The Identification of Key Issues in the Development of Sustainable e-Learning and Virtual Campus Initiatives

Mark Stansfield[1], Thomas Connolly[1], Antonio Cartelli[2], Athanassios Jimoyiannis[3], Hugo Magalhães[4] and Katherine Maillet[5]
[1]School of Computing University of the West of Scotland, UK
[2]University of Cassino, Italy
[3]University of Peloponnese, Greece
[4]Sociedade Portuguesa de Inovação, Portugal
[5]Institut National des Telecommunications, France
mark.stansfield@uws.ac.uk
thomas.connolly@uws.ac.uk
cartan@unicas.it
ajimoyia@uop.gr
hugomagalhaes@spi.pt
katherine.maillet@int-evry.fr

Abstract: This paper explores a number of key issues that have been identified as being important in the identification and evaluation of best practice within the context of e-learning and virtual campuses. The 'Promoting Best Practice in Virtual Campuses' (PBP-VC) project is a two year European Commission Education Audiovisual and Culture Executive Agency (EACEA) co-financed project that is aimed at providing a deeper understanding of the key issues and success factors underlying the implementation and sustainability of virtual campuses. The PBP-VC project team have been working with stakeholders from a number of large virtual campus projects across Europe in identifying and exploring key issues relating to best practice and sustainability. The importance of developing a practical framework for identifying, evaluating and promoting best practice in virtual campuses and e-learning can be demonstrated by the significant number of high profile e-learning and virtual campus failures both within Europe and globally. In many cases their failure has been quite spectacular with millions of dollars being wasted as a result some quite basic errors in overlooking key best practice issues that have occurred across several large-scale projects. This paper will provide a description of the different issues relating to models for best practice and sustainability that has been developed by the PBP-VC project.

Keywords: virtual campuses, e-learning, best practices, sustainability

1. Introduction

Despite the significant growth in e-learning and virtual campuses over the last 10 years, a number of key problems and issues led to expensive failures in a number of e-learning and virtual campus projects have been identified by the 'Megatrends in E-Learning Provision' project (www.nettskolen.com/in_english/megatrends/the_project.html). Examples of high profile e-learning and virtual campus initiatives that did not reach their targeted goals included the Californian Virtual Univerity, the Scottish Interactive University, the United Kingdom e-University, the Alliance of Lifelong Learning and the Open University of the United States (Keegan *et al.,* 2007). Many large-scale e-learning and virtual campus initiatives were funded using £10millions of public money which has largely been lost when these initiatives folded. Typical problems that led to the downfall of such initiatives have been identified by Keegan *et al.,* (2007) as including overly ambitious plans in relation to the potential student market, lack of market research and a lack of financial planning.

Over the last 4 years, the European Commission Education Audiovisual and Culture Executive Agency (EACEA) has channelled more than 10 million euros into co-financing some twenty virtual campus projects across Europe in a range of areas such as virtual mobility, teacher training, the economics of e-learning, and the reuse and sharing of e-learning courses. Despite the establishment of these virtual campus initiatives and their undoubted successes the EACEA (2005) identified a range of issues they considered as affecting the successful implementation and deployment of virtual campuses and their long term sustainability, such as a lack of awareness about other virtual campuses and a lack of self promotion and valorisation among virtual campuses. As a result the EACEA (2005) recommended that an increase in the sharing of know-how should be encouraged across virtual campuses, obstacles and enabling factors should be studied, as well as support for the dissemination

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of replicable solutions for establishing virtual campuses. Whilst there is no universally accepted definition of the term 'virtual campus', within the context of the EACEA (2006), a virtual campus is considered to encompass cooperation among a number of higher educational institutions in the field of e-learning in relation to the design and development of joint curricula that are based on online and traditional learning methods. Therefore, a virtual learning environment by itself or the provision of an e-learning programme within a single higher institutional institution would not be defined by the EACEA as a virtual campus. To qualify as a virtual campus, the initiative would have to include a number of partners which could comprise higher education institutions, as well as other teaching and learning related organisations (e.g. training companies, learning and teaching associations etc) who through a partnership agreement cooperate in the development and implementation of joint curricula based on e-learning or blended learning delivery. Although virtual campus projects and initiatives may differ in terms of their model of delivery, e-learning issues such as those relating to e-learning technology and e-learning pedagogy play a key role in the development and delivery of joint curricula provided by a virtual campus.

It is within the context of the EACEA's recommendations that the 'Promoting Best Practice in Virtual Campuses' (PBP-VC) project was initiated in 2007. The PBP-VC project is a two year European EACEA co-financed project primarily aimed at providing:

- a deeper understanding of the key issues and critical success factors underlying the implementation of virtual campuses;
- a practical framework to help guide the process of creating best practice in virtual campuses;
- published examples of best practice, case studies and use case scenarios;
- raised awareness of the issues and approaches to creating successful and sustainable virtual campuses.

The PBP-VC project has been working with key stakeholders within large-scale virtual campus projects across Europe in investigating key issues relating to best practice in the design, development and implementation of virtual campuses. Key issues have included the e-learning related pedagogy and technology underpinning a virtual campus, issues relating to cost effectiveness and the economics of e-learning, as well as addressing the needs of learners of different nationalities and from diverse cultural backgrounds.

2. The development of a best practice models for virtual campuses and e-learning

During the course of 2007 and 2008, several detailed face-to-face knowledge elicitation sessions took place with a range of stakeholders that included project coordinators, researchers, developers, learning technologists, tutors and external consultants associated with EACEA virtual campus projects and initiatives. The participants were selected because of their detailed knowledge, experience and understanding of best practice within the context of virtual campuses. The purpose of the sessions were to explore the more qualitative and interpretive aspects of best practice within the context of virtual campuses by exploring the viewpoints of different stakeholders. The interpretive based investigation was conducted using a form of systems map or 'mind map' which has been successfully used as an important first stage of a subjective approach to the process of eliciting views and opinions about some area of interest prior to the development of a computer-based information system. The subjective approach is known as the Appreciative Inquiry Method (West, 1995; West and Stansfield, 1999; West and Thomas, 2005) and its developers claim that it is an effective way of enabling interpretive inquiry. The systems map as used in the Appreciative Inquiry Method provided a quick and simple method of representing the main elements believed to be relevant to a particular area of interest or problem situation which in this case was 'Best Practice within the Context of Virtual Campuses'.

In undertaking the identification of best practice case studies in virtual campuses, the PBP-VC project has worked closely with several European level virtual campus projects including the eLene Network which has three successful virtual campus projects in the EACEA eLearning programme (eLene-TT – Teacher training and the innovative use of ICT in higher education, eLene-TLC - Preparing universities for the ne(x)t generation of students and eLene-EE - economics of eLearning). The eLene Network is considered to be an example of best practice and sustainability. Other European level virtual campus projects also included e-move (an operational concept of virtual mobility) which is based on the operational concept of virtual mobility. In addition, an online questionnaire was

developed which was targeted at virtual campus projects and initiatives that included VCSE (Virtual Campus for a Sustainable Europe), eduGI (Reuse and sharing of eLearning courses in GI Science education) VCSE, and E-Urbs (European Master in Comparative Urban Studies).

The key issues that were identified as a result of the face-to-face knowledge elicitation sessions with the different virtual campus stakeholders were grouped under six main headings, which was further supported by the responses and feedback derived from the online questionnaires. The six main headings were:

- Organisational issues
- Technological issues
- Pedagogical issues
- Student/user issues
- Financial issues
- Consolidation issues

The authors are not proposing that the headings and models that follow (see Figures 1 to 7) contain an exhaustive or definitive account of all the possible key issues relating to best practice within the context of e-learning and virtual campuses. The models contain a summary of the key issues that were identified by the experienced stakeholders and practitioners that took part in the investigations that were conducted by the PBP-VC project. The value of the models lies in their ability to highlight key issues in an effective visual manner that can generate debate among relevant stakeholders and interested parties. In addition, there appears to be not a great deal of published literature that reflects upon best practices within the context of virtual campuses and e-learning, as well as providing practical models and frameworks within which to plan, develop and implement virtual campus and e-learning projects and initiatives.

2.1 Organisational issues

The main organisational issues underpinning best practice as identified by the stakeholders are shown in Figure 1. Many of the key issues centred around project management and leadership which were viewed as being central to the success of a virtual campus project. Establishing a clear vision and strong leadership, as well as demonstrating a pro-active approach to management so that potential problems can be more easily addressed, as well as opportunities explored to the full were viewed as being important. In many ways, issues relating to having a strong and effective project leader can be the most difficult to address since leadership skills can be difficult to master due to their experiential or tacit nature that cannot be simply achieved from following a series of steps. Leadership skills can often only be learnt over many years of experience and attributes such as ‘charisma’ can be difficult to define or reproduce. Also highlighted as being important was the ability of a project manager or leader to be able to establish effective partnerships with both internal and external stakeholders in generating enthusiasm and interest in the virtual campus project. In order for a virtual campus project to meet the real needs of users/students and the wider community (e.g., potential employers), then strong partnerships with external stakeholders must be established from an early stage. Having a supportive senior level project champion was also viewed by some of stakeholders as being useful in addressing bureaucratic and administrative ‘red tape’ that is often experienced in attempting to provide seamless, coherent educational experiences and exit awards, particularly when a course is delivered between numerous partners across international boundaries and cultures.

The problem of language and culture was highlighted by some virtual campus projects and initiatives in relation to many of the courses having to be delivered in English which could be the second or third language of some of the staff and students. In addition, it was highlighted by some stakeholders that certain institutions in different parts of Europe and subject areas may display more of a cultural resistance to e-learning and the concept of virtual campuses which may lead to problems in the uptake and successful completion of courses. As a result a key issue that was identified through discussions with virtual campus stakeholders in terms of underpinning best practice was the need to effectively manage diversity. Virtual campus project by their very nature are characterised by diversity both in terms of the project teams and students/users who are drawn from across many European states. Effectively managing diversity and providing dialogue among different transnational partners and student groups helps avoid misunderstandings, identifies any potential problems early, as well as

identifying the strengths of the transnational partnership and enables a team to better learn from each other.

Effective teamwork and agreeing on clear roles and responsibilities was identified as being important in ensuring that all partners work well together in achieving the outcomes of the virtual campus project. The adverse affect of this issue can be reduced in situations where the project partners have worked with each other on previous projects and initiatives in which effective teamwork has already been established within the partnership. In addition, the role of the project leader was also seen as crucial in terms of motivating the project team and ensuring that any areas of potential conflict are addressed quickly and that project deliverables are achieved on time by the project team.

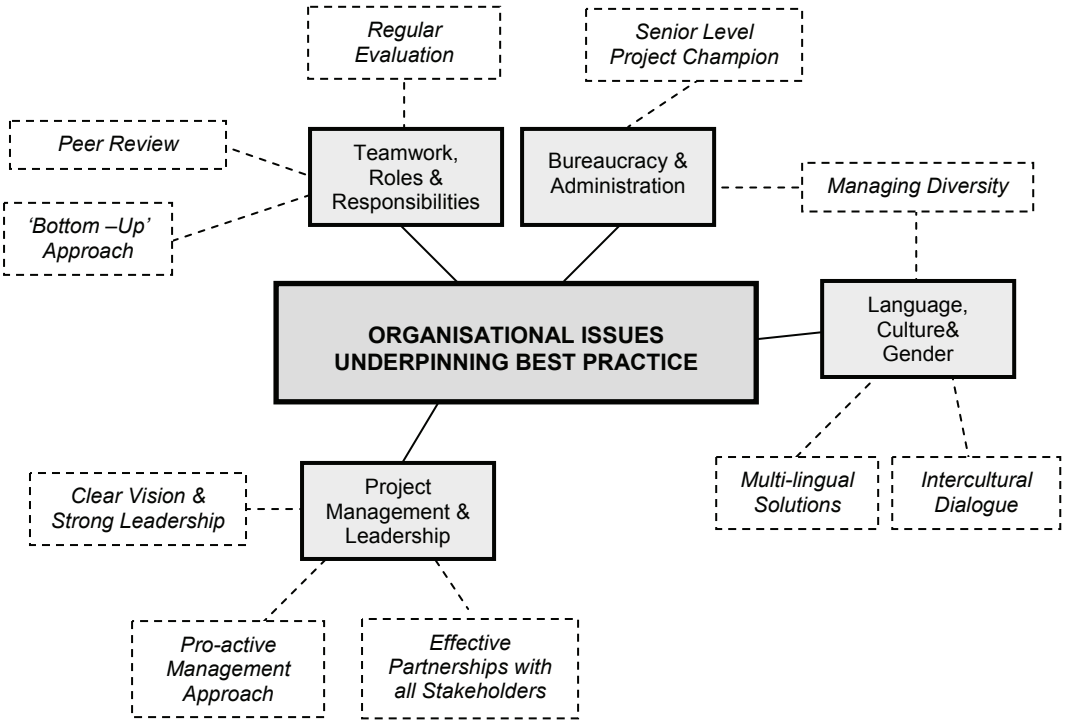

Figure 1: Examples of organisational issues underpinning best practice

2.2 Technological issues

Within the context of e-learning and virtual campus related technology, Figure 2 highlights a range of issues viewed as underpinning best practice. The issue of embracing innovation was identified by a number of leading researchers and project coordinators, which was viewed as being part of pro-active management. By their very nature, learning technologies can become dated within a relatively short period of time. Identifying new trends and developments in learning technologies such as those provided by Web 2.0 (e.g., blogs, wikis, podcasting etc) is vital if virtual campus and e-learning initiatives are to continue to stimulate students/users and address the needs of internal and external stakeholders in an effective manner. In terms of meeting the needs of students/users, an appropriate technological infrastructure and standards must be adopted that are both cost effective and also ensure that key issues such as system security are addressed. Many of the virtual campus projects highlighted the need to adopt open source technologies in providing suitable flexibility and functionality in a cost effective manner. Approaches such as Rapid Application Development were viewed as being important within the context of testing and evaluation in meeting the needs and requirements of staff and students/users and being able to add extra functionality to virtual learning environments as required during the course of the virtual campus project.

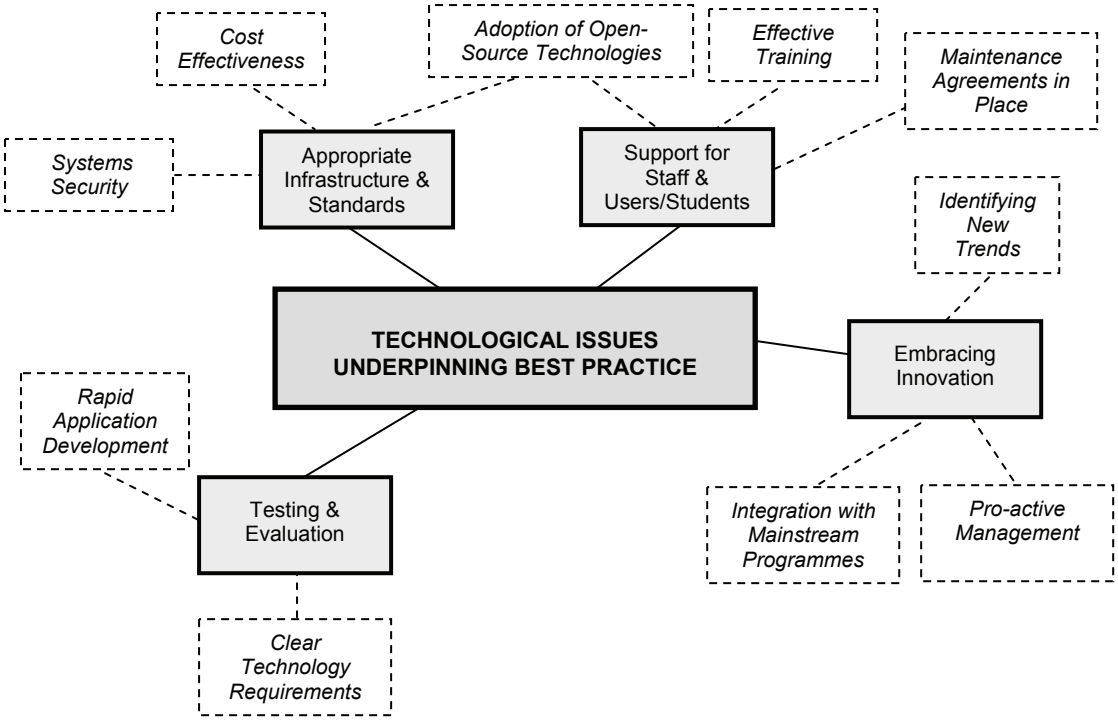

Figure 2: Examples of technological issues underpinning best practice

2.3 Pedagogical issues

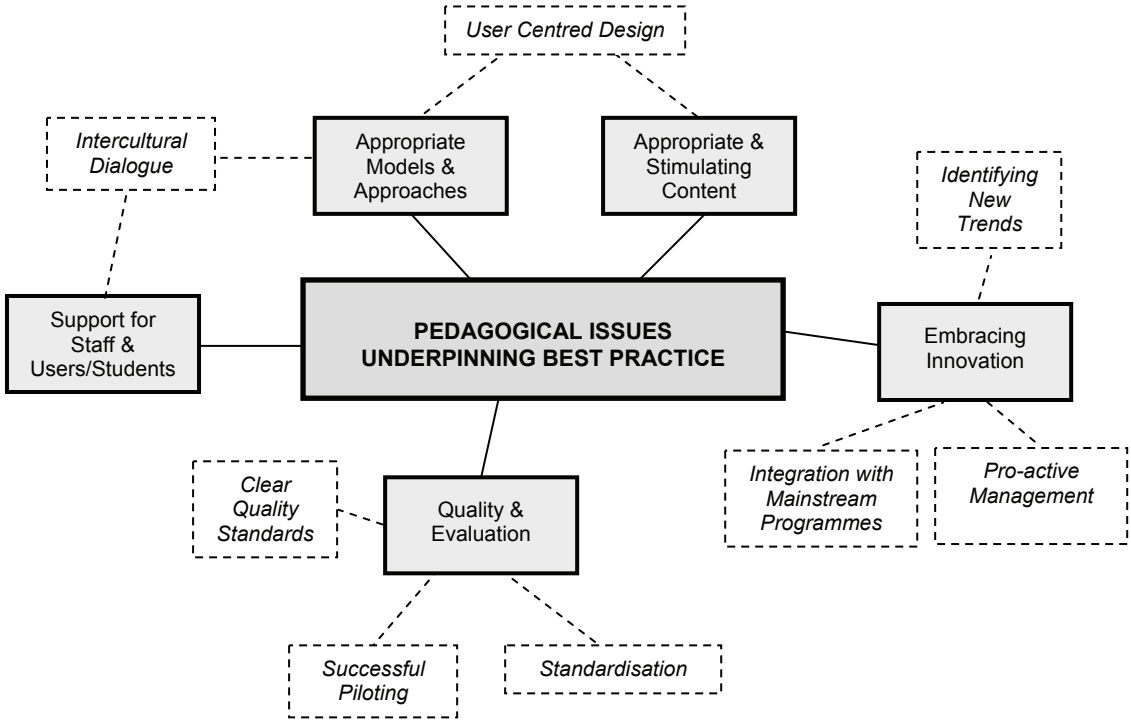

Figure 3: Examples of pedagogical issues underpinning best practice

Within the context of pedagogical issues which are shown in Figure 3, the choice of appropriate pedagogical models and approaches, as well as providing appropriate and stimulating content underpinning virtual campuses is of great importance since it has a big impact on the educational experience of the students. One of the key issues identified by many stakeholders relates to the adoption of a user centred design approach in terms of developing the content, functionality and

interfaces that users actually want rather than those the designers think that they might want. Therefore, it is vital that the pedagogy underpinning a virtual campus supports and enhances the students' experience in learning a particular subject area. As with technological issues, the importance of evaluating of the success of the educational content in meeting student/user needs was considered to be important. For example, virtual campus projects noted that through evaluation they were able to determine which was the most popular content and functions which sometimes were not always the ones that the developers might have intended. As with technological issues, embracing innovation within the context of the latest pedagogical developments and practices was also considered to be an important issue underpinning best practice in virtual campuses and e-learning. Providing proper guidance for students can be an important factor in underpinning success and retention. A number of virtual campus projects reported that many of their students felt that once they had received appropriate support and guidance they felt more positive towards their studies.

2.4 Student/user issues

As shown in Figure 4, important elements associated with student/user issues include the need to have in place clear and effective communication strategies in order to be able to interact with students and staff at different levels, whether using formal or informal mechanisms, as well as ensuring that clear guidelines and feedback mechanisms are provided.

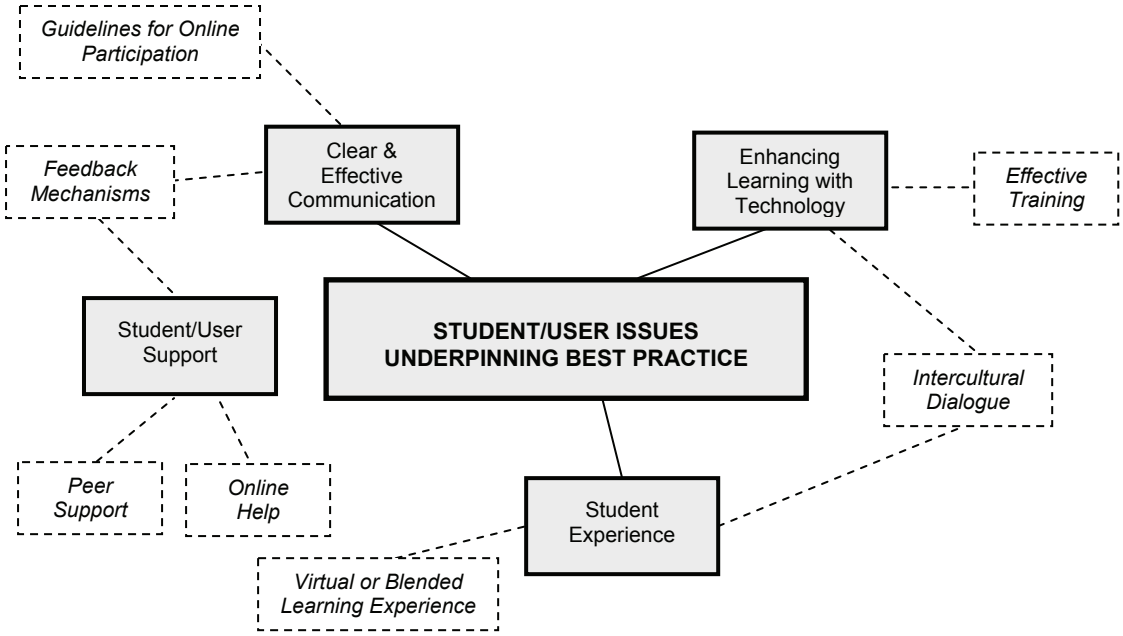

Figure 4: Examples of student/user issues underpinning best practice

Many students/users of virtual campuses can be compared to what Prensky (2001) terms 'digital natives' who have grown up in a digitally sophisticated environment populated by home computers, the Internet, graphic rich computer games and movies, Internet gaming, mobile phones, interactive television, PDAs and iPods. Therefore, it is important that the students' learning experiences are enhanced through appropriate technology which stimulates them and enables intercultural dialogue that represents the cultural scope of a virtual campus project that comprises students and staff from across Europe. The attitudinal and cultural problems associated with technology were highlighted by a number of virtual campus projects who noted that it was often staff who appeared to have the greatest difficulties in learning to use new technologies, which was often compounded by the negative attitudes of some staff towards the burden of having to learn new skills and master new technologies. Nearly all the virtual campus projects reported that on the whole students enjoyed learning and using new technologies in order to enhance their learning. Peer support among students was often reported as a useful means of students supporting and encouraging each other in learning new tasks and interacting with each other either online or during face-to-face classes when blended learning was adopted within a virtual campus project.

2.5 Financial issues

Issues relating to finance as highlighted in Figure 5 are important to virtual campus projects and initiatives if they are to continue to operate and become sustainable beyond the initial EACEA funding period.

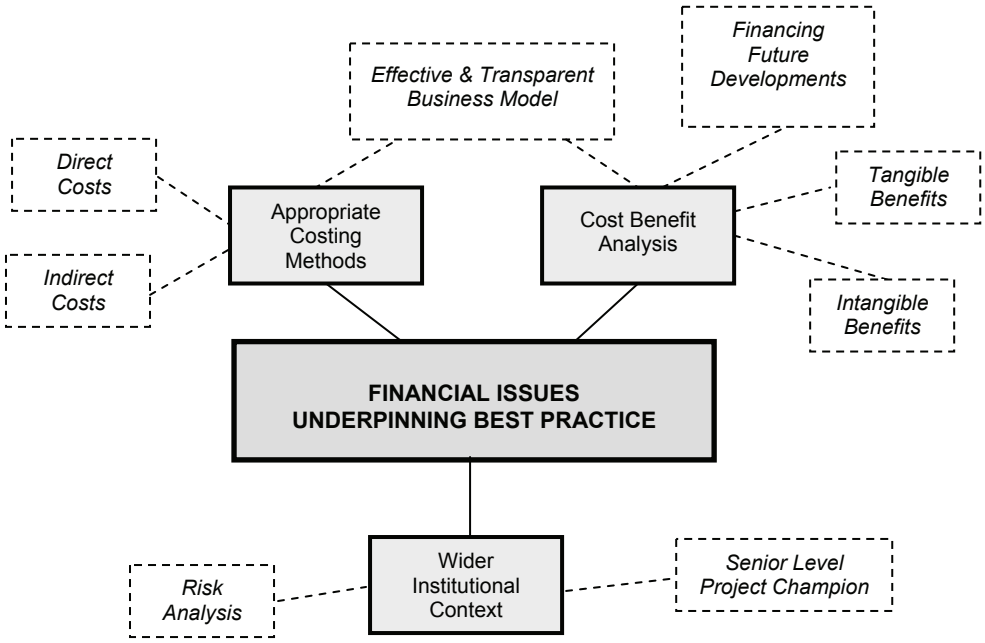

Figure 5: Examples of financial issues underpinning best practice

It is crucial that virtual campuses adopt appropriate costing methods and effective cost/benefit analysis in order to determine the full costs, both direct and indirect, of providing the range of services and functions to students/users. Therefore, it is important that virtual campuses develop an effective and transparent business model that enables them to generate sufficient income in order to become sustainable and finance future developments. In the past far too many virtual campus and e-learning projects and initiatives ended once the initial period of external start-up funding expired. In order to become more financially sustainable, a number of virtual campus projects highlighted the need to place virtual campus and e-learning initiatives within the wider organisational context of the institution comprising the partnership. This relates to embedding best practices derived from virtual campus and e-learning initiatives and practices within the more traditional educational offerings of a higher educational institution in order to secure its financial future. Securing the support of senior level project champions was viewed by some stakeholders as being important in securing the financial future of a virtual campus or e-learning initiative.

2.6 Consolidation issues

Consolidation issues as highlighted in Figure 6 reflect the kind of activities that can help sustain a virtual campus project by developing adequate marketing and dissemination plans targeted at groups of key stakeholders such as students, government bodies and companies in order to continue to generate interest and funding channels.

One of the ways identified as working towards enabling the consolidation and sustainability of a virtual campus project's activities was that of developing a centre of excellence in the particular domain that it specialises in through providing accreditation and recognition for its courses through partnerships with respected professional and academic organisations and societies. Identifying best practices and unique selling points and undertaking dissemination and marketing activities were viewed as an important way of building upon the achievements of a virtual campus project and working towards securing its future beyond the initial period of start-up funding. In addition, a number of virtual campus stakeholders identified the need to focus on the wider organisation within which the virtual campus operates by involving key internal and external stakeholders and encouraging them to embrace the e-learning environment by exploring ways in which the virtual campus might contribute to organisational transformation. By doing this, virtual campus projects and initiatives are exploring long term issues

that will contribute to their continued development and success, rather than just focusing on the short term issues relevant to the initial start-up funding period.

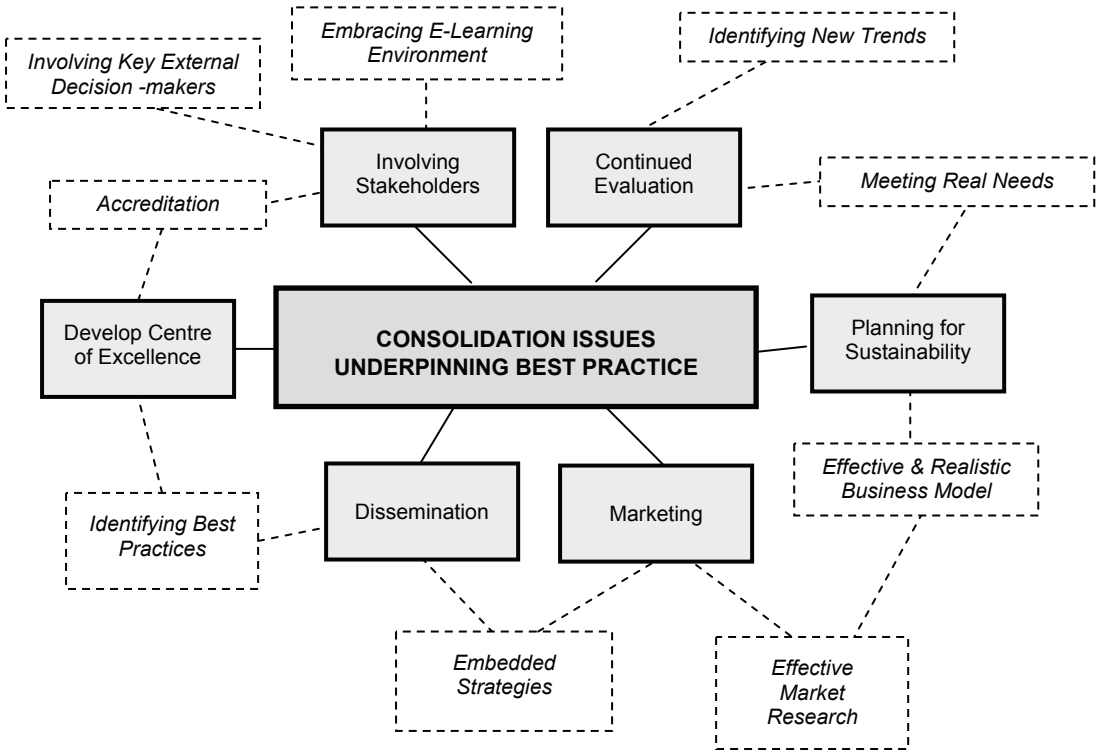

Figure 6: Examples of consolidation issues underpinning best practice

In order to provide a sustainable virtual campus, it was considered important by many stakeholders that it should be underpinned by an effective and transparent business model based on sound market research which provides a revenue stream from student fees and/or sponsorship that enables the virtual campus to continue to develop in the future. Sustainability was viewed as being a key goal and activity that should be considered throughout the lifecycle of a virtual campus project, particularly at the planning stage, rather than just being an area for consideration once a virtual campus had been implemented.

3. Sustaining best practices in virtual campuses and e-learning

As a result of the investigation into the issue of best practice virtual campuses, the PBP-VC project engaged with a wide range of stakeholders from different virtual campus projects from across Europe. As a result of investigating these virtual campus projects, a number of different levels of maturity could be distinguished in terms of their planning, development, implementation, evaluation and sustainability. Virtual campus projects such as those that were part of the eLene Network that had been successful in securing three consecutive externally funded projects demonstrated high levels of development and maturity in relation to many of the issues underpinning best practice in virtual campuses. As a result from discussions with stakeholders involved in the eLene Network and other virtual campus projects and initiatives, a number of levels in relation to virtual campus maturity were identified. The levels are shown in Figure 7, which uses a diagrammatic way of representation that has certain similarities with Salmon's (2002) E-tivities 5 stage model. The levels of virtual campus maturity represented in Figure 7 comprise:

- *Level 1 – Virtual campus planning and development:* This is at the very earliest stages of virtual campus planning and development where project teams have been recently formed and initial work is commencing on developing learning materials, the technical infrastructure as well as addressing bureaucratic and administrative issues that arise from running courses across transnational boundaries. Issues such as having clear vision, strong leadership and effective teamwork are important at this level in ensuring that planning and development are successful and completed according to plan. At Levels 1 and 2, a virtual campus would usually be heavily dependent upon external start-up grants to resource the project.

- *Level 2 – Virtual campus evaluation and refinement:* Once the virtual campus has been developed and students are studying the courses, it is important that rigorous evaluation takes place which enables the success of the virtual campus to be gauged from an organisational, technological, pedagogical, student/user and financial perspective. It would be expected that refinements to the technical infrastructure and learning materials would take place as a result of feedback from staff, students and other stakeholders. Issues such as having clear and effective communication are considered to be vital in ensuring the inclusion of all stakeholders. Many of the virtual campus projects involved in the study highlighted the importance of utilising the services of external, impartial evaluators which helps greatly in providing a fresh perspective in addressing key issues and evaluating the success of a virtual campus project.
- *Level 3 – Virtual campus integration:* At this level of maturity, a virtual campus project will be focusing on implementing plans for sustainability that enable it to continue past the initial external start-up grant stages. Issues such as pedagogical and technological reusability/interoperability enable the e-learning environment to be embraced within both the virtual campus and wider organisational setting to provide a better return on investment and a more financially sustainable virtual campus to continue in the future.
- *Level 4 – Organisational transformation:* At this level of maturity a virtual campus will be financially self sustainable in terms of being able to run without the need for external grants and will have received widespread recognition and support from senior decision-makers both at organisational level and externally. In addition, best practices established during the development of the virtual campus can become embedded within a wider organisational context. Thus the virtual campus, rather than being viewed as a separate project within an organisation, is viewed more as contributing to the wider organisational transformation in terms of providing effective economic models that will support and sustain real public-private partnerships in the creation, development and management of e-learning and virtual campus initiatives.

The different levels are shown in Figure 7.

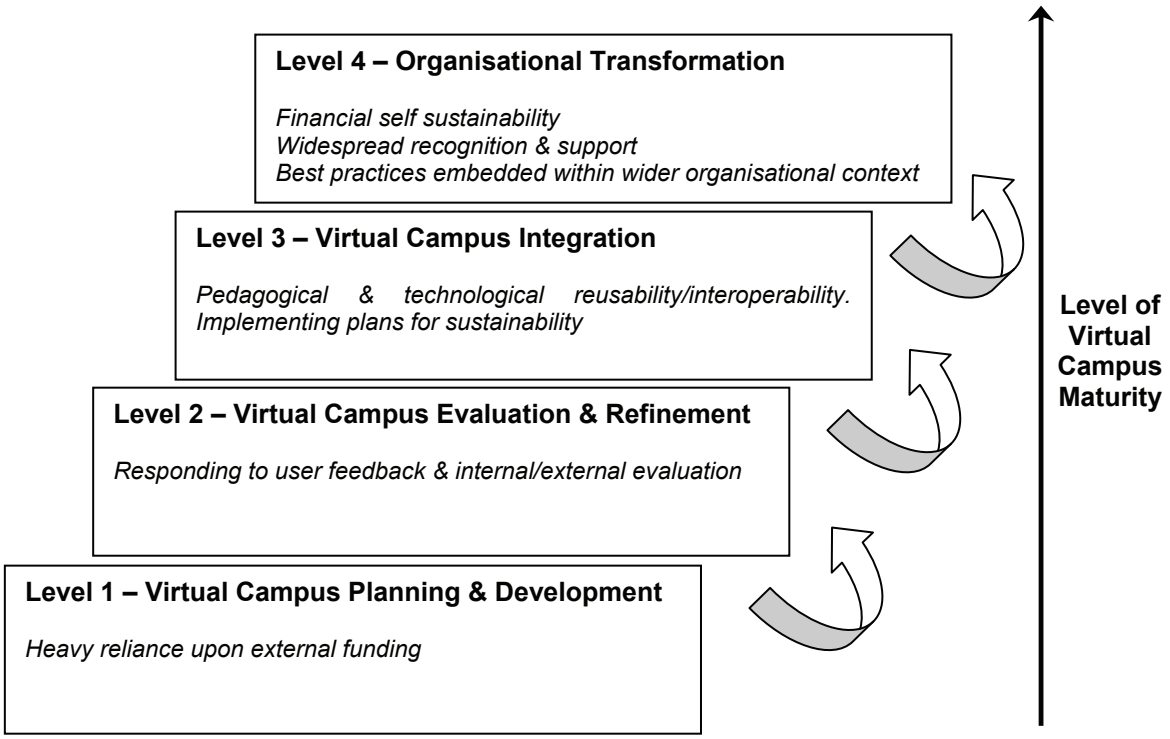

Figure 7: The four levels of virtual campus maturity

It is not assumed that all virtual campus projects and initiatives will reach Levels 3 and 4. It might be that a virtual campus project runs for the duration of the external funding period that might be 2 years and then discontinues which does not allow it to continue to Levels 3 and 4. Over the coming months, the model of issues underpinning best practice and the four levels of virtual campus maturity will be developed further into a detailed framework for identifying and promoting best practice in virtual campuses. The PBP-VC project will be working closely with several European level virtual campus

projects and initiatives in developing case studies and use case scenarios aimed at demonstrating the best practice framework in use.

4. Conclusions

This paper has explored a number of key issues relating to the concept of best practice and sustainability within the context of virtual campus and e-learning initiatives. Work so far conducted by the PBP-VC project has identified a number of key issues relating to best practice within the context of virtual campus project management, virtual campus development and implementation, and wider organisational transformation. It is hoped that work conducted by researchers and projects such as the PBP-VC project might contribute in the future to promoting best practice within the context of e-learning and virtual campus initiatives further, and perhaps contribute to the greater sustainability of these initiatives. It is not suggested that the issues explored in this paper are definitive and exhaustive. The value of the models used to explore some of the key issues lies in their ability to generate debate among different stakeholder groups. It is only through generating greater debate and awareness among the academic, business and professional communities that a better understanding of best practice and why virtual campus and e-learning projects and initiatives might fail can be gained.

Acknowledgements

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