

Reformation of the Curricula on Built Environment in the Eastern Neighbouring Area

Identification of the Appropriate Issues for Cross Institutional Module Sharing

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1 Introduction to CEN-EAST

It has been observed that majority of the European citizens spend over 90% of their time within buildings and over 40% of the people who live in such closed spaces complain of their health and comfort. In the former Soviet Union built environment was mostly considered as the necessity of implementation of the construction at affordable costs. Generally, the interests of the tenants who occupy these buildings were not taken into consideration. Furthermore, the energetically and ecologically sustainable, affordable and healthy built environment policy was not considered essential by the Russian, Ukrainian and Byelorussian universities. As such energetically and ecologically sustainable, affordable and healthy built environment policy has not been incorporated in the curricula of BSc/specialists, MSc and PhD programmes for building and civil engineering students. In this context, one of the key problems faced by Russian, Ukrainian and Byelorussian universities is the lack of the high-level educational and research literature in energetically and ecologically sustainable, affordable and healthy built environment. Due to insufficient demand for the energetically and ecologically sustainable, affordable and healthy built environment in these countries, graduates lack the multidisciplinary character of knowledge in built environment, including technical, technological, organizational, management, social, environmental, economic, cultural, psychological, political and other aspects.

Further, insufficient communication between universities and labour market organizations has also been observed. In order to solve the above mentioned problems, the EU funded CENEAST (Reformation of the Curricula on Built Environment in the Eastern Neighbouring Area) research project aimed at upgrading the curricula on built environment in the universities of Belarus, Russia and Ukraine according to Bologna practices in order to increase their capacity to continually modernise and enhance the quality of education of the building and civil engineering students to the labour market needs and to ensure international cooperation. The project will achieve this aim in five objectives as detailed below.

- To upgrade curricula of BSc/specialists, MSc and PhD programmes with new modules on energetically and ecologically sustainable, affordable and healthy built environment in universities of Belarus, Russia and Ukraine in order to enhance the quality and relevance of education in PC universities to labour market needs;
- To transfer the Bologna practices in education (curriculum development, ECTS, innovative learning, etc.) from EU universities to PC universities;
- To develop a virtual interuniversity networked educational system (intelligent library, intelligent tutoring system, intelligent knowledge assessment system, access to the e-sources of the research and educational information) in order to ensure cooperation among the EU and PC universities in education and research;
- To assist the competence development of staff within the PC universities.
- To train at least 240 students during the pilot project.

As part of this project, this report intends to analyse the issues and constraints related to cross institutional module development, sharing and delivery. In doing so, the report will first provide an introduction to partnerships and collaboration in academia. The report will then provide a brief introduction to cross institutional module development, sharing and delivery followed by benefits of such arrangements. Then the report will highlight the issues and constraints in cross institutional module development, sharing and delivery followed by conclusions.

2 Promoting cross institutional module sharing

2.1 Cross institutional partnerships and collaborations

Higher education plays an important role in shaping the capacity of the work force and in fostering research and innovative thinking (ADB, 2012). The pace of change in the HE sector is possibly accelerating in many countries due to a number of factors, such as globalisation, internationalisation, the growing role of the private sector, increasing use of international rankings of institutions, and changing student needs and expectations (HEFCE, 2012). As a result, an increased importance has been placed on how the universities operate internally, engage externally with other universities and organisations, and interact with the wider society (HEFCE, 2012). In this context importance of collaboration and partnerships in the higher education sector has widely been recognised.

Partnerships are increasingly becoming important in the current context. Partnerships have become common in the field of academic for various reasons (Amey et al., 2007). Before looking into specific benefits of partnerships it is important to identify what is meant by a partnership. Partnership and collaboration are often used inter-changeably. Though authors like Carnwell and Carson (no date) have identified the similarities and differences between the two concepts, both terms has the implied meaning of working together. HEFCE (2012) identified collaboration as two or more partners working together in a particular area of business, which may involve combining existing operations, pooling areas of expertise or creating something entirely new. As such, within the broader context of partnerships, institutions benefit from facilities and resource sharing (Amey et al., 2007; McCord, 2002; Sink, Jackson, Boham, and Shockley, 2004). Higher education institutions generally enter into partnerships mainly to increase revenue, enhance instructional quality, expand curricular offerings, raise institutional prestige, obtain skill sets not available on their own campuses, or some combination of these (ADB, 2012). Within higher education, literature collaboration exist in different forms. For example according to Sakamoto and Chapman (2010) collaborative efforts and partnerships among universities are concentrated around three forms:

1. International collaboration in the delivery of instructions which includes student exchange, branch campuses, and joint degree programs with the view of internationalising curricula and increase tuition revenues. According to Knight (2005) cited ADB (2012), there are six main forms of collaborations: branch campuses, independent institutions, acquisition/mergers, study center/teaching sites, affiliation/networks, and virtual universities.
2. Cross-border partnerships in non-instructional activities which include collaboration in research, faculty development, and accreditation.
3. Cross-national harmonization of curricula and operating regulations to increase student mobility and facilitate the cross-national assessment of instructional quality.

In order to grasp the benefits of cross institutional collaborative partnerships universities need to be ready to face collaborative working environments. Luo et al. (2010) have identified collaboration readiness as one of the main challenges for collaborative partnerships. Many academics as well as policy makers support the concept of collaboration. However many are unaware on how to initiate a collaboration (Luo et al., 2010). Many institutions are running collaborative partnerships in research and teaching but the extent to which its value addition is questionable. It is obvious that collaborative partnerships add value to the teaching and research undertaken within universities. However it could

hinder the quality of work if not managed appropriately. In a collaborative partnership it is of paramount importance to have a clear idea on the skills, interest and capabilities of the staff engaged in the other institutions. These need to be coupled with effective communication channels which in deed require use of Information and Communication Technology (ICT). With the latest development in ICT, many channels are available for cross border collaboration and knowledge sharing. Thus the institutions need to be ready to adapt latest technology to succeed in cross border collaboration.

With the development of ICT, concept of virtual campuses, open educational resources and blended learning became popular. Virtual campuses offer education over the Internet at any time and place (Burgi, 2009). These virtual campuses can be arranged at different scales, ranging from faculty-level to institutional level and up to large national and international consortia. Development of technologies has furthered attraction of these virtual campuses and have facilitated cross border collaborations. Many universities are now engaged in distance mode education, success of which could be largely dependent on ICT maturity level. As such use of ICT is particularly important to facilitate cross border collaboration.

Also free exchange of knowledge and experience is critically important in facilitating cross border collaborations. More recently, the open agenda has facilitated collaboration and promoted benefits to research, education, and society in general through open-source software, open standards, open access to research outputs, and open educational resources (Read, 2010).

As the focus of the proposed project is on cross institutional module sharing the next section elaborate the concept of module sharing.

2.2 Cross institutional module development, sharing and delivery - CENEAST project

As explained in section 1 of this report, the focus of the CENEAST project is to upgrade curricula of BSc/specialists, MSc and PhD programmes with new modules on energetically and ecologically sustainable, affordable and healthy built environment in universities of Belarus, Russia and Ukraine in order to enhance the quality and relevance of education in PC universities to labour market needs. It has been observed that the skill levels of PC universities are not sufficient to ensure high quality education in energetically and ecologically sustainable, affordable and healthy built environment. As a result development of comprehensive teaching and learning materials and incorporating innovative teaching and learning methods has become an issue. The project consist of 14 EU and Eastern neighbouring institutions which together will develop modules for 9 BSc/specialists, 5 MSc and 2 PhD (in total 16 modules), including frameworks and teaching materials. In this context, the project will be benefited from cross institutional knowledge sharing on module development. All modules will be developed jointly and each partner will contribute towards module development within their areas of expertise. The developed modules will be incorporated into excising curricular of BSc/specialists, MSc and PhD programmes for building and civil engineering students in universities of Belarus, Russia and Ukraine. As such, the partnering universities of Belarus, Russia and Ukraine will share the developed modules and teaching materials. This will facilitate cross institution module development and sharing.

To facilitate cross institutional module delivery, the project will develop an innovative virtual interuniversity networked educational centre to enable the delivery of modules proposed within the project. In addition this centre will enable and promote lifelong learning at large within the society by making study material accessible outside traditional classroom environment to various parties within

the society from students, teachers to practitioners and policy makers. Centre will ensure not only the feed-forward (information/knowledge from centre to the beneficiaries) but also feedback (from beneficiaries to the centre). It is expected that a spiral effect will be created to continuous improvement of the centre.

Four major components have been identified as the main elements of the centre:

1. Development of intelligent library.
2. Development of the intelligent tutoring system.
3. Development of the student knowledge assessment system.
4. Development of the virtual research environment.

Development of this centre will address regional and national higher education priorities such as development of international relations, enhanced quality assurance, management of teaching and student services and triangulated knowledge creation and dissemination with education, innovation and research.

2.3 Benefits of cross institutional module development, sharing and delivery

Cross institutional module development, sharing and delivery comes under the broader context of collaborative partnerships. Accordingly, it would generate number of benefits to students, teachers, industry and society at large. It would enable students to gain knowledge on different cultural and religious practices; an enhanced curriculum; varied teaching methodologies and increase in confidence (Duffy and Gallagher, 2012). Similarly, teachers will get an opportunity to enhance their knowledge base and would be benefitted in terms of developing personal and professional relationships while institutions will be able to share resources, space, and intellectual knowledge (Duffy and Gallagher, 2012).

Cross institutional module sharing would be further benefitted from cross institutional material development. Adendorff (1998) identified number of benefits in collaborative cross institutional material development. One obvious advantage of collaborative material development and writing is that it put together number of diverse voices and experience which would have synergic benefits on the content and form of course materials. Mix of regional contexts; different educational sectors and experience bases would further add value to the course materials.

It would further provide an opportunity to use existing resources and expertise more effectively through sharing and exchange with other institutions (Nerantzi, 2012). The author has further highlighted number of benefits on cross institutional collaboration:

- Utilising freely available social media tools and technologies, accessible to or owned by learners, enabling enhanced connectivity, thereby increasing buy-in.
- Adapting and creating resources collaboratively, preferable as OER and sharing with other learning communities.
- Developing and delivering sessions, modules and programmes in collaboration and partnership, thus enriching institutional offers.
- Providing learners the opportunity to connect with other learners beyond module and programme level and become active members of more open learning communities.

- Using opportunities for collaboration and shared pedagogical and subject-specific research and scholarly activities to raise standards of teaching and create good relationships among institutions, transforming competitiveness into cooperation –aiming for a common good.

Accordingly, it is evident that collaborative partnerships would generate number of added benefits in various scales. In summary, cross institutional collaboration and module sharing will facilitate:

- Knowledge exchange/ good practise transfer
- Combine different streams of expertise and facilitate teaching on multidisciplinary nature of subjects
- Improve quality of teaching and learning
- Shared module development will provide peer learning opportunities and support

However, it is very important to organise and manage these collaborative working environments carefully in order to gain absolute value of collaboration. Luo et al (2010) has proposed a model for productive, scalable and sustainable collaboration which is depicted in Figure 1. The model has been developed for OER production but could be applied to collaborative module development, sharing and delivery.

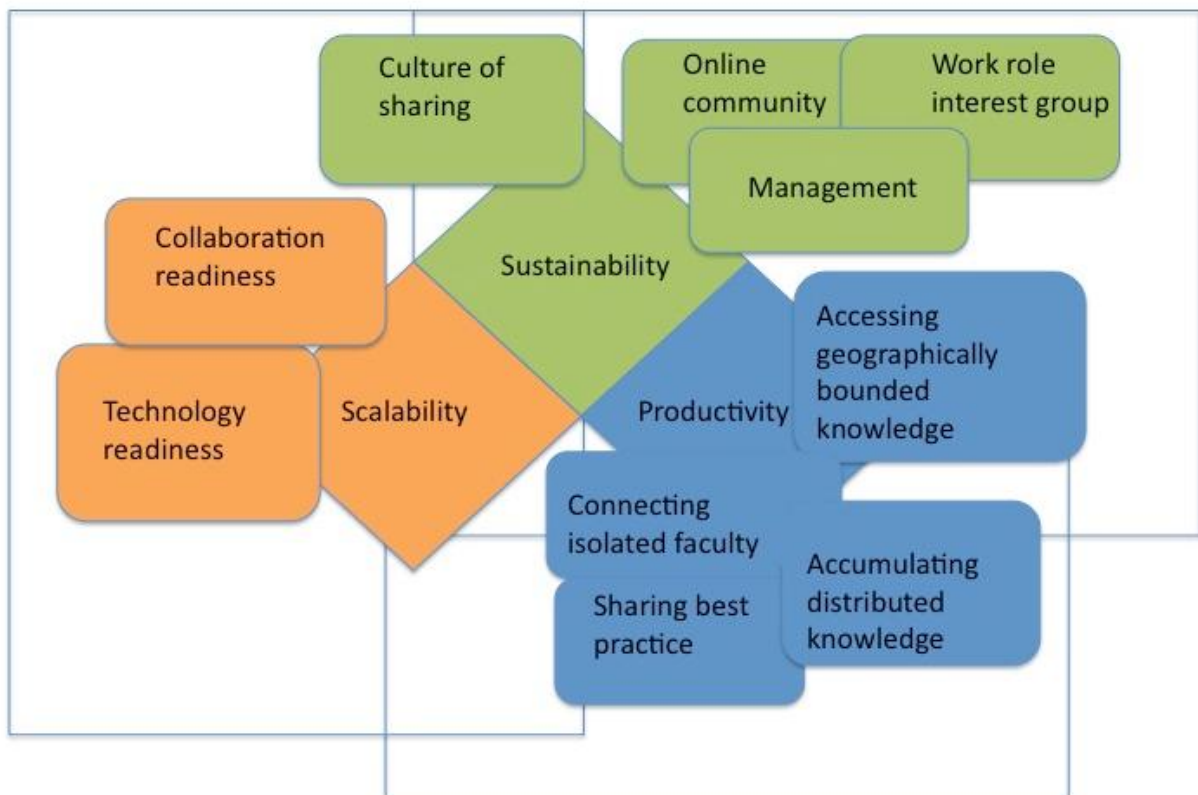


Figure 1: Collaboration Model for OER production (Source: Luo et al, 2010)

Based on their research findings, a productive collaboration model will enable participants to access geographically bound knowledge, connect isolated researchers and instructors, accumulate distributed knowledge, and share best practices. The second parameter is scalability. In order to ensure scalability of module development, sharing and delivery, it is important to build partners' collaboration readiness and technology readiness. Third parameter is sustainability. In order to sustain the efforts of partnership

it is important develop a sustainability plan and develop mechanisms to facilitate information exchange, accelerate innovation diffusion, and connect isolated faculty members (Luo et al, 2010).

The next section will describe the issues and challenges related to cross institutional module development, sharing and delivery.

3 Issues and Challenges in cross institutional module development, sharing and delivery

Among many challenges of cross institutional module sharing, access to geographically dispersed knowledge, defining a common module, defining a common assessment criteria, ability to share resources, language and culture, intellectual property, technology readiness, maintaining quality, administrative constraints and sustainability have been identified as major challenges. Each of these challenges is explained in detail.

3.1 Access to geographically dispersed knowledge

One of the major barriers in cross institutional module sharing is the difficulty of accessing geographically dispersed knowledge. During the phase of module development, face-to-face meetings could be hard to schedule and expensive to organise when project teams are geographically dispersed (El-Tayeh and Gil, 2007). As such, accumulating to geographically disperse knowledge of various partners would be a difficult task and this could have an adverse effect on module development. Furthermore, combining all geographically dispersed knowledge into one module could be a difficult task. Construction industry would operate differently in different countries and as a result it would be difficult to incorporate localised examples and practises. However, a study related to health care industry conducted by Luo et al. (2010) have identified that the students were able to learn on geographically bounded diseases through the collaborative partnerships. The same concept could be applied to construction industry where learners would be able to get extra knowledge on different construction techniques, materials, building codes, planning guidelines and conditions of contract related to different geographical boundaries. However, education and research needs could be varied from one country to another and incorporating all geographically dispersed needs into a shared module would be a difficult task.

3.2 Defining a common module

This is linked to the previous discussion on accessing geographically dispersed knowledge. As discussed previously, accumulating geographically distributed knowledge into a single module would be difficult. On the other hand, incorporating localised practises and methods into a common module is impractical in a shared module. Moreover, different institutions may demand different educational and research needs depending on supply and demands for higher education and as a result defining a common module is not always easy. Based on the geographic location, climatic conditions, economic climate, supply and demand of education sector educational needs vary from one country to another. All these factors need to be taken into consideration when defining a common modules and as a result defining a common module could be a challenging task. On the other hand, the main focus of CENEAST is to incorporate the newly designed and developed modules on energetically and ecologically sustainable, affordable and healthy built environment into existing civil engineering curricular. As such it is very important to look at the existing curricular of the current building and civil engineering programmes of

all three universities and the compatibility with the existing modules. In doing so, it may require to do minor amendments to some of the existing modules of some universities in order to avoid repetition. As such it would be a challenging task to define a common module which is acceptable for all three universities.

3.3 Defining a common assessment criteria

Another important challenge in module sharing is defining a common assessment criterion. Assessment criteria and module credits could be different from one institution to another. In the current project, the newly developed modules will be incorporated into existing curricular of building and civil engineering students. Number of credits allocated for each module could be varied across institutions as well as across different programmes. Also, different institutions may have different level of standards and practises and as a result the shared modules need to be compatible with the existing standards and practises of the universities concerned. For an example some universities students are assessed based on written exams while other universities students are assessed on course works. Therefore, it is important to gain a thorough knowledge of the partner country universities institutional requirements in assessment, in order to succeed with the collaborative efforts.

3.4 Ability to share resources

Another important factor is the ability to share resources. The success of a cross institutional collaboration lies on the willingness and ability to share resources (Melton, 2002). Different partnering institutions may have different level of resources; different level of expertise, access to literature, facilities, etc. and all these need to combine together to achieve a synergetic benefit of cross institutional collaboration. This would allow one institution to learn from the other institutions in the group. As such, in module development and delivery, each institution can add value to the area that they are capable and competent. Burgi (2009) highlighted need of technology adaptation in sharing resources. Insufficient training in ICT, lack of time, poor institutional coordination of ICT initiatives, insufficient recognition of the effort needed to develop ICT-based courses are some of the hindrances for collaboration (Burgi, 2009).

3.5 Language and culture

Language and culture is a major hindrance to cross border partnerships. Due to language barrier partners may find it difficult to convey their ideas in a manner that is understandable for others. In a study conducted, Burgi (2009) has highlighted that the teachers speaking the same language and living in the same country are more likely to collaborate. As such, language could be a barrier in module development and delivery. On the other hand the learning and teaching culture differs across institutions. Some institutions and community may prefer face to face learning and some may prefer distance learning. With the development of ICT the new generation of students has techno-cultural skills comparable to reading and writing (Burgi, 2009) and may prefer internet based learning activities. All these can act as barriers in cross border module sharing and delivery.

3.6 Access to state of art technologies

As discussed in earlier sections, state of art technology is an important element in cross border partnerships. ICT based teaching and learning has now become an integral part of education systems. In

developing joint modules, it is important that all partners collaborate with each other effectively which in deed require effective modes of cross border communication systems. Also, when delivering shared modules, internet based advanced technologies are required. Many universities are now delivering distance mode, blended courses which would require advance ICT based systems for course delivery, creation of e-modules, resource sharing, tutoring, online assessment submission systems and online student support systems. On the other hand these ICT based systems need to be integrated and compatible with the partner institutions' ICT systems in order to deliver joint modules successfully.

3.7 Maintaining quality

Quality assurance is a must in developing modules. Different institutions may use different quality standards and guidelines; and accreditation procedures and therefore it is important to decide on a commonly acceptable quality assurance process at the beginning of the project. In deciding a commonly acceptable quality standards, it should be compatible with each institutions overall quality assurance process and accreditation requirements. In doing so, it is important that collaborative partners' vision, mission, strategy, quality, ethics and values to be compatible with each other.

3.8 Administration constraints

Administrative issues are also one of the major barriers in cross institutional module sharing. Different universities across borders have different administrative setups which would depend on the political context. Some universities may have very rigorous administrative and governance arrangement while other institutions have very flexible governance arrangements. This would create lot of administrative issues in the development and delivery of shared modules. As such it is very important to have a clear idea on each institution's administrative constraints at the start of the project. Bologna Declaration has tried to standardise these administrative issues to some extent. For an example, it has standardised quality assurance and accreditation system using the ECTS. However, the extent to which the individual institutions have adapted Bologna Declaration may vary. As such it is very important to pay particular attention to academic calendars, accreditation and tutoring (Burgi, 2009).

3.9 Intellectual property rights

Intellectual Property law generally changes from one country to another (Burgi, 2009). Different institutions may have different licensing models and as a result when sharing resources it is very important to have a prior understanding on how these different laws would apply for different study materials.

3.10 Sustainability

It is also very important to have a clear sustainability plan which identifies how the collaboration would sustain beyond the life of the project. The project discussed in the report is a 3 year project, but the modules developed as part of the project are to be delivered beyond the life of the project. As a result it is very important to define protocols on how the modules could be amended/ changed, how to deal with copyright issues and so on in order to ensure smooth evolution of the module delivery.

4 Conclusions

The report discusses the benefits and constraints related to cross institutional module development, sharing and delivery. The report has been produced as a part of EU funded Tempus project, CENEAST which is aimed at upgrading the curricula on built environment in the universities of Belarus, Russia and Ukraine according to Bologna practices in order to increase their capacity to continually modernise, enhance the quality and relevance of education of the building and civil engineering students to the labour market needs and to ensure international cooperation. As part of the project it is intended to develop 9 BSc/specialists, 5 MSc and 2 PhD modules for universities of Belarus, Russia and Ukraine. Therefore the report aims at evaluation of issues and challenges associated with cross institutional module sharing and delivery and will be used as a basis to analyse institutional protocols associated with cross institutional collaboration and partnerships.

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