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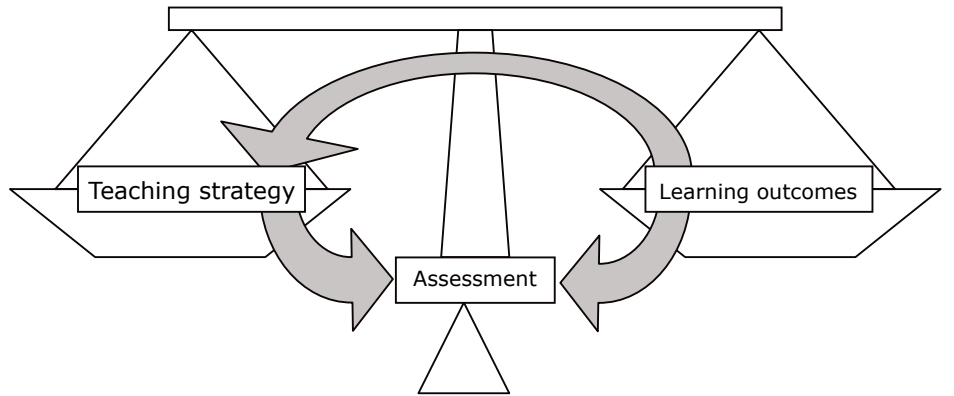
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Dear Reader,

With this the second issue of JCRE we are proud to present the first peer reviewed paper “Developing an accountable system of Conservation-Restoration Education at Oslo University through the use of learning outcomes” by Jeremy Hutchings. We will continue to publish papers with anonymous peer review according to recognised international praxis by request from the author in the future. In addition, JCRE will of course also continue to publish important informative papers of interest to conservation-restoration education and our relation to the profession. One such paper is “Writing the Professional Competences/EQF” by Susan Corr. Moreover, you will find a review of the Bologna Process 2020 - The European Higher Education Area in the new decade as well as a presentation of the European Network on Research Programme Applied to the Protection of Tangible Cultural Heritage (NET-HERITAGE). On behalf of the Editorial Committee I like to express my hope that these contributions to developing the quality of education, the discussion and exchange of experiences among professional educators and our fellow professionals may encourage you, dear reader, to send in your important contribution for the next and future issues of JCRE.

René Larsen

Chairman of the Board of ENCoRE

Developing an accountable system of Conservation-Restoration Education at Oslo University through the use of learning outcomes *(Peer reviewed)*

Jeremy Hutchings, Associate Professor, University of Oslo

Conservation-restoration is an empirical science devoted to the preventive and remedial treatment of cultural heritage objects¹. At a professional level, it can be characterised as a mix of theoretical knowledge and practical skills, including the ability to judge ethical and aesthetic issues in a systematic way². Whilst conservation-restoration originates from highly skilled craftsmanship and the arts, it has developed academically during the 20th century to include humanistic and natural sciences, applied chemistry and physics, as well as analytical, organisational and philosophical elements. Its education is therefore characterised by a diverse teaching curriculum, which includes the development of practical skills, systematic problem solving, knowledge of material and their properties, the behaviour of materials under the influence of external factors, methods of preventing damage, the treatment of damage and decay, aesthetics and ethics. The combined learning outcomes of conservation-restoration education must therefore represent an appropriate balance between these elements, measured as theoretical knowledge integrated with practical skills and competency, corresponding to the qualifications needed to enter the profession.

Few, if any, bachelor and masters courses in different fields require such a diverse curriculum in order to develop the wide variety of skills, knowledge and competence demanded by conservation-restoration. This combined with the relative newness of many of the university programmes, and the different traditions of conservation-restoration education across Europe, means that there is a diversity of educational approaches, many of which are still actively evolving. Professional guidelines have been issued that describe the minimum level of education for entry into the profession, practical training and theoretical instruction. These however only express the balance between theoretical knowledge, practical skills and competency in general terms; for example, as a good balance of theoretical education and practical training and by the capacity of a graduate to “work responsibly in the field of conservation-restoration of cultural heritage”³. Whilst these guidelines offer sensible

assistance they are too general to be used for the systematic characterization of the education standards. This paper proposes that by expressing the requirement of an education programme in terms of learning outcomes the balance between knowledge, skills and competence can be made explicit.

Due to the level of education required to enter the conservation-restoration profession it is now widely accepted that that a minimum of five years full time study or its equivalent is necessary⁴. This equates to a combined bachelor (BA) and master (MA) education or 300 ECTS points. The BA is regarded as an entry requirement for the MA and not as qualifications for independent professional practice in conservation⁵. Whilst this supports the argument for restricting the teaching of complex interventive conservation techniques to the master’s level, sufficient time needs to be given for the development of skills and for adequate coverage of the curriculum. Therefore careful consideration must be given to the distribution of teaching between the two levels. Simply stated, delivering learning outcomes at the bachelor degree that allow a graduate to practice as a conservator-restorer, albeit at a less competent level, is contrary to the current accepted minimum level of education for a professional. The result is students graduating from programmes having obtained the basic knowledge and skills necessary for the remedial treatment of cultural objects, but who are prevented from doing so by professional standards. Although this argument can be countered by the acceptance of a conservation technician qualification, a recent development in the UK⁶, such a level is not widely accepted throughout Europe and is seen as undermining professional status.

This paper presents the approach to conservation-restoration education adopted by the Department of Conservation Studies, IAKH, University of Oslo and the systematic development of learning outcomes that has been carried out. It reflects the department’s drive towards improving conservation-restoration education in Norway and the continuing implementation of the Bologna process

within higher education in Europe. I will start by discussing the principles, context, application and benefits of learning outcomes and then go on to describe the theoretical hierarchy of learning that represents the different levels of skills, knowledge and competence. These hierarchies form the basis on which learning outcomes can be constructed. A summary of the process that has been undertaken by the Department of Conservation Studies is given, which places these developments in context, and explains why the Bologna Process has been particularly helpful during what has been a transitional phase for the conservation-restoration education in Oslo.

The paper will also present a possible future advancement stemming from the recent work carried out by E.C.C.O. defining the level of competence for access to the conservation-restoration profession. This raises the possibility of developing a mechanism for quality assurance within conservation-restoration education⁷ throughout Europe. In essence it could be achieved by comparing the learning outcomes of a particular conservation-restoration programme with the professional access requirements defined by E.C.C.O.

How learning outcomes relate to the bologna process

The joint declaration of the European Ministers of Education, often referred to as the Bologna Declaration⁸, has changed the higher education system across Europe. Starting what is now referred to as the Bologna Process; this declaration aims to create a single European Higher Education Area by 2010. One of its principle objectives is to make education programmes and periods of learning more comparable and compatible. The educational model that it has adopted is based on three cycles, undergraduate, graduate and PhD, with access to each cycle requiring successful completion of the cycle directly below. The undergraduate cycle is a minimum of three years leading to a bachelor degree, the graduate cycle is two years leading to the master degree and the research-graduate cycle leads to a doctorate degree.

A universal education system across Europe relies on the establishment of a compatible system of measurement – referred to as the European Credit Transfer system. As well as promoting student mobility between education establishments, it offers a framework of lifelong-learning, thereby allowing credits to be acquired via non-vocational education through a process of continuous professional development (CPD). This is particularly important within the field of conservation-restoration as a number of the current professional accreditation schemes demand CPD⁹.

In 2005, the Bergen Ministerial conference focused

on the practical implementation of the Bologna Process. In the following year recommendations were put forward for the establishment of the European Qualifications Framework for lifelong learning¹⁰. This adopted an overarching framework of qualifications for the European Higher Education Area and indicated a commitment to create equivalent national qualification frameworks by 2010. The European Parliament and the Council of Europe formally adopted the European Qualifications Framework (EQF) on 23 April 2008. A target of 2010 has been set for countries to relate their own qualifications systems to the EQF system and from 2012 all new qualifications must be calibrated against this framework. Within the process of unification, learning outcomes are acknowledged as the principle mechanism through which the EQF can be achieved. Their principle value is their ability to define qualifications in consistent terms, thereby promoting a mechanism where the validation and comparison of all forms of learning can take place.

Teaching, learning and learning outcomes

Education can be considered as a dynamic equilibrium between the fulfilment of the teaching strategy on one side and the delivery of results, which can be referred to as learning outcomes, on the other. Assessment acts as the fulcrum between these two facets of education and ideally one side is balanced by the other. This means that a teaching strategy, assessment and learning outcomes are links in a chain that cannot be broken. If appropriate learning outcomes and methods of assessment are not identified it is impossible to deliver a teaching strategy and vice versa.

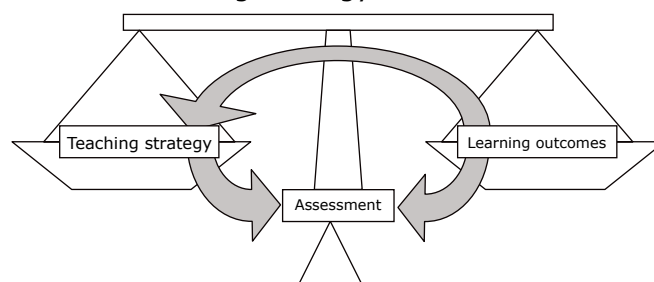


Figure 1. The balance between teaching strategies, assessment and learning outcomes

Recognition of the value of learning outcomes has shifted the academic emphasis of education from what the educator wishes to teach to what the graduate needs to know. This learner centred approach is better suited to courses that require a well defined curriculum in order to provide access to a profession, for example: conservation-restoration education.

When adopting this approach, a major challenge for an educator is to understand how students learn, and more importantly to be able to apply that understanding to provide an effective learn-

ing environment and assessment. Learning is the acquisition of knowledge and skill, which may bring about a change in attitude or behaviour¹¹. For example, an individual may change their way of perceiving, thinking, feeling, and carrying out a task as a result of the learning experience. Thus, learning can be expressed as a behavioural change resulting from the experience. This can be physical or overt; it may involve complex intellectual or attitudinal changes or affect behaviour in more subtle ways. In order to identify the required outcomes it is necessary to define learning within certain circumstances and subject matter, and then examine the changes that occur during the learning process. What is learnt may be knowledge only, a change in attitude, a physical skill, or more typically a combination of knowledge, skill and attitude, which can be expressed as competence.

Educational psychologists, for example Bloom¹², Anderson & Krathwohl¹³ and Simpson¹⁴, have identified three domains of learning: the cognitive domain (knowledge), the psychomotor domain (physical skills), and the affective domain (attitudes, beliefs, and values). These have been adopted by the European Qualification Framework (EQF) and are defined as follows:

“Knowledge” means the outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices that is related to a field of work or study. In the context of the European Qualifications Framework, knowledge is described as theoretical and/or factual;

“Skills” means the ability to apply knowledge and use know-how to complete tasks and solve problems. In the context of the European Qualifications Framework, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments);

“Competence” means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development. In the context of the European Qualifications Framework, competence is described in terms of responsibility and autonomy.¹⁵

Cognitive Domain

Each of the different domains has been developed into a hierarchy of learning. Bloom’s taxonomy¹² for the cognitive domain is probably the most

widely known. It suggests an increase in ability from simple recognition of the facts without understanding to the ability to collect new knowledge, evaluate its significance, interpret and rearrange the facts in new ways. In educational terms this describes the full spectrum from “learning by rote”, for example learning the alphabet, to the evaluation carried out in new research at the PhD level. The taxonomy follows the six steps described below¹²:

1. Knowledge - the recall of facts, data and terminology, etc.
2. Comprehension – the understanding of meaning, interpretation of the facts and interpolation of data. The ability to state the problem in one’s own words.
3. Application – the ability to apply previously learned information to new situations, the unprompted use of abstraction and concepts.
4. Analysis – the ability to separate materials and facts into their constituent components so that the organizational structure can be better understood. This includes the ability to make inferences, etc.
5. Synthesis - that includes creative skills
6. Evaluation which includes the ability to critique, defend, and reframe

Anderson and Krathwohl¹³ updated and refined Bloom’s original work addressing some of the criticism. The updated taxonomy reflects a more active form of thinking and perhaps offers a more accurate and complete scale:

1. Remembering: retrieving, recalling, or recognising. This is based on the ability to memorise and recall definitions, facts or situations and to recite or retrieve information.
2. Understanding: interpreting, exemplifying, classifying, summarizing, inferring, comparing and explaining. This demonstrates the ability to construct different meanings from a range of information.
3. Applying: executing or implementing. The ability to carry out a set of actions or follow a procedure to its completion. It demonstrates the ability to use learned material within model situations, present model situations and act correctly within simulated situations.

4. Analysis: differentiating, organising, attributing and being able to distinguish between component parts. The ability to dissect problems and concepts into their component parts, determine how the parts are inter-related and the overall structure of the problem or concept.
5. Evaluating: critical appraisal and making judgement based on accepted criteria and standards. Demonstration of critical analysis from which recommendations are drawn. Often this level is demonstrated in the form of reports which discuss the problem, collect data, analyse results, draw conclusions and make recommendations. Evaluation comes before creating in the modern taxonomy as it represents the precursor to development of new research.
6. Creating: reorganising, regenerating, producing and planning. This highest level of cognition refers to the ability to put elements of research together to form a new coherent or functional whole. Creation requires that learners synthesise elements of information into something new, justify this arrangement and present the result.

Anderson and Krathwohl also identify four different types of knowledge:

- Factual knowledge: is the basic knowledge specific to any discipline. It refers to the essential facts, terminology and detail that must be known by the learner in order to understand the subject and be able to problem solve within it.
- Conceptual knowledge: is the knowledge of principles, classification and general theories pertinent to a particular area or discipline.
- Procedural knowledge: refers to the information or familiarity with the discipline that allows the learner to work within an area of study. This includes methods of enquiry, specific skills, techniques and methodologies.
- Meta-cognitive knowledge: is the awareness that the learner builds of his/her own cognitive and problem solving processes. It is both strategic and reflective allowing the learner to examine how to go about solving cognitive tasks and includes contextual and conditional knowledge.

Although these four types are not explicitly separated in the domain, the identification of the type of knowledge that is being imparted within a particular teaching course is critical both in terms of education delivery and evaluation.

Psychomotor Domain

Simpson's¹⁴ taxonomy is one of several that exist for the psychomotor domain¹⁶. It is presented here because it has been widely adopted by authors of learning outcomes within the EQF. The taxonomy consists of seven levels, which progressively move from observation to mastery of physical tasks. Each level is a prerequisite for the level above:

1. Perception – is concerned with the sensory cues that guide motor activity.
2. Set - is the readiness to take a certain type of action. It includes mental, physical, and emotional dispositions that make one willing and physically able to respond in a certain way to a situation.
3. Guided Response – includes activities such as imitation of a task or activity. This represents the first attempts at a physical skill. This will often be closely supervised and involve trial and error. It is based on the principle that practice and familiarity will lead to better performance.
4. Mechanism – is the intermediate stage in learning a physical skill. At this level responses have become habitual and movements can be carried out with a moderate level of proficiency and confidence. Patterns of activities will however remain at a simple level and procedures will be slow.
5. Complex Overt Response – at this level complex movements and tasks are possible with a high level of confidence that the outcome will be successful. This includes increased accuracy and minimum of wasted effort. Meta-cognitive performance of actions together with resolution of uncertainty is expected.
6. Adaptation – involves skill that has been developed to a level where already well practiced operations can be modified to meet new situations.
7. Origination – represents the highest level of the psychomotor domain where creativity can take place based on a highly developed level of skills. New situations can be resolved by creating new ways of doing things.

Affective Domain

This domain is a hierarchy describing sentiment, how people perceive issues and the manner in which they are dealt with. It is considered by

educationalists to be an essential part of learning, but has the least developed assessment practices. It is also the most all-encompassing of the three scales and the hardest to effectively evaluate. Part of Bloom's original taxonomic system, published in 1956¹², the affective domain was further developed by Krathwohl et.al.¹⁷. It includes beliefs, opinions, values, appreciation, motivation and attitude. There are five categories ranging from the simplest behaviour to the most complex:

1. Receiving – represents the level where the learner possesses an awareness and willingness to hear but has selected attention. This is a passive level.
2. Responding – a more proactive participation of the learner who shows commitment to the ideas, concepts and materials presented and becomes actively involved by responding to them.
3. Valuing – is the willingness of a learner to attach significance to a particular object, concept or phenomenon. Within this domain response can range from the simple acceptance of significance to a more complex commitment to an approach or ethos. Evidence of a certain set of values is often expressed by a learner's overt behaviour within or reaction to a situation.
4. Organizing – places the values and significance into an order of importance or priority by comparing and contrasting the different issues. The learner constructs an internally consistent philosophy by resolving conflicts between the different values thereby creating a unique value system.
5. Internalizing – the learner adopts the value system. Their behaviour is controlled by this system in a way that is pervasive, consistent and predictable. The instructional objectives are concerned with adjusting the learner's general patterns of behaviour (personal, social and emotional).

The three domains and their taxonomies offer a means through which learning outcomes can be precisely defined using well established scales. Each outcome is a "statement of what a learner is expected to know, understand and/or be able to demonstrate after a completion of a process of learning"¹⁸ representing an individual element of the expected result. Although the number of outcomes depends on the size of the module, Kennedy¹⁹ suggests that each should have no more than eight to ten, furthermore they should contain "unambiguous action verbs"²⁰, should only represent the essential learning and the minimum acceptable standard. A programme should have

five to ten learning outcomes describing the essential knowledge, skills and attitude that is acquired and should be capable of being assessed.

By describing what is gained from a programme and its individual modules in terms of learning outcomes it is possible to reach an essential level of transparency, both for the learner to understand what he/she has achieved, and for a potential employer to comprehend the level and scope of competence of an individual entering a profession. This recognises the need to precisely define what the learner has acquired in terms of competence when they enter either workplace or continuing education.

Competence is a combination of domains and is therefore a more difficult concept to define. Weinert²¹ suggests that it is the sum of available abilities and skills as well as the willingness to solve upcoming problems, to act responsibly and with a critical approach concerning the development of solutions. This represents a dynamic combination of cognitive and meta-cognitive skills, knowledge and willingness, which is relational, intellectual and practical in nature and which includes the application of one's own ethical values. When applied to the field of conservation-restoration it suggests an ability to use conservation concepts, including its principles and ethics in a variety of situations in order to achieve an appropriate outcome within a reasonable amount of time and resources. Included within this description is the ability to operate outside the scope of current professional experience in order to gain new knowledge and develop new skills. It also includes the need to play a meaningful role in the preservation, social value and development of cultural heritage.

In order to examine and identify this type of competence the author suggests four levels within the field of conservation-restoration. These represent the full scope from 'novice' learner within education to 'master' conservator with many years of practical experience:

1. Beginner – only possesses basic knowledge and skills, both in terms of breadth of subject and depth. Unlikely to possess an in depth knowledge of any subject area. May not be aware of many of the rules nor do they need to know them. Operates well within the boundaries that are laid down by the profession
2. Intermediate – possesses more detailed knowledge both in terms of breadth and depth. Expected to possess a shallow knowledge of the whole field, be able to place different concepts within that field of study, and to have knowledge of the rules

while still only having a limited in depth knowledge of specific areas.

3. Advanced – expected to possess both broad and deep knowledge of the field of study, be able to understand the spirit of the rules that govern that field.
4. Meta-Advanced – Comprehensive understanding of the field of study including associated fields. Be able to apply this understanding in new and innovative ways. Have the ability to adapt and create new rules within their field .

Designing a programme that meets the e.c.c.o.-encore guidelines and which is academically and financially sustainable

Many who work within higher education are aware of the financial constraints that have been placed on programmes over the last two decades. For conservation-restoration education, which is inevitably at the higher end of the cost scale, this has led to the closure of a number of courses. In recent times, the most high profile closure has been the Textile Conservation Centre in the UK²².

In 2001 the Oslo University conservation education faced its own financial crisis. Limited numbers of places combined with a biennial intake meant the education programme was very expensive requiring a large subsidy from the faculty. The programme's structure at that time was based on the membership regulations for the IIC Nordic Group, Norwegian Section, *Nordisk Konservator Forbund-Norge*, which is well documented by Skaug²³ and so will not be discussed here. The conservation-restoration education started at the University of Oslo in 1998. It consisted of two lines: painting and object conservation, each of which accepted six students every two years. Before the Bologna Declaration reforms, university education in Norway consisted of 4 years undergraduate (*cand.mag.-grad*), 2 years post-graduate (*hovedfag*) followed by a PhD. The dedicated conservation-restoration programme comprised the last two years of the *cand.mag.* education plus an additional one year practice placement which was not evaluated within the university system. The first two years were occupied by general introductory courses followed by archaeology or art history.

Despite the newness of the education (only 4 years old at the time) the faculty warned that it would not be able to continue the high level of subsidy. Whilst demonstrating a continuing commitment to conservation education, both the Faculty and University acknowledged that the situation was unsustainable. Norway's endorsement of the Bologna declaration in 1999 followed by the start of the implementation

process in 2001 created an opportunity for a radical reappraisal of the education programme. Modulisation allowed for themes that were previously only taught to conservation students to be opened to a wider audience wishing to work in the cultural heritage sector. This approach acknowledges that the ability to conserve cultural heritage through preventive conservation and collection care is not the exclusive right of the conservator. If cultural heritage is to be managed in a sustainable way it is necessary to educate all who wish to work in this sector to be able to make decisions that assist in its preservation. The decision to re-organise the teaching programme into subjects that could be taught to a wider group of students at the Bachelor level and those that could only be taught to conservation-restoration students at the Master level provided a cost effective solution to the problem. Whilst meeting ENCoRE's requirement for a 5 year education, the programme was able to increase its catchment-area of potential learners at the BA level and maintain conservation-restoration education by allowing a small number to progress to the MA level. From a financial perspective, larger numbers enrolling on to the undergraduate modules subsidise the expensive post-graduate education. As well as increasing the efficiency of the department this approach fulfilled the secondary goals of opening the undergraduate modules not only to prospective conservators but also to anyone else wishing to pursue a career in the cultural heritage sector.

Since their launch in 2002 the undergraduate modules have proven to be immensely successful, attracting large numbers of students and good feedback. In 2008 the Conservation Studies Department was selected as one of the final candidates for the University's teaching award, and in autumn 2009 the *Cultural Heritage Preservation Studies*, a complete 180 ECTS bachelor programme, will begin. Note that use of the term conservation-restoration is avoided in the title of the course at the BA level to prevent the potential misunderstanding that graduates from this course are qualified to work as conservator-restorers.

Implications of the learning outcome approach

The primary objective of an education programme is to develop and expand the competences of their participants so that they are fit to enter employment or progress to the next level of education. For conservation-restoration the present day professional demands sets the standard for taught courses, which is 5 years full time education to MA level or equivalent⁵. This represents a full Bachelor and Master degree. The modular BA education programme offered by the Conservation Studies department, University of Oslo includes: 20 ECTS compulsory University introductory

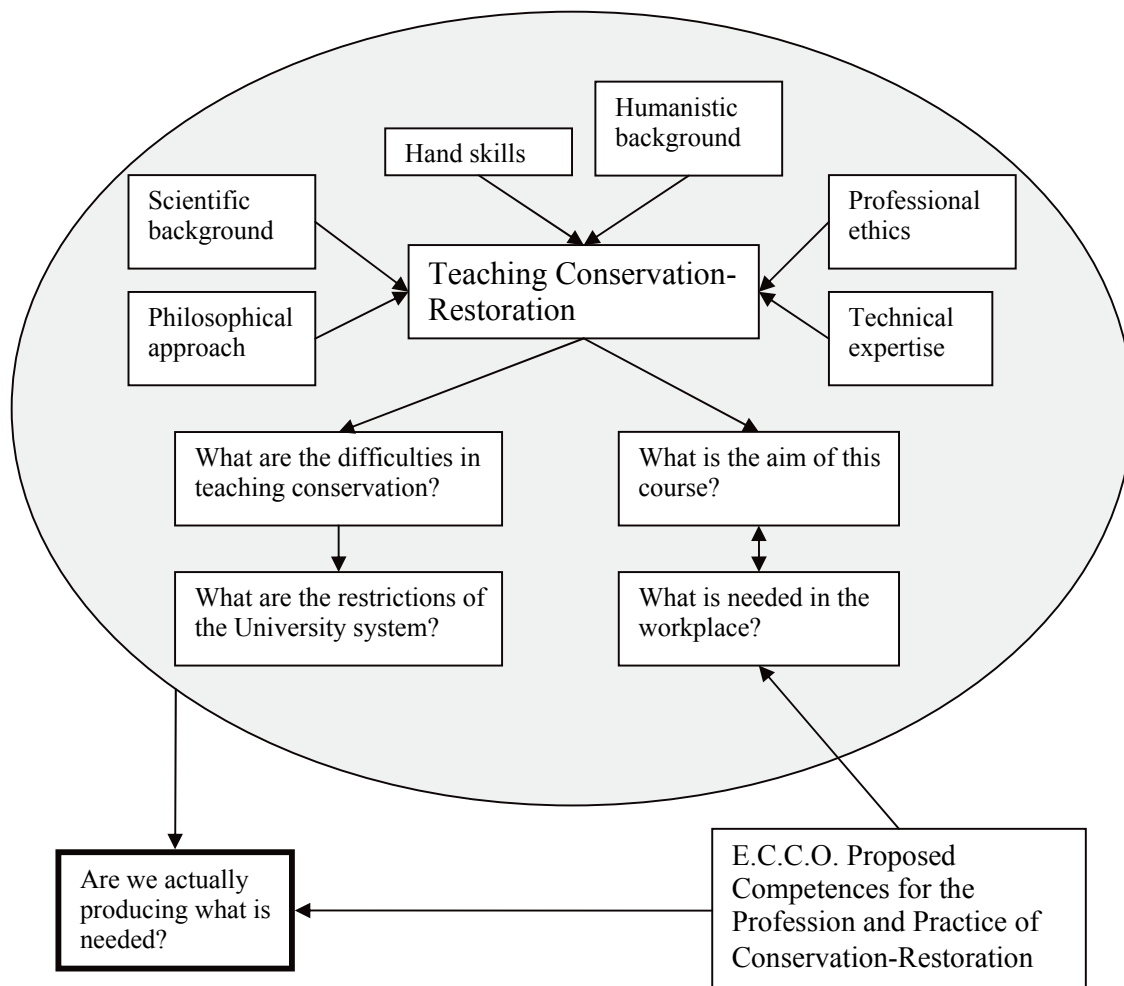


Figure 2. visualisation of issues facing the teaching of conservation-restoration.

courses, 80ECTS preventive conservation and collection care, 40 ECTS archaeology, art history or a similar subject, 20 ECTS chemistry and 20ECTS free choice modules. The MA is divided into two specialist lines: paintings and objects conservation. Each line contains 60 ECTS taught courses, 30 ECTS thesis project and 30 ECTS practice placement. Modules are typically 10 ECTS, which is equivalent to 1/3 of a semester (two semesters per year). Each module is intended to develop a range of competencies that are required for a particular area of conservation-restoration. Each is assessed during the module's teaching period using methods that are selected and tailored to the specific learning outcomes. Some of the learning outcomes are subject-related, addressing specific areas of knowledge, skill and competence within conservation-restoration, whilst others, such as the academic writing, are generic, develop a learner's transferable skills and knowledge.

The development of competence has been consciously designed into the programme, proceeding in an integrated, progressive and sometimes cyclic manner. For example: the goal of the bachelor course is to prepare the learner for the masters in conservation-restoration course or for employment with the cultural heritage sector. The master education is for conservation-restoration alone. It

combines the teaching of theoretical knowledge, practical skills, ethics and decision-making. Development moves from: the closely guided practicing of simple skills in the first and second semester, via a greater autonomy in the master thesis, to a high degree of independent decision-making during the practical placement. The approach follows the general consensus within many conservation-restoration programmes that learners need to develop judgement "and not be spoon fed"²⁴. It must however be acknowledged that, given the limited time within a vocational conservation-restoration education consisting of a 3 year BA followed by a 2 year MA, in reality a learner will not be able to progress further than the intermediate to advance level of competence in any one specialism (see earlier scale of competence). A further period of post qualification experience will be required in order to truly become a professional conservator-restorer²⁵.

Setting the learning outcomes for conservation education in Oslo University

The impetus for the work carried out by the Conservation Studies department came from two meetings on the implementation of the Bologna

Process held by Oslo University Faculty of Humanities in spring 2008. Although these meetings were before the official adoption by the European Parliament and the Council of Europe of the EQF system, they signified the start of the process. Like many other developmental tasks, in order to make significant progress, it was important to set aside a period of time away from the daily distraction of other duties. Therefore a decision was taken to hold a two day departmental meeting away from the office. A short pre-meeting, in June 2008, discussed the agenda and potential venue. A pedagogic specialist from the university attended. Importantly, his contribution increased the department's confidence that what was being proposed could be achieved within the two days.

Learning outcomes are not statements that can be developed by an institute, faculty or university in isolation. Description of what a graduate is competent to do once s/he has obtained a qualification is highly relevant to the labour market, especially in the case of conservation-restoration where the first job after graduating may include a great deal of responsibility and autonomy. An important link had already been established between the Conservation Studies department and both E.C.C.O. and ENCoRE. The author's involvement in the E.C.C.O. working group on EQF and professional competency provided a direct link between education and the profession. Between April and October 2008 the E.C.C.O. working group drew up a framework for the knowledge and skills required for access to the conservation-restoration profession. The draft document was ratified by the E.C.C.O. 2009 general assembly, Sofia, and presents the key levels of skill and knowledge that must be possessed by a person entering the profession. This equates to what must be achieved

by students graduating from the combined BA and MA courses. Although not used directly in the work on learning outcomes it offers a useful framework for examining the education programmes as a whole and for checking that it meets the required level in the future.

A conceptual diagram was drawn up after the preliminary meeting that visualised the issues facing conservation-restoration education (see figure 2) and the two day meeting opened with a presentation of the E.C.C.O. work on access into the profession. The author had also prepared a systematic methodology for writing learning outcomes based on Kennedy et.al.¹⁹, which was presented and agreed. It gave the working group a common structure within which to proceed. It was also agreed that a systematic approach was needed. Kennedy et.al.¹⁹ uses a well defined lexicon for each level of domain. This was used as a "tool box" that could be referred to throughout the process. It consists of a set of well defined verbs indicating the different levels in the different domains, which was later adopted by the Humanities Faculty for all programmes. An example of the "tool box" is given in figure 3 below.

Starting with the new *Cultural Heritage Preservation Studies*, the working group decided to proceed from the top down by attempting to define the learning outcomes for the programme first. They soon discovered that it was easier to proceed from the bottom up. The principle reason for switching directions was that the learning outcomes of the programme could not be meaningfully expressed without clearly identifying the learning outcomes of each module it contained. Despite the working group's familiarity with both the individual modules and the overall aims of the programme they struggled to express the high level outcomes suc-

Taxonomy	Definition	Verbs
Knowledge	The ability to recall or remember facts without necessarily understanding them	arrange, collect, define, describe, duplicate, enumerate, examine, find, identify, list, present, recall, recognize, reproduce, show, state
Comprehension	The ability to understand and interpret learned information.	associate, change, convert, describe, defend, differentiate, discuss, distinguish, estimate, explain, express, identify, illustrate, indicate, interpret, predict, recognize, report, review, select, solve
Application	The ability to use learned material in new situations, to put ideas and concepts into practice when solving problems.	apply, assess, calculate, construct, demonstrate, develop, employ, examine, experiment, find, illustrate, interpret, manipulate, organize, predict, prepare, relate, select, show, solve, transfer, use
Analysis	The ability to break down information into components, look for relationships and understand organizational structures.	analyze appraise, arrange, break down, categorize, classify, compare, connect, contrast, deduce, determine, differentiate, discriminate, distinguish, identify, illustrate, infer, investigate, order, outline, test
Synthesis	The ability to reconstruct or put together parts.	argue, arrange, assemble, categorize, collect, combine, construct, design, develop, devise, establish, explain, formulate, generate, integrate, organize, prepare, propose, reconstruct, reorganize, summarize
Evaluation	The ability to judge the value of material for a given purpose.	appraise ascertain, argue, assess, attach, compare, contrast, convince, criticize, defend, discriminate, explain, evaluate, interpret, justify, measure, relate, summarize, validate

Figure 3. Cognitive Domain tool kit based on Bloom's Taxonomy

cinctly without first considering the more detailed outcomes of the modules.

Working from the bottom up - the learning outcomes for an individual module was developed by brainstorming using the course description. This identified the key subject areas, the level of which could then be defined by selecting the appropriate verb in order to describe the type and level of learning outcome. This process followed a heuristic path which progressed in a spiral repeatedly examining the course content, and the cognitive, affective and psychomotor domains until the working group was satisfied that the suite of descriptive statements fully represent the learning outcomes of the module. Having completed the suite of learning outcomes for one module, the overarching learning outcome for that module was considered, this became part of description for the whole course (80 ECTS preventive conservation and collection care programme component for the BA).

In practice, in order to compare the level, expression and content of each learning outcome, the working group moved both up and down in the study structure and from side to side, between different modules. A distinct progression was identified for modules at the different academic levels within a study programme (for example, the first, second year and third year of the BA). Furthermore, it was acknowledged that a learner, on completion of a module, will take with them the learning outcomes of that module and apply them in their subsequent studies - this creates network of compound knowledge and skill which will inevitably impact on the level of learning outcomes in subsequent modules. In some cases, where the same module was offered to learners from different levels the learning outcomes were different. For example where the modules were offered to both final year BA students and 1st year MA students in archaeology a higher level of learning was expected from the latter. It was agreed that academic staff must control the learning outcomes of their modules so that they are broadly comparable and so that modules logically build upon each other.

The heuristic process identified the learning outcomes of each module and the 80 ECTS *Cultural Heritage Preservation Studies* programme simultaneously. Whilst it was relatively simple to identify the learning outcomes of the modules and programme elements that are taught by the Conservation Studies department, greater difficulty was encountered when attempting to do the same for the complete modular programme (described above as 180 ECTS). of The variability of study progression and the lack of information about the content of individual modules and their possible combinations, for example archaeology,

art history and the free choice modules, prevented detailed assessment. A fundamental problem in any modular education system that allows a certain degree of choice is that educators find it difficult to predict how the learner's selection of modules affects the overall learning outcomes. In this case it was only possible to propose a limited number of general learning outcomes in addition to the more specific *Cultural Heritage Preservation Studies* learning outcomes. The combination of subject specific and very general learning outcomes did not however feel like a unified whole as there was an apparent inequality between the larger number of outcomes representing the 80 ECTS core subject and the fewer more general outcomes representing the larger 100 ECTS subject groups. One solution was to make specific reference to the detailed learning outcomes of the other modules, which would inevitably be drawn up by other departments. As the Conservation studies was one of the first departments to carry out this work within the Humanities Faculty there was no choice other than to review these outcomes once they had been written.

Following the two day working meeting the group offered the following guidance to the other departments and institutes:

- A short paragraph of prose before presenting the learning outcomes in bullet points helps their interpretation.
- It is important to adopt a process format where the group of educators working on the learning outcomes together and have sufficient time away from other commitments - in one block - to achieve a substantial result.
- That a limited and fixed lexicon of verbs associated with a specific programme is constructed and that these are explicitly defined so that their meaning is understood by potential learners.
- That the working group dynamics function well and that the participants are committed to the task. In a larger education department it is therefore recommend that a small pilot group is formed which spearheads the process and acts and an advocate to the wider academic staff.
- It is beneficial to present the proposed learning outcomes to the students within the field of conservation and for these learners to evaluate the outcomes in terms of comprehension and perceived achievability.

Concluding comments

The type of outcome-based learning that is promoted by the EQF has already been demonstrated in Norway as having major implications for curriculum design, modular organisation, teaching delivery and resource management. It improves efficiency, learning and assessment as well as providing a means by which the educational process can be streamlined and quality can be assured. The explicit nature of an outcome-based learning process helps to fulfil the educator's responsibility by creating conditions in which understanding is possible, whilst making more tangible the learner's responsibility to take advantage of the situation²⁶.

The impact of outcome-based learning can be considered at three distinct levels:

1. At the institutional level learning outcomes can be described as making the content of an education programme the centre of focus thereby enabling the process to be tailored to achieve the best possible results. It assists in finding the balance between independent learning and teacher assisted acquisition of knowledge and skills. The combination of modularisation and learning outcomes allows the learners and educators to work together identifying what needs to be accomplished throughout a course in a manner that can be described as mediated learning²⁶. Specifically within Conservation Studies the combination of real-life example-based education, practical seminar and laboratory work together with more traditional lectures enables the majority of students to learn quickly and efficiently. Frequent assessment and feedback from learners ensures that internal validity of a teaching programme is maintained and that issues are identified before they become a problem. Learning outcomes confirm the need for structured areas of teaching as a central component in education, ensuring that the standard of knowledge are passed on to the learner in an adequate way, especially given the variable quality of conservation-restoration literature. The transparency of learning outcomes creates a collective approach towards education, especially within the Masters Programme, where seminars and group projects promote a collaborative atmosphere of learning that mirrors the ethical requirement within conservation to consult, work with colleagues and share information.
2. At the university and national level, a greater level of transparency in what is taught and how conservation-restoration education is delivered provides a justification for its cost, demonstrates quality and effective

management. In a managerial climate where the cost of an education programme must be defended the demonstration that education meets the requirements of a profession is becoming increasingly important.

3. Internationally, learning outcomes can be used as a common reference point facilitating comparison and transfer of qualifications between countries, systems and institutions. More specifically with regard to Conservation-Restoration, learning outcomes can be used to evaluate individual European education programmes against E.C.C.O.s proposed competencies for professional practice. They can also be used by the graduate to demonstrate that a qualification from another country meets the standards within a country in which they are seeking employment.

In summary, learning outcomes within the ECTS framework has been shown, through the work carried out at Oslo University, to facilitate Conservation-Restoration education programme design and development, particularly with respect to co-ordinating and rationalising the demands made on students. Following the current trend for modularisation, explicit goals assists the planning of how best to use a learner's time to achieve the aims of the educational process. Learning outcomes highlight the role of quality control in the process of design, development and implementation of a study programme, enhancing of all elements of the learning chain.

Describing degree programmes in terms of a framework modules, each with learning outcomes, enables the construction of educational profiles. Whilst allowing comparison, this has a far more important consequence within the field of conservation-restoration – it allows the specialisations of individual teaching programmes within an increasingly broad professional subject to come to fore. It mirrors the widespread and strong consensus that education and training should reflect and respond to learning needs at local, regional and national level⁷. Furthermore, within the profession of conservation-restoration it is becoming increasingly recognised that it is impossible to teach all aspects of a particular specialism within the limited time-frame and resources of a modern education system. Whilst this is seen by some as a failure of a particular course it can also be seen positively. The conservation profession is far from uniform, even with established disciplines individual possess a wide variation of skills and carry out a variety of tasks. Why shouldn't education programme within Europe, even within similar disciplines, produce graduates that possess their own particular strengths and who are subtly suited to different roles within the conservation-

restoration sector. It is up to this sector to select employees who possess the range of skills that they require – which will be the final proof of suitability of a particular education programme. The transparency of learning outcomes offers a way of making such a selection.

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Writing the Professional Competences/EQF

Susan Corr, Coordinator. E.C.C.O. Working Group EQF.

The Bologna Agreement, resulting from a meeting of the Ministers of Education of EU member states in June 1999, led to the establishment of a common European Higher Education Area (EHEA). The ultimate aim of what is now referred to as the 'Bologna Process' is to calibrate and make transparent the different levels and types of qualifications available in all third level educational institutions throughout Europe by 2010. Professional bodies, such as E.C.C.O., are required to specify/define their own requirements for entry into the profession, including educational qualifications. Educational institutions will respond accordingly by offering courses that deliver these entry requirements.

As a tool to find equivalences of qualification by focusing on Learning Outcomes, the European Qualifications Framework (EQF) provided E.C.C.O. with a mechanism to articulate the professional competences that describe our profession, without the need to prescribe the route per se: previous professional profiles had concentrated on the delivery route in an effort to reconcile all the different educational backgrounds that are reflected in our membership.

Following an inconclusive start in 2007, a small working group (comprising of members from six European professional bodies) was formed and mandated by the General Assembly in March 2008 to:

- ensure that entry level competences and the proficiency of a person qualifying to use the title Conservator-Restorer equate with EQF Level 7, equivalent to an postgraduate Masters degree as specified in E.C.C.O./ ENCoRE. Guidelines.
- together with ENCoRE, to adapt the generic Descriptor for EQF Level 7 specific to the field of conservation-restoration.
- ensure that the professional competences are comprehensive and reflect the nature of our professional work.

By 2010 all educational programmes will have to articulate their goals in terms of 'Learning Outcomes'. This reflects a shift in the delivery and appraisal of education from a teacher-centred approach to a student-centred one that expresses the outcome of a course or study in terms of what

the student can expect "to know, understand and /or be able to demonstrate after completion of a process of learning" (ECTS Users Guide). These competences are available to be classified according to a threefold rubric of Knowledge, Skills and Competence (see below). Governed by a generic Descriptor, each level on the EQF is expressed in terms of Learning Outcomes which make explicit what is distinctive about qualifications at that level.

The Working Group began its deliberations by applying the language of the generic Descriptor for Level 7 to the Conservation-Restoration profession —using the description as a control for the calibration of professional competences. It was recognised that any professional competences would have to be interpreted through the language of the EQF Learning Outcomes as they describe Knowledge, Skills and Competences but that the delivery of Learning Outcomes would remain the remit of education providers. Agreeing on the Descriptors would be the point of contact between the profession and education providers, viz E.C.C.O. and ENCoRE respectively. At this juncture, two things then happened simultaneously: the Working Group began to (1) determine its methodology and (2) define its terminology.

An essential starting point to the process of evaluating professional competences is the understanding that the proficiency required to carry out Conservation-Restoration work should be informed by current professional practice, the intellectual parameters of which have been articulated in many well referenced publications and which are condensed into the E.C.C.O. Guidelines and enumerated in the Recommendations on Conservation-Restoration recently presented to the Council of Europe. The context for our work is also based on the premise that the Conservator-Restorer is an important decision maker in the 'management of change' affecting cultural heritage in consort with stakeholders and other professionals in the cultural heritage sector.

In determining our methodology, therefore, all agreed that the Conservation-Restoration process itself was to be examined and profiled. This approach quickly expressed itself in a series of core actions whose natural progression followed a decision-making process, the outcomes of which directly affect cultural heritage. These decisions, whether resulting in preventive action or direct

intervention, are considered to be governed by ethical boundaries requiring documentation and a critical awareness of approach that may lead to new knowledge. Initially articulated in written format, these core actions quickly developed into a visual map thanks to Jeremy Hutchings' familiarity with the C-mapping programme which can be downloaded free from the internet. The visual layout allowed all of us to conceive and relate our own professional experiences, enabling us to detail the decision-making process in Conservation-Restoration and to follow its logic and rational with reasonable clarity.

In defining our terminology we applied the 'Taxonomy of Learning' by Anderson and Krathwohl (2006), also introduced to us by Jeremy Hutchings from his own field of study and expertise. Anderson and Krathwohl's taxonomy is a development of Benjamin Bloom's (1956) seminal work on learning outcomes which informs, inter alia, the structure of the EQF. Anderson and Krathwohl's Taxonomy, evaluates knowledge according to type: factual, conceptual, procedural and meta-cognitive; and according to a hierarchy of cognition, i.e. remembering, understanding, applying, analysing, evaluating and creating. Likewise, skills are described as basic, intermediate, proficient and expert.

Thus, Competences appropriate to the profession of Conservator-Restorer were understood to be the measure of autonomy achieved with appropriate knowledge and skill, combined with the right attitude. This reference framework, or set of criteria, was then used to evaluate the amount of knowledge and skill considered necessary for access to the profession, keeping in mind the overall Descriptor for Level 7.

Seven stages were identified in the Conservation-Restoration process and these formed the spine of the diagram. These stages were then expanded to cover ethical rules and norms, technical possibilities, financial resources, modes of treatment, means to assess results and documentation. The diagram is driven by the Conservation-Restoration process, the 'management of change' as centred on the object/cultural heritage. It places preventive conservation clearly within the compass of decision-making that requires knowledge specific to both the material and intangible qualities of the object/cultural heritage. It considers examination of the metaphysical nature of the object/cultural heritage as essential a concern of the Conservation-Restoration process as visual, technical/scientific examination.

In this, however, it must be pointed out that the map does not rank or weigh each activity in terms of importance. Rather, activities are located with reference to the level and type of knowledge and

range of skills reflecting EQF Level 7. This gave rise to much discussion in recognition of the fact that the Conservator-Restorer grows in expertise with experience and practice. There is a need for academic rigour to be combined with a proficient level of manual dexterity from the start of professional practice but it was acknowledged that the acquisition of expertise may not be evenly acquired in all areas delineated on the conceptual map. This may possibly reflect a Conservator-Restorer's own particular area of specialization within their field. This acknowledges the Conservator-Restorer who may chose to move onto pure research, the Conservator-Restorer who builds up a level of technical expertise to a meta-cognitive level or the Conservator-Restorer who goes into Conservation-Restoration management.

As defined, EQF Level 7 was considered to reflect the normative range of conservation processes that are well established and familiar. At this level, Conservator-Restorer's are only beginning to examine the processes of conservation-restoration themselves, they are not yet expert in their field and their work is yet to become meta-cognitive. Thus, as we have suggested: 'A person entering the profession of Conservation-Restoration rarely 'creates' new ways of addressing Conservation-Restoration problems. Whilst they possess sufficient critical awareness to change and adjust a process, they may only analyse the results without evaluating the process itself' (Proposed Competences for the Profession and Practice of Conservation-Restoration). Accordingly, EQF Level 7 corresponds to Anderson and Krathwohl's procedural type of knowledge, allied to levels of knowledge in the domains of application and analysis. The level of skill falls in a range between intermediate and proficient.

EQF Level 8, corresponding to an academic PhD, can, in consequence, be interpreted by adjusting upwards the levels of knowledge and skill but such may or may not be reflected evenly across the conceptual map. It may be legitimate to suggest that, by comparison with a doctorate in Conservation-Restoration, the knowledge and skill of an experienced practitioner who has maintained and increased their expertise to Level 8 may locate their level of knowledge and skills in different domains on the conceptual map. The maps representing Level 8 in the Professional Competences document represent an interpretation only.

In profiling the professional competences, the Working Group concentrated on the entry level competences and proficiency of a person qualifying to use the title Conservator-Restorer as equivalent to EQF Level 7 and equating to an academic Masters degree. It is acknowledged that there are other routes to this level of knowledge, skills and competence. The promotion of

Life-Long learning is an important aspect of the EQF but is one that not yet perfectly reconciled to methods of formal recognition. In respect of Level 7 and 8 it clearly states that only nationally accredited institutions may endorse qualifications at those Levels. It is only when member states have accepted to validate such informal learning that classification in one of the EQF levels will be possible.’

Professional accreditation has been recognised as mediating the ‘recognised equivalency’ to Masters degree that is recommended in the E.C.C.O./ENCoRE Guidelines. Where accreditation systems are in operation they are not calibrated to the EQF. It is hoped that in proposing these professional competences, a tool has been created which will help effect comparison. Neither are post-doctorate and continuous professional development included in the scale but it is hoped that the conceptual map can be developed as a tool for self assessment.

The document to date has been distributed to all the members E.C.C.O. and has been revised twice; once in Sofia, 29th-30th March, following discussion at the Presidents’ Meeting, and most recently, at the last committee meeting in Lueven 6th -7th June, where issues arising out of the meeting in Sofia were addressed. The professional competences as they reflect our profession were ratified in Sofia. The current document is to be re-issued with a view to formal publication by the next E.C.C.O. GA. Further feedback will be sought in the meantime and an glossary of terminology will be included.

Whilst Jeremy Hutchings has been singled out for particular mention in this synopsis, great thanks is due to all who collaborated in the Working Group. Collectively there was enormous good will and generosity which has marked every meeting to date. Members

included Mechthild Noll-Minor, Germany, David Aguilera-Cueco, France, Jaap van der Burg, Netherlands and Agn s Gall Ortlik, Catalonia. Thanks are also extended to Ren 

Larsen who hosted the E.C.C.O./ENCoRE meeting which took place in Copenhagen in February and where the Descriptor for Level 7 was finalised.

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The Bologna Process 2020 - The European Higher Education Area in the new decade

René Larsen

On 28 and 29 April 2009, the Ministers responsible for higher education in the 46 countries of the Bologna Process met in Leuven and Louvain-la-Neuve to establish the priorities for the European Higher Education Area until 2020¹. The Communiqué of the meeting states that “the objectives set out by the Bologna Declaration and the policies developed in the subsequent years are still valid today. Since not all the objectives have been completely achieved, the full and proper implementation of these objectives at European, national and institutional level will require increased momentum and commitment beyond 2010”. In response to this, the Ministers highlight in particular the importance of lifelong learning, widening access to higher education, and mobility, with the aim that by 2020 at least 20% of those graduating in the European Higher Education Area should have undertaken some study or a training period abroad.

The communiqué preamble of the meeting says that the answer to the challenge of an ageing population for Europe is to maximise the talents and capacities of all its citizens and fully engage in lifelong learning as well as in widening participation in higher education. In addition, it states that European higher education also faces the major challenges, and the ensuing opportunities, of globalisation and accelerated technological developments with new providers, new learners and new types of learning. According to the communiqué, the answer to this is student-centred learning and mobility.

The consequences of a global financial and economic crisis are also dealt with. The Ministers recognise that higher education has a key role to play if we are to meet these challenges successfully and bring about sustainable economic recovery and development. They express the need for a dynamic and flexible European higher education and will strive for innovation on the basis of the integration between education and research at all levels. Therefore, the Ministers consider public investment in higher education of utmost priority. It is also noteworthy that the Ministers pledge their full commitment to the goals of the European Higher Education Area, which is an area where higher education is a public responsibility. The Ministers aim to ensure that higher education institutions have the necessary resources to

continue to fulfil their full range of purposes.

The communiqué sets up the following three overall main themes with 10 accompanying specific sub-themes for the future development:

I. Achievements and consolidation

II. Learning for the future: higher education priorities for the decade to come

Social dimension: equitable access and completion
Lifelong learning
Employability
Student-centred learning and the teaching mission of higher education
Education, research and innovation
International openness
Mobility
Data collection
Multidimensional transparency tools
Funding

III. The organisational structure and follow-up

In relation to these, I should like to draw attention to the Ministers’ statement regarding “striving for excellence in all aspects of higher education...” and declare that this requires a constant focus on quality. On the other hand, they state that they are “upholding the highly valued diversity of our education systems,” and that “public policies will fully recognise the value of various missions of higher education.”

With respect to lifelong learning, the Communiqué outlines that this is subject to the principle of public responsibility and that the accessibility, quality of provision and transparency of information shall be assured. It defines that “lifelong learning involves obtaining qualifications, extending knowledge and understanding, gaining new skills and competences or enriching personal growth. Lifelong learning implies that qualifications may be obtained through flexible learning paths, including part-time studies, as well as work-based routes.”

In this connection the Communiqué stresses that the implementation of lifelong learning policies requires strong partnerships between public authorities, higher education institutions, stu-

dents, employers and employees. It points out that the European Universities' Charter on Lifelong Learning developed by the European University Association provides a useful input for defining such partnerships². Moreover, it says that successful policies for lifelong learning will include basic principles and procedures for recognition of prior learning on the basis of learning outcomes regardless of whether the knowledge, skills and competences were acquired through formal, non-formal, or informal learning paths. Not least it states that lifelong learning will be supported by adequate organisational structures and funding and that lifelong learning encouraged by national policies should inform the practice of higher education institutions.

In addition, the Communiqué states that development of national qualifications frameworks is an important step towards the implementation of lifelong learning. Therefore, the Ministers aim at having these implemented and prepared for self-certification against the overarching Qualifications Framework for the European Higher Education Area by 2012. They foresee that this will require continued coordination at the level of the European Higher Education Area and with the European Qualifications Framework for Lifelong Learning.

With respect to the Student-centred learning and the teaching mission of higher education the Ministers reassert the importance of the teaching mission of higher education institutions and the necessity for ongoing curricular reform geared toward the development of learning outcomes. The Ministers state that student-centred learning requires empowering individual learners, new approaches to teaching and learning, effective support and guidance structures as well as a curriculum focused more clearly on the learner in all three cycles. They "ask the higher education institutions to pay particular attention to improving the teaching quality of their study programmes at all levels." They place this as "a priority in the further implementation of the European Standards and Guidelines for quality assurance."

Regarding Education, research and innovation the Communiqué declares that education should be based at all levels on state-of-the-art research and development. As a consequence the number of people with research competences should increase. Moreover, and not least of interest to the conservation-restoration field, the Communiqué outlines that doctoral programmes should provide high quality disciplinary research and increasingly be complemented by inter-disciplinary and inter-sectoral programmes.

On the subject of funding the Ministers confirm that public funding remains the main priority to

guarantee equitable access and further sustainable development of autonomous higher education institutions. They also declare that greater attention should be paid to seeking new and diversified funding sources and methods. Hopefully, the latter may include the special funding needs of small areas such as conservation-restoration, which has very few and small resources and limited funding possibilities for research, when compared to mainstream academic disciplines.

The mentioned goals and requirements set by the Communiqué should be met by intensified cooperation between, and coordination of the education and research activities of, the members of ENCoRE. We should give special priority to increasing student mobility, cooperation on research, and research education as well as strengthening the quality of teaching within conservation-restoration education. With respect to the latter, the new journal e-JCRE should be a key tool for discussing and sharing of experiences. Moreover, ENCoRE should, in close cooperation with E.C.C.O., be active in establishing a functional and transparent structure for lifelong learning in the conservation-restoration field.

Notes

1. The full text of the Communiqué of the Conference of European Ministers Responsible for Higher Education, Leuven and Louvain-la-Neuve, 28-29 April 2009 can be found on: <http://www.ond.vlaanderen.be/hogeronderwijs/Bologna> and on the ENCoRE website.

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European Network on Research Programme Applied to the Protection of Tangible Cultural Heritage (NET-HERITAGE)

René Larsen

The project is the first significant initiative which has set out to coordinate national RTD programmes of European countries, and support European programmes in research applied to the protection of tangible cultural heritage (see the project presentation on the following pages).

Together with four other experts, I have been invited to join the panel of experts which will develop the Model Advanced Training Programme as outlined in the project work package 5 (WP 5) "Implementation of joint activities through the coordination of advanced training in the field of tangible cultural heritage". By advanced training is meant programmes or courses aiming at developing specialised skills and competences of conservation - restoration and conservation science professionals who have fully accomplished academic education.

The objectives of WP 5 are to:

- Improve possibilities for the advanced training of professionals working both in the public sector and in the companies, active in the heritage market.
- Develop a coherent and high-profile Advanced Training Programme in science-based conservation in Europe.
- Promote and encourage the dissemination of research results from the research community as widely as possible among professional practitioners, especially SMEs.
- Promote partnerships and mutual learning between EU member states.
- Build an effective critical mass in research and training across member states, achieving a multiplier effect as compared to the relatively small-scale efforts of individual institutions and single-state initiatives.
- Improve the competitiveness and promote EU leadership in the global heritage sector, enhancing job creation.

The panel consists of the following experts:

Dr Martina Caruana, Malta - The Chief Officer of Heritage Malta's Conservation Division and Institute of Conservation and Management of Cultural Heritage (ICMCH).

Professor May Cassar, United Kingdom - Director of the Centre for Sustainable Heritage - University College of London (UCL).

Professor Annamaria Giovagnoli, Italy - Deputy Associate Director of the School of Restoration, Scientific Area, of the Central Institute for Restoration (ISCR) - Rome

Dr Roman Kozlowski, Poland - Associate Professor at the Institute of Surface Chemistry, Polish Academy of Sciences in Krakow.

Dr Rene Larsen, Denmark - Rector of the School of Conservation, the Royal Danish Academy of Fine Arts.

Professor Rocco Mazzeo, Italy - Head of the Microchemistry and Microscopy Art Diagnostic Laboratory, University of Bologna - the Ravenna Campus.





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European Network on Research Programme Applied to the Protection of Tangible Cultural Heritage

NET- HERITAGE

Protecting Europe's tangible cultural heritage

Cultural heritage is the mirror of society. It constitutes the legacy of tangible artefacts, such as historical buildings and monuments, as well as intangible features, such as traditions, customs and practices. Tangible and intangible cultural heritage operate through a symbiotic relationship, whereby the physical symbols serve as evidence of underlying norms and values of a culture. Taking this into consideration, the importance of protecting tangible cultural heritage is significant not only in order to reflect on and to better understand the past but also to maintain identification in the future.

'The importance of Europe's cultural wealth can be measured in economic and social terms, in employment, job creation, and a unique quality and way of life that fosters health and well-being.'

The cultural heritage of the European Union is crucial for establishing a shared European identification through progressive integration. The protection of cultural heritage is an extremely intricate endeavour, one which can only be accomplished by joining forces and maximising synergies. To add to this challenge, there have been no prior means to disseminate research results which applies to the protection of tangible cultural heritage.

NET-HERITAGE (European Network on Research Programme Applied to the Protection of Tangible Cultural Heritage) is the first significant initiative which has set out to coordinate national RTD programmes of European countries, and support European programmes in research applied to the protection of tangible cultural heritage.

The ERA-NET is a partnership of ministries, funding agencies and national RTD authorities from 14 European countries. It has embarked on a monumental effort to fulfil a crucial need within EU research policy: to overcome the barriers of exchanging information on coordinated research activity applied to the protection of tangible cultural heritage. Prior to the formation of this ERA-NET, information on heritage science consisted only of exchange among researchers, as well as dissemination to policy makers, end-users and professional non-researchers. This resulted in the value of heritage science remaining highly invisible and the exchange among researchers fragmented.

Preparing to strengthen the foundation

The existing national cultural heritage programmes, which NET-HERITAGE is building upon, indicate that this field is prepared for a European cultural heritage research network. The ultimate aim is to strengthen the foundation of scientific and technological research as it applies to the protection of cultural heritage in Europe. NET-HERITAGE will encourage a gradual unfolding and penetrating of cooperation among stakeholders. This will involve three stages: information exchange, strategic activities and joint activities.

Within the information stage, the NET-HERITAGE Observatory, a web portal, will be developed as a response to European fragmentation. As a main access point on all issues related to European cultural heritage, it will be the only resource of its nature in the field of heritage science research providing detailed up-to-date information on European and national programmes, as well as results and research outcomes.

Agreement on best practice and common methodologies will be facilitated through the development of a shared platform, which will lessen unnecessary effort and duplication. This key innovative instrument for information exchange will be active during the entire project and will provide the basis for future dissemination and collaboration activities.



NET-HERITAGE ERA-NET Coordination Action

Project reference: 219301
Theme: Environment
(including Climate Change)

'NET-HERITAGE will encourage and support a closer relationship among national RTD programme managers from Europe, fostering cooperation, and leading to joint and reciprocal activities.'

Strategy gives rise to impact

Numerous strategic activities are planned. Some of these include the improved assessment of indoor and outdoor environments, environmental monitoring for pollution, climate change, and seismic risks – simple, cost-efficient measurement tools which end-users can utilise. Finally, joint activities will be possible by identifying common priorities to incorporate into national RTD programmes, strategic test cases, and common policies.

The impact of HERITAGE-NET will be vast, spanning the coordination of national activities, education, training and knowledge transfer, the inclusion of cultural heritage protection in EU legislation, and on the harmonisation and acceptability of technologies which apply to tangible cultural heritage. When it comes to cultural heritage preservation, the programmatic and operational approaches differ considerably among NET-HERITAGE partners. This is actually a strength, as it will provide a systematic exchange of information, experience and best practice for joint multilateral actions. One of the project's main outcomes will be the Advanced Training Programme which will address the needs of heritage professionals such as art conservators and conservation scientists.

NET-HERITAGE will provide an opportunity for Europe to maximise and coordinate combined efforts, which will in turn assist it with finding solutions in a global context. Furthermore, its contribution to a sustainable cultural heritage will support the European tourism industry in relation to growth, development and job creation. Essentially, NET-HERITAGE will facilitate the vision to redefine the national approach to research in the cultural heritage domain leading to a common European strategy of investment in research, thereby investing in maintaining Europe's identity in the future.

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■ era-net@beniculturali.it
■ **EC funding** EUR 1 986 508 ■ **Duration** 36 months



Research field

Protection of tangible cultural heritage

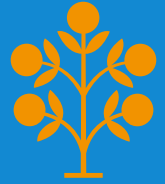
Coordinator

- Italian Ministry for Cultural Heritage and Activities (Italy)

Partners

- Ministry of Education, University and Research (Italy)
- Belgian Federal Science Policy (Belgium)
- Ministry of Education and Science (Bulgaria)
- Ministry of Culture and Communication (France)
- German Federal Foundation for the Environment (Germany)
- Hellenic Ministry of Culture (Greece)
- Archaeological Heritage Agency of Iceland (Iceland)
- The State Inspection for Heritage Protection (Latvia)
- Heritage Malta (Malta)
- Ministry of Culture and National Heritage (Poland)
- National Authority for Scientific Research (Romania)
- Ministry of Culture (Slovenia)
- Ministry of Science and Innovation (Spain)
- Arts and Humanities Research Council (United Kingdom)

Invitation and call for papers Second Oranienbaum Colloquium



Prof. Dr. Ulrich Schiessl and Prof. Dr. Christoph Herm

The state of the art of a young discipline - towards cooperation of PhD programs in conservation-restoration science in Europe, to be held on 17th – 20th June 2010 at Oranienbaum Palace, Gartenreich Dessau-Wörlitz, Germany

Organized by

- Universiteit van Amsterdam
- Hochschule für Bildende Künste, Dresden
- School of Conservation, Copenhagen
- European Network for Conservation-Restoration Education ENCoRE
- Kulturstiftung DessauWörlitz

Introduction

The success of the first Oranienbaum Colloquium (see report in e-Newsletter 2) encouraged us to continue with a second Colloquium in 2010, again to be held at Oranienbaum. We are very grateful to Dr. Weiss, Kulturstiftung DessauWörlitz, for offering to host us once again at this wonderful place.

It is the plan that the Colloquium will be a recurring event, to be held every two years.

The Colloquium aims to be a platform for PhD students in conservation-restoration science and lecturers involved in PhD study programs to discuss the state of the art of the discipline and to set up cooperation and exchange between institutions providing PhD programs in conservation-restoration science. New possibilities in conservation-restoration research by doctoral studies and integration in research projects as well as structural and financial support for PhD students and cooperation with neighbour disciplines shall be presented and discussed.

Another essential aim of the Oranienbaum Colloquium is presenting individual PhD projects of graduated conservator-restorers in the three main fields of art technology, history of restoration and conservation-restoration science. The contributors should be very advanced in their last year before the doctoral promotion or they may have

passed their doctoral examinations not longer than one year ago.

Provisional Program

Thursday, 17th June

Arrival
17:00 Opening and first contributions
Evening Buffet at Oranienbaum Palace

Friday, 18th June

Presentation of individual PhD projects
Social event in the evening

Saturday, 19th June

Report on Research Projects in the morning session
Afternoon session: Conservation science or science in conservation ?
Final discussion
18:00 Closing of the Symposium

Sunday, 13th September

Free program with the possibility of visiting monuments in the Gartenreich Dessau Wörlitz

Call for papers

Deadline for paper proposals is Friday, 16th April 2010.

Proposals for presentations of PhD projects at the Colloquium must be recommended by a supervisor. Proposals should be accompanied by a short abstract in English.

Contributors should be very advanced before the doctoral promotion or they may have passed their doctoral examinations not longer than one year ago.

Presentations coming from the field of conservation history, conservation technology, conservation science and art technology are welcome. A jury decides.

PhD projects presented at the Colloquium in 2008 are not admitted for contributions in 2010. Each presentation should not be longer than 20 minutes in order to provide plenty of time for discussions.

Conference language is English.

Please contact and send first your proposals with a short abstract (1 page A4) to Ulrich Schießl under oranienbaum_phd@hfbk-dresden.de

Postal address:

Prof. Dr. Ulrich Schiessl and Prof. Dr. Christoph Herm
Hochschule für Bildende Künste Dresden
Postfach 160 153
D – 01287 Dresden
Phone Schiessl +49 351 4402 168
Phone Herm +49 351 4402 107

Participants

The Colloquium is only open for graduates in conservation-restoration involved in PhD projects and for their supervisors and consultants.

The number of participants is limited to 60 persons. Participation will be registered on arrival of the registration, on a first come first served basis, so please be sure to plan now to attend.

Please register under oranienbaum_phd@hfbk-dresden.de

Postal address:

Prof. Dr. Ulrich Schiessl
Hochschule für Bildende Künste Dresden
Postfach 160 153
D – 01287 Dresden
Phone Schiessl +49 351 4402 2168
or Ms Schrenk +49 351 4402 2164
or Ms Wermescher +49 351 4402 2
Mobile +49 174 30 444 63

Costs

Participants will be charged with 60 EURO for food and drink during the Colloquium. The bank account for payment will be communicated after your registration.

Accommodation information

Please contact early enough to get accommodation near the Palace:

Tourist-Information Dessau-Roßlau

Zerbster Straße 2c
D – 06844 Dessau-Roßlau
www.dessau-rosslau-tourismus.de
e-mail touristinfo@dessau-rosslau.de
Reservation for hotels and private rooms
(bed & breakfast)
Phone and Fax + 49 340 2 20 30 33

Wörlitz-Information

Förstergasse 26
D – 06786 Wörlitz
Phone +49 34905 202 16 or +49 34905 217 04
Fax +49 34905 310 10
Room reservation Fon +49 34905 194 33
info@woerlitz-information.de

Travel connections for flights are Leipzig Airport and the airports of Berlin. There are good train connections from Berlin and from Leipzig.

Please respect that early accommodation booking helps providing places nearer to the Palace, in the village of Oranienbaum there is only one hotel and some bed and breakfast places, but in the vicinity the famous Gartenreich Region is rich in all types of tourist accommodation.

If necessary, shuttle bus transport will be provided.

Guidelines for Authors

1. Articles in proof-read English are accepted. If this is problematic please contact the editorial board.

2. The maximum length of the articles is 10000 characters (approx. 4000 words) including the footnotes, or otherwise if indicated.

3. The manuscript should be submitted electronically by e-mail as attached document (preferably Microsoft Word) or alternatively on a cd. Authors should submit one set of all illustrations.

4. Please carefully follow the instructions for preparing your paper in the following section. You should, submit your article in a single column using a minimum of formatting: the editors will choose a uniform font set, paragraph spacing and margin size so don't waste time on this. You may use plain text, rtf, or MSword save as .doc or .rtf

5. Heading. Title. Author(s).

6. Main text. The main text should use no more than two levels of headings. Do not number sections or paragraphs. The word limit is 3500 words

7. References. Reference by number in square parentheses [4] in the main text. Do not use automatic reference numbering. Do not use footnotes. Notes may be included with references at the end of the paper.

8. Authors' addresses. Indicate the lead author with an asterisk after the name. There must be an email address for this author.

9. Figure captions. List these at the end of your text.

10. Tables. Tables should be constructed with horizontal lines enclosing the column headers and a horizontal line at the bottom. You may use extra horizontal lines between rows to mark a major change of category. Do not use vertical lines to define columns. Tables should be submitted as separate files – formats for tables: txt, doc, .rtf or xls (excel)

11. Illustrations. Prepare your illustrations so that they look good embedded in the text, either at single column width, 85mm, or double column width, 175mm. Indicate in the caption text which width you wish the diagram to fill. Line diagrams should ideally be in vector formats such as svg or ai(adobe

illustrator). If you cannot do this, make sure they are in high resolution bitmap format, png, tif, gif, (NOT jpg), 1100 pixels across for the single column diagram, twice that for a double column illustration. Graphs should not have an extra rectangle outside the axes. The title must be in the caption only. The graph background must be white. Specimen titles should be simple and descriptive, not just the strange number allotted by the analytical software. Axis markings and graph lines should be of a size which is easily read when the graph is displayed at the column width, or the double column width, as appropriate. You may submit diagrams on paper for scanning by us. Formats for photographs: tif, jpg, png, psd (Adobe photoshop).

12. The author is responsible for obtaining permission to reproduce photos of works of art from their owners and all photo reproduction rights (if different from owner). Please forward, along with your manuscript, all necessary credits in a separate list with the corresponding numbers of the illustrations.

13. When submitting your paper, all materials-text, illustrations, captions, and endnotes-should be complete. The submission of a complete manuscript is essential and will expedite substantially the publication process, benefiting all involved. Should an item be missing, please indicate on the cover sheet and inform us when we might expect to receive the out standing material.

NOTES

Endnotes should be typed double-spaced and numbered consecutively. They must follow the form below. Endnote numbers must appear in the text. Please note that *passim* and abbreviations such as ff. and cf. are not acceptable. Do not elide numbers (use 395-399, not 395ff or 395-9; 1972-1973, not: 1972-73). **Please do not use an automatic format in your final version** but add the note numbers in the text by hand, as the design requires this.

Volume numbers should be given in Arabic numerals.

The following set of numbered sample footnotes illustrates the correct citation form for books, articles, exhibition catalogues, and second references.

(Sample footnotes for books)

1. B. Novak, *American Painting of the Nineteenth Century: Realism, Idealism, and the American Experience*, (New York, 1969), 105-108.
2. W. H. Gerdts and R. Burke, *American Still-Life Painting*, 3d rev. ed., (New York, 1978).
3. J. D. Prown, *John Singleton Copley*, 2 vols. , (Locust Valley, N.Y., 1972), 2:35.
4. H. E. Wethey, *The Portraits*, vol. 2 of *The Paintings of Titian*, (London, 1971), 127.
5. W. Sypher ed., *Art History: An Anthology of Modern Criticism*, (Cambridge, Mass., 1963).
6. A. Suger, *Abbot Suger on the Abbey Church of St. Denis and Its Art Treasures*, E. Panofsky ed. and trans., (Princeton, 1946).
7. P. Rossi, *L'opera completa del Parmigianino*, (Milan, 1980), 3-7.
8. F. Lippman, *Zeichnungen alter Meister im Kupferstichkabinett der Kunst Museen zu Berlin*, (Berlin, 1910).

(Sample footnotes for articles)

9. B. Krasne, 'A Tobey Profile', *Art Digest*, 26 (15 October 1951), 15.
10. W. T. de Bary, 'Chinese Despotism and the Confucian Ideal: A Seventeenth- Century View', in *Chinese Thought and Institutions*, J. K. Fairbank ed., (Chicago, 1957), 163-204.

11. L. Ayres, 'The American Figure: Genre Paintings and Sculpture', in *An American Perspective: Nineteenth-Century Art from the Collection of Jo Ann and Julian Ganz. Jr.*, [exh. cat., National Gallery of Art] (Washington, 1981), 41-83.

12. V. Romani, 'Lelio Orsi a Roma: fra maniera raffaellesca e maniera michelangelolesca', *Prospettiva*, 29 (1982), 41-61.

13. P. Marcel, 'Une oeuvre de Watteau au musée di Dijon', *Gazette des Beaux-Arts*, 94 (May 1904), 372-378.

14. F. Vermeulen, 'Eenige Opmerkingen bij het Zeitportret van Lucas van Leyden te Brunswijk', *Onze Kunst*, 27 (1915), 98-104.

(Sample footnotes for Internet references)

15. ENCoRE, Clarification of Conservation/Restoration Education at University Level or Recognised Equivalent, <http://www.encore-edu.org/encore/encoredocs/cp.pdf>. (last visited 11. January 2008)

16. T. Padfield, How to design climatically stable museums, <http://www.conservationphysics.org/tenerife/bufferedmusdesign.php> (last visited 23. November 2009)

Do not use *op. cit.*, *loc. cit.*, *ibid*, or *idem*.