Conclusion

Sitting as usual at the far end of the coach bus to go back home after 10 hours spent at school in classrooms, I dream about the next course where the lecturer said he has prepared a new way of teaching based on a responsive Website he has coded, full of Web 2.0 widgets, API, and other apps linked to social media platforms in order to be able to reach any student of his class in an easy manner, whenever he wants to promote something. He said it would be great, fun, and entertaining…. Let us see if the authors of this book also come to these conclusions.

In chapter 1, Bejjar and Boujelbene remind us that it begins with a discussion of four learning theories: behaviorism, cognitivism, constructivism, and connectivism, and their implications on the conception of e-learning environments. With an approach centered on the mind of the student, they discussed the various theories of learning styles. Discussion based on the personal and social constructivism approaches has helped us to understand the concept of e-learning, which further contributes to highlight the role of Web technologies in e-learning. The authors then explained the concept of Web 2.0 and the main features of Web 2.0 technologies that demonstrate the concepts and principles of Web 2.0. An overview of some Web 2.0 technologies was also presented with their potential academic use. The authors highlighted the challenges facing the educator, while deploying Web 2.0 technologies.

This chapter has two contributions. First, it gives us an overview of learning theories that have contributed to the understanding of the concept of learning. The concept of e-learning has been explained, and the importance of Web 2.0 technologies in practice of e-learning has been highlighted. The chapter also explained the concept of Web 2.0 and credibility in academia.

Secondly, the chapter advances the e-learning literature, incorporating Web 2.0 technologies in higher education based on the adequacy between students learning style preferences and technology.

Concluding, it is useful to test the acceptance of two or three tools of Web 2.0 technologies in academic institutions with students in adopting the technology acceptance model or the theory of technology diffusion and proceeding in a personal constructivist approach to identify the impact of Web 2.0 technologies on the learner and from a social constructivist approach to measuring the degree of integration of its technology in academia.

In chapter 2, Baporikar concludes that the subject of Electronic Learning (E-Learning) has become pertinent in the dynamic world of today, which is driven by information technology. The global economy has not been left out of the positive impacts of e-learning, especially in the corporate world where e-learning has reduced the cost of training of personnel. The basic concept of e-learning presupposes that electronic-driven technologies can be used to facilitate and enhance the learning process. E-learning has come to be a form of bridge for those who did not have the first time opportunity to engage in formal education. It has also cut down on the time and money spent in corporate training. We see the continual
emergence of e-learning and being able to “bite” into the big pie of corporate training valued at $100 billion. Though there are some lapses associated with the full implementation of e-learning, the benefits derived from it far outweigh the challenges. Part of the core value of e-learning is that learning is a lifelong process, important to successful participation in the social, cultural, civic, and economic life of the society. There is an expectation of a significant consolidation in the e-learning market as large companies increase their penetration and smaller ones are swallowed up or find the going too tough. Their success, whatever their size, will depend on how many companies can be persuaded not just to test the waters of the e-learning market but to take the plunge.

In chapter 3, Idiegbeyan-Ose et al. show that the introduction of Information and Communication Technologies (ICTs) in education has brought on board new methods of teaching and learning. These new methods of teaching and learning have also brought on board new libraries, new librarians, and new roles for the librarian. Therefore, the librarians without buildings in this new learning environment must acquire new skills required to fit into the changing world of modern day educational systems. E-learning as a learning platform has empowered so many individuals, organizations, as well as nations at one point or another. E-libraries, E-librarians, or libraries without buildings must be recognized and empowered as part of the learning process because the success of any E-learner greatly depends on the E-teachers, E-libraries, E-librarians, or the librarians without buildings in an E-Learning environment, who must strive at all costs to acquire new knowledge and skills. They must not rely solely on their parent organizations for proper training and retraining and must continue to upgrade their knowledge and skills through capacity building, through seminars and workshops, through short and long-term training, in order to remain relevant in this digital age.

There is hope for librarians without buildings in an E-learning environment; if they can develop themselves and properly implement their newly acquired capacities, this is true because E-learning cannot function effectively without E-libraries and E-librarians (librarians without buildings) in charge of the library just as the traditional educational system cannot survive without a library attached to the institution to support the teaching, learning, and research processes of their parent organization.

In chapter 4, Jiménez-Castillo and Fernandez explain that the main objective of this chapter has been to provide useful insights about the complementarity between traditional and innovative methods in teaching practice. In the theoretical framework, the authors have argued the relevance of the new technologies for educational institutions, and, specifically, they have focused on defining the main characteristics and potentials of video podcasts and the instructional design principles that are applicable to this multimedia technology. Furthermore, the authors have explored the value of video podcasts in the learning process by examining factors that may account for the assimilation of additional knowledge when video podcasts are used as complementary tools to lectures. Drawing on solid theoretical foundations, this study has proposed and validated a research model that reflects the process by which students may improve their capacity to assimilate new material from both the use of video podcasts and prior related knowledge acquired through lectures. The authors have shown that the attitude toward the use of the video podcasts and its effective use are significant determinants of a students’ assimilation capacity when learning a topic and, additionally, that prior stored knowledge gained from lectures notably reinforces this ability.

The findings of this chapter should be considered in light of some potential limitations and future research streams. First, the generalizability of this study is limited because it was conducted at a single institution and applies to a specific discipline. Second, participation was voluntary and therefore inevitably subject to the self-selection biases of the participants. Therefore, future research is needed to cross-validate the findings in order to strengthen the predictive ability of the model. In addition, other
variables such as academic experience could be added to the model because there might be differences among students in introductory or advanced courses (Bolliger, Supanakorn, & Boggs, 2010; Holbrook & Dupont, 2011). Finally, given that there is an increasing interest in mobile learning as an important mode of learning for students (Walls et al., 2010), future studies should compare whether our findings vary when mobile devices are used to watch video podcasts instead of computers.

In chapter 5, Isaías, Pifano, and Miranda shed light on the fact that the selected studies illustrated the decisions to apply YouTube, wiki technology, and Twitter to varied instructional settings in order to address the specific challenges both instructors and learners had to face. Their experiences intended to provide valuable insight on the practicalities of the pedagogical use of Web 2.0 to help and motivate educators to start experimenting and developing their own strategies.

Although the studies presented in this chapter portrayed varied situations and problems, they shared some important characteristics that help to depict a general pattern in the motives behind the use of social technologies, the most positive aspects of these experiments, and their shortcomings. Regarding the reasons to use social technology, in half the cases (cases 1, 5, and 6) classroom sizes were indicated as a problem in terms of engaging the students and giving them the opportunity to participate actively; case 5 mentioned the need for a platform for active learning, which was somehow shared by cases 3 and 4, which used wiki technology for the active creation of knowledge; the lack of engagement with the reading material was highlighted in case 1 and confirmed by case 2, which was motivated by a poor engagement with the reading material and a lack of preparation for classes; and budgetary constraints were only mentioned by case 2, but any educator can relate to this challenge.

The most positive aspect of these experiments was the overall success in engaging the students in the tasks, with the exception of case 3. The students were able to interact with the material, with each other, and collaboratively create content. It increased their participation, and they were able to practice cultural, communication, and social skills, which prepares them for real world interactions. In addition, the provision of technical support and instructional resources on how to use the technology was very important. Case 2’s focus on free software is also very beneficial, since it addressed financial restrictions and its detailed explanation of the technology it used was especially helpful for people trying to reproduce the experience. In terms of shortcomings, the experiments’ formal assessments must be highlighted. Case 2 had too many different variables influencing its outcomes, different teachers, different teaching methods, and this compromised the clarity of the results. In case 6, administrating a questionnaire to students, for example, would have provided more formal and commensurable data and a thorough evaluation of the experiment. Also measuring the amount of interactions would have been more insightful than the use of qualitative adjectives. The only feedback available is on the experiment’s YouTube video. The students all highlighted how positive the experience was (Smith, 2009), but this feedback is biased as the video was public and the students were identified. This experiment would have benefitted immensely from a more valid assessment. Moreover, none of the cases presented the views of both teachers and students together. Although some cases did add the teacher’s views, it was always focused on the student and never on more practical aspects of their role, such as the time or financial effort it took them to conduct the experiment.

The higher education sector would greatly benefit from the exchange of educators’ empirical best practices when it comes to Web 2.0. As educators begin to experiment, the most important aspect is to share their experiences, even if it means presenting them informally because there are lessons to be learned from that too.
In chapter 6, Inghilterra and Ravatua-Smith demonstrate that the primary challenge of digital technologies is connecting the individual to the collective whole. Additionally, information sharing via microblogging introduces a new collaborative arrangement for online communities. These new usages contribute to a social learning environment (as proposed by Albert Bandura) where group activity and co-construction give rise to new knowledge. However, part of this informal knowledge can also be reinforced and strengthened by the formalization of another structured knowledge; this is the objective of what Manuel Zacklad refers to as redocumentarisation (Zacklad, 2010). In the authors’ analyses, the sociotechnical tool Twitter provided the ideal environment of intermediatization. Twitter is a mediological tool as described by Régis Debray (1991) and although its functionalities are novel, the effectiveness of these types of human-induced modalities has been proven in the past. However, contrary to other forms of media, Twitter does not promote the development of sociolects, another quality that enhances its effectiveness as an educational tool.

The empirical approach led the authors to take advantage of the communicational qualities of microblogging in order to create an educational platform catered to and “mediated” towards student communities. After two semesters of analyses, the results surpassed expectations. Twitter allowed the authors to apply a dialogical style with an editorial format that attracted the attention of the online student community and successfully promoted active and continual feedback. With an interactive and hands-on approach, students developed new competencies through peer-to-peer-to-tutor exchanges outside of the conventional institutional style of learning. From an even more promising perspective, when students “tweet” information collected on the Web and apply the protocol of including the hashtag and URL, they maximize access to the subject and find themselves in a community in which they feel a sense of personal identity and belonging. Essentially, they have broken the barrier between the academic and private spheres and have developed a sense of pleasure in taking part in the online learning game. In the context of distance learning and knowledge sharing within structured online communities, very few social media tools offer such a rich and high-level medium of exchange. In this intermediatization, the emitter and receptor roles are indiscriminately reversed based on location and temporal circumstances. Although the principle of information literacy shows a promising potential for contributing to a richer academic experience, it also reveals limits such as tutor training and resistance to change.

Digital technologies have led to a reorganization of communication and restructuring of pedagogical strategy. In this new paradigm, everyone is implicated as a mediator in their respective communities as they share knowledge with the norms of recommendations and third-party intermediatization. The connectivist model relies on the self-training capacity of its learners while simultaneously contributing to a collective learning and knowledge-sharing environment. A hybrid form of learning has evolved, which combines the vertical aspect of formal learning with the horizontal nature of peer-to-peer interactions and exchanges. Is this a new trend or veritable model in the making? The fact of the matter is that “mass” learning is already underway in the professional learning and private sectors: the enterprise of Massive Open Online Courses (MOOC).

In chapter 7, Mâţă (2013) shows that the investigation of her study, focused on using social media tools in pre-service teacher education, represents an important stage in improving the quality of initial training programmes both at the level of educational policies as well as in terms of educational practice.

According to the research results, we have formulated general conclusions regarding the investigation of social media tools in the field of pre-service teacher education.
1. From a theoretical perspective, there exist innovative models for integrating social media resources in the initial training of future teachers. At the centre of the new approach, an essential role belongs to the e-teacher, who is responsible for the design of all the components of the educational process (finalities, teaching and learning strategies, technological tools, organization forms, evaluation). The main finality of the proposed model is innovation both in terms of educational process, and in terms of organization.

2. Referring to the methodological part, the purpose of this research has been to provide a current background upon educational research focused on the use of social media resources in pre-service teacher education. The results obtained demonstrate that one of these tools (social media resources for sharing and organizing sites) are increasingly less used, while other new technologies (social sites, integrated social media technologies) tend to be increasingly valued in the initial training of future teachers.

The research results indicate the necessity to continue the investigations in the field of social media technologies in pre-service teacher education. One of the future research directions will be to achieve a similar study to analyze the current context of social media technologies in in-service teacher education.

Another future research direction will focus on initiating and developing comparative studies on the use of social media in teacher education from different perspectives (differences between social media tools and traditional technologies, comparative aspects between different regions in terms of using social media in training teachers, etc.).

Certainly, social media resources are under development at the international level, which implies the need to be open to the new technological challenges and to conduct new studies based on the development of innovative models and original strategies for teacher education according to the new requirements of the knowledge society.

In chapter 8, Mhiri Sellami highlights the growing role that e-learning 2.0 takes in the lives of students. On the other hand, and given the diversity of learning resources, the authors propose that ePortfolio continues to organize and manage student learning. Although they show that ePortfolio is currently the ideal environment to take into account student learning through e-learning 2.0, serious games or open learning environments, the work proposes to enrich its structure. Indeed, the current standards do not enhance the skills acquired through these “new” learning resources, the authors have therefore proposed to enrich the structure of the ePortfolio to include a dedicated attribute for learning. The proposal concerns only the conceptual structural and not the technical aspects. This proposal seeks to adapt to new trends among students as well as meet current market uses. Current recruiters often “Google” the candidate before looking at their credentials as such information may attract hiring managers instead of other Internet information. To finish this chapter, one may examine the general issues facing an action for introducing the ePortfolio, especially its usefulness, which is questionable with the new features of Web 2.0. The prospects of this work correspond to adding the “e-learning 2.0” and tests on a student sample and examining its impact on students’ competencies. This is our future teaching program for the next academic year.

In chapter 9, González-González and Jiménez-Zarco establish that today, market demands professionals who have the combination of knowledge (knowledge, skills, and attitudes) required to perform a task and achieve a purpose within a specific context and according to established standards or conditions. For this, the university must educate professionals qualified and competent, and for this end, the EHEA establishes competency-based training system. This model is characterized by two principal traits:
1. The central axis of the educational model is the student, who develops an active role in the process.
2. The knowledge is co-created between students and teachers. Therefore, teaching models are designed based on different learning models used by the student.

We are moving to a new model where what is learned, and how to learn is determined by the needs of the students. In addition, this setting, academic offering, and market demand, makes the university pursue educational models characterized as:

- Dynamic.
- Flexible and Cooperative.
- Personalized and Interactive.

Models, which also make intensive use of ICT, according to a student who can be defined as a digital native or immigrant is also performed.

For an online university, such as the Open University of Catalonia, the implementation of this type of models is extremely complex. It is true that the UOC’s educational model is centered on students. Furthermore, the system is characterized by an intensive use of ICT, as well as a virtual learning environment, the UOC uses many tools of nature 2.0 ICT to develop their teaching and evaluating (forums, wikis, Blogs, Langblock, etc).

However, its online nature leads the UOC student profile to be different from the rest of conventional universities. It’s a student with an above-average age, family, and work responsibilities. As a result, UOC students request a practical form of education based on the intensive use of ICT. Education where the students:

1. Develop a set of core competencies in the development of their professional activity.
2. Once these competencies are developed, students can immediately implement them in their jobs.
3. Intensive use of ICT tools (2.0), which on one hand simplifies and speeds up the learning process. While on the other, it makes it attractive, motivating, and fun.

Within the UOC, economics and business studies play an important role. That is why some core competencies for students in this area, have been incorporated by the university in their degree programs, as transversal competencies. In particular, critical thinking is one of the competencies that the UOC student must develop and know how to put into practice.

The use of new teaching methodologies and tools, such as the learning by doing, and the use of audiovisual practical cases offer positive results in the acquisition of this competence. The results correspond to a pilot sample carried out on students and show that students positively perceive the use of such materials and prefer them to other materials. They are considered as tools that offer relevant information to identify and analyze the problem. In addition, they are considered to be useful in facilitating the development of practical activities, making the process more enjoyable.

In chapter 10, Kingsley et al. show the literature on intelligent approaches to learning emphasizes how emotions and learning are inextricably bound together. A continuous unobtrusive assessment access to these emotions is then important for optimal learning. More so expressive forms of emotion have a lot of contextual significance. If one therefore adopts an application-specific view, reliance on most reusable datasets for instance could be misleading.
Therefore, using motor-behavioral signals to predict emotions, this study investigates emotional evolution during learning, and further proposes an affective e-learning model. The model is implemented using a context specific dataset that are recorded under potential learning environments. The behavioral data was collected from one subject over many weeks in a more natural and closer-to-real world setting. The most successful classification rate (63.8%) was achieved by fusion Principal Component Analysis (PCA) with Linear Discriminant Analysis (LDA), a very efficient algorithm in the domain of facial expression recognition. K-Nearest Neighbor was trained to yield the classification task. With such raw and intuitive affective data generation procedure applied in this ongoing study, opportunities are opened up for e-learning instructors to have clear understandings regarding the remote state of their learners. Even more so, when such learners’ emotions are detected and feedback into an Intelligent Tutoring System (ITS) is performed in real time, a content recommender technique could utilize additionally to recommend proper learning content suitable to learners’ current emotional states and learning needs. Results of the experiment further indicate the superiority of emotion aware systems over non-emotion-aware (emotion-unaware) systems, with a significant increment of 71.4%, further affirming earlier speculations that using emotional data as such could greatly improve performance of current educational software and specifically Adaptive Education Hypermedia Systems (AEHS). Intuitively, one other noteworthy finding may be included that engagement, confusion, and hopefulness are among the most important and frequently occurring learning emotions and that using the power of more fine-tuned algorithms in the domains of pattern recognition could yield better results.

Part of the proposed model utilizes significant components of the OCC model and the Kort’s theory because these two could reliably be implemented computationally. Yet in relation to the proposed model’s differencing of emotions for utilization in ITS, determining learners’ emotional intensity by their facial observable behaviors is certainly difficult. Thus, this could not have been more accurate as when the learners’ multimodal emotional dimensions were captured. The system combines both speech and facial expressions from the student synthesizing this and making queries for previously recorded database of audiovisual clips corresponding to spoken words and responses according to users’ emotional states. Moreover, at this exploratory stage, a single subject experiment was more feasible to undertake this study. Henceforth, future works could further contribute by optimizing the proposed model for practical integration in ITS that takes teaching strategies based on learner’s emotion. One way to achieve this would include design of more consistent and domain-based knowledge courseware demonstrating similar approach however with more than one subject in the study.

This chapter has been consistent with principles relating to utilization of human affects as learning feedback. However, future research promises a more systematic and deeper study in this direction.

In chapter 11, Ben Romdhane shows that the evaluation of e-learning platforms is essential to improve strategies for distance learning, to reduce rates of failure and to enable organizations to have a return on investment.

In the research, the authors have taken into account the evaluation criteria that are oriented to learners: the usage of the platform and the satisfaction of the learners towards it. These criteria have long been used to evaluate the information systems success.

The study of the influence of perceived e-learning platform characteristics on the usage and satisfaction allows us to make several practical recommendations.

First, the study showed that the ease of use of a platform is the most significant factor in e-learning success. Therefore, the number of functionalities should be limited, and it would be appropriate to adopt an incremental approach of installation, starting with the classic functionalities, and once the learner is
accustomed to the platform, gradually adding other advanced features. Tools of transmission content, news, and discussion can be activated at the beginning and then supplemented by spaces of personalization and collaboration.

Particular attention should be paid to the interfaces of the platform. They must be convivial and interactive to keep the attention of the learner.

Second, we found that the fit between tasks and learners’ needs in terms of knowledge development and information is very important for the usage. The message is that e-learning is not appropriate for all courses (Bellier, 2001). The course designer should pay particular attention to the adequacy of the proposed content and the needs of the learners to obtain information and to perform tasks.

Thirdly, learners may be interested in using the system if they have substantial benefits. For this reason, a communication strategy must be made to inform the learners of these benefits. In this regard, it would be interesting to adopt mixed devices alternating distance and group sessions in face-to-face. Indeed, it is this kind of device that is relevant to the learner who has more freedom, flexibility, and autonomy while avoiding problems of misunderstanding, isolation, and loneliness through the face-to-face sessions.

Despite the significant results achieved, the research includes some limits. The first is a small sample size of 241 respondents, that did not allow the authors to generalize the results in the Tunisian context. Secondly, the research has been limited on studying the impact of perceived use for users, perceived usefulness, perceived compatibility with the needs of the learner, and platform usage on learner satisfaction in online courses.

The results and the limits of the study might open new perspectives of researches in the field of e-learning. Future research might incorporate more variables such as perceived teacher support (Swan, 2002) and e-learning courses dimensions (Sun, et al., 2008). We believe that a comparative study of e-learning success in two different cultural contexts can shed new light in this area. The conceptual model may be completed by integrating the influence of learner’s satisfaction on individual and organizational impacts.

The description of an experiment of e-learning makes it possible to underline the positive points but also certain insufficiencies to put on the right track for future initiatives and stakeholder groups in the project of e-learning.

The reality is that this new method of teaching and learning seems to be perceived by the students as a method having its place beside the face-to-face course. However, it would be obviously unrealistic to think that the classical learning process will quickly give way to e-learning.

On the other hand, the most objective indicators make it possible to affirm that the process of adoption has started.

This research made it possible to highlight the importance of the level of studies, experiments with computer, and compatibility with the needs of the learners on the use of e-learning.

This method should be integrated in the process of learning as soon as possible before the student can be accustomed to the traditional practices, which would involve a rejection of e-learning. It is also necessary to invest in the training of the learners to use the computer tools in general and the Internet in particular. A special attention must also be carried to the quality the content in terms of compatibility with the task of the learner.

This study could help major stakeholders (teachers, learners, institutions, content and technology providers, government) and sensitize them to act on these factors to improve the adoption and the use of e-learning by the learners in order to enjoy its benefits.

In chapter 12, Abderrazek explains that the E-learning technology adoption is a complex, socio-technical phenomenon, largely characterized by a high degree of risk (Sabino de Freitas & Bandeira...
In this sense, Information and Communication Technologies’ (ICT) rapid evolution is influencing and influenced by cultural context. Cultural factors are identified as a crucial influence on the success or failure of adoption of ICTs in general. They identified different cultural levels and different cultural dimensions to understand Tunisian behavior. The authors argue that Hofstede’s cultural dimensions (the most cited study used in IS discipline), are not appropriate for studying the interaction between cultural, technology of e-learning, and actors. The authors proposed Structuration theory as a new perspective to help with the study of cultural issues in the management discipline. This chapter presents an exploratory case study which analyzes the interaction between e-learners and technology of e-learning in a specific cultural context. The virtual university of Tunis, first virtual university in Tunisia, was the site where the data was collected. It allowed the authors to have access to their Moodle platform. The authors have used the thematic data analysis to code their data and develop the different themes of each interview, which led to their preliminary framework of cultural dimensions that may have influence on the e-learning adoption. The preliminary structurationist analysis of the case study shows that there are cultural dimensions, which play a role in each area within the same culture.

A primary contribution of this paper has been to provide a theoretical basis, drawing from structuration theory, which can be used to analyze cultural influence also in the same society working with ICTs. Key concepts have been drawn on by IS researchers in other contexts, but this chapter’s theorization of culture working with ICTs has also emphasized structural contradiction, the potential for conflict, and recognized them within the same cultural context. The theory illuminates some new elements and dimensions in cultural study. Secondly, the introduction of intra-cultural analysis has exceeded the critical views of researcher’s. It is true that culture is defined as shared values but the theory also recognized the intra-system variety.

The purpose of this chapter was to investigate a new framework to introduce the intra-cultural issues in management discipline. Therefore, ideas were put forward on the need to take culture seriously, on adapting technology, and on designing the role of ICTs. The primary structurationist analysis of the case study shows that there are some cultural dimensions that play a role in each society and in the adoption of e-learning in a specific spatio-temporal and cultural context. The analysis shows also that despite the control of allocative and authoritative resources, organizations are unable to fully control the actions of lecturers in the adoption of eLearning.

In future research, the authors will use the structurationist analysis in a multinational environment case study to validate the cultural dimensions role on the implementation of e-learning. The theory developed in this paper offers a basis for such future work.

In chapter 13, Daunert and Harteis have focused on students’ preferences and everyday practices with u-technologies. The widespread use of technological devices and Web-based tools prompted us to focus our inquiry on the experiences of students with the tools, specifically on the students’ academic-oriented activities. The authors discussed that constructivism is the theoretical framework that could help understand the approach to learning with the use of these technologies. The use of technological devices is not something new in education but the use of interactive technologies or Web 2.0 tools is now a trend among students. This is confirmed by the survey results, which showed that use of u-technologies is now part of students’ everyday activities including the use of Web 2.0 technologies. The authors discussed the implications of the results for educational practice and future research, considering the rapid change of these technological innovations, especially the rapid transformation of learners as Web 2.0 users/learners. In conclusion, we encourage more empirical studies on the academic-oriented learning practices of students with u-technologies in order to understand their role and impact on learning and, generally, on
the educational context. Furthermore, to develop or promote the usage of u-technologies for academic purposes, it also requires the development of teachers’ competencies because they are the crucial agents in the development or design of academic activities or courses, in particular.

In chapter 14, Perez-Gonzalez et al. show that Internet adoption has evolved tremendously during the last decades. People have adopted this technology to perform a wide range of tasks such as research, shopping, and learning. Information and Communication Technologies’ (ICT) rapid evolution and adoption have influenced both the public and private contexts (Gonzalez-Gallego, et al., 2010; Soto-Acosta, et al., 2010). In this sense, the degree of development of certain domains is considered to be linked to the level of implementation of ICT (Lucio-Nieto, et al., 2012). However, the adoption of ICT has followed different patterns depending on the environment. Thus, although the business context has reached high levels of ICT adoption, other important contexts for the future of generations such as higher education remain certainly laggard in comparison (Bernard, et al., 2004; Jones, et al., 2010; Park, 2009; Tallent-Runnels, et al., 2006).

Reports from public and international institutions (e.g. Institute for Higher Education Policy, 2000; European Commission, 2004; OECD, 2011) consider the need to deepen in the application and study of e-learning within higher education as a means for achieving flexible, dynamic, and personalized e-learning initiatives. More specifically, reports point out that the implementation of ICT within the higher education system is still very basic, with high levels of resources underutilization, considering its potential (OECD, 2005; UNESCO, 2011). Therefore, it is necessary to move from the use of ICT as a support tools to an e-learning instrument based on virtual environments (Guri-Rosenblit, 2005; Park, 2009). To address these issues, there is therefore a need for further works that show how to cope with problems and answer practical questions with regard to the development of higher education virtual environments (González, 2010; Ossiannilsson & Landgren, 2012).

This chapter presents a case study which analyzes the implementation of the first virtual interuniversity campus the SVC-G9 project, which integrates nine higher Spanish education institutions. More specifically, this work analyses the project’s context, previous scenario, and development, paying attention to the implementation of the whole learning process virtually. In addition, this case study analyses the ten-year experience of an e-business course for engineers offered simultaneously by the nine universities through the SVC-G9 platform. Findings from this experience revealed different conclusions discussed below.

Technological tools are key elements, although it is essential to consider whether the course is a single activity or takes part within a campus. In the second case, we recommend using a homogeneous platform for the whole campus, which favors interoperability and institutional image. In addition, it is important to have a LMS system which helps lecturers with: 1) course design, 2) course management, and 3) multidirectional and multichannel communications.

Furthermore, to achieve success in these initiatives, students must receive constant support through ICT tools. In this sense, it is necessary to demystify the general thought about the less effort required for lecturers when courses are conducted online. In fact, exactly the opposite can occur, since an online course implies an additional effort with regard to the correct design of the course structure and materials as well as the continued and personalized attention to students. Indeed, it can be recommended to limit the number of students to ensure quality of attention, participation of all the students, and a continuous follow up of the course.

This experience allowed us to verify that e-learning in the context of higher education facilitates the creation of interdisciplinary flexibility and personalized learning environments characterized by the elimination of distance and time barriers for students and, also, the creation of benefits for universities such as synergy and the sharing of resources.
As a concluding remark, we must indicate that this work shows an experience that must be considered in a context of institutional support with regard to resource availability. The extrapolation or generalization of the results of this experience should be done with caution and considering the context. In this sense, as future research, it could be interesting to analyze 100% virtual higher education initiatives and develop several indicators which, based on the opinions of students and lecturers, enable us to assess these initiatives.

In chapter 15, Adeyeye et al. explain that a number of research works have been done on collaborative learning and how to improve teaching and learning using modern day technologies. Technology has the potential not only to enhance teaching and learning but may change the concept of education as constrained by time and space. Technology proficiency is considered a core competency for the twenty-first century. Technology due to its inherent characteristics have the ability to represent content, engage with students, model skills, and assess a student’s progress, resulting in more effective and quality learning. A particular technology can provide affordances that concurrently influence the content, the pedagogy and/or the assessment in a curriculum. Digital technologies comprise a new context for teaching and learning with individuals having personal handheld access to processing power and information. The possession or access to these technologies does not imply learning and only when the technology is meaningfully integrated into a learning environment, does the potential of the technology for learning become realized. Learning in the digital age includes the acquisition of information skills or twenty-first century skills rather than the mastery of a stable body of knowledge. Mobile technology supports a wide variety of perceptions of teaching and learning in formal as well as informal situations. M-learning offers the opportunity to exploit the capabilities and characteristics of the mobile device to enable new as well as supporting established forms of learning. Mobile technology is more than just a phone and is not merely a medium that facilitates the m-learning interaction. The device contributes to the nature of the interaction and ultimately determines the conditions in which the interaction will take place. M-learning has, at its foundation, learning as the central concern of a mobile technology enhanced educational experience. Based on the theoretical pedagogic grounds, m-learning supports a wide variety of conceptions of teaching and what it attempts to bring to education. Enhancing a mobile user experience in an m-learning interaction entails the consideration of the attributes and affordances of the technology and the requirements of the pedagogy interaction. To get the most from the m-learning experience, the complexity of the learning design must be enriched to equal the rich opportunities offered by the educational affordances of the technology. The browser war is far from over, and the HTML5 <video> tag has not improved video access despite its promises to work without specifying a plug-in. Adeyeye et al.’s chapter presents frustrations learners could experience during m-learning or e-learning, most notably when it requires watching a video on a variety of personally owned devices. It presents the technical details of a work carried out at the University of Cape Town (UCT) to provide a single Website for the various T&L (Teaching and Learning) contents on the Internet. The staff and students of the UCT currently have two repositories to publish the recordings of their classes on the Internet. They are YouTube and the UCT Matterhorn Websites. A large number of video files originating from the UCT exist on YouTube under different tags, and they include recordings of various classes. Both students and lecturers use the repository to share information and distribute contents. User-generated contents on YouTube (such as http://www.youtube.com/rss/tag/uct.rss) are displayed in one format, called “the flash format.” The files are accessible on browsers with support for flash. The duration of the media contents vary from seconds to hours, and they include sport activities, DIY (Do-It-Yourself), and lectures. On the other hand, the UCT Matterhorn is the UCT implementation of the OpenCast Project. The OpenCast project
is a community project that aims at presenting videos in an interactive manner. It is capable of presenting recorded presentations and videos in multiple formats and views. It is accessible at http://media.uct.ac.za/engage/ui. The formats of video files on the Website are Adobe Flash (FLV/SWF), Microsoft AVI (Audio Video Interlace), and MPEG4 (Moving Pictures Expert Group 4). The various presentations or videos on the UCT Matterhorn Website could either be slides (such as Microsoft PowerPoint and Libre Impress), which are accompanied by the presenter’s voice or only the presenter, who may be writing on a board in a classroom. In the first video type (i.e. presenter slides with his/her voice), the video output from a Personal Computer (PC), which displays the slides, and the audio output of a microphone (used by the presenter) are superimposed. The first video uses the filename “presentation.avi or presentation.mp4.” In the second video type (which shows only the presenter), only the output of a video camera or camcorder, which is a presenter with/without a board in a classroom, is rendered. This video uses the filename “presenter.avi or presenter.mp4.” However, the project also renders videos in a flash format. The flash files are a product of both presentation types and are superimposed in a way that a viewer could see the presentation slides and its presenter speaking at the same time.

The OpenCast project is intended for wide screen devices unlike the YouTube’s, which could be viewed by both small screen (mobile) and wide screen (PCs) devices. In addition to the various presentation or video types in the UCT Matterhorn, the project provides the viewers of a presentation a means to add comments and access the presentation frame-by-frame. It is an implementation of the HTML5 media APIs (Application Program Interfaces), such as the Popcorn.js, the butter application, the VideoJS and the MediaElementJS. All the media types (flash, avi, and mp4) are available in an ATOM file (http://media.uct.ac.za/feeds/atom/0.3/latest/index.xml), and there is a RSS (Really Simple Syndication) file (http://media.uct.ac.za/feeds/rss/2.0/latest/index.xml), which contains fewer media types. While a presentation node in the ATOM file (i.e. lines between the opening and closing tags of a presentation) would contain presentation.mp4, presentation.avi, presenter.avi, presenter.mp4, and presentation.swf, a presentation node in the RSS file would contain either presentation.avi and presentation.swf or presentation.mp4 and presentation.swf. However, there are cases when only four file names exist in a presentation node in the ATOM file. Most times, the presentation.mp4 file is not available, when there are only four file names. Another flaw in the ATOM file is that the appropriate MIME-types are not used for some of the media files. Examples are Presenter.mp4 and Presentation.mp4, which both use the “video/avi” instead of “video/mp4.”

After carefully examining the applications, most notably the UCT OpenCast, an HTML5 content aggregator was designed. The goal was to design a content aggregator that could present the various user-generated contents and lectures from the two repositories - YouTube and UCT OpenCast - to both students and lecturers at the University from a single Website. The application should not be limited to mobile devices, but also wide screen devices. This goal was realized with the use of PHP5 XPATH API, which extracts information from XML files in both repositories, and the retrieved information is stored with the help of MySQL database engine. Cascading Stylesheet 3 (CSS3) and HTML5 were used to format and render contents on mobile devices or PC, and interactivity was achieved by the use of JavaScript.

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REFERENCES


