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Authentic e-Learning in a Multicultural Context:
Virtual Benchmarking Cases from Five Countries

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Abstract: *The implementation of authentic learning elements at education institutions in five countries, across eight online courses in total, is examined in this paper. The International Virtual Benchmarking Project (2009-2010) applied the elements of authentic learning developed by Herrington and Oliver (2000) as criteria to evaluate authenticity. Twelve teachers in four benchmarking pairs applied these elements to compare practices and identify development challenges in their online courses. The results indicate* multiple roles and perspectives *and* scaffolding *were the most strongly implemented elements.* Collaborative construction of knowledge *was implemented weakly. Development challenges were identified, such as the need for continuous authentic assessment. The project raised teachers' awareness of cultural background as a factor affecting views on authentic e-learning, and highlighted the need for differences in the cultural codes of e-learning to be considered when developing multicultural learning.*
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Introduction

Supporting quality authentic learning is arguably a key factor in online learning establishing a firm foothold in higher education. With more ubiquitous use of social media, students have limitless opportunities to access knowledge sources and interact with experts. Working in innovative, borderless learning environments and increasingly networked information

societies requires new kinds of teacher competence and an entirely new educational approach to be able to meet these contemporary challenges. Working with intercultural and international students groups requires careful attention to the internationalisation of teaching methods.

What kind of learning and what types of teaching methods are needed for a learner to genuinely develop the expertise that will be required in the future? The national evaluation conducted by the Higher Education Evaluation Council in Finland raised the challenge of strengthening authenticity in online education at universities of applied sciences (Leppisaari, Ihanainen, Nevgi, Taskila, Tuominen & Saari, 2008). Traditionally, knowing and doing have been differentiated in education (Resnick, 1987). Online educational forms often emphasise *knowing* more than *doing*. The challenge is to integrate *doing* in authentic environments more fully within online education. Teachers want to improve performance in implementing working life oriented teaching to respond to the needs of rapidly changing, globalised and multicultural working life. Studies have also indicated that higher education students feel learning is meaningful when it is linked to authentic and realistic contexts and problems (Herrington & Herrington, 2006; Saari & Leppisaari, 2008).

On the web, social media tools enable students to engage in interaction with peer learners, teachers and working life experts irrespective of physical location—local or international. Students and teachers thus have an opportunity for collegial or multi-professional collaboration and an opportunity to collaboratively construct knowledge and solve common problems and progress towards a shared and disseminated multidisciplinary expertise. Social software, like Web 2.0, enables people to collaborate through computer-mediated communication and to form learning communities in which they construct and share knowledge. Purposeful learning communities emerge when individuals share common interests (Jonassen, Howland, Marra & Crismond, 2008; Hakkarainen, Palonen, Paavola & Lehtinen, 2004; Lewis & Allan, 2005)

In this paper, we describe outcomes of projects implemented in the Online University of Applied Sciences network that have formed the basis for operational models and tools for virtual peer development of authentic learning (Herrington & Oliver, 2000), where teachers were able to evaluate authenticity in their own or a colleague's teaching and together update their performance. The research context is the Finnish Online University of Applied Sciences (FOUAS), a virtual cooperative and expert network established by universities of applied sciences (UAS). In 2009-2010, an authentic e-learning development project (the IVBM Project) was carried out in the FOUAS, in which a virtual benchmarking approach supported development of teachers' online pedagogic skills. The evaluation of the model has been described in Leppisaari, Herrington, Im and Vainio (2011). In this paper, we examine the application of design principles of authenticity in the benchmarking material.

Elements of authentic learning as evaluation criteria

Nine elements of authentic learning proposed by Herrington and Oliver (2000) were applied in authentic learning benchmarking (see also Herrington, Reeves & Oliver, 2010). They propose that learning is best facilitated in learning environments that:

1. Provide an authentic context that reflects the way the knowledge will be used in real-life

2. Provide authentic activities and tasks

3. Provide access to expert performances and the modelling of processes

4. Provide multiple roles and perspectives

5. Support the collaborative construction of knowledge

6. Promote reflection

7. Promote articulation

8. Provide coaching and scaffolding

9. Provide for authentic assessment of learning within the tasks

These elements were used to develop an evaluation tool for the project, in the form of a matrix divided into four columns: the first column lists the nine elements of authentic learning; the second column expands on each element by outlining some of its characteristics, the third column suggests a continuum range (values 1-5) for each characteristic (describing 'non-authentic' through to 'authentic'); and the fourth column is a checklist for evaluators. A continuum allows a picture of how much a learning environment adheres to the nine elements of authentic learning to be gained.

International virtual benchmarking project (IVBM): Developing a multicultural comparison of authenticity

The virtual peer learning community (Jackson & Temperley, 2007; Lewis & Allan, 2005) established in the IVBM Project aimed to support teachers in strengthening authenticity in online education and to facilitate their reflection on authentic principles from a multicultural perspective. Good international practices in authentic online courses were also disseminated.

English language cases were called for from UASs in Finland and these were matched with an international counter-case. The submitted course was examined in the application form according to Herrington and Oliver's (2000) criteria for authentic learning. There were eight full or partial courses submitted for benchmarking (see Table 1) and these came from Finland (4), Canada (1), South-Korea (1), Belgium (1) and Wales/United Kingdom (1). An Australian expert on authentic learning acted as project advisor, and there were also observers from Japan.

Table 1: Courses involved in the virtual benchmarking project

	UAS /UNI	Course	Description
1	Savonia UAS, Finland	Evidence based patient education and counselling 3ECTS	Students develop client education and counselling skills in individual and group counselling and acquire skills to operationalise the empowerment paradigm with individual patients. The module is in Moodle and includes active (functional) studying online (e.g. counselling virtual clients based on authentic cases), and tasks and exercises implemented in the student`s workplace and reflected on in Moodle.

	UAS /UNI	Course	Description
2	CVO HIKempen, Belgium	Formulating didactical goals for own lessons, LIO Teacher training course	The course is organised for first-year secondary school teachers. Didactical models are interpreted depending on real situations within school contexts and learners' expertise. First-year teachers are also coached on-the-job. The teacher training department follows learners in three ways: 1. Contact hours: lecturer gives the new theory, explaining didactical processes and components of a powerful learning environment. 2. Learners integrate the theory to individual exercises in the learning environment. 3. The lecturer attends lessons delivered by the learner and comments on application of theory. Platform used is Toledo, a Blackboard adaptation.
3	Kajaani UAS / Finland	Business Planning 3ECTS	The objective of this course is to study a company's planning targets by means of the business plan. Students complete a Business Plan of a real or imaginary company on a formulated sheet. Course content: entrepreneurship, mission, vision, values, business idea, competitor analysis, calculations, SWOT analysis, strategy and risks. E-studies in Moodle according to provided instructions. Students write a business plan following instructions, links and hints of the mentoring business plan in web form. The instructor evaluates and comments on the completed business plan.
4	Hanyang Cyber Uni South-Korea	The Business World - Conversation IV – Learning to Talk about Culture	The course focuses on the conversation skills for business with cultural aspect in EFL class by providing a framework for analyzing culture and social value systems. Beginning with uncovering the complexities of the term 'culture', students will then figure out the methodology of comparing cultural differences and situate their ideas in the local contexts. Cultural studies in relation to examples in literature and visual media are explored. English language learners will negotiate the idea of culture in the business environment.
5	Haaga-Helia UAS, Finland	Internet Services – Modelling and Developing	Students are able to model an Internet service and understand the possibilities of implementation, understand present and future trends of ICT and the possibilities of ICT in e-commerce and communication. Students work with a real organisation, analysing its requirements for an Internet service, then designing and implementing a prototype along the requirements. Student groups write a final report of their project work. Also, they comment on each others' essays and evaluations. Customers would evaluate the project work, both the process and the products.
6	Mount Royal College, Canada	Understanding Current and Emerging Pedagogical Technologies	The course introduces theoretical and practical components of computers in education with particular reference to their academic, social and cultural implications. The practical component exposes students to different computing environments and several software packages. Through the application of course content, participation in learning activities, and the related assessment techniques, students should be able to emphasize computer literacy skill, communication skills, group effectiveness skills. Method of instruction is blended learning.
7	HAMK UAS	Protecting Public Health in Disasters & Promoting Public Health in Disasters	This module focuses on increasing and deepening knowledge of approaches to *public health* in disasters and developing understanding of the relationship between environmental, mental health and psychosocial wellbeing, epidemiology and the nutritional health of individuals, families and communities affected by disasters. Learning and teaching methods: 1) Summer school: Face-to-face lessons, exercises-with group and teachers, conference, field day-learning from field and research experts. 2) Blackboard: Self directed-material/tasks, peer-sharing discussions and individual assignment, individual support and feedback, 3) Field practice: applied knowledge.
8	Uni of Ulster & Uni of Glamor-gan & HAMK UAS	Evidence Based practice in Disasters 10 ECTS = 20 UK Credits	The focus of this module is research related to disaster healthcare and the identification of evidence-based best practice for disaster relief delivery and management. Topics: The research process, critical appraisal of literature, primary and secondary research approaches, research questions and hypotheses testing, research aims and objectives, outcome measurements, ethical issues in relation to disaster relief research, brief overview of statistical analysis and scientific and proposal writing. Teaching, learning and assessment is designed to allow students flexibility to partly structure their own learning and explore aspects of disaster relief healthcare of particular interest to individuals or their sponsoring organization.

Virtual work methods and tools enable international peer development of shared authentic e-learning principles. A Ning environment (http://ibenchmarking.ning.com) was employed as the project's common virtual knowledge collection and interaction forum. A forum was created for each benchmarking pair in Ning, in which benchmarking sessions and compactions of the learning process were prepared. Adobe Connect Pro (further ACP) was employed as the online connection. There were two different kinds of participants: 12 teachers participating in the international benchmarking pairs (4 pairs or groups), and 23 observers. A further 20 people occasionally followed the IVBM group's activity through the Ning environment.

Benchmarking is a learning process, through which good models are learned from others and development challenges are set for one's own activities (Jackson, 2000; Karjalainen, Kuortti & Niinikoski, 2002). The IVBM activity was five-phased: 1) initiation, 2) preparation for benchmarking, 3) benchmarking session, 4) 'post mortem' discussion and 5) conclusion. Teachers described authenticity in the course they had submitted to the IVBM process. Benchmarking pairs comprised teachers who self-evaluated their own (and peer evaluated their colleague's) course applying the authentic learning evaluation tool. In the virtual benchmarking session, teachers presented their courses mirroring these against the elements of authentic learning, received peer feedback from their own partner and from other benchmarking practitioners and observers participating in the session. Each pair continued discussion in Ning as necessary, in which observers could also participate. Finally, the benchmarking pairs collected learning outcomes of the benchmarking process in Ning.

Implementation of the study

Authentic elements of online education were examined and modelled in the IVBM project in a multicultural environment. This examination promoted the understanding of authentic online education as a phenomenon and its implementation in teaching. The research questions of the study were: How did teachers evaluate implementation of authenticity in the examined courses as mirrored against the authentic learning criteria? What cultural differences emerged in the implementation of authenticity between the various countries?

The research methodology comprised qualitative content analysis. Implementation of authenticity was determined, and then described and compared, by applying Herrington and Oliver's (2000) elements, which formed the research analytical framework and thematic basis.

Research data comprised:

1) the initial survey 2009 (N=17, Webropol) in March-April 2009
2) the final survey (N=9, Webropol) April 2010
3) Ning documents: interaction and discussion between benchmarking pairs, prior preparation, questions on own course for pairs, questions for pairs regarding her/his course, and summary discussion, summary and benchmarking process reflection, learning outcome summaries, self-evaluations using the authentic learning evaluation criteria form (n=6, two cases lacked self-evaluations), and pair evaluations (n=4)
4) recordings of 10 ACP virtual meetings, which also contain benchmarking session chats (analysed from the perspective of the research task.)
5) coordinator observations, notes and discussions

Implementation of authenticity in the IVBM project courses and development ideas

The data were analysed according to how the learning environments instantiated principles of authentic learning, and the results are described below.

1. *Provide an authentic context that reflects the way the knowledge will be used in real-life*

In designing authentic courses, the context needed to be all-embracing, to provide the purpose and motivation for learning, and to provide a sustained and complex learning environment that can be explored at length (Herrington, et al., 2010, p. 19). Often the subject of online material is divided into suitable components for each task—it is believed a simple form facilitates learning, but simplified data does not meet a complex and multi-voice reality (Engeström, 1991). Herrington, et al. (2010) warned against the tendency to oversimplify in learning environments and recommend preserving the complexity of the real-life setting with 'rich situational affordances'. Realistic levels of complexity in a learning environment can even help to make learning easier.

The examined courses were closely linked to specific occupational areas. Teachers saw that the context and content of the online courses largely represented and mirrored real-life: *An authentic context has been created in [this course], and it includes cases that create a feeling of a genuine learning environment* (c4 – coding relates to data from Case 4 described in Table 1). One teacher confirmed that her/his course supported authentic learning as: *problem solving was tied to their own business or work setting* (c3). In Case 5, the students' project for a real customer was the course's major focus, resulting in authentic implementation. Development ideas were also identified in creating authentic context: *I would like to develop live video-conferencing discussions with groups of students at a time so to create authentic environments* (c4).

Learning pathways were generally seen to be fairly flexible, but further ideas were also identified: *Pathways that students take could be even more flexible* (c1). In many cases, learning was tightly linked to professional development in the learner's field, enhancing meaning and motivation in study and learning (c1, c2, c6), such as: *Course attempts to model a K to 12 teaching/learning environment for pre-service teacher candidates* (c6) (cf. Herrington & Herrington, 2006; Herrington, et al., 2010). The environment represents the kind of setting where the knowledge and skills will be applied: *The viewpoint in this course is to analyse the situation in working life at the moment and to find means to develop patient education and counselling to be evidence based (c1).*

Teachers considered the creation of a comprehensive learning process as a target for development, in which multiple contexts form a whole that reflects the issue's multiple voices and complexity. Course content is often text-oriented, and multiple methods to produce context were seen as required for the future. Teachers also recognised that interaction between learners and experts forms content—not only teacher-produced content. Further development ideas include enriching content produced through interaction.

2. *Provide authentic activities and tasks*

The e-learning courses needed to provide ill-defined activities that have real-world relevance, and which present a single complex task to be completed over a sustained period of time, rather than a series of shorter disconnected examples (Herrington, et al., 2010). Teachers felt authenticity was realised in tasks, as they were more pragmatic than academic. Task scope raised much discussion in the evaluation: they could be made more demanding by constructing overarching problems requiring students to define sub-tasks. Greater complexity would require a sustained period of time, content would be employed more extensively, new content created and knowledge deepened. The activities were organised so that students were

working with 'the same problem' throughout the course (c1). Herrington et al. (2010) recommended that authentic learning tasks provide a sustained period of time for investigation. Activity in two cases was designed around a complex task (c 3, c5). Herrington, Reeves, Oliver and Woo (2004) observed that activity does not necessarily *supplement* the course, it can *be* the course.

In several cases tasks had a clear real world transfer: *The new knowledge is used in real-life at three levels: first of all the learners appropriate the theory via concrete skills in online exercises, then they receive comment from their pairs and finally they are coached while integrating the skills in their teaching environment* (c2). Identified challenges included a better use of previous learners' work**,** building on what goes before to serve as more authentic examples (c8). Herrington et al. (2006) also identified the opportunity for the detection of relevant versus irrelevant information as a factor that increases authenticity. Only a rich and diverse pool of source material promotes a critical assessment of knowledge relevance. In many benchmarking cases students are able to choose information from a variety of inputs (e.g., web links, materials designed by teachers, fellow students' experiences). Quantity and adequacy of material caused discussion in the IVBM process: *When doing this self-evaluation we discussed and came to the conclusion that it (using irrelevant sources) would be a good idea.* A peer evaluator raised the possibility of utilising cases or podcasts made by learners in the detection of relevant and irrelevant knowledge. Future activities would require students to analyse relevant versus irrelevant information in order to be able to support their method of choosing relevant knowledge related to their subject.

3.   *Provide access to expert performances and the modelling of processes*

In order to provide expert performances, the e-learning course needed to provide access to expert thinking and the modelling of processes, access to learners at various levels of expertise, and access to the social periphery or the observation of real-life episodes as they occur (Herrington et al., 2010). Too often the course remains teacher-centric; the teacher defines content and tasks, preventing collaborative doing which would model expert performance. It is important for students to be able to compare their performance with others at various levels of expertise. Herrington et al. (2010, 25) also reminded educators that the lecturer is also an expert who can share and model expert performance. The evaluated courses offered a number of opportunities to move among different levels of expertise. Methods were not teacher-centric, but border-crossing and collaborative, facilitating the sharing of learning experiences and construction of a learning community (cf. Oblinger & Lombardi, 2008): *Access to expert performances and the modelling of processes is facilitated e.g. in discussions and interviews with the customer business experts.* (c5). An industry's operational guidelines also represent expert knowledge and modeling. Also *teachers participate, for example, in discussions providing one point of view of expertise* (c1). Learners are at various levels of expertise and can enrich the learning of others: *Each learner can reflect on the proposed items, taking into account the approach of the (place) where they work* (c2). *Students are from different backgrounds and some of them are experts in (this field) having years of experience. The students really share different kinds of stories about professional practice* (c1).

While expert-like work was evident, there is room for improvement. There was discussion on how the expertise of previous students could be harnessed in virtual learning communities: *Each year I have new learners and they don't have access to previous communities.*

...possibility is to develop a database of good practice examples... This database gathers all tips and tricks from previous learners so new learners can search for help or advice within the platform. Links to expert performance on some courses was constructed through social media (e.g. blogs, Facebook, webinars, Twitter): *Sharing content in social media provides good discussions with experts* (c5). The facility of the Web to create learning communities who can interact readily via participatory technologies (cf., Oblinger & Lombardi, 2008; Lewis & Allan, 2005) also enables opportunities for the sharing of narratives and stories, professional examples (e.g., c6). Linking experts to teaching through social media is an issue for further development, also justifiable from a multicultural information literacy perspective: *I will try to build in more web 2.0 content where students can contribute to a collective intelligence via wikis or other websharing tools. I think that it will encourage students to think more globally and to recognize possible global knowledge as well as perhaps, areas where culture codes and such do not allow for complete universal truths... Certain wikis are geared towards more western audiences and so, certain biases prevail. Exposure to information is key to understanding and developing what is known as the collective conscience* (c4)**.**

4.   Provide multiple roles and perspectives

Essential to learning in an information society is the crossing of traditional borders and multiple, discipline integrating perspectives, as 'life is not one subject' (Leppisaari, Silander, & Vainio, 2006). For students to be able to investigate a problem or task from more than a single perspective, it is important to enable and encourage students to explore different perspectives on the topics from various points of view, and to 'criss cross' the learning environment repeatedly. As Herrington et al. (2010) observed, many e-learning courses and resources are designed in a linear instructional format, assuming that learners begin at the beginning and work through to the conclusion. Such courses provide inadequate experiences for students to deal with complex issues. How can students be given opportunities in online studies and virtual groups to work with other professions/disciplines as they may need to, at least partially, in the workplace?

Teachers felt the courses provided very different perspectives on the topics from various points of view. Opportunities to investigate the learning environment by multiple pathways was rated very highly. Multiple perspectives were promoted by versatile material (scientific knowledge, more practice-based knowledge) and range of experiences represented by students (most of them being professionals and having a lot of practice experience) (c1). In one case, role-play in the dialogue section provided multiple perspectives (c4) and in another, student roles were developed through teamwork /team-players (c8). In project-based implementation, this element is prominent: *In project work there are leader, technology expert etc. and in e-exam technical consult to some customer* (c5). In Case 6, inquiry-based project activities provided students with opportunities to examine the problem from a variety of theoretical and practical perspectives. Students could also use social media for multiple purposes from different points of view. Exploring issues from multiple perspectives also caused critical reflection. In particular, cultural differences emerged within *ill-structured learning environments*, a feature of this fourth authentic learning principle. Too many perspectives or unlimited material do not necessarily support learning (cf. Kinshuk, 2010). Limited perspectives were defended as follows: *In this context, we focus on one of the competences of (profession). The peer assisted method…gives a variety of examples, applications of the theory, which is enriching for each learner, focussing on the domain (acquired)* (c2).

5. *Support the collaborative construction of knowledge*

The opportunity to collaboratively construct knowledge is seen as important element of an authentic learning model (Herrington et al., 2010). Especially in e-learning, tasks need to be addressed to a group rather than an individual, and appropriate means of communication (discussion forums, social networking, wikis, etc.) need to established. In the IVBM project, teachers felt their courses offered fairly good opportunities for pair or group work. However, their self-evaluations indicated course structure supported a group's purposeful construction of knowledge weakly. e-Learning communication was seen to be crucial, but was not sufficiently effective: *How to encourage group interaction around the aims of the module? At the moment the communication is greatly facilitator-led* (c8). The evaluations showed that not all cases employed group tasks, while in some they were used substantially: *together they (learners) construct, improve, give feedback* (c1). Collaboration was realised mainly through tasks (pairs, small group) and discussion. In one case, the depth of collaboration was perceived to vary, depending on assignment and learner motivation: *Real collaboration depends on student's willingness to work with each other* (c3). Purposeful tasks and online discourse roles of peer learners also promoted collaborative construction of knowledge: *All learners will read the outcomes of the others and some of them are directly involved in peer coaching* (c2). Colleague-learners may bring problems and issues to the collective discourse environment, receive advice and comments from their peers and work through issues together. Cultural differences were also evident in use of group work. For example, in Asian cultures learners usually prefer to work independently and the teacher felt it slightly challenging to integrate student collaboration into the course.

Reflection on individual or group grades for products was closely tied to group work and the collaborative construction of knowledge: *The grades will be given more in individual/pair effort – this is something that we should maybe think about once again* (c1). Often participation in discussion forums is not rewarded or graded, a practice teachers want changed. In the two project-based cases evaluated here, learners came from different levels, degree programs, countries and cultures, bringing added value to collaborative construction of knowledge. Large group projects definitely provided opportunities for collaboration. Either students received a group rather than individual mark for all group tasks, or the course contained an appropriate mix of group and individual assessment (portfolio) and feedback.

6. *Promote reflection*

In order to provide opportunities for students to reflect on their learning, the e-learning course needed to provide an authentic context and task to enable meaningful reflection. It also needed to provide non-linear organisation to enable students to readily return to any element in the site if desired, and the opportunity for learners to compare themselves with experts and other learners in varying stages of accomplishment. (Herrington et al., 2010).

Teachers in their self-evaluation of course content gave a low rating for authentic material and tasks that required learners to make decisions on reaching learning objectives. However, learners were able to return to any element to reflect on material and resources and they had fairly good opportunities to compare themselves with other learners in varying stages of accomplishment. Learning in the examined courses did not, however, rigorously support reciprocal reflection among each pair or the group's collective reflection. One teacher's insight during the benchmarking process was: *The course promotes reflection but students in most cases don't use this feature. I should get students to compare their thoughts and ideas to*

experts, teachers and other students (c3). Reflection is seen as a central authentic learning element in working life-centric education: *The discussion forums and a written assignment are planned so that they promote reflection – we think that it is not possible to develop…education to be evidence based without reflection. Thus, it is necessary to find means how to support students' reflection: they have to reflect on their own actions and values, as well as actions and values in their work settings* (c1). Experiential learning and theoretical knowledge are integrated through reflection (Kahne & Westheimer, 2000).

Often purposeful reflection was realised individually: *self-reflection on the course takes place as written assignments but again, there is very little interactive reflection amongst students* (c4). Exceptions were the project-learning cases, in which group decisions were definitely required to complete tasks, and in which feedback and discussion between groups was realised. Reflection was supported by learners at varying stages of expertise comparing thoughts and ideas in learning communities with their peers, teachers and working life experts. One benchmarking pair's insight was that dividing a big student group (about 20 students) into smaller groups promoted more in-depth reflective discourse. Reflection can be supported through diverse educational technologies and social media tools (Jonassen et al., 2008), for example, in discussion and chat forums, blogs, and wiki spaces that promote reflection. Reflection was deepened in the cases by compiling a portfolio of reflection tasks, which explicated the learning journey (c2, c6). Reflection was seen to be supported if the course offered a self-assessment component for all assignments (the assignment rubrics) or student blogs (students comment on what they learned and areas for future improvement). Cultural differences in the use of self-reflection were evident, which could partly be explained by a learner's age: *I find that asking for students' self-reflection about a topic is challenging especially because in a traditional sense, they are not accustomed to reflecting on the process of their learning* (c6).

7. *Promote articulation*

In order to produce an e-learning course capable of providing opportunities for articulation, tasks need to incorporate inherent, as opposed to constructed, opportunities to articulate, collaborative groups to enable articulation, and the public presentation of argument to enable defence of a position (Herrington et al., 2010). Teachers' self-evaluations indicate that course tasks required little discussion and articulation of beliefs and growing understanding. Teachers gave a slightly better rating to case tasks providing collaborative groups and forums to enable articulation of ideas. Public presentation of arguments was seen to be realised well. In several cases (e.g., c1, c2) articulation was concretised in discussion forums: *The discussion forums support students to discuss also beliefs and growing understanding. …the students have also formed smaller collaborative groups according to their interest and working field.* The role of articulation has also been recognised in the value of peer tutoring. Understanding through cognitive conflict occurs when students are required to develop arguments and achieve consensus (Herrington et al., 2010). Discussion forums also enabled defence of arguments. However it was noted that *… this is also time consuming…articulation and group coaching can be much better integrated in the online learning …with group sessions where they can reflect, ask for advice, discuss with peers and find and defend their own arguments.* (c2)

According to the evaluations, portfolios and use of wikis were also factors that promote articulation (e.g., c6). One teacher observed during the examination of the benchmarking pair's course: *Perhaps I could also encourage my student groups to use cooperative wikis*

instead of Word in their reports and essays. Articulation, according to teachers, was strengthened by using videoconferencing as an interactive e-learning tool, so students could control lecture speeds and have unlimited access to contents to review and practice articulation (c4). In project work or drawing up a business plan, the entire learning task constituted articulation and defence of arguments. The group project clearly provided students with opportunities to discuss and demonstrate their growing understanding (c5). Articulation was also promoted by *all major assignments…posted to the Web for external presentation and feedback* (c5). Articulation could also be developed by opening up learning contexts and products to a wider public in one's institution or on the internet globally (cf. Makino, 2007): *Potential to video tape the group teaching workshops and post them to YouTube*.

8. *Provide coaching and scaffolding*

In order to accommodate a coaching and scaffolding role principally by the teacher (but also by other students), the e-learning course needed to provide the opportunity for more able partners to assist with scaffolding and coaching, as well as the means for the teacher to support learning via appropriate communication technologies (Herrington et al., 2010). The teacher as coach is a fundamental and integral part of an e-learning course that provides a substantial scaffolding and coaching support for students. However, authentic learning principles also underline collaborative learning, where teachers and more able partners can assist with scaffolding and coaching.

Scaffolding support in multiple forms was seen to be easily available, although teachers had identified situations in their work when learners sometimes experienced a lack of coaching. Peer guidance was in some cases strongly linked to the learning process: *all assignments have a formal peer review component. Groups are intentionally created to provide peer tutoring opportunities* (c6). Teachers felt the structure of their courses provided strongly for collaborative learning, in which more expert (learners) offered guidance and support (c1, c2): *More knowledgeable students are able to assist others…the students are sharing ideas, working tools/methods - it seems that they are also teaching each others when need arises* (c1). However, one teacher felt that reciprocal peer guidance should be more purposefully planned and integrated into learning tasks. Peer guidance should not increase an adult learner's workload. Coaching and scaffolding conducted by students could be planned in advance (e.g., group and pair assessment in discussions) (c1).

Teacher guidance was, according to self and peer evaluations, available as needed and its utilisation was dependent on the learners themselves. (c3). Technology tools used for guidance included: message forums (c5), email or a Q&A forum, and also a site where the student and professor discussed on a one-to-one basis (c6). In one country, quality of teacher guidance was assured from an employer's perspective: *all professors are evaluated by students and percentages are given based on an evaluative test*. External, working life expert guidance was also utilised: *These online exercises are combined with coaching on the work floor* (c2). Stronger integration of working life experts to guidance is wanted in future (cf. Helenius & Leppisaari, 2004): *There is a good possibility for experts in the companies to coach and advise students* (c3, c4), although its practical arrangement is considered somewhat challenging.

9. *Provide for authentic assessment of learning within the tasks*

In order to provide integrated and authentic assessment of student learning, the e-learning course needed to provide the opportunity for students to be effective performers with acquired knowledge, and to craft polished performances or products in collaboration with others. It also requires the assessment to be seamlessly integrated with the activity, and to provide appropriate criteria for scoring varied products (Herrington et al., 2010).

According to teacher self-evaluations, opportunities for learners to create polished performances or products was realised well in their courses. Continuous assessment structuring in modules and adequacy of assessment measures caused considerable discussion. In the benchmarking process, it was observed that *there is a lot of weight at the end of the course: the written assignment will be graded. At the moment the learning process is not assessed* (c1). One teacher expressed the view that: *In future, we will assess the whole learning process – the evaluation will be continuous during the course including self-, peer-, and group evaluation. It is important to assess participation and contribution to discussions because they are so important a part of the course* (c1). In another case, all major course assignments had self, peer, and instructor assessment components (c5). Multiple measures of assessment were deployed (e.g., group work, individual essays, and final exam). Students also created individual essays based on their group work experiences. Assessment could be developed to include external assessment opportunities for the student projects and use of wiki summaries and student portfolios. Additionally, participation in each other's learning process can be more intense.

In some cases, assessment was teacher-centric and based on the quality implementation of a required working life-oriented *product* according to prior criteria. After the benchmarking process, one teacher felt that the entire learning process should be developed towards assessment: *The instructor could assess the plan step by step and give feedback after which a student can go on tooling the plan.* (c3). The teacher saw a need to diversify assessment by including working life experts in the process which, however, s/he felt presented practical obstacles, both from the course implementation and external expert's time and commitment perspectives. Learners were aware of evaluation criteria, but teachers felt the criteria needed clarification. In one case, students co-created assessment rubrics for all assignments (c5). In Canada and Korea, assessment rubrics were used in each assignment, outlining all assessment measures and points of different levels. In Finland, an exact scoring criteria (rubric) on a scale of 1 to 5 was not used in all contexts; teachers can subjectively assess a product according to certain requested expectations. However, Finnish teachers challenged their international colleagues to consider innovative assessment methods: *What about some innovative approaches which don't fit into any of the assessment rubric levels?* (c6).

The IVBM project offered teachers new ideas for a pragmatic development of assessment in teaching: *Evaluation takes place through attendance, homework, discussion board participation and the two exams… An oral test component as in a live online discussion would give me a better sense of a student's level* (c4). Although authentic assessment was considered a difficult learning element to implement, in vocationally oriented higher education authentic assessment is an evident strength: *Since the tasks are always based on authentic situation from the working environment of the learner, also the assessment is based on the reference world of the learners, linked to their direct reality…* (c2).

Conclusion

Overall, authentic learning principles were implemented quite consistently and satisfactorily in the e-learning cases evaluated in the IVBM project. The average of all elements in six self-evaluations was 3.9/5. From an authentic learning perspective, *collaborative construction of knowledge* was the most weakly implemented element. *Collaboration as a group* was according to teachers' self-reflection and peer evaluation the most challenging component of this element. Collaboration was also not supported very effectively in relation to group assessment. Other areas implemented below average were *authentic context's* flexible learning pathways that reflect real-world settings, and opportunities to identify irrelevant and relevant knowledge. Implementing reflection was also challenging. *Multiple roles and perspectives* and *authentic coaching* were, according to teachers' evaluations, the most successfully implemented elements.

Teachers felt they had succeeded quite well in planning their courses to meet authentic learning criteria. Learning activities reflected real-world relevance. In addition, the reflective nature of the self-evaluation process enabled teachers to gain many more ideas for developing authenticity in their course. Teachers' self-evaluation was confirmed and supported by the feedback from their benchmarking pair. These ideas were related to the organisation and structuring of the course, learning activities, and especially to evaluation. It was also felt that pathways that students take could be even more flexible, and that more collaboration between students and between university and working life/real life is necessary. Assessment also needs attention: it should be continuous throughout the course and include self-, peer-, and group methods.

Access to technical support was considered a cultural difference factor in the IVBM project (cf. Lee, Leppisaari & Im, 2009). Korea emerged as a good example of faculty support, an experienced supporting team to help professors develop virtual courses. A Finnish teacher described how he/she had to learn the learning environment and do all technical things alone: *If I had resources and technical support, I would design the course again, especially...create the plan template much more impressive, layout, colours, scaling planning target boxes etc.* (c3). Course layout and an extensive use of visual material, multimedia and video streaming in the Korean implementation interested the Finnish teachers, who saw the potential for Finnish online education to be more diverse and visually rich. Korean online learning culture code expresses that: *the average Korean student is quite tech-savvy and prefers much graphic detail when learning. Korea has the advanced technology to readily provide this type of learning.* However, consistent with, for example, a Finnish culture code, the learner's age affects online study: *Older students are less inclined to engage content whether it is because of their basic knowledge of computers or because they are used to teacher-directed/textbook learning* (c4). Consistent with previous studies, the project examined here indicated that a western method of processing knowledge is traditionally more text-based, while an eastern approach relies more on knowledge visualisation (cf. Munro, 2009). It should, however, be noted that Koreans enjoy strong technical infra-structure for fast communication connections, facilitating the use of video streaming and multimedia (Menon, 2011).

Authentic learning elements in which eastern and western approaches diverged included, for example, the structure of the learning environment, self-evaluation and group work. *Authentic assessment* especially caused discussion on cultural factors. Finnish teachers may have experienced Canadian course grading policy as complicated. One teacher analysed this as a

cultural concept too: *Some prefer to think about fulfilling objectives while others prefer to see quantitative scoring. Combining the two could benefit the student…Canadian students are familiar with rubrics because our curriculum requires teachers to compose them* (c4).

The IVBM project offered teachers opportunities to become aware of cultural differences in teaching and learning online. Cultural background greatly influences views of online learning, and the cultural codes of online learning—such as exist in Finland, Korea, Canada, Belgium and Wales/UK—is worth considering when constructing global content. This study has provided insight into cultural differences in online education, particularly in reference to authentic learning, and provides the parameters for future broad comparative studies.

This multicultural examination of the implementation of authentic elements in eight e-learning cases across five countries indicates that online education could have a more significant role in the development of multicultural global education. For this reason, it is important teachers gain experience of multicultural peer development of authentic education. The IVBM model provides one such method of implementation.

References

Engeström, Y. (1991). Developmental work research: Reconstructing expertise through expansive learning. In M. I. Nurminen & G.R.S. Weir (Eds.) *Human jobs and computer interfaces*. Amsterdam: Elsevier.

Hakkarainen, K., Palonen, T., Paavola, S. & Lehtinen, E. (2004). *Communities of networked expertise. Professional and educational perspectives*. Earli. Amsterdam: Elsevier.

Herrington, J. (2006). Authentic e-learning in higher education: Design principles for authentic learning environments and tasks. In T.C. Reeves & S. Yamashita (Eds.), *Proceedings of E-Learn 2006* (pp. 3164–3173). Chesapeake, VA: AACE.

Herrington, A., & Herrington, J. (2006). What is an authentic learning environment? In A. Herrington & J. Herrington (Eds.), *Authentic learning environments in higher education* (pp. 1–13). Hershey: Information Science Publishing.

Herrington, J., & Oliver, R. (2000). An instructional design framework for authentic learning environments. *Educational Technology Research and Development* 48, 23–48.

Herrington, J., & Oliver, R. (2002). Designing for reflection in online courses. In A. Goody, J. Herrington & M. Northcote (Eds.), *Quality conversations: Research and Development in Higher Education* (pp. 313–319). Jamison, ACT: HERDSA

Herrington, J., Reeves, T.C., & Oliver, R. (2006). Authentic tasks online: A synergy among learner, task, and technology. *Distance Education, 27*(2), 233–247.

Herrington, J., Reeves, T.C., Oliver, R., & Woo, Y. (2004). Designing authentic activities in web-based courses. *Journal of Computing in Higher Education, 16*(1), 3-29.

Jackson, N. (2000). Benchmarking educational processes and outcomes. In N. Jackson & H. Lund (Eds.), *Benchmarking for Higher Education.* Society for Research into Higher Education & Open University Press.

Jackson, D., & Temperley, J. (2007). From professional learning community to networked learning community. In L. Stoll & K. S. Louis (Eds.), *Professional learning communities* (pp. 45–62). Berkshire: Open University Press.

Jonassen, D., Howland, J., Marra, R. M., & Crismond, D. (2008). *Meaningful learning with technology* (3rd ed.). Upper Saddle River, NJ: Pearson.

Kahne, J. & Westheimer, J. (2000). A pedagogy of collective action and collective reflection. *Journal of Teacher Education 51*(5), 372–383.

Karjalainen, A., Kuortti, K., & Niinikoski, S. (2002). *Creative benchmarking. Designing sustainable international cooperation in higher education.* University of Oulu, Finnish Higher Education Evaluation Council.

Kinshuk (2010). *e-Learning principles for exploratory learning*. Presentation delivered to the Chungbuk National University, 14 September, 2010.

Lee, O., Leppisaari, I., & Im, Y. (2009). Guidelines for national e-learning evaluation – International comparative study between Korea and Finland. *Asian Pacific Collaboration Education Journal*. 5(1), 29–48.

Helenius, R. & Leppisaari, I. (2004). Online Mentoring to Enrich the Learning Process. In J. Nall & R. Robson (Eds.) *Proceedings of E-Learn 2004. Conference on E-Learning in Corporate, Government, Healthcare, & Higher Education*, (pp. 1244–1249). Vol. 2. November 1–5, 2004, Washington, USA. Chesapeake, VA: AACE.

Leppisaari, I., Herrington, J., Im, Y. & Vainio, L. (2011). Creating an e-benchmarking model for authentic learning: Reflections on the challenges of an international virtual project. *Educational Technology International, 12* (1), 21–46.

Leppisaari, I., Ihanainen, P., Nevgi, A., Taskila, V-M., Tuominen, T. & Saari, S. (2008). *Hyvässä kasvussa –Yhdessä kehittäen kohti ammattikorkeakoulujen laadukasta verkko-opetusta* (Growing well – Developing together towards quality university of applied sciences online education). FINHEEC 4: 2008. Helsinki.

Leppisaari, I, Silander, P., & Vainio, L. (2006). Autenttisuus ammattikorkeakoulun virtuaaliopetuksen haastena (Authentic learning: The challenge for universities of applied sciences e-learning). In M. Ylikarjula (Ed.) Ihmettelyä ja oppimista tutkimuksen äärellä. Opettaja oman työnsä tutkijana – Symposium III articles (pp. 17–36). COU, Kokkola.

Lewis, D., & Allan, B. (2005). *Virtual learning communities.* Berkshire: Open University Press.

Munro, J. (2009). Learning internationally on a future context. In M. Hayden, J. Levy & J. Thompson (Eds.) *The SAGE Handbook of Research in International Education* (pp. 113–127). London: SAGE,.

Makino, Y. (2007). The third generation of e-learning: Expansive learning mediated by a weblog. In I. Leppisaari et al. (Eds.) *Kolme säiettä kasvuun*. (Three threads to growth: online pedagogy, educational technology and working-life connections) (pp. 96–113). COUAS, Kokkola.

Menon, S. (2011). Policy agendas for South Korea's Broadband Convergence Network Infrastructure Project. *Review of Policy Research, 28* (4), 347–364.

Oblinger, D. G. & Lombardi, M. M. (2008). Common knowledge: Openess in higher education. In T. Iiyoushi & M. S.V. Kumar (Eds.) *Opening up education. The collective advancement of education through open technology, open content, and open knowledge* (pp. 389-400). Cambridge: The MIT Press.

Oliver, R., Herrington, J., & Reeves. T.C. (2006). Creating authentic learning environments through blended learning approaches. In C. Bonk & C. Graham (Eds.), *The handbook of blended learning* (pp. 502–515). San Francisco: Pfeiffer.

Resnick, L. (1987). Learning in school and out. *Educational Researcher, 16*, 13–20.

Saari, S., & Leppisaari, I. (2008). *Web-based learning services experienced by the students in the Finnish UASs.* Paper presented in EAIR, The European Higher Education Conference, the 30th Annual Forum 'Polishing the silver: Are we really improving higher education?' 24–27.8.2008, Copenhagen, Denmark.

Woo, Y., Herrington, J., Agostinho, S., & Reeves, T. C. (2007). Implementing authentic tasks in web-based learning environment. *EDUCAUSE Quarterly* 3, 36–43.