

Construction History: What Kind of Knowledge in the Maintenance Process?

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ABSTRACT: In the operative field of Built Cultural Heritage the material authenticity value is missing, in particular in the maintenance activities. This paper investigates what is the actual knowledge of Construction History, analysing the maintenance activity: the wrong customs and the regulations show how there is an insufficient knowledge. In order to change this approach the most updated theories affirm that first of all we have to innovate the cognitive process. There is need of a different look that is able to take *savoir réparer* as well as *savoir faire*. Only with this mentality it's possible to maintain the tangible and intangible authenticity, working in a sustainable way in historic buildings. This cultural shock involves a lot of consequences: in terms of social capital it means to recognize legality of repair's craftsmen, as a resource of local development; in the "intellectual capital" it means to qualify technicians with a long life learning training.

In the operative field of Built Cultural Heritage, the acknowledgment of the cultural value of a good's material authenticity is missing, thus showing a marked gap in comparison with advanced theoretic speculations in restoration studies. This is even more true for maintenance activities which, differently from how they usually are promoted, are neither innocent nor periodically repeatable (Della Torre 1999); further, and instead, they become strategic activity, following the programmed conservation parameters, as finally adopted by the Heritage Code: *Law Decree 42/2004*. In fact, in contrast with the restoration interventions, it is the maintenance process which, through various steps such as control, prevention and strictly speaking maintenance activities, designs and manages the asset, handling it for an extended period during which not only such activities are carried on, but also outcomes of this activities on techniques and materials are monitored.

When talking about material authenticity, we refer to a concept of authenticity/integrity widely shared also at international level, by which a building is authentic when the transformations it has undergone adhere to the local economic strategies. Therefore, an authentic building is not necessarily in perfect conditions, but it *transmits* and *ensures* such transformations and information through a certain material, that is consequently defined as authentic and unaltered (Stovel 2007).

To understand the mechanisms in motion in this gap between theoretical principles and operative procedures, we need to analyze the historical building techniques in the different phases of the conservation process, and in particular within maintenance activities.

To this end, it will be useful to focus on some considerations, first of all about what the knowledge is and should be, and further, about the thoroughness of such knowledge.

With reference to historical building techniques, a first consideration should concern the concept of *process sustainability*. Very often used materials are alien to the historical buildings, in terms of supply sources: in such cases the materials come from different local contexts from the ones originally used, thus disregarding the action's sustainability and, therefore, legitimacy. This theme should not be underestimated, comparing such attitude to the use of materials available on the market: it is fundamental instead to evaluate the product compatibility and the sustainability of the product's supply chain.

The concept of compatibility can be analysed from several viewpoints, but we shall take into consideration only two representative aspects of the maintenance process (Pasetti; Montagni 2003). Because of a superficial understanding of the sustainability process concept, it is quite common to detect the use of performing and easily available materials, on elements having a totally different composition (e.g. recurring cement on masonries in plaster and lime mortar). Such procedures, very often introduced by maintenance works that are typically presented as harmless, could be avoided by shifting the focus from material compatibility (of cement, in our example) to compatibility with the properties of the substratum to deal with. Such an approach thus leads to examine not the product incompatibility but, rather, its unacceptableness with regard to the substratum. In less conspicuous cases than the previous one, we could refer to a *compatibility domain* with the original, as there could exist "latent incompatibilities" still acceptable as long as their domain parameters are correctly managed.

Another aspect concerns the substratum residual performances, that are rarely considered when evaluating not only the materials to be used, but also the legitimacy of the prevention activity in itself. As for maintenance interventions, we can bring the example of the aprioristic wrapping with protection films of buildings that already bear the *sense of history*, so that their ageing should not be regarded as an urgent problem. In this way a further cue is a different conception of historical building sustainability, referred to the sense of duration, being the historical building long-lasting by definition, a feature to be kept into account both when intervening on built heritage and when approaching the theme of new works (Van Balen 2003).

Together with the aspects just reported, we must consider technologies, i.e. the application modes of techniques and materials and, in this sense, it is important to remark regulation aspects for interventions on Built Cultural Heritage. Italian laws and regulations generally present *restrictive* rules. Such rules are apparently easy to apply, very precise and prescriptive, indicating what can and cannot be done, regulating the final outcome rather than the process leading to it. In the case of maintenance interventions, technical personnel will not search for alternative solutions, which are not even required, they will just uncritically apply the modern building techniques criteria and rules. Historical technical elements will therefore be replaced because of incompatibility with performance criteria which were never foreseen for the original element.

Differently, introducing regulations that guide the technicians in searching and verifying solutions in the concrete context in which they operate leads to implementing a more complex and undefined path, inducing an active and discerning involvement in the technique.

It is therefore necessary not only for restoration works, but also for the so-called "minor" maintenance interventions, to dispose of tools that are not simply predetermined solutions, that can play the role of an identification guide, offering support in evaluating all possible existing alternatives to solve a specific and contingent problem.

Techniques application also and mainly suffers from an incorrect formulation of needs, deriving from having subjugated the sphere of built heritage to economic, temporary and performance priorities that dictate the new building process (Della Torre; Petrarola 2008). This implies that operating in respect of materials authenticity means to deal with, or better to face, a customer base, a common sense poorly prepared or insensitive towards this theme. Surely these incomprehensions could be at least partially overcome by acknowledging the original asset as a non-renewable resource, adhering to the most consolidated definition of *sustainability*. The conditioning due to new building also affects the market logic, for instance in requiring steady schedules and budgets, a very difficult request to satisfy when dealing with built heritage. To step back from this logic, it would be necessary that the works performers – the building contractors themselves – would acknowledge and claim two apparently disagreeing requests: the building yard economic management and getting the word down to a fine art.

Such reasoning recurs along the entire building process, as it is largely known that in current procedures, maintenance planning itself, as well as its management and implementation are considered uneconomic, not appreciated and carried out mostly at voluntary level.

It would be wrong to draw the conclusion that the writhing of historic built heritage is mainly due to a poor knowledge of historic building techniques. Knowledge is a necessary condition, but not sufficient: along with such knowledge, that potentially includes the capacity to do something (*savoir faire*), we need to introduce the capacity to recognize the processes that modified it (*savoir réparer*) and – last but not least – the capacity to instruct, i.e. to guide the intervention on those techniques, combining tangible and intangible heritage.

When such path is not recognized, very often the fallout is a dogmatic reconstruction, which equally betrays the historic technique philosophy. To master and maintain the historic construction technique doesn't just mean knowing how it is performed and being able to evaluate, among the possible intervention modes, the most adequate ones for the specific case under study, nor simply being able to define the acceptability thresholds of an asset's conservation conditions. Knowing this technique here means, first of all, understanding the nature of the processes which generated and transformed it, processes that are based on the sense of duration.

To this regard, it will be useful to reason about all the discerning tools which, whether more or less operationally oriented, should be capable of offering a reading capacity (manuals, procedures, codes, guides...). Leaving out such considerations, it is necessary that, regardless of the geographic aspects and of the specific case studied, such tools support the diversity and individuality of each production process; in other words, that they apply an investigation method that can juxtapose significant cases and *accidents*, meaning all the determinations of local know-hows that for various reasons did not meet the criteria to be formalized nor scientifically defined.

In fact both restoration and demolition prove to be anachronistic and misleading concepts, as in both cases the relationship with the operational mode embedded in the concerned asset – made of seamless layers – is destroyed. In particular, what gets lost is the relationship with a world that – unlike ours – was not constrained within the limits dictated by new objects production and by discarding other still valuable objects, made obsolete by research progress or by the unceasing sequence of fashion trends; a world that expressed itself also by repairing and transforming the existing (Treccani 2008).

So before even being a disciplinary problem, maintenance to be a cultural problem, which requires a change of mentality, meant as a renewal of the concepts of identities and relationships, a change in the look over things (Schurch 2006).

The need to *unlearn* a consumer logic and recover the thinking and processes that had generated those techniques does not lead to anachronistic replicating attitudes, but rather to accepting imperfection and, by consequence, accepting the underlying operative procedure: “patching mentality” (Treccani 1997).

Retrieving this mentality implies recovering not only local technical logics, but also social economic ones and therefore recognizing the historical and geographical identity. Local identity enhancement, so widely discussed, would not risk to be reduced to parochialistic claims, and could become a “resource” for sustainable development, engendering occasions for study, comparison and therefore, knowledge.

Aside of this aspect, its natural fallout would be the recognition of trades that physically contribute to the recovery of such values, i.e. heritage trades.

Know-how is an intangible asset within cultural heritage and the need of enhancing it must be pursued first of all before the eyes of its same owners, who are sometimes unconscious of the importance of their own knowledge (De Varin 2005).

In the maintenance field this means to assign the trades operating on artefacts – and therefore implementing patch ups – a value as intangible assets, both in terms of human resources, by recognizing their role within a local community, and in terms of intellectual capital and therefore of qualification.

Consequently, the recognition of the profile, before than for its technical skills, should take place within the local community, acknowledging also a social value to such trades which, differently than the poor consideration they usually deserve in our society, would thus recover credit.

The dimension of this development that uses historical building techniques and its materials as a “resource”, cannot be but local within research, following those “rather restricted areas” that would deserve further study and investigation, not only in terms of strictly speaking building techniques (materials, technologies,...), but of all those socio-economic factors that determine and influence the transformation or consolidation of the different building crafts (Fiengo; Guerriero 2003). This of course does not induce to lock out other realities, but studying and acting in a local frame means to continuously measure oneself with other more or less peripheral cases, and to refer to research methodologies and contributions, thus always reconsidering limits, methodologies and approaches.

Hence, personnel qualification issue is not only a matter of operational skills, but first of all of cognitive working-out of their own identities.

To conceive trades in this perspective implies that they should be acknowledged and induced to adopt this different approach towards technique, that implies the capacity of reading cultural heritage complexity.

Such awareness of heritage peculiarity passes on through responsibility attribution, sense of belonging, and understanding of the work grounds.

It is therefore necessary, once the double value of heritage trades is clear, to consider the issue of technically ruling the capacity to instruct, and hence, to face the theme of intellectual capital in terms of how to train operators to traditional techniques.

In many European and extra-European countries, built heritage approach is based on craftsmen and know-how traditions, both through continuity with uninterrupted tradition lines (in non-industrialized countries), and by an explicit will of recovery which led to important acknowledgments (National Heritage Training Group 2005). In this way there are some virtuous cases of material authenticity conservation, supported by an academic approach (Roos 2006).

On the other hand Italian culture, characterized by the material authenticity principle as well as by a dramatic gap with respect to historic building technique, is identifiable first of all for conservation, enhancement and management of its material resources.

Besides this different initial condition, we must also keep in mind that any context, notwithstanding the diverse technique approaches, suffers from the economic effects of market globalisation, with its outfalls on production conditions and on the mentality of involved operators. The effects of such phenomenon are not only felt in terms of “enormous widening of the contexts”, but also – from an apparently opposite viewpoint – of local dimension. This is even more true in the field considered by the present study, which implicates the need to assemble different readings of a built heritage asset which by nature is locally characterized (Bocchi; Ceruti 2004).

Finally in conservation, we must consider the relevance of the term maintenance, defined by the Code as *the whole of activities and interventions set for controlling the conditions of cultural heritage and maintaining the integrity, functional efficiency and identity of the assets and of their components*. This means not limiting maintenance to a technical activity, but integrating it in a set of activities that range from monitoring to prevention. For the acknowledgment of inspection activities as strategic maintenance steps, a significant contribution in terms of theorization and experimentation has been come from the Dutch and Belgian experience of the Monumentenwacht organizations. They are the non-profit organisations that carry out monitoring services of

historic buildings, addressed towards the reading and interpretation of the building conditions (Stulens; Verpoest 2006).

These considerations, here only mentioned, must necessarily engender reflection on the different weight that can be attributed to such crucial aspects in training strategies.

The fundamental innovation to be undertaken, within the Italian training model for maintenance technicians and operators, is certainly the transition from professional to competent understanding. The influence of such a change is not little, among the rest bringing experience into the training process and implementing the concept of continuous learning, as confirmed by a recent research in this field (Cabasino 2005).

With reference to the content of such competences, there exist many discrepancies, rightly connected to the relationship with the building process: while abroad, and even in our own building schools, technological practices prevail in education, it would be necessary, as a function of planned conservation principles, to introduce training on the problems that the building process might present, as the operator should not have to simulate it, but rather to understand it and read it when this has been practiced since many years. This is the outcome of a wider concept of maintenance that considers inspection and activity themes as linked. Hence, in training, the awareness development of the person in charge of performing the activity is a priority: ability to understand the artefact's complexity is crucial in order to develop a responsible attitude in the actor, whether it is a technician, expected to analyse the phenomenon, or an operator who, although not required to understand the phenomenon, should be involved in the reasons guiding the intervention.

Finally, an important aspect concerns cultural coherence linking working safety concepts to those on built interventions, as regulated care towards materials considered noxious in terms of workers safety necessarily becomes conservation and consequently safety of the built heritage, favoring an increase of awareness. The development of such interaction within training & education environment would allow to increase operators' awareness, indirectly improving the work implementation quality, also on less controlled heritage, such as the buildings not subject to protection.

Therefore, upgrading from professional competences to a competence strategy both means to re-evaluate experience, notwithstanding the contradictions in which it is presently practiced, and to accept an idea of training not limited to educational activities but taken up, updated and implemented into continuous training instances. Between the operators there is a considerable need to have an education linked to local context, where they work (Cepollaro 2001).

In operative terms, this important aspect might require the direct intervention of the same restoration companies active in the sector, qualifying structures and increasing operators' responsibilities. Continuous training planned within the companies, as medium-size entity equipped with a sufficiently modular structure, would though bring a number of problems to face, such as personnel variety (due to cultural background, roles, age), the difficulty in identifying efficient communication tools, competence transfer modes linked to sensitivity and to curiosity stimulation.

Notwithstanding, continuous training produces important externalities to justify investments in such direction, as it not only means to qualify the maintenance intervention or activity to be performed, but in a larger sense, to qualify the offer, contributing to introducing a new and better qualified market sector (Johansson 2008).

CONCLUSIONS

The role of historical building techniques in maintenance activities is a complex issue which, although stemmed from a disciplinary problem, must be faced as a cultural issue, in order to later find back an operative dimension within the cultural heritage sector.

In these steps, we tried to highlight the main implications of building techniques knowledge, as a significant example of acknowledging a different approach towards Built Cultural Heritage, the value of trades linked to built heritage maintenance interventions, and the qualification of intellectual capital.

Even if the aspect related to operators' training and their relationship with the building process certainly doesn't pull off the problem, it certainly constitutes a poorly developed thematic which, if appropriately developed, can become an important reading key of another delicate and articulated process, such as the one related to local communities intangible heritage.

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