E-learning and the Educational Organizations Structure Reengineering (EOSR)

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***Abstract*- There are many calls for innovative learning methods that utilize advanced technologies. However, we will raise fundamental questions that look deep into the future of the educational organization. Can the educational institute survive without adapting learning technologies? Would the educational institute succeed in adapting new learning technologies without changing its organizational structure and processes? We claim that the answer to both questions is no. Our research will present the need for educational institutes to incorporate learning technologies and focuses on the demand for the educational organization structure reengineering as a basic requirement for the success of incorporating learning technologies. Our study explores the faculty requirements and policies and procedures of educational institutes in the UAE.**

The paper concludes with some discussions on findings from a case study of the need of educational organization structure reengineering as a basic requirement for incorporating learning technologies.

***Index Terms*- Blended learning, E-learning, EOSR, BPR.**

I. INTRODUCTION

Higher institutions need to prepare their students to engage in self directed learning processes because this is what they will have to do after graduation. Most universities in developing countries often been criticized of being slow to take on the technological challenge. Reasons for utilizing technology in learning are:

1- Cost: e-learning costs less than face-to-face learning. Technology-based solutions also tend to be more scalable than labor-intensive ones. One should expect that additional learners could be accommodated at lower cost with technology than with traditional training methods [1].
2- Resources: allows for more variety of resources that learners can tap into
3- Accessibility: electronically developed learning material is more accessible than human instructors or paper based material
4- Flexibility: the accessibility of e-learning is almost always matched with the flexibility of location, time and pace of progress that the learners are comfortable with, often referred to as any time any where learning. Delivery methods: the variety of media used in e-learning allows for the implementation and use of different delivery methods.
5- Independent learning: a major requirement and outcome is the independent learning ability that e-learning demands and enriches the learners with
6- Learnability: the various media and delivery methods allow for better learnability that suites different learners' needs and choice

The above reasons, in summary, aid in the determination of the quality and competitive nature of the educational organization in the market. The times of government based colleges and universities have long gone in the Gulf region and the Middle East in general. In the UAE, there are 4 major government universities/colleges and tens of private ones, especially after the opening of the knowledge village in Dubai. In Jordan private universities are almost double the number of the government ones. This means that the business of education is booming in the region. It is a long known fact that businesses that do not provide quality products and services to their customers and/or cannot compete with others will be driven out of the market. We claim that the same is true in the educational organizations, especially private ones.

Incorporating technology is a must for businesses to provide quality service and compete in the market. However, businesses found that they could not integrate the use of new technologies with the same traditional organizational structure and business processes. Business Process Reengineering (BPR) is a must for a technology driven business. Hence, we stress the need for Educational Organizations Structure Reengineering (EOSR), if those organizations are to be successful in their technology implementation both at the administrative level and more so at the academic delivery level.

A. Terminologies and Concepts

The literature is very rich with electronic learning definitions. We will not attempt to add another definition of our own, rather caught the following definition "*Electronic learning (e-learning) is a term covers a wide set of applications and processes, such as Web-based learning, computer-based learning, virtual classrooms, and digital collaboration. It includes the delivery of content via Internet, intranet/extranet (LAN/WAN), audio- and videotape, satellite broadcast, interactive TV, CD-ROM, and more. And blended learning is learning which combines the above mentioned means and face-to-face approaches*" [2].

Learning organizations are organizations that could adapt learning [3]. Adapting: means adjusting current methods and practices to incorporate new ones. Therefore, and based on our context of embedding technology into learning, educational organizations must reengineer/adjust its processes to be successful in its adoption.

According to Michael Hammer, one of the BPR gurus and founder of the term itself, BPR is "*the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary*

measures of performance, such as cost, quality, service and speed" [4].

Reviewing this definition with the list of reasons for utilizing technology in learning, we can see a tandem in the objectives of technology utilization and BPR. However, and as we will see in section 2, it is not a perfect tandem.

Following is the mapping of the BPR term to our introduced EOSR term where:

B (Business) ➔ EO (Educational Organization)

P (Process) ➔ S (Structure)

R (Reengineering) ➔ R (Reengineering)

Our research will identify the nature and shape in which adapting e-learning would affect the educational organization structure and business process, while taking the higher institutions in the UAE as a case study. Moreover, our claims will be compared and contrasted with the results of a field study in the UAE. The field study will comprise a survey that depicts educators' views on the changes that e-learning brings with it to the organization as well as, the needed changes in policies and procedures of educational organizations' practices to insure the success of e-learning use.

Section 2 covers the technology based organizational reengineering. Section 3 presents the case study and the conclusion and future directions are presented in section 4.

II. TECHNOLOGY BASED ORGANIZATIONAL REENGINEERING

The effects of technology implementation in non educational organizations starting from the PC, office package to the network and extending to the ERP solution, resulted in major reforms and restructuring of these organizations:

1- HR: recruitment and training policies or personal development are among the Human Resources issues that need major reengineering when applying new technologies in the work place.

2- Organizational chart and structure: The implementation of technology has led to major organizational restructuring from the Hierarchical to the Flat and more recently the network structure. The network structure emphasizes the concept of outsourcing the best people or firms to perform a given job due to cost, experience, etc. Outsourcing is a global issue that can not be ignored. It was a major issue in the 2004 American elections for reshaping the American corporate methods and practices in labor allocation. Could we do the same in education using blended learning methodologies by taking advantages of the off sequence of academic calendars between the east and the west? It is another concept of outsourcing which should reflect on quality and cost. To implement outsourcing in the UAE or GCC countries, major restructuring of the labor laws have to take place. This is a restructuring that needs to take place outside the educational organizations, which shows the tight inter-relationship between the different sectors of the society.

3- Business processes and added value: The successes of business process reengineering (BPR) have been well publicized (Hammer, et al, 1993); the failures have been much less publicized [5, 6, 7]. Approximately 70% of BPR projects fail [8] and some believe that figure may be even higher. Several obstacles to BPR have been documented [8, 9, 10, 11] as noted in point 4 below.

The point that we are trying to make is that the views of BPR subscribing to Hammer's definition (see section 1) are too limited because they suggest BPR is about making changes to processes, and that technology plays only an enabling role [12]. To the contrary, the BPR requirements in implementing e-learning depend heavily on the available and used technologies, maintaining standards and the added value. All this is shown in the 7 points listed in section 1, which is more that what Hammer's definition points out.

4- Obstacles of applying IT:

   a. Unrealistic expectations and techno-hype
   b. Difficulty building and modifying IT-based systems
   c. Difficulty integrating IT-based systems
   d. Organizational Inertia and problems of change
   e. Genuine difficulty anticipating what will happen

The above list [13] summarizes the obstacles that could face organizations when applying information technology. We claim, as this paper will show, that the same obstacles apply to implementing e-learning, especially points a, d and e.

A. Adoption of Technology in Educational Organizations

In this subsection we will highlight fundamental issues as well as critical success factors to implementing e-learning or blended learning. These issues and factors are essential when implementing the EOSR in general and in the UAE educational environment in particular.

A well spoken information strategy that supports institutional decision making is essential. Hence, a college wide information technology strategy should address the following issues:

1- The rationale for a campus wide network for voice, data, video and image transmission, which links to regional, national and international networks, must be addressed by the educational institute

2- The institutional position on standards

3- The manner in which academic access to information will be addressed

4- Policies that address privacy, security, intellectual property rights, and so forth

Yet another strategic goal in the UAE and in the Higher Colleges of Education (HCT) (www.hct.ac.ae) in specific is the transformation into a learning organization utilizing available technologies. The following factors are critical to the successful transformation of campuses into learning organizations:

   a. Creating a vision of the future, identifying a focused limited mission
   b. Auditing and restructuring budget allocations consistent with focused mission
   c. Auditing and restructuring administrative and student services systems to support major themes and reduce costs [14]

d. Auditing and restructuring curriculum to reduce and focus curricular offerings to support major themes.
e. Integrate technology in a manner that enhances student learning and reduces faculty workload
f. Integrate and recognize student work from all sources
g. Emphasize programs and systems that enhance student success and student learning
h. Restructure educational delivery system: courses, credit hours, and academic calendar
i. Create an organizational structure that will enable the institution to become a learning organization
j. Make a commitment to examine, reorient, and redesign all policies, procedures, and position descriptions to emphasize outcome
k. Develop new metrics for measuring quality, accounting, and performance.

Our case study, which focuses on faculty requirements and policies and procedures, emphasizes the (b, c, e, i, j and k) subset of the above list of critical factors. This emphasis does not mean to discredit or devalue the importance of the other points in the list. It is simply recognizing that we can not cover all the points in this study.

III. CASE STUDY

We have conducted a survey to understand the needs of educational institutes to incorporate learning technologies in their environment and to focus on the demand for educational organization structure reengineering. Four stakeholders have been identified in the implementation of blended learning in the higher institutions in the UAE. These stakeholders are students, faculty, administrators, and Ministry of Education in the UAE. This study explores only faculty and administrators stakeholders at both public high schools, and higher institutions.

A. Survey Setup

Combinations of four surveys were designed. These surveys were driven by the stakeholders addressed in this study namely administrators and faculty of both high schools and higher institutions. Evaluation questions were classified based on the goals and objectives of the study (Section 3.2).

The high school surveys were distributed to administrators and faculty in Abu Dhabi-UAE. Both surveys were paper based and the distribution sample was 7 administration staff, 27 faculty- teaching different subjects- and 17 IT teachers.

The higher education surveys were distributed at the Higher Colleges of Technology and Zayed University (ZU) (www.zu.ac.ae) in the UAE. The survey was distributed using "Survey Share" online tool to 34 faculty members and 10 academic supervisors and other line managers.

B. Goals and Objectives of the Survey

Generally, when it comes to restructure educational institutions, we need to consider some areas that need to be re-engineered in order to adopt e-learning/blended learning systems. These areas are faculty requirements, students' requirements, policy and procedures, technology requirements and curriculum.

In our case study, the conducted questionnaires were intended to explore the faculty requirements, and policies and procedures. The aim is to test the willingness and readiness of the management and faculty to consider the change that is needed when we re-engineer education in high schools, and higher institutions.

The main goals and objectives for the high schools questionnaire were to:

- Check the current recruitment policy and procedures and whether they might agree on the changes that they might need when considering re-engineering
- Check if changes are to be made to faculties' workload, schedule and allocating time for training
- Check faculty current reliance on technology (preparation, delivering lessons)

The main goals and objectives of the higher institutions questionnaires were to:

- Measure faculty, academic supervisors and college management satisfaction of new concepts related to blended learning
- Review responses to transformations whilst setting up blended learning as part of a blended learning environment .

C. Survey Findings

Findings are reported on the different goals and sub goals identified by the stakeholders in the development and delivery of online and blended learning in high schools, colleges and universities in the UAE.

a. High School Results and Analysis

The Administration survey consisted of five categories:

- General knowledge of e-learning
- Teachers' recruitment
- Changing teachers time table
- Changing attendance policy
- Allocating time for teachers' development

The Faculty survey consisted of six categories:

- General knowledge of e-learning
- Teachers' current workload
- Teachers' schedule
- Teachers' access
- Teachers attendance
- Allocating time for teachers' development

Administration Survey Results

The survey showed that schools administrators are aware of the importance of e-learning (86%). However, only 14%of the administrators indicated that they reviewed applicants IT skills of the faculty when they first recruited in other discipline than IT. The most preferred way to hold interviews is face to face at the management own premises (86%). All surveyed administrators think that face to face and time management skills are the most important factors when they recruit faculty to schools that adapt e-learning technologies.

71% of the surveyed administrators said they would consider giving release time to faculty interested to develop/use blended learning courses, and are willing to allocate time for faculty development during working hours.

Around 71% of management thinks faculty attendance policy should be flexible when adopting blended learning.

Faculty Survey Results

Although 93% of the faculty with no IT background is aware of the importance of e-learning, only 78% indicated that they are currently using IT technology in their courses. Naturally, all surveyed faculty with IT background said they have a good idea about e-learning, and they use technology in their courses.

As for the workload when applying blended learning, nearly half (52%) of the faculty indicated that this may imply more work to be done!

The importance of accessing school recourses from home was recognized by most of the faculty who teaches blended courses (94%). Furthermore, 81% of non IT faculty members would like to access school recourses from home.

In order for faculty to develop/use blended courses, training is required. 74% of faculties do not mind attending training workshops for this purpose.

71% of both IT, and non IT teachers think they should have flexible working hours when adopting blended courses. The even don't mind working on shift basis.

Analysis

Generally, school management has the tendency to experiment blended learning, and to consider faculty workload and training requirements. However, school management is more comfortable with the traditional recruitment procedures. Changes of recruitment policies will be very difficult and may face some resistance (point 4.d in section 2).

Faculty members have awareness of the new technologies and are developing/using some of their courses. There is a need, however, for continuous training.

b. Colleges and Universities Results and Analysis

We have used slightly modified questionnaires for both administrators and faculty stakeholders. However, both surveys consisted of the following four categories:

- Policies
- Faculty workload
- Training and recruitment
- Equipments and access frequency

Administration Survey Results

70% of management agrees that college policies should change according to the change in adapted technologies. Majority of administrators (90%) indicated that training policies should change when adopting blended learning solutions. 80% of them think that college recruitment policies should change when adopting blended learning technologies (i.e. computer skills and/or previous experiences in e-learning should be one of the major criteria in the selection process).

Management (90%) is aware of the fact that developing blended learning material requires release time for faculty. They are also aware of what it takes to develop courses (70% indicated that faculty will be in need to access college IT recourses from home).

Faculty Survey Results

Around 76% of faculty agrees that college policies should change according to the change in adopted technologies, and their workload would be reduced.

Although the majority of faculty (95%) said they find it easy to use online technology for teaching , and indicated that they have the required skills to run blended learning course, around 58% said they will be in need to take intensive training before using this technology!

In order for faculty to run a blended learning course, 70% of them think they would be in need to access college IT resources from home.

Analysis

Developing blended learning courses requires long time of preparation and commitment. Once prepared, it is easy to follow. One needs to understand student's need before having to use technology in learning.

The need for training is the most key word noticed in the faculty comments section. Some expert faculty members in developing and using blended courses put it this way:

"Use it in high level courses when students will be more mature, can work independently, and are disciplined and motivated to work"

"Let the online course be driven by pedagogical needs, rather than by technology pilot and evaluate courses"

c. Recommendations

Below are recommendations that came up from the survey findings:

Policies

- Carrying out blended learning requires institutions leadership to re-examine institution vision and mission.
- First determine which of the learning outcomes and administrative processes can be enhanced by online technology.
- Study student and faculty needs.
- Let the online courses be driven by educational needs, rather than by the technology pilot and evaluate courses accordingly.
- Re-evaluate current courses and develop new course outlines for the courses that will consider the use of online technology.
- Re-examine recruitment and training policies and procedures to fit the new changes

Faculty workload and teaching efficiency

- Faculty instructional time need to be purchased for the support of developing new learning technologies.
- When implementing blended learning give faculty release time to prepare and run the courses.
- Face to face contact with students is a great asset. Therefore, the balance should be made of when and how to use the blended learning.

Training and recruitment

- Recruitment policies and procedures should change when adopting blended learning.
- State of the art technologies should not replace faculty in class rooms, but it should help them enhance their lessons delivery.
- To adapt new learning technologies, institutions should place a strong emphasis on the training and skill development of faculty, as well as technical staff.

IV. CONCLUSION AND FUTURE DIRECTIONS

The challenges and obstacles of applying IT in education proposed by several researchers should be handled by developing new curricula in which the process of learning is self directed and open. Curricula should be developed according to students' prerequisites and preferences, and not on existing resources. Hence, Educational Organization Structure Reengineering (EOSR) is crucial. We argue that re-engineering requires strategic planning for many academic and administrative issues and should be addressed on senior management levels.

Re-engineering requires "broad vision" and thinking big, devoted commitment and absolute devotion to the accomplishment of organizational mission from everyone in the organization chart. Indeed the idea of creating a learning organization with empowered people striving for creativity and innovation fits higher education setting.

The results of our case study reassured our claims that educational organization should take advantage and adopt learning technologies. However, an EOSR should also be implemented wisely.

This paper has only focused on recruitment and training policies and procedures and faculty requirements from which the surveyed people are not in a decision making position. Furthermore, future research directions should be conducted on schools and colleges readiness in three more areas such as technology requirements, student requirements and curriculum redesign.

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