

E-DELIVERY OF EDUCATION SERVICES AS ENABLING FACTOR FOR WORLDWIDE NETWORK OF ACADEMIC PARTNERS IN LAND ADMINISTRATION

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ABSTRACT:

The UNU School for Land Administration Studies aims to promote the role of land administration worldwide for good governance in developing countries. A key component of the mandate of the School is to develop a worldwide network of academic partners. Each partner in this network contributes with complementary knowledge and experience, yet distribution of this knowledge to local capacity building institutes and curricula requires a mechanism to deliver content, skills, methods and approaches in a sustainable and student-centric way. To address this challenge, this paper discusses the design and the first experiences with e-learning courseware and activities within the network. The testbed of e-learning design concerned a module on land information infrastructure. Developing the teaching material and teaching approach with the other partners in the network was operationalized through a project, whereby the module was incrementally developed to an e-learning shared module with an e-learning environment. The results so far show that the incremental approach (in contrast to a radical change) meant that certain components migrated immediately to e-learning units, while other components remained initially conventional. This incremental approach not only had pragmatic advantages in terms of the resources needed for courseware development, but also allowed more time for interaction, testing and customization with partners in the network. We conclude therefore that developing e-learning courseware has enabled the network building among partners who build capacity in land administration. This network further enables combining and complementing both global and local knowledge and thus promotes the role of land administration worldwide for socio-economic development in developing countries.

1. INTRODUCTION

Land remains a highly complex and contentious issue, involving economic, social, political, cultural and often religious systems. The failure to adopt, at all levels, appropriate rural and urban land policies and land management practices remains a primary cause of inequity and poverty. There is a strong link between land and poverty and inappropriate land policies constitute a serious constraint on economic and social development. On the opposite, sound land policy regulates the access to and management of land, and as such is an important factor in the realisation of government policy objectives pertaining to, economic growth, food security, poverty reduction and housing.

Land administration which is the professional activity dealing with the administration of land ownership and other land rights, land tenure, land value and land use (van der Molen, 2001; Zevenbergen, 2002) is thus a critical element in the wider development agenda. In most countries this activity is conducted by public sector organizations with, or in collaboration with, skilled professionals, such as land surveyors, notaries or conveyancers, land valuers and land use planners. Worldwide, land administration organizations are suffering however from persistent limitations in numbers of required human resources, and from constraints in maintaining and developing the required human resource capacity (de Vries, 2000; Deininger, 1999; Enemark & Williamson, 2004; Steenkamp, Kapiye, Rugege, Holland, & Paresi, 2004). Developing land administration systems without simultaneously building capacity to implement them is unlikely to create a sustainable impact. To address the constraints numerous local capacity building projects have been set up, yet often these projects were executed in relative isolation of a

long-term sustainable institutional framework. As a result, land administration education and capacity building has been fragmented, both in geographic dispersion and in comprehensive content.

To address this challenge, the UNU, ITC and the Netherlands Cadastre, Land Registry and Mapping Agency established the UNU School for Land Administration Studies. The objective of this school is to promote the role of land administration worldwide for good governance in developing countries. A key component of the mandate of the School is to develop a worldwide network of academic partners. The academic partnership covers joint-education at post-graduate level, knowledge transfer through short courses, workshops and seminars, research (including PhD studies), advisory services and mobility of staff, students and teaching material. Each partner in this network contributes with complementary knowledge and experience, yet distribution of this knowledge to local capacity building institutes and curricula requires a mechanism to deliver content, skills, methods and approaches in a sustainable and student-centric way. One of these mechanisms includes e-learning. Within this content, this paper discusses the design and the first experiences with e-learning courseware and activities within the network.

2. THEORY OF CAPACITY BUILDING AS COMBINING GLOBAL AND LOCAL KNOWLEDGE

A quick scan of the literature reveals that while many publications can be found that describe the setup, contents and management of education projects in developing nations (see for example Tang et. al. 2009 or Gachari, 2008) these generally do not consider longer term aspects such as institutional

embedding, international academic linkages, adaptation to local conditions, or program sustainability. Moreover, we find that there is a lack of reflection on sustainability of educational programs in both developed and developing countries. There have been some publications on experiences with setting up ICT education (Negash, Straub, & Watson, 2008), or even more specifically geoICT education in developing countries (Gachari, 2001; Molenaar & Mannaerts, 2008; Tang, Dong, Jia, & Gao, 2008), or even geoICT in a land administration context (Enemark & Ahene, 2003) but most of these publications deal with project interventions. None of these publications questions the degree to which such projects are sustainably embedded in national educational structures, capacities and institutions.

Perhaps even more important is that research on reform of higher education in developing countries seriously lacks new theoretical paradigms. (Birdsall, 1996) noted that for a long time the prevalent view in educational reform was to focus on lower levels of education. As a result, many education projects the 90s created 'paraprofessional' levels of education rather than (academic) degree programs. In contrast to this view, (Lee, 2001) argued that the rapidly developing ICT provided an opportunity and challenge for most educational reforms in developing countries, to the extent that the "stock of human capital, which is obtained at the secondary and tertiary levels of education, plays a key role in determining the development of ICT." (Lee, 2001). In other words, the new technological challenges required foremost an incentive of reforming higher education, in all fields, including land administration. However, effective use of ICT in the support of educational material and effectively developing e-learning programs only makes sense if supported by larger networks of providers and facilitators of educational and academic material and services (de Vries & Brown, 2000; Groenendijk, van der Molen, & Lemmen, 2010). Therefore, such a development should be a joint effort, installed in a long-term cooperative activity.

3. DEVELOPMENT OF E-LEARNING AS MEANS TO NETWORK PARTNERS

The objective of the e-learning programme was not only to make the cooperation in the network concrete, but also to test how sharing of knowledge could be enhanced. The assumptions underlying the design e-learning material and of e-learning approaches was twofold:

First, that the mobility of knowledge through e-learning packages and facilities (rather than people moving from one place to another) could combine the global and local knowledge in land administration, and hence would sustain both global and local capacity building. This assumption is based on (Braa, Monteiro, & Sahay, 2004), who argue that such international networking is an important condition, not only important for sharing of experiences and knowledge, but also to scale up and sustain the locally established efforts. Setting up new forms of development, including education, thus requires both a local focus and an international network.

Secondly, the approach was based on the educational development theory of (Shriberg, 2002), who notes that sustainable education is achieved through an incremental, yet systemic, progress, containing actions across organizational boundaries. Furthermore, as (Downes, 2007) argues, building a sustainable educational resources, even in cases where contributing to this resource pool is open, still requires a 'larger picture, one that includes volunteers and incentives, community and partner-

ships, coproduction and sharing, distributed management and control'. This effort can only be achieved through a gradual, incremental process. Both mobility and the incremental approach were tested as key factors in developing a sustainable network of partners.

4. FINDINGS: LEARNING FROM OF E-LEARNING PILOTS

The testbed of e-learning design concerned a module on land information infrastructure. Although the content had been designed and the execution of this module had been operational within ITC, it was obvious that the operationalization of sharing the teaching material and teaching approach could not easily be organized with the other partners in the network. Therefore, a project was set-up to migrate this module incrementally to an e-learning module with an e-learning environment, which would be suitable as shared module. The module content was derived from story boards on individual inter-related units with content. The migration to e-learning was supported by various technical tools, such as Articulate software, PBworks course wiki environments and video shoots, amongst others. The module of land information infrastructures was developed into 13 separate units. Each unit contained both theoretical and practical learning elements, as displayed in Table 1 and Table 2.

| Unit | Theory elements | | | | |
|--|-----------------|-----------|--------------------|--------------------|-----------------|
| | Basic text | PP Slides | Audio presentation | Video presentation | Further reading |
| 0. Introduction course | | | | | |
| 1. Introduction information infrastructures | | | | | |
| 2. International institutions of SDI | | | | | |
| 3. National and International cases of SDI / LII development | | | | | |
| 4. Egovernment and II | | | | | |
| 5. Studying IIs – a theoretical perspective | | | | | |
| 6. Cases of information infrastructure - HISP | | | | | |
| 7. Studying cases of SDI and IIs | | | | | |
| 8. Decision support infrastructure | | | | | |
| 9. The role and use of land administration domain model | | | | | |
| 10. Base registrations | | | | | |
| 11. Technologies underlying IIs / SDIs | | | | | |
| 12. 52N Open Source SDI development | | | | | |
| 13. SDI in support of land consolidation | | | | | |

Table 1. Theory elements in E-LEARNING MODULE LII

| Unit | Practical elements | | | | | |
|------|--------------------|------------------------|----------------|--------------------------|--------------------------|-------------------|
| | Quiz questions | Quiz answer & feedback | Wiki buijlding | Online chat / discussion | On line Group assignment | Video confe-rence |
| 0. | | | | | | |
| 1. | | | | | | |
| 2. | | | | | | |
| 3. | | | | | | |
| 4. | | | | | | |
| 5. | | | | | | |
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| 7. | | | | | | |
| 8. | | | | | | |
| 9. | | | | | | |
| 10. | | | | | | |
| 11. | | | | | | |
| 12. | | | | | | |
| 13. | | | | | | |

Table 2. Practical elements in E-LEARNING MODULE LII

For each of these units we developed so-called story boards, which contained an accurate description of: Introduction and background of the learning unit; Objective of the learning unit; Review questions per unit; Self study activity; ‘Read more ‘ references; Online activities; Group activities; Corresponding files and documents; Main reading text; Self testing quiz questions; Bibliography of references. These extensive descriptions formed the basis to transform the material into online material in a digital educational learning environment. The content of each module comprised of reading text, video lectures, audio lectures and/or simulations, where appropriate. We used Articulate software in combination with MS powerpoint for the development of audio lectures, and Articulate quizmaker for the development of self testing quizzes. We used Blackboard as the main educational learning environment. We tested video conference facilities with two other partners outside the Netherlands.

The first results of the e-learning material development are promising, yet also challenging. On the content side, contributors of the courseware development perceived that by using new technologies for knowledge transfer they were forced and encouraged to re-think how best to deliver the content. For example, courseware developers who used video recording of a lecture realized that the effect of video is more than simply connecting voice and images to the powerpoint slides. There is additional added value in terms of the dynamics of what is pointed at by presenters, the mimics of presenters once discussing certain topics, and the potential to switch from the presenter to animations. Furthermore, the use of video lectures, similar to podcasts in iTunes, provide additional advantages, such as the possibility to explain complex concepts and procedures by the combination of visual and dynamic tools and the possibility to show discussion sessions among experts, during which concepts are further developed and / or further clarified. On the side of local content, the decomposition of the whole module into relatively smaller units allows for more easy adoption of local content and inclusion of local examples and theories. With relatively low cost technologies videos and audio content can be added.

One of the major realizations during the development of the courseware components was also that the process of courseware development needs to be incremental. During the development most contributors realized that their content needed to be updated regularly in the future, especially given the fast changes on insights in the role of technology, and the interaction of technology with societal processes. For the particular field of land administration this will not be different. For example the role of mobile technology in field data collection and the role of open source (internet) technology in both data collection and distribution are rapidly changing. So is the role of technology in educational delivery. The use of wikis, discussion and chat facilities, application of podcasts are just some initial tools used in the process of educational delivery and interaction with remote students. Knowledge transfer is thus expected to become much more interactive, flexible and dynamic in the future. An incremental approach, whereby each time a limited number of possibilities and facilities is tested is therefore recommended.

A first test in executing the module was done in April 2010. The execution concerned participants from two different courses, at two different institutions, and at two different locations (Enschede, Netherlands and Munich, Germany). A total of 39 participants from 20 countries participated in the course. 26 participants participated in the Netherlands, 13 in Germany. Participants were assigned to mixed groups such that they were forced to collaborate with members who were not at their own location. Through video conferences question and feedback sessions were organized, were participants from both sides could communicate with each other and with the courseware developers. The general feeling hereby was that these ‘personal’ contacts, whereby people could still see each other face-to-face were needed to enhance the group feeling, and to enhance the identity of the course. Other than the online questions and feedback, the direct personal contact – even though through video screens – was more effective than online reactions.

Last, but not least, e-learning requires a completely different mindset for participants in planning of time, and executing assignments. The shift from reactive classroom teaching towards pro-active student-learning is still large for most participants who had been used to the former. While e-learning was considered a promising avenue for most participants, it also implied a complete change of their regular working day. Rather than regularly attending classes, now they had to schedule their own time and routines. This change was not evident for most, and required therefore considerable adaptation.

5. FINDINGS FOR NETWORKING

On the side of the whether the development of the e-course module contributed to networking, initial results are still limited yet already hopeful.

On the issue of mobility, the execution of the e-learning module has proven that to execute joint synchronous courses on a topic such as land information infrastructures. There was no significant difference in participant contributions, and in participant marks on either side of the two participating institutions. In addition, the courseware contributions could be developed independently. The storyboards and the consistent use of the software (such as Articulate) provided the

courseware developers a kind of template, which they could fill in with their own knowledge, and possible learning elements. While some opted for a combination of various learning elements, other opted for a small selection of dedicated learning elements. Contributing with local knowledge through the same procedure could however be easily executed.

Furthermore, the joint development created a first sense of joint responsibility. Examples of joint preparation included the quality checks of each other's material, reconfiguring the course material when preparing for video recording of practical examples in the field, joint development of innovative research material as background for the courseware, adapting the settings for the learning environment. The video conference preparations and executions also provided for more direct ('face-to-face'-like) contact, which supported the feeling of mutual inclusiveness.

One crucial practical element concerned the joint wiki building from different locations. This did not only concern the instrumental side of wiki building in PBWorks, but also contained the element of managing the project from different locations, and coordinating (i.e. agreeing on principles, agreeing on decisions, scheduling, etc.) through PBWorks and/or through e-mail, Blackboard, or other virtual communication means. Although this practical work was perceived as new and difficult at the start, the results were perceived as usual. Participants indicated that it had allowed them to learn how to coordinate a complex project in an electronic environment. Direct face-to-face contact – although useful at the beginning – became decreasingly necessary once the principles of coordination, and task distribution were agreed upon.

In sum, both the participant experiences and the contributors' experiences would suggest that mobility of knowledge through e-learning packages and facilities (rather than people moving from one place to another) is possible.

On the second issue, the incremental approach, we may conclude that this is clearly a necessity, both in terms of content, but also in terms of organization and logistics. Contentwise, it became clear during the execution that the entry point of participants on either side was not equal. This was the contingency of their earlier programs in which they had enrolled. As a result, there was heterogeneity among participants with regards to basic concepts and methodological approaches. To overcome these differences will require however a longer trajectory of cooperation, as this type of differences is part of the difference in educational cultures, histories and approaches. The relevance of an incremental approach once jointly engaging in e-learning is therefore even more highlighted.

A second argument for incremental development of content related directly to the nature of the topic of the module, land information infrastructures (LIIs). As the approach was taken that LIIs are the result of a dynamic network of socio-technical interactions, the implication was that LIIs change continuously over time. The changes result from changes in technology and changes in socio-organization and institutional context. Both types of changes need to be reflected in the updates of the courseware. Only an incremental approach which allows these changes can address this requirement.

A third argument for the incremental approach relates to the scaling up of the courseware, such that local examples or local knowledge can be included. Since the courseware elements were developed by staff members from different institutions, each staff member could contribute his or her own expertise. Where possible, combinations of courseware components were possible. Still, a common notion on basic concepts was necessary. Practically, this implied regular feedback among courseware developers, and regular adaption of materials, such that the consistency was maintained.

On the organizational side of conducting the module, a synchronous conduct of the module – one whereby groups are formed to execute the same task jointly – requires some logistical and technical preparations. Participants needed to be grouped simultaneously in PBWorks wiki software and Blackboard groups. Monitoring individual progress and individual contributions (in group discussions, feedback sessions, etc.) also appeared more laborious than anticipated. Hence, dedicated local staff was required in some which would need to be at similar levels of understanding of content, and understanding of technical problems. As a solution, extending the network of partners in delivering and co-developing the module would require regular contact and discussion among contributors to anticipate the problems in content and logistics. An incremental approach would support this.

6. CONCLUSIONS

When reflecting on the theory of capacity building we first of all conclude that the reliance on a broad network will be indispensable. The development of a single module already required quite some resources and iterations. We conclude therefore that the process of e-learning courseware development has shown that it requires a tremendous effort in the development of the content, but also a tremendous effort on the side of mutual recognition of each other's material. However, first indications are that these efforts enable the network building among partners who build capacity in land administration. In the long run, we expect therefore that this network will further enable the combination of both global and local knowledge and thus promotes the role of land administration worldwide for socio-economic development in developed and developing countries. By complementing each other in the development, and developing further cooperation, we expect not only that the network will gain in effectiveness of courseware delivery, but also will gain in innovation and research development to improve capacity building in the field of land administration worldwide.

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