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Sustainable Education for Sustainable Heritage: Managing the Tension Between Professional Practice and Critical Inquiry

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ABSTRACT

This paper reflects on Uppsala University's experiences from organizing higher education in conservation, and argues how curricula can be rethought and reorganized to foster a genuine shift towards sustainable education. It discusses various experiences of developing and planning interdisciplinary higher education programs in conservation and how curricula can be transformed to broaden the sustainability competence of future heritage professionals. We need to foster heritage professionals that are capable of exploiting the dynamic and negotiated nature of heritage for the good of society. By embracing change and loss there are opportunities to use heritage in more benign and sustainable ways. But there are profound differences between how heritage and its role in society are understood in conservation as a field of practice and as a field of inquiry. Based on the experience from Uppsala University, the authors argue that there is a need for a conservation curriculum in higher education that balances and integrates normative competence and critical inquiry: a middle path, where opposing perspectives can thrive in parallel.

RÉSUMÉ

Cet article revient sur les expériences de l'Université d'Uppsala en matière d'organisation des études supérieures en conservation-restauration, et explique comment les programmes scolaires peuvent être repensés et réorganisés en faveur d'un véritable tournant vers l'éducation durable. Il aborde des expériences variées autour du développement et de la planification de programmes d'études interdisciplinaires en conservation-restauration, ainsi que la manière dont les formations peuvent être modifiées pour élargir les compétences des futurs professionnels du patrimoine en ce qui concerne la durabilité. Nous devrions favoriser des professionnels du patrimoine capables d'exploiter la nature dynamique et discursive du patrimoine pour le bien de la société. En acceptant le changement et la perte, il est possible de donner au patrimoine un impact plus bénéfique et durable. Mais il existe de profondes différences suivant la manière dont le patrimoine et son rôle dans la société sont perçus en conservation-restauration, comme un domaine relevant de la pratique ou comme un domaine pouvant être soumis à un examen critique. D'après l'expérience de l'Université d'Uppsala, les auteurs affirment que le programme des études supérieures en conservation-restauration doit intégrer et trouver un équilibre entre compétences normatives et examen critique : un juste milieu, où les perspectives opposées peuvent se développer en parallèle. Traduit par Louise Klein.

RESUMO

Este artigo reflete sobre as experiências da Universidade de Uppsala na organização do ensino superior em conservação e argumenta como os currículos podem ser repensados e reorganizados para promover uma mudança genuína em direção à educação sustentável. Ele discute várias experiências de desenvolvimento e planejamento de programas interdisciplinares de ensino superior em conservação e como os currículos podem ser transformados para ampliar a competência em sustentabilidade dos futuros profissionais do patrimônio. Precisamos promover profissionais do patrimônio que sejam capazes de explorar a natureza dinâmica e negociada do patrimônio para o bem da sociedade. Ao aceitar a mudança e a perda, há oportunidades de usar o patrimônio de maneiras mais benignas e sustentáveis. Mas existem diferenças profundas entre como o patrimônio e seu papel na sociedade são entendidos na conservação como um campo de prática e como um campo de investigação. Com base na experiência da Universidade de Uppsala, os autores argumentam que há necessidade de um currículo de conservação no ensino superior que equilibre e integre a competência normativa e a investigação crítica: um caminho intermediário, onde perspectivas opostas possam prosperar em paralelo. Traduzido por Teresa Lança.

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RESUMEN
En este artículo se reflexiona sobre las experiencias de la Universidad de Uppsala en la organización de la enseñanza superior en el ámbito de la conservación y se argumenta cómo pueden replantearse y reorganizarse los planes de estudio para fomentar un verdadero cambio hacia la educación sostenible. Se analizan diversas experiencias de desarrollo y planificación de programas interdisciplinares de educación superior en conservación y cómo pueden transformarse los planes de estudios para ampliar la competencia en sostenibilidad de los futuros profesionales del patrimonio. Necesitamos formar profesionales del patrimonio que sean capaces de explotar la naturaleza dinámica y negociada del patrimonio por el bien de la sociedad. Aceptar el cambio y la pérdida brinda la oportunidad de utilizar el patrimonio de forma más benigna y sostenible. Pero hay profundas diferencias entre cómo se entienden el patrimonio y su papel en la sociedad en la conservación como campo de práctica y como campo de investigación. Basándose en la experiencia de la Universidad de Uppsala, los autores sostienen que es necesario un plan de estudios de conservación en la enseñanza superior que equilibre e integre la competencia normativa y la investigación crítica: un camino intermedio, donde puedan prosperar en paralelo perspectivas opuestas. Traducido y revisado por Ramón Sánchez y Vera de la Cruz; revisión final por Amparo Rueda e Irene Delaveris.

1. Introduction

> It is incumbent on all of us, in an age of uncertainty and change, to equip the next generation of heritage-conservation professionals with the knowledge and skills needed to enable them to face the challenges and to develop sustainable strategies for heritage conservation in the twenty-first century. (Cassar 2009)

Like many others, Uppsala University began to describe and advertise its education and research with a sustainability jargon around a decade ago. "Sustainability," "sustainable development," and "sustainable management" were phrases that diffused into the University's course syllabi and research agendas. Partly, this was a conscious development – Uppsala University wanted to transform its education and research towards more sustainable ends – and partly, it was a re-branding of existing content. No matter if this development was mere discursive – following the herd – or intentionally transformative, it clearly was not founded on explicit and coherent ideas or principles of what sustainability is and how it can be approached in education. This paper aims to reflect on Uppsala University's experiences in organizing higher education in conservation, and argues how curricula can be rethought and reorganized to foster a genuine shift towards sustainable education.

Based on the experiences from Uppsala University we argue that a rethinking of the aims and means of our programs in conservation is needed to foster heritage professionals that are capable of exploiting the dynamic and negotiated nature of heritage for the good of society. By embracing change and loss, as argued by Harvey and Perry (2015), there are opportunities to use heritage in more benign and sustainable ways. But there are profound differences between how heritage and its role in society are understood in conservation as a field of practice and as a field of inquiry. Classical theories of conservation were entrenched in an understanding of heritage as something static, rather than dynamic, where the fundamental professional ethos was to reinforce stability and truth (Muñoz Viñas 2005). These philosophies are still foregrounding the situated negotiations that conservation professionals engage in when deciding on how to proceed with material interventions (Jones and Yarrow 2013). The experience of the Department of Art History at Uppsala University is that the closer one gets to decision-making in practice, the more influential this essentialist legacy is. Such understandings are in stark contrast to the critical account of heritage and heritage practices found in critical heritage studies. The authors of this paper acknowledge this tension and argue that instead of siloing these ways of approaching heritage, there is a need for a conservation curriculum in higher education that balances and integrates normative competence and critical inquiry.

The discussion of the relationship between heritage and sustainability frames Uppsala University's objective to organize sustainable education. Is heritage a resource or an obstacle to sustainable development? Many voices from within the field of conservation claim that heritage can, in various ways, contribute substantially to a more sustainable future. However, data to support many of these claims is lacking (Avrami 2016). Barthel-Bouchier (2013) has argued that the relevancy of heritage conservation as a professional enterprise became disputed in the second half of the twentieth century, and that the adoption of sustainability as a "new mission" was a way of legitimizing conservation, offering a new role for heritage experts to contribute with scientific

solutions to contemporary societal problems. In her account, sustainability is used by a global community of heritage experts to make heritage relevant across sectors, fending off the risk of being treated as an advocacy group.

To what degree heritage conservation and sustainability can be aligned will continue to be debated. However, more and better data will not ultimately resolve the issue. Heritage practices are social phenomena, and in that capacity not static as the material remnants of the past, and there are opportunities for reconciliation. As pointed out by May Cassar (2009), there has been a paradigmatic shift in conservation thinking in parallel with the formation of sustainability principles. These developments are still very much ongoing both in practice and in academia. It has been suggested that the lack of integration between sustainability and heritage conservation is a systemic issue, evident in professional regulation and funding schemes, but also in ways of thinking, and that integration and training are keys to progression (Pollock-Ellwand 2011). Others have argued that the contingency of the valuation of heritage offers opportunities (Pendlebury, Hamza, and Sharr 2014).

Education was recognized as key to sustainability already when the concept of sustainable development was introduced at a global level by the United Nations (UN) and is now labeled as Education for Sustainable Development (ESD). ESD deals with knowledge, skills, attitudes, and values necessary to actively take part in shaping a sustainable future by including issues such as climate change, poverty reduction, etc. into teaching and learning, and by promoting competencies that are holistic, contextual, and relational. To implement the five main sustainability competences that have been identified and agreed upon, e.g., systems-thinking, anticipatory, normative, strategic, and interpersonal (Wiek, Withycombe, and Redman 2011), into our education programs, it is important to interpret and specify what they imply in and for heritage conservation. Internationally, societies are facing dire challenges such as globalization, anthropogenic climate change, and social exclusion. The COVID-19 pandemic has created unforeseen consequences for the whole cultural sector. The simple truth is that it is unknown what kind of societal challenges will shape the professional careers of students in the heritage field in the future. Therefore, students have to be equipped with universal abilities and skills that will be sustained through life-long learning. The authors agree with Cassar that it is critical to educate "reflective practitioners" who are able to think and go beyond existing work processes and practices (Cassar 2009). The recent ICOM conference provided useful examples of pedagogical practices that support such learning, such as reflexive autoethnography (Henderson, Lingle, and Parkes 2023) and collaborative co-creation (Herriges and Thompson 2023). The present paper discusses a few fundamental issues that we have considered when planning for education in conservation, and adds some examples of pedagogical practices that might serve as inspiration for others.

Throughout the paper, Uppsala University's own journey to develop education in conservation is discussed to explain how the increasingly important theme of sustainability has motivated educators, as well as the organizational field of conservation in general, to revamp the University's programs and activities. To what extent this process also has involved a rethinking of the means and ends of conservation is debatable. The first section illustrates how important this issue is. It is about making conservation truly relevant in society, evading hypocrisy and embellishment. Still, the remaining challenge is how existing education can be transformed to capacitate students with the competencies they need to develop sustainable practices in conservation. We cannot give final and generalizable answers, but instead the authors would like to put forward two didactic themes that they believe should be considered in future conversations about how to reform educational programs. Finally, a way forward in the intersection between traditional conservation and critical heritage studies is advocated.

1.1. Tension between conservation as a field of practice and as a field of inquiry

Conservation is foremost a field of practice. It became institutionalized and professionalized as such in the modern era. Science has since the beginning provided heritage professionals with knowledge about how to preserve objects, but it is only in the latter half of the twentieth century that conservation emerged as a scholarly discipline in its own right, with university departments, courses, and research. Still, these departments are mere umbrellas for interdisciplinary inquiry of cultural heritage practices, and the scholarly controversies about ontology and methodology are not as chiseled as in more established disciplines. The distinctions between conservation, heritage science, heritage management, and heritage studies as scholarly disciplines are fluid and ambiguous. Similarly, it is difficult to separate heritage practice from heritage as a theoretical inquiry, even though courses and programs taught at universities tend to focus on one or the other. This division has its explanation in the developments of conservation and heritage studies as academic disciplines that have happened over the last decades.

With growing environmental and social concerns in the mid-twentieth century, heritage was re-defined as a process departing from a contemporary perspective. Heritage professionals were no longer merely interested in material form and fabric, remnants from the past with inherent values and the conservation of the original, but also in heritage landscapes and social and political significance of heritage. These turns and new directions formed the basis for heritage studies as an academic discipline of its own. In 2006, the concept Authorized Heritage Discourse (AHD) was introduced by Smith in her book *Uses of Heritage* (Smith 2006). Smith identified AHD as a dominant Western heritage discourse, based on the idea that heritage is a thing with inherent value, which has consequences for heritage practice. As a response and challenge to the existing AHD, the Association of Critical Heritage Studies (ACHS) was established in 2012 and the field of critical heritage studies grew and is now considered a discipline of its own. The word "critical" was added to heritage studies to describe a criticism against the dominant Western and Eurocentric authorized heritage discourse that privileges monumentality, buildings, artifacts, age, esthetics, as well as expert values and knowledge, at the expense of local popular heritage narratives, discourses and practices. These developments of conservation and heritage studies resulted in two *separate* concerns: heritage as a field of practice and as a field of inquiry.

The merger of sustainable development and conservation/heritage studies started at the end of the twentieth century and was formalized in an academic field, sustainable heritage, in 2000 when the Institute for Sustainable Heritage was established at University College London. Its primary and initial concern was preventive conservation with a particular focus on the impact of climate change on cultural heritage.[1] Since then, sustainable heritage has developed in various directions and is currently combining scientific research with explorations of how heritage is valued (e.g., Albert, Bandarin, and Roders 2017; Harvey and Perry 2015; Larsen and Logan 2018). It has developed from focusing on measures to include planning, which has resulted in the involvement of local communities now partaking in definition and selection of what kind of heritage needs to be protected. It is not only about the past and the material heritage itself, but also about the present and the future, and the people who relate to heritage. One of the main challenges in contemporary sustainable heritage is to move beyond and bridge the dichotomy identified above, for example heritage as practice concerning sites and objects identified within the AHD vs heritage as critical inquiry challenging the dominant Western and Eurocentric discourse.

In Sweden, conservation as an academic discipline was established in the late 1970s at Gothenburg University. The first step was a profession-oriented BA program in "Integrated Conservation of the built environment." In the years to follow, a Master's level was established and the scope widened to include the training of object conservators and qualified crafts persons. Today, Gothenburg University has a broad academic environment in Conservation with four BA programs, two Master's programs and a PhD program.

Inspired by the development at Gothenburg University and driven by a recession that caused high unemployment in the construction sector, Gotland University, a small regional university, started a one-year building conservation program in the late 1980s for further education of engineers and architects. A need to broaden the competence among people working with built heritage was also identified, to create a space for communication between heritage experts, architects, engineers, and crafts persons. Conservation officers traditionally had educational backgrounds in art history and the humanities, but little practical knowledge about traditional building materials and construction techniques. Hence, emphasis was put on didactics that integrated practical skills with historical and theoretical aspects of conservation. The building conservation program at Gotland University grew organically to a three-year BA program. In 2003, a BA program for object conservation was introduced. In 2013, Gotland University became part of Uppsala University, and conservation is now a unit within the Department of Art History.

The latest development at Uppsala University, and the one central to this paper, was the development of an international Master's program called Cultural Heritage and Sustainability. The program is built on ongoing research among the faculty in areas that relate to both sustainability and heritage: heritage in conflicts, heritage politics, heritage as a driver for regional development, heritage, and climate change. Compared to the undergraduate programs, this program is more focused on critical perspectives, strategic management, and global issues. The students have a more diverse educational and cultural background in comparison to the relative homogenous student groups of the BA programs. While the undergraduate programs largely prepare students for an existing professional role,[2] with its relatively fixed repertoire of working practices, the Master's program is aimed towards heritage leadership on a global scene. The main difference is that the undergraduate education is preparing for existing professional practice ("inside the box") while the Master's program is preparing students for strategic management where existing work practices and institutional structures

might be questioned to a larger extent. Not all students are knowledgeable of both of these perspectives. This leads to the next section of this paper, which, through a case, aims to illustrate the tension between professional practice and critical inquiry.

1.2. Energy efficiency in historic buildings

The following section aims to illustrate how education in conservation has to prepare students for multiple and diverging expectations in professional conservation practice. We use the case of energy efficiency in historic buildings, as it is a familiar example both as an area of research and as professional practice. Many of the aspects that this paper revolves around are put to the point here, but this case reflects challenges found in many different forms of conservation practice.

On the one hand, Sweden has ambitious targets for the reduction of greenhouse gas emissions. Decarbonizing the built environment, mainly through improving the energy performance of existing buildings, is an important measure for achieving these targets. On the other hand, there is also a societal goal to preserve cultural heritage values in the built environment, inscribed in the legislation about spatial planning. In the planning process of restoring or renovating a historic building, it is often the task of a heritage manager, in collaboration with other professionals, to make sure that this legislation is followed. In practice, this is often carried out by the heritage manager through a heritage value assessment. Based on this assessment, the role of the heritage manager is to negotiate aspects of conservation with the other objectives of the renovation process. In essence, the challenge is how to reduce energy demand and greenhouse gas emissions without unacceptable effects on heritage values.

The decision processes in building renovation projects are traditionally dominated by techno-economic considerations. In recent years, progress has been made to integrate consideration of heritage values into decision support and decision-making in a more systematic way (e.g., CEN 2017). Still, such attempts of integration presuppose that heritage values are more or less unambiguously defined, compartmentalized, and quantified. For example, what parts of a building are valuable, what is the priority among these parts? It is expected that a conservation professional can deliver such assessments and contribute to the collective aim of sustainable development. The planning discourse is by nature converging towards a common and accepted commitment to act. The multiple perspectives and understandings of a building and its values have to reconcile in the end (Yarrow 2018).

This account is not reflected in the critical heritage discourse, where heritage is not considered a physical feature with inherent value(s) but rather a negotiable process. From this perspective, there is another set of questions that is dominating: What is Heritage? Who defines it? What relations of power does it sustain? It is essential for conservation professionals to understand and explore critical heritage perspectives in their daily work practices, not least to identify solutions that are sustainable not only from a micro perspective, but also in a broad and dynamic societal context.

One of the most heated controversies around improving energy efficiency in historic buildings is improvement or replacement of windows. There is a limited number of possible practical solutions. The question is which of these would provide an acceptable balance, fulfilling both demands on energy performance and on conservation? Weather stripping existing windows gives a small but significant energy saving with no impact on the historic fabric or the esthetics. Using curtains at nighttime also gives a small saving with none, or very little, impact. Adding an extra glass pane on the inside, or replacing old glass with modern high-performing glass, can significantly improve the energy performance, but will alter the visual impression of the window, and to some extent the existing fabric. Replacing the whole window can be the most energy-efficient option, but it is also the most negative one in terms of lost original fabric and, often, visual impact. By imitating the existing window in terms of materials and techniques, it is possible to visually get close to the look of the original window. Far more common, however, is that the replaced windows will have a very different appearance (see Figure 1).

With a typical framing of the decision, the role of the heritage manager is to assess the negative impact on heritage values and propose an acceptable level of intervention which is specific to the individual building (component) and context. In practice, the legislation provides room for negotiation and the outcome is not predetermined. To fulfill the expectations of this role, the conservation professional has to be able to identify and assess the heritage values of the existing windows, assess the consequences of different levels of intervention, and finally to motivate the assessment in a way that is comprehensible to the other stakeholders.

However, decision-making can be framed in other ways. Firstly, the improvement of the window is only a small part of the building, which will undergo many changes throughout its existence, not only physical ones. The building will be used in different ways, and

Figure 1. The original traditional window has been replaced with a modern style window.

the meaning of the building will also change with time, it is a "dynamic project" rather than a "static object" (Latour and Yaneva 2008). The building itself is a part of the larger built environment, situated in a rural or urban landscape. Zooming out from the window both temporally and spatially, other aspects related to heritage planning come to the forefront. How can the area develop as a whole, for what purposes, and what role can heritage play in that process? Secondly, another framing emerges if conservation *doxa* about preserving the original fabric are contested by focusing more on intangible values. By replacing the windows with energy-efficient replicas made with traditional techniques, craft traditions can be preserved. Third, what if people who use the building, or the public, disagree with the expert opinion on the heritage values – who gets to decide? This example illustrates the multiple, and at times contradictory, expectations on heritage professionals and the need to move between different perspectives.

2. Pedagogical implications

Based on the identified tension between conservation as a field of practice and as a field of inquiry illustrated through the example of energy efficiency in historic buildings above, two didactic themes are presented to highlight the pedagogical implications and to be considered when re-thinking educational programs in conservation.

2.1. Balancing practical-converging and critical-diverging approaches to problem-solving

Our example from conservation practice – energy efficiency in historic buildings – showed that multiple expectations, operating at different levels of decision-making, exist for professionals. A key ability for finding sustainable solutions lies in the capacity to understand and manage such complex expectations. The tension between static and normative practice aiming at finding plausible solutions, clashes with critical accounts of heritage that emphasizes divergence and dissonance. We suggest that the balancing of the two is an important, if not determining, challenge for sustainable education in conservation.

Preparing conservation professionals for typical tasks of their prospective daily jobs is a necessary part of an educational program – hence the emphasis on practice in many conservation courses and programs. It is apparent from the discussion above that an exclusive focus on practice is not sufficient and should be complemented with critical perspectives. We contend that conservation students should develop the ability to engage with professional challenges in multiple and at times contradicting ways.

The separation, or at least lack of integration, between conservation as a field of inquiry and as a field of practice necessitates a dual perspective. In order to prepare for a reflective practice, students should develop the ability to move back and forth between the practical and the critical in their thinking.

The authors call these approaches practical-converging and critical-diverging.

As shown by the energy efficiency example, there is a role for the conservation professional to engage in negotiations of different interests, with the aim to find a balance between policy objectives. In such decision-making contexts, there are given (but often ambiguous, complex, and uncertain) risks and benefits associated with different courses of action, and decision-making is about finding the most effective, benevolent, and ultimately the most sustainable, alternatives through interdisciplinary collaboration. This is a *practical-converging* process, which aims to find optimal, or at least acceptable and pragmatic, solutions within the given framing. Through convergence, it will reinforce existing power relations and stabilize existing structures. While objective goals often play important roles in practical decision-making, for example, to mitigate climate change, they are unlikely to resolve complex sustainability challenges on their own. The risk lurking when working within this process is that fundamentally unsustainable practices will be repeated and reinforced.

On the other hand, there are situations when also the practitioner should look *beyond* the given framing of the decision-making process. By imagining the future based on what is now considered possible, practitioners, educators, and students limit themselves to optimization. Shifts towards more sustainable practices might emerge through the engagement with radical futures, where taken-for-granted views of what is possible (and desirable!) are re-imagined and re-negotiated (Barrineau, Mendy, and Peters 2022). This could be called a *critical-diverging* approach, an approach that questions the fundamental assumptions of established decision-making practice. Here, the aim is not compromise and consensus, but to lay bare unjust and unproductive taken-for-granted norms and practices in both the own professional field and others. Challenging the status quo and looking beyond traditional borders can be disruptive and provoke change towards more sustainable practices. To use this approach in practice, however, requires a sense for how far established assumptions can be challenged without backfiring.

We argue that both the practical-converging and the critical-diverging approaches are essential parts of the reflective practice of conservation professionals. It has been suggested that complex sustainability challenges are matters of situationally specific interpretation (Guy and Moore 2007). The ability to engage with both practical-converging and critical-diverging processes in situated practices should be developed early during the training for a professional career. To master both approaches requires a range of competencies that clearly overlap with the set of sustainability competencies put forward by Education for Sustainable Development (ESD).

2.2. Controversy over consensus – embracing the contested and dynamic nature of sustainable heritage

Education of professionals in conservation has to be normative to some extent. Just as the education of healthcare professionals is based on teleological assumptions about better health, so does our education aim to better preserve and use heritage. But while the healthcare system can be evaluated through a number of agreed indicators, it is not that easy for heritage. Life and death are, after all, not social constructs. Persuading students with preset ideas about the values of heritage conservation is a cul-de-sac. Instead, students in conservation should be equipped with the ability to reflect on both benevolent and unfavorable roles of heritage.

A transformation of education in conservation to facilitate sustainable development must be based on ideas about the relation between sustainability and heritage. Any attempt to exactly define and delimit sustainable heritage is not possible given that sustainability and heritage are both malleable terms. Sustainability is not only that which is framed by, for example, the SDGs. Recent critical analyses of the SDGs suggest that the politics of "leaving no one behind" (UNCDP 2018) in reality leaves very many behind (Weber 2017) and that there are lots of unheard marginalized voices still to be included (Briant Carant 2017) for the SDGs to be relevant and truly sustainable. Likewise, heritage is not only limited to definitions expressed within the Authorized Heritage Discourse (AHD) or critical heritage studies. Embracing a multiplicity of interpretations is stimulating and productive even though this is not necessarily what (new) students expect. To discuss and be challenged by a diversity of perspectives will strengthen the normative competence of the student.

2.3. A third way in the intersection between traditional conservation and critical heritage studies

To foster professionals that have the ability to reconcile heritage and sustainability, a third way in the intersection between traditional conservation and critical heritage studies is proposed. Despite our best intentions, students still found themselves equipped with simplified and one-sided ideas about what sustainable heritage is

and how it could be reached. We saw the need to integrate a multitude of objectives, worldviews, and ways of inquiry in the curriciula. We assert that the skill set needed to navigate this contested and contradictory landscape is a key sustainability competence for heritage conservation students.

Classical theories of conservation based on the inherent value of the object, and conservation understood as a truth-seeking endeavor, have been replaced by theories of value-led conservation, where the meaning of heritage objects for living and future people is understood to be the basis for decision-making (Muñoz Viñas 2005). Heritage values tend to be remarkably stable but there are aspects that change more rapidly, and there are values that might change as a response to wider societal challenges (such as climate change) (Pendlebury, Hamza, and Sharr 2014). Displacing heritage by rocking its foundation can open up for innovative ways of sustainable heritage management, for example by "embracing change and loss" as argued by Harvey and Perry (2015) or "learning to love the landscapes of carbon neutrality" as argued by Selman (2010). Static views on heritage values are played out in practice in the context of living heritage (Miura 2005). Its protection through the 2003 UNESCO *Convention for the Safeguarding of the Intangible Cultural Heritage* (2003) freezes it in time and makes heritage practices and management based on traditional knowledge impossible to maintain since they are implicitly and continuously changing and sometimes oppose material-based approaches to heritage conservation. Likewise, visits to heritage sites can be described in terms of "sustainable tourism," but is undoubtedly a part of the tourism industry, which causes a multitude of social and environmental problems (Barthel-Bouchier 2013).

Brumann (2014) argues that polarized and entrenched beliefs of heritage as either something "good" or "bad" obstruct engagement with many issues where heritage plays important roles in society. Therefore, he suggests a theoretical middle path by introducing the concept of heritage agnosticism, which is the space between heritage belief (where heritage objects have intrinsic value and their conservation is taken-for-granted) and heritage atheism (where heritage has no intrinsic value and can be everything and anything). We suggest that education in conservation should embrace heritage agnosticism as a basis for reflective practice, where the student learn to reflect on the means and ends of conservation in both conventional and innovative projects.

To equip students with the competences needed to deal with the tensions outlined above is a pedagogical challenge. Starting from a mainly instrumental approach, as described above, our educational programs have developed over time – sometimes intuitively, sometimes deliberate and strategically. The first part was to broaden the curriculum, this in turn meant we had to broaden the faculty. As the program was extended to three years, courses dealing with the fundamental principles of conservation and restoration were given more room. Still, these courses were largely lacking critical perspectives. The recruitment of faculty with a critical heritage perspective led to vitalizing discussions, which in turn have led to more integrative approaches within the courses.

From the Master´s program in Cultural Heritage and Sustainability we have identified a few concrete examples of (rather simple and hands-on) activities that we believe have been successful in developing the competencies outlined above. This is based on our experiences as educators and on feedback and dialogue with students. We cannot guarantee that they will play out well in other contexts, however, we hope that they can be useful as inspiration for other educators developing their conservation programs.

For example, the course in building physics had been an "engineering light" course with a focus on heat and moisture science. It has now evolved into a course where non-convergent decision-making (as outlined above) has become an end and building physics a means.

A focus in one of the courses is climate change adaptation, preventive conservation, and energy efficiency. From the start students worked with case study buildings to design an environmental control strategy and to suggest a technical solution to achieve the desired indoor climate (e.g., heating, ventilation, etc.). Gradually the assignment have changed to center on innovative re-use of the buildings. Working in groups, students come up with different scenarios for future use and evaluate the consequences with an iterative design approach. This re-centering of the task forces students to engage more with the heritage values of the building in relation to its wider function in society. The first discussions among students about new future uses tend to be critical-diverging, but in the end, they have to converge their ideas to a practical and relevant result.

The second pedagogic example is inspired by the question asked by Stacy Alaimo (2012): "what it is that sustainability seeks to sustain and for whom"? One may interpret this as questioning more generally: What stories and structures are we upholding? On what values are these based? What may alternatives look like? The aim of the exercise is to engage with

the presentation of the objects and the narratives that contextualize them within a museum setting in relation to sustainability and the UN Sustainable Development Goals (SDGs). Students work in groups, their task is to critically analyze the display of a museum collection guided by the following questions:

> Can any of the SDGs be linked to what is on display at present?
>
> How would you rework or retell the display to focus on sustainability more? Here, you can define what sustainability means or should mean yourself.
>
> If any, what limitations or restrictions do you encounter in order to rework the display?

In addition to present the analysis done by the group, each student has to write a personal reflective report on the group work. This exercise has been fruitful to stimulate reflection on both sustainability and heritage and how they relate.

The third example is a cross-disciplinary introduction to sustainability for all new Master's students on Uppsala University Campus Gotland. We include common introductory days in our curriculum to explore collaborative, creative, and critical learning in a safe space, and to open up for new collaborations across disciplines. The event includes a literature seminar to discuss perspectives on sustainability, global justice, the historical roots of the concept of sustainable development, and the role of education. The seminar is followed by a full-day excursion where students visit different places and actors that have bearing on sustainability challenges, for example, the limestone industry on Gotland. Students across disciplinary domains engage in questions such as: What is your vision of sustainability? What can we do today to make alternative futures possible? How can education contribute to sustainable development? The event has been useful to kick start a conversation about sustainability among students on campus, to form informal networks and to widen understandings on disciplinary perceptions of sustainability.

In conclusion, the main argument of this paper is, inspired by Brumanns heritage agnosticism, that an awareness and acknowledgement of the complexities of conservation practices and heritage management is necessary. In an educational situation this means certain pedagogical practices, such as offering students in all coursework both recognition of and foundational knowledge and time and space to reflect on their learning process, to critically question and analyze the given framing of their task, to bolstering the self-esteem of students in their role as professionals in order to provide a "safe" space for discussing critical perspectives, to discuss specific regional/national practices in a global perspective, and to include cross-disciplinary activities in general.

Notes

1. https://www.ucl.ac.uk/bartlett/heritage/
2. When the undergraduate program started, focus was on educating building conservators, involved in both practical building conservation and its management. The current programs are more directed towards heritage management.

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