# Education Portal Strategy

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## ABSTRACT
*Education portals promise to be an integrated point of entry that provides all stakeholders of an education body, frequently referred to as campus or university, with a single, personalized, web interface to all information and application resources in a secure, consistent and customizable way. They also promise to be the means by which multiple devices and multiple access methods can be utilized to retrieve all appropriate information and learning resources anytime, anywhere, with anything. Therefore, developing an education portal can be a key strategic technology decision since it can impact the entire campus community in the way it learns, teaches, communicates and interacts. This paper presents the major issues for portal strategists in the preparation and implementation of education portals, and looks at the development approaches, lessons, comments and concerns from concrete projects. A generic approach towards portal strategy is being derived from the international portal experience which implies four subseqent stages that determine the way portals can be embedded in an institutional context: emerging, applying, infusing, transforming.*

## INTRODUCTION
Education portals promise to be an integrated point of entry that provides all stakeholders of an education body, frequently referred to as campus or university, with a single, personalized web interface to all information and application resources in a secure, consistent and customizable way (Kavavik, 2002) through multiple devices and multiple access methods can be utilized to retrieve all appropriate information and learning resources anytime, anywhere, with anything. Hence, they allow more interaction and collaboration among students, faculty, staff, and alumni (Barratt, 2003). Properly implemented, portals can be a strategic asset for the institution. In that sense, they do far more than a traditional web site of static information ever could (Strauss, 2002).

The promising opportunities notwithstanding, developing an education portal can be a key strategic technology decision since it can impact the entire campus community in the way it learns, teaches, communicates, and interacts. Therefore, the primary challenge for educational institutions in prior to the implementation of a portal solution is to develop a deliberate *portal strategy* based on a careful analysis of long term and short term needs, and a clear vision with concrete strategic goals (Katz, 2000, 2002).

However, the international portal experience in the educational sector over the past decade shows that various strategies have been pursued in very different institutional environments and with very different objectives (Perraton, 2000). This has been driven to some extent by the fact that the portal concept as other technologies in open and distance learning (ODL) has been first applied and adapted to higher education and professional training environments, but establishes gradually also in primary and secondary education institutions (Owston, 1997; UNESCO, 2000).

Therefore, looking at the development approaches, lessons, comments and concerns from concrete projects, it is primarily the diversity that stands out. This article sheds light on those aspects that can serve as a common basis for an integrated, generic approach towards portal strategy. It understands the four directions of impacts on *learning*, *teaching*, *communication* and *interaction* of education portals as strategic dimensions along which strategic goals are set and embedded in an institutional context.

The generic approach may guide portal strategists in governing bodies of education portals through the delineation of strategic success factors and development priorities at different stages of portal development independent from the educational sector. Therefore, the terminology of this article refers in a common sense to teachers and students instead of differentiating these broader categories into professors, faculty staff, trainers or pupils. Educational institutions such as universities, colleges, schools are collectively termed campus.

## FOUNDATIONS OF EDUCATION PORTAL STRATEGY
Portals in the field of education are a widely discussed, but nonetheless often misunderstood term. Therefore, the view on education portal strategy should not lack a brief explanation of the conceptual foundations and the terminology. The general portal concept is based on three essential features: personalization, customization and standardization. The main purpose of personalization is to provide information tailored to the needs of a visitor such as given through the different teacher and student roles these visitors might have in the portal environment. The individual must be able to customize, thus, have complete control over the information displayed on the portal pages. Standardization refers to the user interface as single sign-on (SSO) access point to a variety of tools and resources (Kavavik, 2002).

Portal related initiatives exist at many campuses, but formal strategies for a portal, its use, and its benefits have not been created. Most of the development has occurred in the form of small, targeted projects designed to enhance the functionality of existing web sites. These projects have been prompted by specific educational or administrative needs (Gleason, 2001). An essential contribution to make the education portal concept more consistent throughout the variety of different institutional and educational specificities is the pyramid model of Oblinger and Kidwell (2000). Based on this approach, success factors for the implementation of education portals can be classified at three levels: *governance*, *services* and *infrastructure*.

In this sense the designation of leadership and a concentration of decision-making responsibility are keys to the development and implementation of a portal, providing confidence to campus that it can place the responsibility and trust in the hands of a knowledgeable individual or an informed and dedicated group of individuals. This governing body must be capable to conceptualize the entire portal organization and processes, and to control the technical, policy and financial portal infrastructure. Community involvement and input can play an important role in finding a deliberate balance of necessary competencies.

The service level presents the educational core of the portal. It addresses all aspects of learning, teaching, administration that a campus intends to capture by electronic means. The service orientation can be both teacher-centred and student-centred according to different teaching and learning models, types of learning content and applications. Hence, such models and different types of education portals, in a gradual implementation process also referred to as different stages of portal implementation, are duals of one another (UNESCO, 2002a).

At the infrastructure level, the technology architecture, the financial endowment and the policy framework delineate the vital environment of education portals. The choice of the appropriate overall technological infrastructure is a make-or-buy decision. On the one hand this depends on resource constraints in terms of in-house development capacity and financial resources. On the other hand, regarding the expediency and the uniqueness of existing file systems and the risk to lock the campus into a single proprietary vendor, the decision must be based on clear requirements on flexibility and adaptability of purchased solutions and legacy systems (Looney & Lyman, 2000). Efficiently, an education portal implementation must consider all requirements at the infrastructure level in order to assure its accurate, long-term operation (Gleason, 2001).

## STRATEGIC SPACE OF EDUCATION PORTALS

Looking at the factors classified by Oblinger and Kidwell (2000), the prerequisites for a successful education portal implementation and the global portal environment of campus-specific variables may very well differ from institution to institution and may shape the educational opportunities of portals in very different ways. Whereas, governance and infrastructure appear to play more of a role as determinants of the institutional environment in which a portal strategy is embedded. Thus, the greatest source of strategic development opportunities of education portals is the service level.

The focus on services realigns the discussion of education portal strategies to the core of education portals - open and distance learning (ODL). Katz (2000, 2002) specifies four dimensions that capture the strategically most significant aspects in this field: teaching, learning, communication and interaction.

## TEACHING AND LEARNING

*Teaching* and *learning* are best thought of as interconnected and interrelated. However, the subject falls into two dimensions when it is regarded in the context of portal strategies and concrete strategic decisions on the design of e-learning systems (ELS), organizational and processes-related issues. The primary interest here is how far and how consistent a campus intends the portal to support and enhance teaching, learning and related administrative processes (Oblinger, 2001).

The distinct dimensions differentiate the common terms *e-learning* and ODL towards a strategically meaningful view, and put the ELS concept in the focus of education portal strategies. This is key to create a beneficial learning environment with a positive impact on both effectiveness and efficiency of the teaching and learning process. Whereas, effect refers to qualitative educational objectives on certain competencies or knowledge. Efficiency relates to the time or effort needed to achieve this objective. The wide ELS spectrum can roughly be divided into the areas learning management systems (LMS) to administrate learning and teaching processes, and learning content systems (LCS) to provide adequate support in the acquisition of knowledge or competencies (Becker & Knackstedt, 2004).

Courses and curricula define the educational profile of a campus as well as a portal. Therefore, content development and the implementation of appropriate applications to deliver this content are crucial issues in LCS. Comprehensive, well designed resources may stimulate students' self-directed learning. Whereas, to achieve an optimal online resource pool it is essential to recognize that existing conventional content cannot be transferred directly into technology supported courses (UNESCO, 2002b). Therefore, the quality, scale and scope of the portal resources is at least to some extent a question of the design and development capabilities of teachers who are often considered as the content producers (Alpar, Grob, Weimann & Winter, 2002). Another important aspect of ELS relates to the administrative support of students and teachers. LMS may replace formerly separate staff functions so that teachers or students themselves can perform administrative tasks with little effort and parts of the original campus administration become obsolete (Hawkins, Rudy & Nicolich, 2005).

## COMMUNICATION AND INTERACTION

Education portals provide an enhanced platform for communication and interaction as facilitators and enablers for teaching and learning processes (Oblinger, 2001). Both areas represent target dimensions of portal strategies.

A central principle of learning, *communication* in an education portal environment involves teachers, students and supporting administrative staff. The portal can provide its users with easier access to information as well as with information that is more relevant to them. In so doing, it manages the application framework which distributes information resources in multiple forms and media. Such resources can be communicated either synchronously or asynchronously, pushed by broadcasting or accessed on demand. As these applications change, so the quality and nature of the resources and the impetus on the learning process will change (Pickett & Hamre, 2002). Thus, the sophistication of communication channels of a portal controls the quality of the information, and the resource flow and exchange.

Another key principle of learning, the emphasize of *interaction* underlines that in the education portal concept learning is not just about covering content, and it is not technology alone. The purpose of technology is to effectively support good pedagogy (Dede, 2005). Interaction means connected, collaborative generation of knowledge and acquisition of skills between students and teachers and among students and students (Oblinger, 2001).

The education portal creates an interaction space, on the one hand, for larger numbers of students to share a common learning experience, or on the other, to enable an individual student to have a unique, personal interaction with a teacher or with another student, no matter where located. More importantly, these learning experiences can be of much higher quality than they would be possible without an advanced, virtual communication and interaction platform (Collins, 2003).

## INTERDEPENDENCIES

While learning content is the central resource, applications supporting communication and interaction in practices, experimentation, simulation and project work facilitate the transfer of content into knowledge and capabilities. A portal may cover a broad range of corresponding features that all imply different levels of sophistication of the ELS which embeds the entire teaching and learning process and related administrative activities. Furthermore, as teaching and learning techniques will change along with more interactive, self-directed approaches of student involvement in the education process, so the fundamental roles and the relationship of teachers and students will do (Oblinger, 2003).

The connections between these subjects show the way for a strategy concept that must understand all dimensions from teaching and learning to communication and interaction as interdependent aspects of digital education services. The strategic goals along these dimensions must reflect the interdependence.

In a straight forward approach towards more advanced education concepts on ELS, interaction becomes more and more an integral aspect of portal applications and the teaching and learning process. Students will not only benefit from the unified interface to courseware and required information about courses, easier communication with teaching and administrative staff, but also access to communities of interest and community services, and enhanced learning opportunities tailored to specific learning needs and preferences, following an increasingly student-centred view (Oblinger & Oblinger, 2005).

Hence, also ELS features require gradual or continuous adjustments in order to meet educational standards based on learning behaviour, and preferred communication and interaction processes. In this context reference models on such behavioural aspects may be helpful (Becker, Delfmann & Knackstedt, 2004). In terms of curriculum and application development, they may be obtained from integrated just-in-time student assessments and program planning in order to better understand the learning effect of different courseware (Olds, Moskal & Miller, 2005).

Furthermore, a corollary of changing patterns of teaching, learning, communication and interaction, the redefinition of ELS roles in furthering and adapting the education process present a strategic issue in portals since it is based on the three features personalization, customization and standardization, and closely linked to clear and distinct role schemes. The strategy must acknowledge that depending on the focus of the education concept teachers may act as architect, consultant, expert, guide, lecturer, resource, reviewer. A student may be apprentice, builder, listener, mentor, peer teacher, publisher, team member, writer (Oblinger & Oblinger, 2005).

Eventually, the technological opportunities to adapt an ELS to concrete needs according to different principles of learning and role models appear to be unlimited (Dede, 2005). The great opportunities notwithstanding, an education portal strategy will hardly succeed without the consideration of capabilities of both teachers and learners to make use of the technology (UNESCO, 2002a).

## STRATEGIC APPROACHES

The four dimensions teaching, learning, interaction and communication constitute the strategic space in which the education portal strategy pursues objectives, determines the scale and scope of a portal solution, educational services and features. The remaining question is the strategy formation itself.

UNESCO (2002a) identifies four broad approaches through which educational institutions adopt and use information and communication technology (ICT), termed emerging, applying, infusing, and transforming. These categories reflect the specificities of campus environments with different institutional determinants for the adoption process.

On the application of the strategic dimensions outlined above, it is possible to derive a compatible concept of equivalent approaches that all imply a certain strategic posture of education portals. Thus, the approach a campus pursues towards

*Table 1. Generic approaches towards education portal strategy*

| Strategy approach | Emerging | Applying | Infusing | Transforming | |
|---|---|---|---|---|---|
| **Interaction** | | | | strong leadership, clear governance models, ICT is integral to overall curriculum development, web-based learning, interaction spaces | **Virtual campus** — if upon education concept implementation no transformation is needed but rather an ad-hoc concept of an entirely virtual organization and corresponding processes |
| | | | collaborative learning, learning content systems adopted to teaching practice, integration with non-ICT content, increasing student responsibility | | |
| | | Factual knowledge-based learning, learning management systems, learning content systems developed by specialists, content applied in discrete subjects | | | |
| **Communi-cation** | didactic pedagogy, focus on learning management systems, basic communication | | | | |
| **Education concept** | **Teacher-centred** | | | **Student-centred** | |

education portal strategy can be understood as generic. However, the institutional preconditions, technological opportunities and capabilities, and education concepts present the starting point of a campus-adequate strategy.

The *emerging approach* is firmly grounded in traditional, teacher-centred practice. The curriculum reflects an increase in basic communication functionality. This way the campus community develops an awareness of the benefits of portal technology. The vision reflects individual benefits so that interactive pedagogy is rather a minor aspect in the portal concept than a part of an integrated e-learning program. Teaching and learning processes follow conventional didactic patterns.

The *applying approach* replaces offline tasks formerly carried out in the campus administration and in the curriculum through online portal applications. Whereas, the development of applications and features is driven by ICT specialists. Teachers largely dominate the learning environment that is mainly designed for factual and knowledge-based learning. Direct interaction between students and teachers takes still place offline.

The *infusing approach* involves integrating and embedding the curriculum in the portal, and is seen at those campuses that already employ a broad range of computer-based technologies in laboratories, classrooms, and administrative offices. Teachers explore new ways in which the portal can change and optimize their professional practice, and the effectiveness and efficiency of learning processes. Driven by subject specialists the curriculum begins to merge resources with comprehensive ELS functionality. The student focus increases along with the availability of more collaborative applications.

The *transforming approach* is appropriate for campuses that use technology to rethink, modernize and innovate their entire organization. The education portal becomes an integral part of daily personal productivity, teaching and learning practice. The focus of the curriculum is student-centred and integrates a variety of resources in sophisticated applications that support multi-sensory, experiential learning and different preferred learning styles. The ELS incorporates all areas of teaching and learning, and related administrative activities. Collaboration and mentoring concepts play a key role. The governing body demonstrates strong leadership and requires an advanced level of community involvement. Through a consistent transformation, a campus can become a completely virtual education centre.

The international experience shows that the adoption of ICT and the transition of conventional campus environments is usually a gradual process (UNESCO, 2002a). Therefore, the generic approaches can be seen either as a continuum of stages for the implementation of portal technology or as ad-hoc concept to guide a portal strategy in the definition of a deliberate balance of strategic goals in order to leapfrog certain stages. Whereas, necessary resource commitments at the portal service and infrastructure level will increase the greater the step is from an existing institutional framework, its educational objectives and its technological readiness towards a more *virtual campus* approach (UNESCO, 2003).

## CONCLUSIONS

Eventually, it is obvious that the challenge of an education portal strategy is no less than the challenge of bringing a campus into a wave of technology. The generic approaches can assist the delineation of strategic success factors and development priorities for portal development. They provide a framework to further the teaching, learning, communication and interaction capacity of existing portal solutions in systematic way, adapted to the specificities of a campus. Table 1 illustrates the multi-dimensional picture outlined above and its interdependencies.

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