Better Learning achieved using Online e-Portals in Pakistan

Aysha KHALIL
Allama Iqbal Open University, Pakistan
aysha.phd@gmail.com

ABSTRACT :

Recent advancements in technologies offer new ways to engage learners in a significant and incredible way of learning through participation and sharing content and knowledge. Web-based online portals, called e-portals, are applications which present high interactivity and rich content amongst learners, enabling them to organize and coordinate their knowledge and learning activities to improve learning. E-portals are dynamic and collaborative learning environments, which provide personalized learning allowing the learners to collaborate and participate in learning activities by sharing information and generating knowledge. It is possible for learners to create and publish their own material along with searching and retrieving the available material, data or information through the e-portals. This paper presents an experimental research study, conducted to measure the influence of e-portals in the enhancement of learning at higher education level. The author presents data from the research which describe how students of higher education used e-portal, a learning content management system (moodle), by forming interactive and collaborative learning environments for enriched learning. An experiment was conducted in which an e-portal was used as a medium of learning. Students in higher education, registered on the e-portal as an experimental group, were taught the content placed on the e-portal. Findings indicated that the achieved learning of the students was highly enhanced by using the e-portal as the medium of their learning. There was a significant difference in the learning level of students using the e-portal technology, compared to a control group studying in the traditional lecture method. The present research confirms that e-portals in practice can enrich and improve the learning level of the students.

1. INTRODUCTION :

With swift development of information and communication technology, particularly web technologies and applications, e-learning is considerably acknowledged in education. Higher education institutions have adhered to practice the advanced web technologies, international standards and emerging technological trends to facilitate learning in order to provide world class education to the learners. Universal web 2.0 tools for learning such as blogs, wikis, video sharing systems, discussion and chat forums, podcasting, social bookmarking, social networks, asynchronous and synchronous communication tools have proven their boosted effectiveness and significance in learning in higher education. E-learning 2.0 has become extremely popular in higher education by its specific features of personalized learning, knowledge sharing, collaborative learning environments, and learning through interaction with peers, facilitators, and the wider society.

Currently, more sophisticated e-learning systems called Learning Management Systems (LMS) upheld by Computer Supported Collaborative Learning (CSCL)

are more innovative systems with a variety of integrated tools to encourage more effective and valuable learning. According to Resta (2007), "LMS should be developed with respect to the learning objectives, educational and pedagogical principles".

The flexible infrastructure of an e-learning LMS allows the creation of e-portals within the LMS. E-portals are developed with in LMS by integrating specific learning tools in order to meet the specific needs of different learning contexts and purposes.

E-portals specify an entry point for retrieving information on a single platform. Knowledge is imparted through the gateway of e-portals that support two ways sharing of knowledge and content, creating a collaborative environment for learning.

James (2002) gives a useful metaphor saying that "building an e-portal is like preparing a meal for someone", as an e-portal is an application which associates the web pages together by gathering information from diverse sources and presenting them in a unified way. Learners effectively share information and work together on projects using a common gateway of e-portals. The intuitive and familiar interface enables the learners to personalize their learning and creating strong learning-partnership which the participants of learning communities.

E-portals streamline the administration of all the events conducted within them without disturbing or challenging the management of whole LMS functions.

An e-portal can help students in higher education to ;

• Save time,
• Increase student engagement,
• Facilitate anywhere anytime learning,
• Generate their own knowledge by participating in activities and collaborating with peers and instructors, and
• Connect with their learning community,

as well as
• Streamline administrative tasks (register for classes, report absentees, access required information).

In the same way, many distinguishing functional benefits of e-portals can help the administrators and instructors with ;

• Learners' tracking and reporting,
• Learners' groups management,
• Enhanced management of learning communities,
• Customized messaging with learners, and with
• Facilitating feedback analysis and surveys.

Papazoglou, Traverso, Dustdar & Leymann (2007) have presented a design framework for the development of e-portals in a higher education institution having differentiating features of knowledge management, learning and student management, and e-portal technical overall management, shown in Figure 1 here.

The e-portals integrate basic learning tools and functionality such as various knowledge construction communication resources, online video and audio support, configuration support for learning communities, and integration new components without redeveloping and modifying the software of LMS. Within e-portals, the most important element is the learning community where the processes of learning and instructional guidance take place under specific authority settings and within various roles.

The instructors in the e-portal are responsible for the configuration of the learning community. They are normally recommended to get prior training in how to administer the e-portal framework and how to get a proper understanding of the pedagogical methodologies and educational structure of the e-portal.

Though much has been written about features and usage of e-portals in teaching and learning practices; the area of impact of e-portals in the effective enhancement of learning in higher education in the Pakistani context requires much more research. Therefore, the present study aimed to measure the impact of e-portals on the students' learning through a pre-test and post-test method, after being taught through using an e-portal.
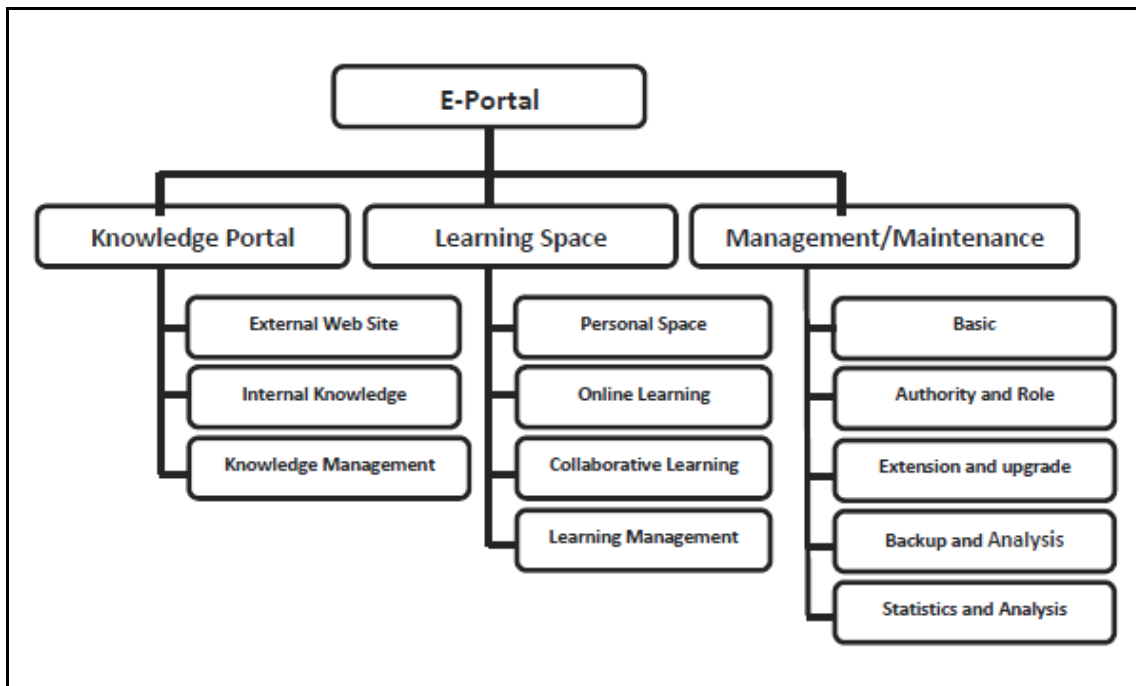
Figure 1 : The e-portal design of Papazoglou, Traverso, Dustdar & Leymann (2007)

2. METHODS :

This research was conducted in order to determine the impact of e-portals on student learning. For answering the research goals, the researcher opted to use an e-portal which was designed on the concept of Web 2.0 technology. The goals relate to the following two hypotheses ;-

H0 : There is no impact on the learning level of students being facilitated by studying using the e-portal, and

H1 : The learning level of students was significantly enhanced being facilitated by sudying using the e-portal.

The population of the study consisted of all 260 students in the MA Education course at the University of Education, Lahore. The experimental group sample consisted of 24 students, selected through stratified sampling on the basis of use of Web 2.0 Technology on a regular basis. The control group sample consisted of 24 students from the identified population selected through random sampling.

The research instrument was an MCQ test designed on the subject of "Educational Measurement and Evaluation", which consisted of 32 items. This test was utilized for the pre-test and the post-test on both the experimental group and control group.

The control group was being treated with the conventional pedagogical methodology of classroom lectures.

As treatment on experimental group, the researcher applied e-portal as learning tool, where the instructor could place the lesson notes and learning material on daily basis. The students were given an access to share their learning on the pedagogical analogy. For this purpose, 24 participants were registered in the online course "Educational Measurement and Evaluation (EME)", in 14 sessions for continuous 2 weeks i.e. one session each day, was offered on the e-portal for experimental purpose. The e-portal was used as an interface between instructor and the participants. After every session, the participants generated an interactive discussion being facilitated as discussion forum. Participants on the course shared their own comments on various daily

topics through discussion forum, chats and even emails. Sometimes they put queries in order to understand the topic more clearly.

After the completion of the 2-week experiment, the same MCQ test was again administered as the post-test, on both the control group and the experimental group. The purpose of the post-test was to determine any change in the learning level of those students being taught the course using the e-portal and those taught by the conventional lecture method. All the participants of the experimental group attempted the test online, as the researcher had uploaded the test on the e-portal. Quantitative data were collected using the results of the pre-tests and post-tests of both groups and analysed.

Data were analyzed using IBM SPSS 19. Data were interpreted in the form of tables using the t-test for comparison purposes. The first comparison was made between the pre-test and post-test results of the control group. The second t-test was then applied to compare the results of the pre-test and post-test of the experimental group - in order to determine whether or not learning was enhanced by using e-portal.

Table 1 shows the mean values of minimum and maximum scores obtained by both groups. It reveals that there is a significant quantitative difference between control group and experimental group results.

Table 2 next shows that there is no significance difference between the mean scores of pre-test of both, control and experimental group. This satisfies the condition of the experiment that both groups taken for the study are the same.

Table 3 shows that the difference between the means of both groups (control and experimental) is non-significant, i.e. the results of pre-test of control group and experimental group are same. This result also satisfied the condition of experimental design that there is no difference between both samples.

Table 1 : Descriptive Statistics for Pre-Test and Post-Test on each Group

Test	n	min score	max score	mean	s.d.
Pre-Test on Control	24	10.00	22.00	16.50	2.87
Post-Test on Control	24	12.00	26.00	18.88	3.19
Pre-Test on Experimental	24	8.00	23.00	17.33	3.59
Post-Test on Experimental	24	18.00	30.00	23.33	2.97

Table 2 : Comparison of Pre-Test Scores between the Groups

Group	n	mean	s.d.	s.e.
Control	24	16.50	2.874	.587
Experimental	24	17.33	3.595	.734

Table 3 : Independent Sample T-Test between the Pre-Test Scores

Equal Variances	F	sig	t	df	sig 2-tail	m diff	s.e diff	95% conf int lower	higher
Assumed	.356	.554	-.887	46.00	.380	-.833	.940	-2.725	1.058
Not Assumed			-.887	43.87	.380	-.833	.940	-2.727	1.060

Table 4 shows that there was a significance difference between the mean scores on post-test results between the two groups.

Table 5 then shows that there was a significant difference in the post-test results between the control group and the experimental group.

Table 6 shows the difference between the pre-test and the post-test scores through tradition lecture method - indicating that the teaching provided had an effect on the learning level of the students, as the post-test score of the control group was improved.

Table 7 shows the respective difference between the pre-test and the post-test scores through using the e-portal - indicating that the e-portal provided had a significance impact on the learning level of the students, as the post-test score of the experimental group was highly improved.

Table 4 : Comparison of Post-Test Scores between the Groups

Group	n	mean	s.d.	s.e.
Control	24	18.88	3.194	.652
Experimental	24	23.33	2.973	.607

Table 5 : Independent Sample T-Test between the Post-Test Scores

Equal Variances	F	sig	t	df	sig 2-tail	m diff	s.e diff	95% conf int lower	higher
Assumed	.000	.985	-6.128	46.00	.000	-5.458	.891	-7.251	-3.665
Not Assumed			-6.128	45.77	.000	-5.458	.891	-7.252	-3.665

Table 6 : Paired Sample Statistics on the Control Group

Control Group	n	mean	s.d.	s.e.
Pre-Test	24	16.500	2.874	.587
Post-Test	24	18.875	3.194	.652

Table 7 : Paired Sample Statistics on the Experimental Group

Control Group	n	mean	s.d.	s.e.
Pre-Test	24	17.333	3.595	.734
Post-Test	24	23.333	2.973	.607

The paired sample t-test was applied on the pre-test and post-test scores in the control group. Table 8 shows the significant difference between the pre-test scores and the post-test scores in the control group. This means that the learning level of the students in the control group was enhanced when they were taught through the traditional lecture method in the classroom.

The paired sample t-test was applied on the pre-test and post-test scores in the experimental group. Table 9 shows a highly significant difference between the pre-test scores and the post-test scores from the students taught using the e-portal in the experimental group.

Comparing the data in Table 8 with those data in Table 9 shows the significance in each of the experimental and control groups through the pre-test and post-test scores of both. A paired sample t-test was applied on both pairs.

The control group t-value was found to be -7.351, and the experimental group t-value was found to be -7.212, both at $\alpha = 0.05$. The calculated p-value was 0.000 which was less than the value of $\alpha = 0.05$. As $0.000 < 0.05$, these findings are significant to reject the null hypothesis H0 that there was no impact of using E-portal on students' learning level.

Accordingly it was concluded that there was sufficient difference in the learning level of the students in the experiment group between before and after studying using the e-portal. In other words, the learning level of the students was greatly enhanced through using the e-portal.

Table 8 : Paired T-Test between Pre-Test and Post-Test in the Control Group

Pair		mean	s.d.	s.e	t	df	sig	95% conf int lower higher	
Pre-Test & Post-Test		-2.375	1.583	.323	-7.351	23	0.000	-3.043	-1.707

Table 9 : Paired T-Test between Pre-Test and Post-Test in the Experimental Group

Pair		mean	s.d.	s.e	t	df	sig	95% conf int lower higher	
Pre-Test & Post-Test		-7.000	7.549	.971	-7.212	23	.000	-9.008	-9.922

4. CONCLUSION :

The e-portal helped the students in higher education to collaborate, interrelate and share information online. Searching and retrieving available learning material through e-portals is now possible. For personalizing and contextualizing the leaning using e-portals, some particular opportunities are now being provided. Such user-centered approaches are important, not least because of the affective and motivational benefits derived from the ability to personalize, but also because the process of appropriation by default leads to the learner developing their digital literacy skills. Thus the use of e-portals fosters participatory learning. E-portals refer to the social use of web applications which allows learners to collaborate, to have active participation in content co-creation, to share information online, to participate in activities, and to generate their own knowledge and then share this. Overall the findings from this research study found that e-portals can have a significant benefit for students studying online. The results obtained by the research brought to light that e-portals improve focal dynamics which have a positive impact on the learning of students as the learning level of students was significantly enhanced by their using the e-portal.

REFERENCES :

Gleason, B.W. (2002), Portal technology opportunities, obstacles, and options. In R.N. Katz and Associates (Eds.), *Web portals & higher education*, (pp. 86-108). San Francisco, CA : Jossey-Bass. Retrieved August 10, 2013, from https://net.educause.edu/ir/library/pdf/pub5006j.pdf

Canadian Police (2013). *Customized Learning Portals*. Charlotte Town, Prince Edward Island : Canadian Police Knowledge Network. Retrieved August 10, 2013, from http://www.cpkn.ca/sites/default/files/Portal_Factsheet.pdf

Coombs, M. (2010). *Portals basics : A primer for higher education*. Collegiate Project Services. Columbia, SC : Cornelius & Associates. Retrieved August 10, 2013, from http://www.collegiateproject.com/articles/An%20Overview%20of%20Portals.pdf

Downes, S. (2005). E-Learning 2.0. *eLearn Magazine, October 16*. Retrieved August 10, 2013, from http://www.downes.ca/post/31741

Lengel, J.G. (2001). *The web wizard's guide to web design*. Upper Saddle River, NJ : Prentice Hall.

LearnShare (2013). *Learning management : Manage learning the way you want to*. Learnshare online. Retrieved August 10, 2013, from https://www.learnshare.com/v3/learning_management.asp

Papazoglou, M.P. Traverso, P., Dustdar , S., & Leymann, F. (2007). Service-Oriented Computing : State of the Art and Research Challenges. *IEEE Computer Society, 11*, 38-45. Retrieved August 10, 2013, from http://www.computer.org/csdl/mags/co/2007/11/mco2007110038-abs.html

Nag, A. (2005) *Moodle : An open source learning management system*. AdityaNag.com Website. Retrieved August 10, 2013, from https://www.adityanag.com/articles/moodle-an-open-source-learning-management-system/

Resta, P., & Laferrière, T. (2007). Technology in Support of Collaborative Learning. *Educultional Psychology Review, 19,* 65-83. Retrieved August 10, 2013, from http://e-portfoliocampa.pbworks.com/w/file/fetch/44949095/resta_2007.pdf

Aysha KHALIL is studying in the Faculty of Education at the Allama Iqbal Open University, Sector H-8, Islamabad 44000, Pakistan. http://www.aiou.edu.pk email aysha.phd@gmail.com