

# The Lecturer's Interpretations on the Application of E-Learning Platform in Architectural Edification

Shamitha Pathiratne

Head of Special Projects,  
ESOFT Computer Studies (Pvt) Ltd., Colombo.  
Samitha8@yahoo.com

## Abstract

The design studio is the core of Architectural inculcation where – face to face – convivial interaction, negotiations and communications transpire between Lecturer's and students. These communications are essential for development of the design concept and initiation of student's innovation. At the ESOFT Engineering College, a zealous e-Learning platform plan was initiated in 2011 and the system was gradually installed during the year 2012. The faculty have been inspired to utilize it and integrate it with their traditional edifying system. However, the utilization of e-Learning platform was assessed by the e-learning deanship and it found that the system is of little use by the faculty of college of Architecture. So, a pilot study followed by a questionnaire survey was launched in early 2013 and it targeted the faculty of college of architecture and orchestrating. The aim is to ascertain why the faculty are reluctant to utilize the system and the utilization's obstacles. The survey's results showed that the faculty appreciated the qualities of the e-Learning platform. However, they felt that the e-Learning platform has not been tailored to respond to the requisites of architectural edification. They verbalized that it can be utilized, to a certain extent, for theoretical courses but it would not be salutary for design studio courses. This paper discusses that potential scarcities of the system should be dealt with; otherwise, the present e-Learning platform, as it is, will not respond to the architectural edification's requirements and would have negative influence on architectural edification.

**Keywords:** e-Learning platform, architectural edification, virtual learning environment, virtual design studio

## Introduction

The design studio is the core of architectural edification. Through the design studio, students learn how to gain ingenious skills and engender innovative solutions and this would be considered as the authentic value of design studio's edification.

This would avail them when they commence practicing architecture, to apply their ingenious quandary-solving skills to authentic life design quandaries and engender ingenious design solutions. On the other hand, e-learning implements such as Blackboard avail Lecturer's to manage virtual classes and communicate with students out of the class hours.

It is however, noted that architectural Lecturers are unenthusiastic to employ e-learning implements and they stick to the outmoded face-to-face edifying methodology and implements.

The aim of the present research is to find out the motives behind the negligence of e-learning tools and the negative attitude of the faculty towards this emerging technology, and how to encourage Lecturer's to accept and implement these e-learning tools in the architectural edification.

### **Characteristics of the Architectural Edification**

Architectural curriculum consists of a number of theoretical, lab and design studio courses. For example, most of the colleges of Architecture in the Sri Lanka, have ten design studio courses (i.e. Design I to Design X) at undergraduate level.

These courses are the core of architectural edification. The architectural curriculum is predicated on the design studio model which fixates on "learning by doing". The architectural design studio offers a prime example of a collaborative, multi-sensory, learner-centered, constructivist, experiential quandary-predicated edifying environment (Sidawi, 2012a; 2012b). Learning about how to do architecture and how to 'think' architecture requires a great deal of cognitive processing, the manipulation of phrenic images, understanding of involute cause and effect relationships, functional, technical, performance, aesthetic, cultural and physical aspects (Juvancic, Mullins, Zupancic, 2012).

Visuospatial cerebrating theories are especially suited for the purport of learning in and about architecture which both rely heavily on the notion that cerebrating consists of phrenic images and principled manipulation of phrenic images (Mayer, 2005) on the premise that: "a) opportune visuospatial cerebrating during learning can enhance the learner's understanding, and b) multimedia presentation can be designed to prime felicitous visuospatial cerebrating during learning" (Mayer, 2005). The edification in the design studio stimulates its' characteristics from the nature and process of architectural design. The development of architectural project from initial concept to the terminus product is an interactive gregarious and psychological process.

Through the design process, the designer negotiates sundry solutions of the design quandary with oneself and communicates conceptions with colleagues and Lecturer's (Sidawi, 2012a; 2012b). This would avail in exploring incipient solutions thus it would lead to the revelation of ingenious solutions of a design quandary.

### **The Use of e-learning Systems in Architectural Edification**

There are a number of e-Learning platforms employed in higher education. Blackboard is a Learning Management System that supports online learning and teaching. Blackboard provides an integrated environment for the learners to interact by using course. Blackboard forms the core of the Virtual Learning Environment (VLE).

It integrates sundry components of the VLE, such as BB Mobile, Elluminate, Tegrity and Elicitus to each other and it additionally integrates the VLE to the university systems such as the library systems, university portal and student information system. Oracle's PeopleSoft is utilized for student administration and it is a feature-affluent student information system. Architectural students and faculty conventionally utilize the University

email and convivial communication channels such as Facebook, Academia and Twitter for communications.

The utilization of e-learning pedagogies and methodologies is an area that is rapidly becoming core to many edifying and learning institutions worldwide such as Bartlett School of Architecture, UCL (BSA, 2012) and Welsh School of Architecture, Cardiff University (WSA, 2013), in the effort to enhance their edifying provision and meet current professional demands.

Juvancic et al. (2012) highlighted a number of e-learning platforms or what soi-disant Learning Management Systems (LMS). These systems share prevalent aspects and elements that are opportune for a cross-section of prevalent e-learning activities and implements for running and managing (coalesced) courses. Moodle, for example, can be applied to many levels of teaching and used for different topics and in different settings (ibid). Another e-Learning platform is VIPA which addresses many relevant issues of e-learning in architecture, using traditional LMS e-learning tools and integrating new ones (Kipcak, 2007).

Mizban and Roberts (2008) reviewed the use of e-Learning platform in schools of architecture, UK, and its implication on architectural edification. They highlighted that schools of Architecture could benefit from the use of e-Learning platform if they do the followings:

- Provide professional advanced technical support for both staff and students;
- Select opportune technology;
- Investigate how technology can best be integrated into the traditional studio setting and the curriculum; and
- Assess the time and effort compulsory to introduce and maintain this mode of cognition.

On the other hand, virtual Environments can fortify edifying in a single studio within an institution and assemble students from several institutions (Reffat, 2005a; 2003). Virtual Environments present an essential learning for practice of the future, exploiting technology in design edifying, researching the nature of design communication and processes, and probing for ways to ameliorate the inculcative experience of a student (Kvan, 2001; 2000). The advent of virtual design studio (VDS) appears to raise promising opportunities for reconsidering the way we edify design (Reffat, 2005b).

Pioneering schools of architecture, such as the University of Sydney, Cornell University, ETH, Massachusetts Institute of Technology, the National University of Singapore and the University of British Columbia have experimented the utilization of worldwide virtual design studios. In these studios, students and Lecturer's collaborate on a design project. They discuss design quandaries and endeavor possible solutions. The virtual design studio provides the students with an opportunity to practice their ingenious cerebrating skills by sharing their concepts and conceptions with a broader spectrum of students and instructors from different cultural, edifying, and even philosophical backgrounds (Alraouf, 2006). VDS provides a puissant communication and navigation environment where users can collaboratively design in centralized or distributed authentic-time virtual environments (Reffat, 2005b). Ruschel et al. (2009) highlighted the viability to promote collaborative learning with the fortification

of the electronic learning open source system TIDIA-Ae in distance inculcation courses for competent designers. However, the researchers found this open source system falls short in the fortification of collaborative design. Pinho et al. (2008) withal found that the 3D collaborative environments mostly promote interaction in chat modes whereas cooperative object manipulation is still circumscribed.

Blended learning methodology has been suggested by researchers as it widths over face-to-face (f2f) and e-learning linking them, cumulating learning on site with distant learning underneath the joint name of distributed learning (Mizban & Roberts, 2008). Blended learning with f2f component can engender a more vigorous sense of community among participants than plenary online course, socio-cultural context for learning environment and avails maintain the link with traditional design studio practices in the field of architecture (ibid). So, it can be argued that coalesced learning would enhance design studio courses (Mason & Rennie, 2006). Coalesced learning would be a possible solution as it offers a great deal when used to enhance pedagoga inculcation programs (Al-Nuaimi & Aboukhatwa, 2012). It can assemble students from all locations and a range of backgrounds and can provide a media-affluent, collaborative, personalized and interactive learning environment (ibid).

Previous research showed that university edifying staff has generally positive postures towards integrating technologies into edifying (Panda & Mishra, 2007). Alenezi (2012) reported an overall positive posture toward the adoption of e-learning among faculty members, students, and administrators (visually perceive withal Alajmi, 2010). Pathiratne (2013) conducted a study in Sri Lanka on the attitude of faculty members toward e-learning, it was found that faculty members in Sri Lankan universities have positive perceptions of e-learning. Al-Nuaimi and Aboukhatwa (2012) conducted a survey on university Lecturer's and they inspected the Lecturer's' views on blended learning. The surveyed Lecturer's verbally expressed that coalesced learning can be implemented in the subject of architectural design, meanwhile they were concern about the efficiency of such implementation and they verbalized that they would have an arduousness in edifying architectural design utilizing coalesced learning methodology.

Despite the benefits that the use of e-Leaning platform would provide to students and educators, there is a considerable resistance of faculty including the architectural faculty to the use of eLearning. Recent research has shown limited use of educational technologies in university teaching (Juvancic, Mullins, Zupancic, 2012; Schoonenboom, Roozen, Sligte and Klein, 2004; Selwyn, 2007). Among sundry other concerns, there is a prevalent doubt that e-learning can be as equipollently efficacious as traditional face-to-face architectural studio edifying and culture (Kipcak, 2007).

Such negative postures towards technology would be expounded by the influence of a number of factors such as constraints in national and institutional policies and management practices (Selwyn, 2007). Also, poor Internet infrastructure, and a lack of distance learning edification, as well as lack of fortification are still major barriers (Alenezi, 2012). In the Sri Lanka, recent research on elearning has indicated that despite the importance and usefulness of e-learning, the most apparent inhibiting factors are lack of knowledge and skills (Pathiratne, 2012).

However, the negative postures are not merely influenced by the lack of technological erudition or poor infrastructure but the fact that the university edifying staff are more fixated

on institutional issues and pedagogical applications of technologies, so they would opt to integrate technologies into their edification if and when they optically discern edifying value in doing so (Waycott et al., 2010). Also, it can be referred to the nature of academics' notions about what constitutes good edifying (Foley & Ojeda, 2008). The staff believes that technologies should be optically discerned as an expedient to enhance student learning and manage edifying activities. So, the staff postures towards the utilization of technologies in higher inculcation are substantially influenced by their approach to edifying [ibid]. Abouchedid and Eid (2004) suggested that e-learning postures among faculty members varied significantly depending upon the caliber of perceived usefulness of e-learning technology in promoting job performance.

### **The Research Design and Methodology**

The literature review has highlighted some of the possible reasons about the little utilization of e-learning technology by the university staff and their negative postures towards the emerging technologies. In the annual report for the year 2011-2012, the e-learning deanship, ESOFTEngineering College reported that e-Learning platform is of little use by the faculty of college of Architecture. To ascertain the reasons about the little use, a research study was initiated at the college of Architecture and the research objectives are:

1. To ascertain the caliber of staff's technical cognizance and skills and whether they have utilized any of online edification implements;
2. To ascertain the faculty's views on the potential utilization of online inculcation implements in the architectural edification and categorically architectural design; and
3. To make recommendations.

To attain the research objectives, a survey was propelled. The survey entails of two stages; pilot study and the main survey. The pilot study was firstly conducted. The deployment of pilot study is recommended by many researchers such as (Oppenheim, 1992; Morse, 1991) to define possible quandaries, to establish substrata for the main survey and to formulate the wording of questions of the main survey. A coalescence of research implements is utilized. This cumulation was culled because the findings that relate to each method will be habituated to complement one another and, at the cessation of the study, to enhance theoretical or substantive plenariness (Ausubel, 1968).

The pilot study includes a critical examination of the strategic plan of the e-learning deanship from architectural edification's perspective followed by a discussion on issues concerning eLearning with a number of faculties. In January 2013, the main questionnaire survey has been conducted on the faculty of college of architecture, ESOFTEngineering College. Prior to the initiation of the survey, a verbal consent was obtained from the heads of departments of college of architecture. Lecturers were asked to fill in a short questionnaire and they were apprised that their personal details and the information that they supply will remain confidential and will not be revealed to a third party. Fifty three out of ninety eight have filled in the questionnaire and handed back. This characterizes around 54 % of the total number of faculty. The next section deliberates outcomes of the pilot study and questionnaire survey.

## **The Survey Results**

### **The Pilot Study Results**

An examination of the strategic plan for the implementation of e-Learning platform on the university and colleges' level revealed that there is a desideratum to have a financial, ethical, and administrative/ managerial framework for the whole e-cognition process. Moreover, the eLearning approach did not take into account the prospect of inter-disciplinary, cross-disciplinary, multi-disciplinary edification/ courses among the university's departments and colleges. The strategy did not consider how to provide an e-Learning platform that integrates the professional training and Continuous Professional Development (CPD) with the architectural edification as in the case of the Western Universities (see for instance BSA, 2012 and WSA, 2013). The document suggested that a quantitative quantification of the user's performance (i.e. the student and the tutor) would be applied. However, the quantification of user's performance cannot be achieved by applying quantitative measures only. Furthermore, qualitative/tangible issues should be considered and measured using qualitative assessment measures. The matter is not about the mere satisfaction of students, it is rather about possible problematic issues such as social and psychological issues surrounding the utilization of the e-Learning platform.

Consequently, a number of faculties of college of Architecture's were invited to a meeting to discuss the potentiality of e-Learning platform's use in architectural edification. The meeting revealed the following problematic issues:

### **Strategic Planning and Policy Issues**

No strategic plan has been established hitherto for the employment of the e-Learning platform in the college of Architecture. This should be on the course level i.e. undergraduate or postgraduate assemblage of courses, such as building construction courses or design courses' level. Similarly, this must be on each academic year and department's echelons, and at the college level. The implementation of e-inculcation system will affect the traditional edification system. Therefore, it would be subsidiary to optically discern how to integrate these systems together. Also, the impact of integration on the traditional edifying system should be examined.

### **Infrastructure and Technical Support**

There is a shortage in the infrastructure and technical support so the following issues were noted:

- Classes should be equipped with felicitous cameras, microphones, loudspeakers, special lights and so on. This would enable the staff to engender good e-lectures videos;
- The electronic materials including the videos engendered by staff should be conventionally assessed to optically discern whether they meet the required standard or not;
- As the aim is to provide 24/7 access and utilization of e-inculcation implements, 24/7 technical support should be provided in case of any technical quandary;
- Assessment implements that quantify intangible feedback do not subsist yet; and

- Robust integration is required between the e-learning implements with Microsoft office, other software products, and architectural software products

### The Communication System

Transparency is a must at all levels from the department and the college's levels to the strategic level. The college's staff and coordinators should be frequently apprised about the progress of the e-edification process and development of its implements, requisites, obligations, passwords, tutorials, support staff etc.

### Issues from Student Prospective

The faculty has raised a core question concerning how these systems would develop the student's competence in design courses. Also, the negative posture of some students throughout traditional cognition process and the concern that those students would have the same posture during the elearning process.

### Architecture-wise Systems

It is essential to provide special online Architecture-sagacious systems that is integrated with education system and can be utilized by distant learners. Such system would avail them appreciating certain design parameters and constraints. For example: Eco-spatial interface that enables the learner to optate the spatial settings for the building and cull the greenery around and apply external culminating to the building. Another example is the Virtual environment and Virtual Design Studios' systems and implements.

### The Questionnaire Survey Results

The total number of respondents is 53. The results showed that many of the faculty have tyro experience regarding the utilization of PeopleSoft, Blackboard and the University's online resources. Also they have marginally more preponderant skills in utilizing online communications implements (Table 1).

**Table 1.** The extent of technical experience regarding the utilization of the following online/web implements.

Type of online software/e-tool/e-resource	Novice (%)	Beginner (%)	Competent (%)	Proficient (%)	Expert (%)
Peoplesoft	11	35	37	15	2
Blackboard	33	44	11	8	4
Online Communication tools such as Facebook, LinkedIn, ResearcherGate etc.	2	32	32	25	9
Online intelligent search engine such as Google and Google Scholar	0	10	26	43	21
The ESOFTEngineering College eresources including e-journal and e-books databases	21	24	24	23	8
Online Library catalogue	9	31	33	23	4



Table 2 demonstrates that several of the faculty did not upload the course information on Blackboard yet. Also, they are tentative to provide their courses online in the near future.

**Table 2.** The use of Blackboard for the above issues following online/web implements.

<b>Use of the Blackboard for these issues</b>	<b>Yes</b>	<b>May be</b>	<b>No</b>
Have you uploaded information (e.g. course syllabus, grades, web links assignments etc.) of any of your courses on Blackboard yet?	20	–	33
Do you aim to provide any of your courses online for distant learning purposes?	13	35	5

Table 3 shows that most of the respondents are against edifying design and lab courses online, whereas around a moiety of the respondents are ecstatic to edify theoretical course online. Table 4 shows that 72 % of the respondents dissented that design studio courses can be edified online.

Around a moiety of the respondents dissented that lab or practical courses can be edified online and they verbally expressed online edifying courses will not provide the same quality as the f2f courses (Table 4). Thus these courses will not provide the student with a degree that is somehow equipollent to on campus degree. These respondents withal highlighted the fact that the technical support for online courses is not always available (Table 4).

**Table 3:** Which of your courses/ modules can be taught partially of fully online?

<b>Course title</b>	<b>None</b>	<b>Module 1</b>	<b>Module 2</b>	<b>Module 3</b>	<b>Module 4</b>	<b>Module 5</b>	<b>Some Modules</b>	<b>All Modules</b>
Design courses	38	3	4	3	2	1	2	0
Lab courses	38	2	3	1	4	1	1	3
Theoretical courses	25	9	2	4	1	2	7	3

Two third to three quarters of the respondents thought a strong procedure and bylaws must be developed. Accordingly, rules that contain unblemished vision, mission and objectives, should be set for providing online architectural courses (Table 4). These respondents verbalized that the e-inculcation system is more congruous for theoretical courses and it requires more self-disciplined, independent, and more organized students (Table 4). However, they verbally expressed that a commix-up between the traditional and online edifying is propitious as it would provide students with more avail and support (Table 4).



**Table 4:** The respondents' opinions regarding the below mentioned statements surrounding the use of e-education system at the college of Architecture.

<b>Issues surrounding the use of education tools and implementation of e-courses</b>	<b>Disagree (%)</b>	<b>Neutral (%)</b>	<b>Agree (%)</b>	<b>Mean</b>	<b>Standard Deviation</b>
A mix-up between the traditional and Online teaching would provide students with more help and support	10	14	75	3.9	1.015
Clear vision, mission and objectives should be set for the online curriculum	10	14	75	3.86	1.096
Rules should be set for delivering online architectural courses regarding online communications, culture, methodology and process	8	19	69	3.84	0.976
Online assessment tools can be used to assess the success of online architectural courses	10	11	76	3.84	1.007
Clear policy and bylaws should be developed concerning the implementation of online teaching courses in the architectural edification	8	26	66	3.79	0.988
Online teaching courses require students to be more self-disciplined, independent, and more organized	12	21	65	3.78	1.064
A strategy and clear plan should be set on how to implement and integrate Online teaching courses into the architectural edification	8	31	57	3.72	0.902
E-education system is more suitable for theoretical courses	12	19	69	3.71	1.035
Online courses would provide the remote learners an opportunity for mid- level qualifications	10	23	58	3.7	0.954
Online teaching courses are more convenient and more compatible with students and Lecturer's' lifestyle	25	26	43	3.22	1.055
Resources and tools that support online courses are always available	33	20	43	3.04	1.274
Online teaching courses would suite the way that architecture is traditionally taught	43	37	18	2.62	0.987
Online teaching courses would provide the same quality of f2f courses	53	17	28	2.58	1.144
Technical support for online courses is always available	58	14	23	2.55	1.292
Lab or practical courses can be taught Online	54	28	18	2.4	1.107
Online teaching courses are too complicated for my computer skills	59	28	11	2.38	0.993
Online teaching courses would provide the student with a degree that is somehow equal to on-campus degree	57	23	19	2.37	1.067
Design studio courses can be taught Online	72	19	10	2.02	1.083

To conclude, the respondents acceded that a commix-up between the traditional and online edifying would provide students with more avail and support, meanwhile a strategy and clear plan should be set on how to implement and integrate online edifying courses into the architectural edification and a clear vision, mission and objectives should be set for the online curriculum. Also, online communications, methodology etc. rules should be set, for distributing online architectural courses including the design courses. The respondents dissented that lab, practical or design studio courses can be edified online. They verbalized that online edifying courses will not provide the same quality as traditional face to face courses; and online course degree is not identically tantamount to the on campus degree. They additionally dissented that the online edifying courses would be too intricate for their computer skills.

## **Discussion and Conclusion**

The study revealed a number of problematic issues inhibiting the utilization of e-Leaning platform by the faculty of college of architecture and the possible reasons abaft the negative postures towards the utilization of e-Leaning platform (visually perceive additionally Juvancic, Mullins, Zupancic, 2012; Schoonenboom, Roozen, Sligte and Klein, 2004; Selwyn, 2007).

One of the issues is the impotent infrastructure and technical support. This issue has been highlighted by antecedent researchers such as Alenezi (2012). So robust infrastructure should be implemented and advanced technical support should be provided to the faculty and students. Accordingly, innovative synchronous communication and visualization implements should be designed, concretely for architectural design users (Mizban & Roberts, 2008; Ruschel et al., 2009).

There is unclear and limited strategy and policy concerning the implementation of e-Leaning platform (see also Selwyn, 2007). So a clear strategy and policy should be developed concerning the implementation of online teaching courses in the architectural edification and a clear vision, mission and objectives should be set for the online curriculum. The strategy should consider possible integration between the professional training, the Continuous Professional Development (CPD) schemes and the architectural edification.

Many of the faculty have not used the e-Leaning platform yet, have novice skills and lack of knowledge regarding the use of online educational software and resources such as PeopleSoft and Blackboard (see also Al-Sarrani, 2010). So Lecturer's should be trained not only on how to utilize sundry online e-learning implements for theoretical courses only but withal how to utilize these implements within the traditional design studio's context.

Previous research has pointed out the positive attitudes of the university teaching staff towards the use of e-Leaning platform (Panda & Mishra, 2007; Alenezi, 2012; Alajmi, 2010). However, architecture's Lecturers were concern about the efficiency of implementation of e-Leaning platform (Al-Nuaimi & Aboukhatwa, 2012). This survey revealed that the faculty were against edifying design and lab courses online whereas some of them were ecstatic to edify theoretical courses online. This is because that the faculty did not optically discern an authentic inculcative value in edifying these subjects online (optically discern additionally Waycott et al., 2010; Foley & Ojeda, 2008; Abouchedid & Eid, 2004). They expressed that

the online courses will not be of the same quality of f2f courses. Therefore, they recommend a coalesced courses' approach as it would provide students with more avail and support. Other researchers were also concern about the efficiency and usefulness of the implementation of e-Leaning platform and suggested blended courses (Al-Nuaimi & Aboukhatwa, 2012; Abouchedid & Eid, 2004). It should be noted that the faculty's approach to teaching affects their utilization of e-Leaning platform (Foley & Ojeda, 2008). So, it is crucial to examine how to incorporate their edification approach in the online edifying process. Researchers have highlighted the usefulness of coalesced courses (Mizban & Roberts, 2008). However, prior to the adoption of coalesced courses, a pilot experiment should be carried out to assess the usefulness of coalesced design and theoretical courses in comparison with traditional f2f courses.

The antecedent research identified some technical circumscriptions of the virtual design studios such as the constrained cooperative object manipulation (visually perceive for instance Ruschel et al., 2009; Pinho et al., 2008). Also, there is a quandary in integrating architectural software such as 3D modelling, virtual environment, and visualization and simulation systems with online learning systems. Thus, potential technical problems should be identified and sorted out as possible. Therefore, the future research should inspect how new e-Leaning platforms should be developed to overcome the present shortages and meet architectural edification requirements.

The present survey found that many of the respondents were against online edification of design courses. This can be referred to a number of reasons such as; the faculty's concern of shortages of the ICT infrastructure, impuissant technical cognizance of the faculty particularly of how to orchestrate and run virtual design courses online. The antecedent research found that virtual design studio would offer authentic benefits to Lecturer's and students as it crosses the traditional design studio boundaries, blends the traditional design studio edifying with the virtual design edifying thus would enhance the design studio edifying (Reffat, 2005b; Alraouf, 2006; Bender & Vredevoogd, 2006). So, the benefits of virtual design studio conception and approach should be confirmed to the faculty. Thus, the development of virtual design courses can be debated with the faculty and optically discern how it can be combined into the traditional design studio settings and the curriculum (optically discern additionally Mizban & Roberts, 2008) taking into account how to surmount the present technical, policy, and cognizance-sagacious barriers.

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