planning, down to the delivery of the activities to learners.

## 5. DISCUSSION

The Pedagogical Planner in i-Treasures has been used to design a number of teaching/learning paths that will be delivered later on in the project to real learners.

So far, a total of ten exemplar pedagogical plans have been constructed and are available by means of the PP: four plans exist for the singing and the dancing use cases, one for the craftsmanship and contemporary music composition use cases (see Table 1).

**Table 1. Overview of the exemplar plans constructed in the PP**

Use case	Sub-use case	Learning context	Addressed target population
<b>SINGING</b>	Canto a Tenore	Secondary school	Intermediate
	Canto in Paghjella	Exhibition /Territorial school	Beginners
	Byzantine music	Music school	Experienced
	Human Beat Box	Home/Academy	Beginners

DANCING	Calus dance	Dance school	Beginners
	Tsamiko dance	Dance school	Beginners
	Walloon dance	Exhibition	Beginners
	Contemporary dance	Dance school	Beginners
CRAFT S-MAN-SHIP	Pottery	Home / territorial school	Beginners
CMC	Contemporary music composition	Home / territorial school	Experienced

The idea pursued was to cover different learning situations (formal, non-formal and informal contexts) and target populations. Besides plans designed for the “traditional” target populations of apprentices, i-Treasures partners have made an effort to design ICH educational interventions directed to segments of population usually excluded (like children, or people without a specific interest) in order to increase the opportunity of adoptions by the side of experts and teachers. To do this, plans have also been conceived to be adopted in non-formal contexts (like museums or exhibitions), as well as formal (although non ICH-specific) contexts (e.g. mainstream schools). Furthermore, different learning approaches have been included according to the context and the population involved: from collaborative strategies (e.g. Cantu a Tenore plan) to individual learning (Pottery plan). Some plans promote self-regulated and exploratory learning (e.g. Human Beat Box plan), whereas others are more teacher-driven (Contemporary Dance plan). The different activity flows include activities to be carried out both inside and outside the i-Treasures platform. This was done with the specific intent to integrate the use of the platform in the existing teaching/learning practices (where existing) and to respect the nature of most of these artistic expressions which up to now have been taught “in person”. Furthermore, all the paths include activities based on the use of the 3D platform for sensorimotor learning, since this module represents one of the most innovative outcomes of the project.

The design of all these activities and learning paths was the result of a collaborative effort made by groups of experts coming from many different sectors and disciplines. The Pedagogical Planner proved to be a useful tool, able to support the co-construction and co-planning of these variegated educational interventions. The tool allowed the collection of all the information relevant for an effective and complete design and the

exchange and interaction among all the actors involved. Furthermore, it was flexible enough to meet the needs of the various situations/contexts.

## 6. CONCLUSIONS

We have briefly outlined some aspects of the i-Treasures project by also underlining that it makes use of cutting-edge technologies with the final aim of contributing to the transmission of rare know-how behind different ICH expressions.

The adoption of these new technologies for educational purposes in the ICH field represents a genuine novelty in the educational panorama and their integration in traditional teaching and learning practices still represents a challenge. This is why in the project particular attention has been devoted to the planning of learning/teaching activities by also encouraging, fostering and making possible the effective collaboration among partners with different expertise; educational scenarios have, then, been created and a preliminary phase of accurate pedagogical planning has been carried out. The plans produced will soon be tested in concrete educational settings and appropriate refinements will be made before final delivery.

In this panorama, it seems important to recall that the adoption of a web-based tool for describing and delivering both the plans and the scenarios will also play a major role in guaranteeing that the main i-Treasures results will not remain confined within the boundaries of the project itself after the project ends. The availability, through the online PP tool and the i-Treasures platform, of fully described and detailed teaching/learning activities, will pave the way for new educational actions directed to fostering ICH transmission even in contexts different from the original ones. Hopefully, it will also help teachers/designers/experts already involved in such educational activities to reconsider their present teaching practices and, if deemed appropriate, to fruitfully adopt and deploy the innovative methods and tools produced inside the i-Treasures project.

## 7. REFERENCES

Alexander, C., Ishikawa, S., & Silverstein, M. (1977). *A pattern language: towns, buildings, construction*.  
New York : Oxford University Press.

- Beetham, R., & Sharpe, H. (2007). *Rethinking Pedagogy for a Digital Age Designing and Delivering E-Learning*. New York: Routledge.
- Bottino, R. M., Earp, J., Olimpo, G., Ott, M., Pozzi, F., & Tavella, M. (2008). Supporting the design of pilot learning activities with the Pedagogical Plan Manager. In M. Kendall, & B. Samways (Eds.), *Learning to live in the knowledge society* (pp. 37-44). Springer US.
- Bottino, R. M., Ott, M., & Tavella, M. (2010). Empowering the Design and the Sharing of Learning Plans by Means of Net Technologies: The IAMEL System. *Knowledge Management, Information Systems, E-Learning, and Sustainability Research*. 111, pp. 336-342. Springer Berlin Heidelberg.
- Bottino, R. M., Ott, M., & Tavella, M. (2011). Scaffolding Pedagogical Planning and the design of learning activities: an online system. *International Journal of Knowledge Society Research*, 2(1), 84-97.
- Britain, S. (2007). Learning design systems: Current and future developments. In H. Beetham, & R. Sharpe (Eds.), *Rethinking Pedagogy for a Digital Age Designing and Delivering E-Learning* (pp. 103-114). New York: Routledge.
- Cameron, L. (2008). Could Pedagogical Planners be a useful learning design tool for university lecturers? *Readings in Educational Technology: Proceedings ICICTE 2008*, (pp. 496-507).
- Cognition and Technology Group at Vanderbilt (1991). Some thoughts about constructivism and instructional design. *Educational Technology*, 31(10), 16-18.
- Colace, F., De Santo, M., Greco, L., Chianese, A., Moscato, V., & Picariello, A. (2013). CHIS: Cultural Heritage Information System. *International Journal of Knowledge Society Research (IJKSR)*, 4(4), 18-26.
- Conole, G. (2013). *Designing for learning in an open world*. New York: Springer.
- Conole, G., Brasher, A., Cross, S., Weller, M., Clark, P., & Culver, J. (2008). Visualising learning design to foster and support good practice and creativity. *Educational Media International*, 45(3), 177-194.
- Conole, G., Dyke, M., Oliver, M., & Seal, J. (2004). Mapping pedagogy and tools for effective learning design. *Computers & Education*, 43(1), 17-33.
- Dalziel, J. (2003). Implementing learning design: The learning activity management system (LAMS) in Interact, Integrate, Impact. *Proc. ASCILITE*, (pp. 593-596). Retrieved from <http://www.ascilite.org.au/conferences/adelaide03/docs/pdf/593.pdf>

- Dillenbourg, P. (Ed.) (1999). *Collaborative Learning: Cognitive and Computational Approaches*. Oxford: Elsevier.
- Drigas, A., & Poulidou, M. (2013). E-Culture Techniques and Applications. *International Journal of Knowledge Society Research (IJKSR)*, 4(4), 11-17
- Earp, J., Ott, M., & Pozzi, F. (2013). Facilitating Educators' Knowledge Transfer with Information Systems for Sharing Practices. *Computers in Human Behaviour*, 29, 445–455.
- Hatton, N., & Smith, D. (1995). Reflection in teacher education: Towards definition and implementation. *Teaching and Teacher Education*, 11, 33-49.
- Hernández-Leo, D., Villasclaras-Fernández, E. D., Asensio-Pérez, J. I., Dimitriadis, Y., Jorrín-Abellán, I. M., Ruiz-Requies, I., & Rubia-Avi, B. (2006). COLLAGE: A collaborative Learning Design editor based on patterns. *Educational Technology and Society*, 9(1), 58-71.
- Kanuka, H. & Anderson, T. (1999). Using Constructivism in Technology-Mediated Learning: Constructing Order out of the Chaos in the Literature. *Radical Pedagogy*, 1(2).
- Koper, R. (2006). Current research in Learning Design. *Educational Technology & Society*, 9(1), 13-22.
- Olimpo, G., Bottino, R. M., Earp, J., Ott, M., Pozzi, F., & Tavella, M. (2010). Pedagogical plans as communication oriented objects. *Computers & Education*, 55(2), 476-488.
- Ott, M., & Pozzi, F. (2011). Towards a new era for Cultural Heritage Education: Discussing the role of ICT. *Computers in Human Behavior*, 27(4), 1365-1371.
- Persico, D., Pozzi, F., Anastopoulou, S., Conole, G., Craft, B., Dimitriadis, Y., . . . Walmsley, H. (2013). Learning design Rashomon I - supporting the design of one lesson through different approaches. *Research in Learning Technology*, 21.
- Pozzi, F., Alivizatou, M., Ott, M., Dagnino, F. M., & Antonaci, A. (2013). *i-Treasures project D2.1: First Report on User Requirements Identification and Analysis*. Public Deliverable. Retrieved from <http://www.i-treasures.eu/content/deliverable>
- Pozzi, F., Ceregini, A., Dagnino, F., Ott, M., & Tavella, M. (2014). *i-Treasures project D5.1: Report on analysis of educational scenarios*. Public Deliverable. Retrieved from <http://www.i-treasures.eu/content/deliverable>

- Pozzi, F. & Persico, D. (Eds.) (2011). *Techniques for Fostering Collaboration in Online Learning Communities: theoretical and practical perspectives*. New York: Information Science Reference, Hershey
- Psarras, J.E. (2007). Education and training in the knowledge-based economy: the application of knowledge management. *International Journal of Information Technology and Management*, 6 (1), 92-104.
- Reigeluth, C. M. (1996). A New Paradigm of ISD? *Educational Technology*, 36 (3), 13-20.
- Reigeluth, C. M. (1997). Instructional Theory, Practitioner Needs, and New Directions: Some Directions. *Educational Technology*, 37(1), 5-11.
- Retalis, S., & Papasalouros, A. (2005). Designing and Automatically Generating Educational Adaptive Hypermedia Applications. *Educational Technology and Society*, 8, 26-35.
- Romero, M., & Lambropoulous, N. (2011). Internal and External Regulation to Support Knowledge Construction and Convergence in Computer Supported Collaborative Learning (CSCL). *Electronic Journal of Research in Educational Psychology*, 23 (9), 1-14.
- Scardamalia, M. & Bereiter, C. (1994). Computer support for knowledge-building communities. *The Journal of the Learning Sciences*, 3 (3), 265-283.
- Strijbos, J. W., Martens, R. L., & Jochems, G. (2004). Designing for interaction: six steps to designing computer supported group-based learning. *Computers & Education*, 42, 403-424.
- UNESCO. (2003). *Convention for the Safeguarding of the Intangible Cultural Heritage*. Paris. Retrieved from [http://portal.unesco.org/en/ev.php-URL\\_ID=17716&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201](http://portal.unesco.org/en/ev.php-URL_ID=17716&URL_DO=DO_TOPIC&URL_SECTION=201)
- Watters, C., & Diezmann, J. (2006). Structuring Reflection as a Tool in Qualitative Evaluation. *Proc. HECU3 Conference*. Retrieved from [http://www.lancs.ac.uk/fss/events/hecu3/documents/diezmann\\_watters.doc](http://www.lancs.ac.uk/fss/events/hecu3/documents/diezmann_watters.doc).
- Wenger, E. (1998). *Communities of practice: learning, meaning and identity*. New York: Cambridge University Press.