Computer-Supported Collaborative Learning with Wikis and Virtual Classrooms across Institutional Boundaries – Potentials for Landscape Architecture Education

Ellen FETZER and Heike KAISER

1 Preliminary Developments

The collaborative online seminars presented in this paper build on two principal foundations. One is given by LE:NOTRE, the European Thematic Network in Landscape Architecture\(^1\), which has created a new forum for academic collaboration among landscape architecture scholars. Without the new and fruitful connections made within this network the setting up of collaborative teaching units with inputs from different European countries would hardly have been possible. The second foundation is the IMLA\(^2\), a landscape architecture Master’s course in which distance learning with virtual classrooms has been practiced already since 2002.\(^3\) Based on the expertise gained in this programme the idea came up to open virtual classroom education to the member schools of LE:NOTRE. Since 2007 the Universities of Nürtingen-Geislingen\(^4\) and Kassel\(^5\), both Germany, have taken up a coordinating role in this context. Up to now, seven online seminars have taken place. They have been attended by over 150 landscape architecture students from as many as 40 different countries.\(^6\)

2 Motivations for Developing and Offering Online Seminars

The motivation for implementing such a rather complex model of academic education is based on a broad set of expected benefits for students, teachers and even for the institutions involved. From the beginning it was assumed that these benefits would compensate for some of the common drawbacks of online education (such as technical problems and the limitation of communication channels compared to face-to-face contacts). The internet serves as a tool for bridging the boundaries between academic institutions. It enables teachers to offer a course collaboratively while continuing their daily business on campus. In doing so, they will not only distribute the required workload but also gain fruitful new

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\(^3\) Virtual Campus IMLA (2002/2003), a project by Prof. Dr. Ulrich Kias and Dipl.-Ing, (FH) Michael Ditsch funded by the Virtual University of Bavaria, Germany.

\(^4\) HfWU Nürtingen-Geislingen is a member of the IMLA consortium.

\(^5\) Department of Landscape Planning, Prof. Dr. Diedrich Bruns.

knowledge though the exchange with international colleagues and students. This happens of course also during summer schools, international workshops and exchange semesters in a face-to-face context. But the difference made with international online seminars is that they are included in the daily rhythm of studies. In addition to lectures, seminars and studio work on campus the students also have their regular weekly meeting in the virtual classroom. They learn how a specific topic is handled in other European countries and collaborate in international small groups. Given the increasing number of landscape architecture practices operating on a global level it becomes more important that graduates are able to work in an intercultural and partially virtual team. But first and foremost stands the idea that the internet opens new options for a student-centred learning approach based on the learning theory of constructivism.

3 Building on Educational Constructivism

Constructivist learning methods are very common in landscape architecture education. According to JEAN PIAGET (1977) an individual will create new knowledge through an interaction between his/her previous conception and new experiences. If this new experience is in line with a previous concept this process is called accommodation, which is basically an extension of the knowledge scope. In contrast, assimilation takes place if new knowledge contradicts with previous ideas, finally leading to a change of the prior concept. This happens for example when we learn through failure. Furthermore, constructivism calls for an active learning process that is rich in authentic experiences for the learner. In this context, the role of the teacher becomes the one of a facilitator, motivating and accompanying an independent learner in his/her process of dealing with reality. Also, learning in groups through interaction is principal. We find this model in landscape architecture design studios where students develop solutions for real life problems accompanied by an active dialogue with their teachers (BRUNS et al. 2010). Ideally, both teachers and learners are aware that there is no unique answer to the problems being dealt with. Unfortunately, this paper does not allow for elaborating further on constructivist learning. But the case study described further down will show how the seminar process and the activities included have been designed according to the principles of constructivism.

4 E-learning Tools for Student-centred Learning

As seminars embrace various communication and information flows a mix of technologies is required for translating these flows into a virtual learning environment. From the beginning it was clear that the possibilities for students to be actively involved would be essential for creating an authentic learning environment. Therefore, the tools applied had to support self-directed activities of the students but also allow for authentic communication. The structural backbone of the seminars is given by weekly synchronous meetings in the virtual classroom (90 minutes). Virtual classrooms allow for synchronous communication of larger groups and usually have additional functions such as application sharing, file

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7 See for example Reich (2007) for a broad overview of constructivism as a learning theory.
exchange, collaborative editing, breakout rooms and interactive tools like participants' arrows or text fields. Virtual classrooms make a high level of interactivity among the participants possible which is a big asset. However, they are often only used for transmitting lectures without further learning activities. Unfortunately, most applications support this approach and do not represent the group adequately. Therefore, VITERO was used for the seminars. The advantage of this application is that the group is represented like in a roundtable discussion. In addition, many interactive tools supporting collaborative learning are available such as card clustering for moderated discussion.

Fig. 1: Urban Landscapes Seminar: Students localise their case studies on a topic map with participants' arrows. Working groups have been formed on this basis.

In addition, it was necessary to have a platform where students would be able to publish and discuss their seminar work. A wiki was found to be the ideal solution for this. The strength of a wiki lies in its horizontal, non-hierarchical structure that leaves much freedom to learners for structuring contributions. However, this freedom may turn also into

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10 The wiki software applied is Mediawiki, also used for Wikipedia. This server software is open source. http://www.mediawiki.org.
confusion. Therefore, templates where widely used for pre-structuring the students’ pages. A wiki is a very powerful tool for collaborative writing (CRESS & KIMMERLE 2008). It records all stages of a text so that the text production can be entirely tracked back or even restored if problems or abuse occurs. This is ideal for providing freedom for the learner on the one hand while being able to identify authorship for assessing the results. The wiki was used for externalising knowledge (when students document their case studies), collaborative writing (discussing and documenting group tasks), aggregation of knowledge (as wikis allow for collecting dispersed information) and documentation (as a basis for assessment). Furthermore, the wiki is used for managing the course organisation such as publishing schedules, minutes and recordings and giving access to additional resources.11

5 Case Study “Public Participation in Landscape Architecture and Open Space Planning”

The aim of this seminar was to offer an introduction to consultation and to the scope communicative forms of planning may take in landscape architecture. It took place from October 2009 - January 2010 and was attended by 22 students coming from 14 countries and 8 study programmes. The activities where organised on two levels: regular online meetings in the virtual classrooms and group tasks which had to be documented on the seminar wiki. The synchronous sessions where used for expert lectures, discussions and student presentations. At the beginning, the students where asked to read subject-specific articles and to visualise these as concept maps. These where then presented to the plenary. In the second phase each student documented a case study on the wiki which had to include a process model indicating all relevant participation and consultation steps of the project described. These cases where then clustered thematically as a basis for the working groups. After externalising knowledge in the form of a case study the students where asked to compare these within the thematic group. This was done with help of a set of core questions. The students were further asked to identify qualities and drawbacks between their cases, to discuss these in the group and to derive a concluding synthesis. The result of this group work was again presented and discussed in the plenary session.

The procedure described above is mainly based on the model of learning being a process of reconstructing, constructing and deconstructing which is described by REICH (1998) in his model of interaction-based constructivism. Students start with reconstructing knowledge when they identify a potential case study out of their previous experience. They then start to construct knowledge by documenting the case and presenting it to the group. At last, they enter into a process of deconstruction as they are asked to compare the characteristics of their case with other examples, mostly from different cultural contexts. In doing so, they will experience both accumulation (if the comparison confirms previous assumptions) and assimilation (if previous assumptions are contradicted).

6 Some Selected Evaluation Results in Comparison

Since fall 2008 the seminars have been evaluated with a standard set of questions. In the following, some results are presented showing the last five seminars in comparison.\textsuperscript{12}

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<td>Answers</td>
<td>20</td>
<td>16</td>
<td>21</td>
<td>20</td>
<td>30</td>
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<tr>
<td>Yes, absolutely</td>
<td>45%</td>
<td>56.25%</td>
<td>42.86%</td>
<td>86.67%</td>
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<tr>
<td>This was mostly the case.</td>
<td>35%</td>
<td>31.25%</td>
<td>47.62%</td>
<td>6.67%</td>
<td>40%</td>
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<td>…was of average interest</td>
<td>15%</td>
<td>12.5%</td>
<td>9.52%</td>
<td>6.67%</td>
<td>30%</td>
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<td>…was not interesting</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>6.67%</td>
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These figures give important information with regard to the motivation of the learners. Their profound interest is very relevant for the overall performance of the seminar as it strengthens the participants’ will to overcome potential technical obstacles and to face the challenges of virtual communication. In general, the vast majority of the participants stated that the contents were of absolute interest or that this was mostly the case.

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<tr>
<td>Yes absolutely</td>
<td>35%</td>
<td>37.5%</td>
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<td>mostly</td>
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<td>sometimes</td>
<td>40%</td>
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This question tries to illustrate in how far the participants felt comfortable in the virtual team room as a basis for participating actively in the discussions. As the seminar concept builds on active participation and involvement as a principal learning method it is crucial to

have a virtual environment in which students can easily be stimulated. Except for the first seminar the vast majority of the participants found it absolutely or mostly easy to express his/her thoughts in the virtual team room. This is a principal precondition for achieving the seminars’ learning objectives as these mainly build on learning through dialogue.

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<th>Would you say that your working group has met the objectives of this seminar?</th>
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<tr>
<td>Year</td>
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<tr>
<td>Answers</td>
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<tr>
<td>Yes absolutely</td>
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<td>mostly</td>
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<tr>
<td>Minimum</td>
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<tr>
<td>No, we did not</td>
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Working group processes are dependent on many factors that are likely to be very different not only in an international learning group. Besides the actual task, the seminar groups had to cope with additional study commitments, diverse learning and working styles and unequal language capacities. In addition, most students were confronted with different concepts of the subjects being dealt with due to the variety of national backgrounds. In this delicate context, some students achieved great results mostly if they happened to be in a more or less homogenous group. Others sometimes failed to meet the demands even if they were known for performing well in other learning situations. There was a risk factor throughout the seminars with the principal assignment being designed as a group task. However, despite all likely dangers the majority of the participants thought that they performed absolutely or at least mostly well as a group.

7 Competences for Seminar Coordinators

Teaching in an online environment requires a specific combination of competences moving beyond traditional education. As defined in the European Qualifications Framework (2008) “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”. Although the principles of designing, organising and executing both online and traditional classroom courses seem quite similar, coordinators of online seminars “need training and support to…adopt this new teaching paradigm [and] need to be cognizant of how the details of their course will be implemented in the new environment” (LEVY, 2003).

First of all, a key competence deemed necessary prior to the actual start of the online seminar is the ability to create a consistent course concept. This includes specifying course requirements, communicating its aims and expectations and defining grading criteria. Invited lecturers need to be confirmed and introduced to using a virtual classroom well ahead of the time of their lecture. Furthermore, additional resources, such as expert literature, are to be collected and made accessible. The course schedule ideally provides a general structure while allowing for flexibility and negotiation. All of this as well as further information should be communicated in plain English at a level that does not overwhelm
students who are new to this study method. Coordinators will handle virtual classroom software including all interactive tools and further devices because they take over the moderator’s role during seminar sessions. In general these types of software can be handled with basic IT skills after short practice. However, the moderator needs to react with a sense of improvisation in case of technological problems. Additional software for concept mapping also needs to be mastered beforehand. Apart from that, coordinators will edit and structure wiki pages and may also need to become acquainted with a learning management system such as Moodle.

As the online course begins, the coordinator takes over his/her role as facilitator, focusing not only on course contents by providing appealing and informative presentation slides but mainly on the development of the learning community. Student-student and student-coordinator interaction are essential for a fruitful learning environment. But both need to be accomplished without overwhelming students who may be endangered by cognitive overload. Moderators should use best practices for encouraging the students’ active participation in online discussions and for getting them to respect working phases and due-dates. He or she will further provide adequate minutes (and recordings), give prompt and objective feedback on assignments, and, when appropriate, use humour for breaking up potential communication gaps in the virtual room. As mentioned already earlier a learner-centred approach is essential. Based on this approach an online seminar coordinator will take the different curricular and cultural backgrounds of the participants into account, will accompany the delicate collaboration process of internationally mixed working groups and will show patience regarding the completion of deliverables with respect to concurring exam periods or holidays. In addition, reflection times are required during which students can identify their strengths and weaknesses and develop critical thinking. He or she will further stimulate the participants’ prior knowledge in the best way and encourage them to bring real-life examples from their cultural backgrounds into the online classroom.

At all times, coordinators must maintain the momentum of the course. This may require taking actions that might not be needed in a traditional face-to-face setting, such as stimulating participation and redirecting discussions if headed into the wrong direction. Coordinators will need to contact students individually (typically by email) if they face problems, are not participating as expected or even are disruptive. However, it always needs to be remembered that there are real people attached to the profile pictures in the virtual seminar room. After all, the ultimate priority of an online course should be to establish a vivid and fruitful community of learners.

Although the above list of competences may seem complex, it attempts to illustrate “[different] levels of competence - entry/novice, experienced, specialist-rather than a once for all attainment. Interpreted broadly, competence is not trained behavior but thoughtful capabilities and a developmental process” (KERKA, 1998). Thus, rather than dissecting and focusing on individual competences, it is suggested that, for online seminar coordinators, true competence mandates: mastery of all the individual competences in complex

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13 During the seminars presented here two open source applications for digital concept mapping have been applied: VUE (Visual Understanding Environment, http://vue.tufts.edu) and Cmaps (http://cmap.ihmc.us). Cmap even allows for synchronous collaboration on shared concept maps.

14 In this case Moodle was only used for sharing copyright protected literature during the seminar offering a restricted area to students.
combinations; employment of a variety of knowledge, skills, attitudes, and values; and a standard of excellence that practitioners will obtain and continuously demonstrate through a process of active research. It goes without saying that coordinators must also master the subject being taught.

8 Outlook

We hope that the long list of competences discussed above will not discourage anybody who is reading this paper not only with the intention of becoming familiar with online seminars, but also with the aim of possibly organising or taking part in such seminars in the future. Most of the competences mentioned are naturally well developed among experienced educators. Basically, these abilities need to be transferred to the new context and combined with knowledge of the key e-learning tools. The generation of digital natives is currently entering university education, so students easily adapt to the virtual environment. However, achieving the seminar objectives is in no way only a matter of mastering a digital tool. After entering the virtual room and editing the first wiki page the students’ success will strongly depend on their communicative, organisational and analytical skills. And like in face-to-face education some will provide better results than others. Coming back to the first chapter of this article it remains to be said that cooperation of higher education institutions through online seminars is still at the beginning of exploiting its whole potential. For landscape architecture academia the further development of the LE:NOTRE project will be crucial for developing this idea further.

References


Levy, S. (2003), Six factors to consider when planning online distance learning programs in higher education. In: Online Journal of Distance Learning, Spring 2003, VI (1).

