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Development of a Web-Based Interior Design Studio (IDS) Quality Pedagogy via Hybrid Blended Learning for the University of Hail

Abubakar Atiku Muslim, Muhammad Saidu Aliero
Department of Electrical and Electronic Engineering,
Abudllahi Fodio University of Science and Technology Aliero

ABSTRACT
Education in every country has witnessed a dramatic transformation during the last 2 years as a result of the COVID-19 Pandemic. In particular, the situation has promoted online learning on an unprecedented scale, with classes being held virtually on digital platforms. This vital transformation was a major challenge in the teaching of certain courses like an interior design studio. As a result of the prevailing issues, an interactive web-based interior design studio (IDS) hybrid blended teaching/learning platform was proposed for development. The application would enable live interactions between lecturer and students during a teaching/learning session of Interior Design Studio (IDS). The objective of this study is to develop an interactive application that allows the lecturer to make live design inputs on interior design images, and save the work that students can download. The application also allows students to submit their IDS assignments and get live remarks, corrections, and input from their lecturer.

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INTRODUCTION

The origins of blended learning pre-date the advent of digital technology. Its genealogy lies in distance learning through correspondence courses (Bryan and Volchenkova, 2016). However, studies have shown that, in the early days of blended learning, the term could mean almost any combination of technologies, pedagogies, and even job tasks (Friesen, 2012). Definitions might cover any instructional technology at all, or restrict themselves to web-based technology; they might not mention technology specifically, but instead, focus on blending different theoretical approaches. Other studies also defined blended learning as the effective combination of different modes of delivery, models of teaching, and styles of learning (Procter, 2019).

According to Chew, Jones, and Turner, 'blended learning involves the combination of two fields of concern: education and educational technology (Chew, 2009). The broad nature of these definitions meant that critics such as Brian and Volchenkova could attack the concept as ill-defined (Bryan and Volchenkova, 2016). Eventually, different understandings began to converge. An influential early definition was that of Graham, who proposed that 'Blended learning systems combine face-to-face instruction with computer-mediated instruction (Hrastinski, 2019). This defines the concept in terms of two modes of course delivery and defines the blend as some combination of two modes. At the time Graham offered this definition, computer-mediated communication was seen as largely asynchronous and text-based. Now that teleconferencing applications are common, Friesen has suggested the need to redefine 'face-to-face' (F2F) as 'co-present'. For Friesen, "Blended learning" designates the range of possibilities presented by combining Internet and digital media with established classroom forms that require the physical co-presence of teacher and students (Friesen, 2012).

The most visible impact of blended and E-learning is on distance education, which has

Corresponding author: Abubakar Atiku Muslim
alatiku@gmail.com
Department of Electrical and Electronic Engineering, Abudllahi Fodio University of Science and Technology Aliero.

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been around for some time and had some limitations. The first and foremost change that E-learning has brought is that it has pulled down all the barriers of time and geography (Atef, 2021). Classic or traditional approaches to teaching and learning normally depend on prepackaged learning materials with specific deadlines and assessment tasks that are defined by teachers (Burns, 2011).

The breed of these tools and technologies encourages us to consider how new modes like "community-based" sharing and content creation might be applied to the traditional or formal learning spaces of colleges and universities. Therefore, it can be said that Blended Learning courses like Interior design studios (IDS) are a combination of online and classroom learning methodology and uses different resources as the new way to improve student learning outcomes (LOs) and to address important institutional issues. Therefore, this study defines Hybrid Blended Learning as an approach that combines E-learning with traditional in-person learning (Hanna, 2019). The study also suggests the use of both blended and e learning as a teaching method during the pandemic era.

Many studies compare the effect on students' learning outcomes generated by respectively F2F teaching and/or blended learning. In Bernard *et al.*, (2014) meta-study of blended learning in higher education, students in blended programs have turned out to achieve slightly better than students following traditional classroom instruction programs. Similar results were found in Northey et al. (2015), Ryan et al. (2016), and Southard, Meddaug, and Harris (2015). What leads to a better learning outcome among students in online and blended learning programs is, however, a question that is not answered in the same way by all the studies mentioned. Bernard et al. (2014) conclude that the element of technology integration in blended learning courses seems to lead to very low, though significant improvement in student achievement particularly when technology yields cognitive support (e.g., simulations) or facilitates student interaction (i.e., with other students, content, and teachers). In Gómez et al. (2016) study it was the adoption of a flipped classroom model of blended learning in a general science course resulted in higher grades among teacher training students when compared with those achieved by students following a traditional classroom setting. Though no specific predictor is mentioned by Israel (2015) or Potter (2015), the former still observe modest positive impacts on students' learning outcomes resulting from the adoption of the blended format, while the latter records grades "significantly higher in the hybrid option than for the traditional face-to-face format".

Despite widespread agreement that the blended learning format produces better learning achievement among students, other studies have shown the exact opposite (Nortvig *et al.*, 2018). In a comparative study by Adams *et al.*, (2015) the overall finding is that university students following a hybrid introductory course in microbiology were less successful than their peers following the same course in a F2F version. Less interaction with the material or a sense of isolation arising from less class attendance is counted among potential reasons for the hybrid students' lower success. Similar findings are mentioned in Powers *et al.*, (2016) of students' performance in respectively hybrid and traditional sections of an introductory psychology course where a significant decrease in exam grades throughout the semester was observed for students in the hybrid section.

A suggested reason for this negative difference in achievement for students following the hybrid program is that these students had to deal with difficult concepts independently and without sufficient explicit F2F teaching. In contrast, another study reaches the opposite conclusion and points to similar circumstances as a way of explaining. A better academic outcome for students in a blended education program is precisely attributed to the opportunities given to them for working independently through participation in student-centered asynchronous collaborative learning activities supported by Web 2.0 media such as Facebook (Jesus *et al.*, 2017). In summary literature studies comparing F2F teaching to online and/or blended learning reveals that no inherent features of any of the three

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alatiku@gmail.com
Department of Electrical and Electronic Engineering, Abudllahi Fodio University of Science and Technology Aliero.

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teaching formats produce either better or poorer learning outcomes for students. Rather, what leads to either is not the format itself, but is circumstantial and context-dependent.

What one study counts as inhibiting students' learning, another finds conducive to it (cf. Powers et al., 2016). Therefore, as Ryan et al. (2016) conclude in their comparative study of community college students in traditional classroom-based and blended courses, blended learning opportunities are carefully designed to capitalize on both technological advances and multidisciplinary knowledge about academic content, as well as learning and instruction. In other words, student learning in online and blended courses appears not to arise from technology alone but from the combined influence of implementation, context, and learner characteristics as these factors interact with technology.

Amid the recent disease outbreaks that have been spreading across the world, the education systems in every country have witnessed a dramatic transformation. In particular, the situation has promoted online learning on an unprecedented scale, with classes being held virtually on digital platforms. This vital transformation was a major challenge in the teaching of certain courses like an interior design studio. Since design studio is an iterative and collaborative sketching session where you alternate between individually sketching ideas, pitching ideas, and critiquing ideas that are mostly and commonly done via face-to-face learning, this posed a big challenge during the pandemic era. It is as a result of these underline issues that a proposed development of a Web-Based Interior Design Studio (IDS) Quality Pedagogy via Hybrid Blended Learning was developed.

METHODOLOGY/MODEL DEVELOPMENT

The Web-Based Interior Design Studio (IDS) comes with all the basic features you would expect to see in a drawing tool. It offers a wonderful selection of basic shapes and features. You can set the properties of the stroke and the fill, group objects, and manage layers by bringing objects to the front or pushing them to the back. You can also add text, play with the arrowheads, draw freehand, and add breakpoints to lines. The app also supports IDS libraries. Several libraries' links were added to the app, by clicking "Browse libraries". You can add features locally and use them in all your drawings. A total of 20 different libraries are available.

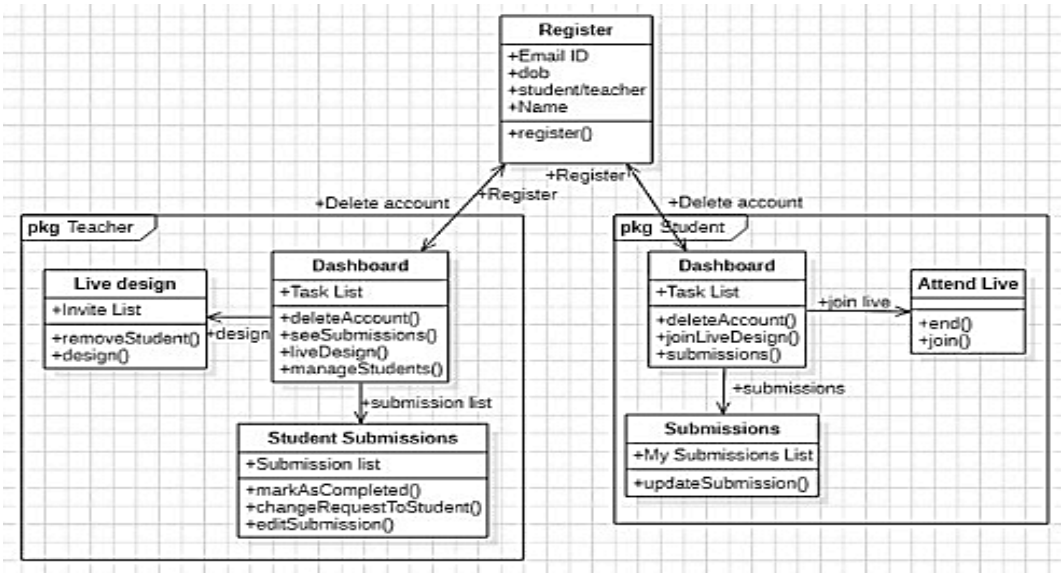

Figure 1.1: Model Structure

Corresponding author: Abubakar Atiku Muslim
alatiku@gmail.com
Department of Electrical and Electronic Engineering, Abudllahi Fodio University of Science and Technology Aliero.

Figure 1.1 represents the model structure of the interior design studio learning and teaching platform. The model comprises 2 portals, the teacher's portal and the student's portal.

DISCUSSION OF MODEL

The teacher's portal was developed and enabled to invite students into class and also display students' submissions. Permission to manage students is only granted on the teacher's portal. While the student's portal shows the students as they are login to the class session. The student portal also has the function of allowing students to present their submissions. It should be noted that this model was developed based on findings from the literature, which indicates there has been little or no reference to existing web-based interior design studio hybrid blended learning and teaching platform and as well students often note that they are adversely affected by the lack of personalized learning and feedback from interior design studio teachers. They feel their individual learning needs are diluted and often lost in large student crowds during studio classes, leading to low student satisfaction that reflects directly on their learning achievements. Hence the need to develop a personalized interactive web-based platform that would take care of personalized learning issues faced by the students, where students' interior design sketches are reviewed directly live on the hybrid system by the teacher. Every student can submit his/her interior design sketch and get live feedback from the studio teacher online via any internet-enabled device.

CONCLUSION

In conclusion, the Web-Based Interior Design Studio (IDS) Quality Pedagogy via Hybrid Blended Learning platform is a very well-written interactive system. It is really easy to work with, to make remarks on students' sketches in a matter of minutes. The availability of real-time collaboration via the platform and the ability of students to upload their drawings and get live feedback from the IDS lecturer and as well download these remarks are some of the main features of the platform. Based on these features, the teaching of IDS can no longer be an issue for online learning, hence a significant improvement in student achievement particularly when technology yields cognitive support (e.g., simulations) or facilitates student interaction (i.e., with other students, content, and teachers) would be achieved greatly.

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alatiku@gmail.com
Department of Electrical and Electronic Engineering, Abudllahi Fodio University of Science and Technology Aliero.

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Corresponding author: Abubakar Atiku Muslim
alatiku@gmail.com
Department of Electrical and Electronic Engineering, Abudllahi Fodio University of Science and Technology Aliero.