



E-Learning Website-A Review

Integrated Learning website for Confiance group

Sanjyot Gargelwar

Computer Engineering Department,
St. Vincent Pallotti College of Engineering and Technology,
Nagpur

Siddesh Verma

Computer Engineering Department,
St. Vincent Pallotti College of Engineering and Technology,
Nagpur

Sankalp Russia

Computer Engineering Department,
St. Vincent Pallotti College of Engineering and Technology,
Nagpur

Sonal Borkar

Computer Engineering Department,
St. Vincent Pallotti College of Engineering and Technology,
Nagpur

Prof. Vaibhav Deshpande

Computer Engineering Department,
St. Vincent Pallotti College of Engineering and Technology,
Nagpur

ABSTRACT

Abstract—In these tough times of COVID, the entire world has witnessed something that was far from anyone's imagination. COVID-19 had wreaked havoc across the world. Even the Indian Railways which never went off rail in the history, had to face closure. Like any critical sector, education also went through its impacts. Students, schools, colleges and universities have been deeply impacted. This study is in quest of the e-learning platform designed by Confiance Group, in order to solve the above mentioned issues. According to the United Nations Educational, Scientific and Cultural Organisation (UNESCO), over 800 million learners from around the world have been affected by the virus.

This was the time when various professors and teachers realized the importance of online education. Even if the students could not reach out to their institutes, they could still access multiple educational resources at the comfort of their home. The digitization of study material changed the entire scenario of classroom learning.

This document investigates the use of interactive features of e-learning which increases the motivation of the students for the learning process.

Keywords- *E-learning Website, Learning, Students, Technologies, Interactive.*

1. INTRODUCTION

1.1. OVERVIEW

E-learning abbreviation for electronic learning has been a part of the education system since 1960 when Donald Bitzer, a laboratory assistant at the University of Illinois, created the very first e-learning system called the PLATO.

The PLATO model was basically designed for the purpose of computer based learning, but eventually its characteristics and properties gained well deserved hype, and it became the foundation for online learning and all the online communities.

Since then the technological advancements have helped to make e-learning an integral part of our education systems. The concept of e-learning has been in regular use in multiple international universities across the globe. During COVID, it became a go-to solution for everybody in the education sector. It has been proven over time that learning is much more effective when it is comfortable for the learner. According to the research done over the time period of 2004-2009, there has

been a rise of about 12-14 percent annually in enrolment for online learning, after secondary education.

The growing popularity of learning through online platforms is majorly because of the following reasons:

1. E-learning provides the students with the ease of learning from anywhere and anytime.
2. It is a proven fact that visual things leave a greater impact on the mind as compared to the things we have heard.
3. It provides with the options of part-time and full-time education.
4. Sharing of information and study materials is relatively easy, as compared to the traditional hard copies.

1.2. MOTIVATION

E-learning platforms seem easy to access and appealing but the actual success of any platform is tested by the number of its users or subscribers, on daily basis. It is necessary to make sure that the platform is indulging enough, so that the learners can make complete use of the contents available to them.

E-learning platforms offer various advantages over traditional learning, but the cons could not be ignored as well. As the teaching methodology is shifting to the digital zone, the physical interaction between students and teachers is getting reduced, and hence their relation becoming less personal. Incorporating technology in the learning process does not necessarily guarantee motivated students. The digital platforms and websites should be designed as such that they grab the attention of maximum students possible. The Confiance Group provides its students with an alluring website and along with it comes a wide range of interactive courses and materials to study from. It is essential that the tutors available on the website understand their students' motivations.

Although students take online courses with the mindset of completing them at their own comfortable time, they tend to miss their deadlines for a number of reasons. The success or failure of online instruction is perhaps related to student motivation. To motivate the students:

1. The learning platform should be free from lags and bugs.
2. The environment of the platform should be appealing and informative to the learners.
3. The platform should encourage interaction and collaboration among their students as well as the teachers.
4. Students tend to study better in groups, hence the platforms must involve live group chats and media sharing.
5. The platform should encourage students to make friends by meeting fellow students in the online environment.

6. The platform should continuously monitor the students' performance and provide them with necessary feedback.

7. The learning material should be precise and on-point, that is student oriented.

8. The learning part is always incomplete without related tasks, hence the tasks must be designed in such a manner that they help to increase the learning capability of students.

9. Above all, the learners mental health is of utmost importance. Thus, the courses should be well incorporated so that they don't inculcate any anxiety or negative thoughts in the young minds.

10. Last but not the least, the courses must be massively informative.

The above stated points might sound very minute but they play a crucial role and act as a motivation while developing any e-learning platform. We, the Confiance Group, are well aware of these points and we have made sure to include all of these in our E-learning website.

2. LITERATURE REVIEW

E-learning systems provide interactive and engaging study materials to the learners through digital medium. This technology has been in continuous development since a long time. There are a wide range of learning platforms that have been in use and are admired by students. Some of these platforms are Moodle, Canvas, UpGrad, TedEd etc. These learning sites are infused with a whole lot of study materials from around the globe.

The author in [1] conducted a study where five research hypotheses were examined to determine which hypothesis should be accepted and which should be rejected. This study has reported some important findings about online education, confused others and presented a range of predictions about the future of online technology for educational purposes. Instructors need to understand their student motivations when teaching online classes.

Previous studies [2] has been conducted in relation to motivation and e-learning, motivation is very important since it may impact the way students study in the online environment. In this endeavour, applying the Keller ARCS model and encouraging interaction and collaboration between students may be of great value. Furthermore, interaction with students by monitoring their online presence and supplying them with feedback plays a motivating role.

In the research made in [3], has clearly defined eLearning. Furthermore, the problems of eLearning have been identified and the ways of overcoming the barriers to eLearning have been addressed. Before governments and schools can establish a successful mode of eLearning in education, an understanding of the KSF needs to be had. From the literature review, in-depth interviews and questionnaire, the researcher was able to develop a model that evaluates and supports eLearning.

The report in [4] provides recent statistical and analytical data on the Internet usage in Egypt, as well as trends over the period 2000-2008. It includes data on: Internet users, Internet bandwidth and cost, household and enterprise usage of the Internet, Internet subscription mode, Internet usage by different demographics, Internet usage in education, e-government and e-commerce applications. The report is produced in line with the OECD's "statistical Profile for the Internet Economy" in an attempt to standardize the ICT indicators according to international organizations.

The article [5] presented findings from a larger study examining Libyan engineering students' experiences and perceptions of technology-supported learning. A comparative analysis indicated that the participating students in the urban and regional areas were positively disposed towards elearning and believed in its benefits. The positive attitudes and the willingness of students to engage in e-learning courses suggest that future e-learning initiatives have great potential in Libya. These findings are comparable with the results of a study conducted in Punjab University in India by Suri and Sharma.

The paper [6] gives a brief summary of the history of An-Najah National University, change management strategies are featured, highlighting specific successful techniques. The case study concludes a description of the change management model that emerged in addition to indicators of a great impact on students' satisfaction and staff members' participation ratios.

3. . PROPOSED METHODOLOGY

3.1 STRUCTURE AND DESIGN

To design an interface of the website for Confiance Group, we have used HTML, CSS, and BOOTSTRAP. We have chosen these languages due to their long list of advantages over other languages. The structure and design aesthetics for the website were created by choosing the best suited interface designs for a website that focuses on education.

3.1.1 HTML

HTML stands for Hypertext Markup Language. In our website it has been heavily utilized for creating pages and applications. HTML, when combined with JavaScript and CSS, has become a milestone in the arena of web development for our website. HTML has provided us with an amazing feature that is, it has embed programs written in a scripting language JavaScript, which are the sole reason behind the scripting of a website and also its behaviour. CSS, when included along with HTML, has changed the layout and appearance of the content. The basic building blocks of any HTML pages are HTML elements. A structured document can be created with the help of structural-semantic text like heading, paragraph, list, link, and other items. The tags are not physically visible on the website but they work at the backside of the website and have helped in designing the web page.

3.1.2 CSS

CSS, which stands for Cascading Style Sheets, has been used to add enhanced designing to our HTML code. They have been used to provide layouts, styles and improve the appearance of the website, for design and demonstrations to be created. One of the primary advantages of CSS utilized by us, is that it allows developers to separate content from its presentation layer. CSS change the traditional method of setting style and layout on each individual web page by allows CSS designers to use a single file to control the style and layout of multiple web pages in the same website.

3.1.3 BOOTSTRAP

Bootstrap is considered as an ideal design framework for website, due to its unique and compelling features that empower developers to build well-functioning, fully responsive websites without any hassle. It was an easy to learn language and hence we choose to use it for our e-learning platform.

3.2 USER I/O AND VERIFICATION

The user's input is a must when it comes to a website that is completely student oriented. Hence in our e-learning website we have made sure to provide interactive features for the students and learners. This has been easy and efficient using JQuery and Javascript.

3.2.1 JAVASCRIPT

Working with any dynamic language requires the ability to read, process and output user data. JavaScript is

especially used to take user information and process it without sending the data back to the server. JavaScript is much faster than sending everything to the server to process, but you must be able to read user input and use the right syntax to work with that input.

JavaScript has a few window object methods that we have used to interact with your users. This website has used these methods very effectively so that the users have a seamless experience while exploring the contents, entering their details, logging in or signing up for the website.

3.2.2 JQUERY

JQuery is a lightweight JavaScript library that has simplified client-side webpage development by adopting a “write less, do more” ideology. JQuery comes with a wide range of tutorials for the beginners who need to use its features. It also provides us with multiple number of plugins which are available for faster development of programs.

The huge library of JQuery could not be left behind when we are discussing the advantageous uses of the language. These were some of the reasons behind choosing JQuery as a language for implementing user input and forms section, for developing our e-learning website.

3.2.3 AJAX INTERGRATION WITH REGEX

AJAX stands for Asynchronous JavaScript and XML. AJAX is a new technique for creating better, faster, and more interactive web applications with the help of XML, HTML, CSS, and Java Script. Ajax uses XHTML for content, CSS for presentation, along with Document Object Model and JavaScript for dynamic content display.

Conventional web applications transmit information to and from the sever using synchronous requests. It means you fill out a form, hit submit, and get directed to a new page with new information from the server.

A regular expression (regex) is a sequence of characters that forms a search pattern. Whenever we search for data in a text, we can use this search pattern to describe what we are searching for. A regular expression can be a single character, or a more complicated pattern. Regular expressions can be used to perform all types of text search and text replace operations. Hence we have use of this method to validate the inputs and forms in our website.

It is very essential for any website to include a validation check on all the user inputs as well as on the forms embedded

under it, eg. The registration form or the form for signing in to the website. It makes sure that only an authentic person is using the site and is not a threat to the system.

3.3 DATABASE

3.3.1 PHP

PHP is a server-side and general-purpose scripting language that is especially suited for web development. PHP is a general-purpose language because PHP can develop various applications. PHP is a cross-platform language. It can run on all major operating systems, including Linux, Windows, and macOS and is hence platform independent, which is a very necessary point to consider while choosing a programming language.

You can use PHP with all leading web servers such as Nginx, OpenBSD, and Apache. Some cloud environments also support PHP like Microsoft Azure and Amazon AWS. PHP is quite flexible. It's not just limited to processing HTML. PHP has built-in support for generating PDF, GIF, JPEG, and PNG images. All of these features of PHP make it a suitable choice for our website. We have used PHP in our website for:

- ◆ Working with the user sessions in which the database connection is done through PHP.
- ◆ Also, we have PHP for the database manipulation purpose in the website.
- ◆ The login sessions have also been created by making use of PHP.
- ◆ PHP has also been used to integrate different modules or pages into a single module.

3.3.2 PHPMYADMIN

phpMyAdmin is an open-source software tool, which is written in PHP. Basically, it is a third-party tool to manage the tables and data inside the database. The main purpose of phpMyAdmin is to handle the administration of MySQL over the web.

It is the most popular application for MySQL database management. We can create, update, drop, alter, delete, import, and export MySQL database tables by using this software. phpMyAdmin also supports a wide range of operation like managing databases, relations, tables, columns, indexes, permissions, and users, etc., on MySQL.

phpMyAdmin is a GUI-based application which we have used to manage MySQL tables and our database. We can manually create database and table and execute the query on them. It provides a web-based interface and can run on any server. Since it is web-based, so we can access it from any computer.

3.3.3 MYSQL

MySQL is currently the most popular database management system software used for managing the relational database. It is open-source database software, which is supported by Oracle Company. It is fast, scalable, and easy to use database management system in comparison with Microsoft SQL Server and Oracle Database. It is commonly used in conjunction with PHP scripts for creating powerful and dynamic server-side or web-based enterprise applications.

Hence we have used MySQL in our website in integration with PHP scripts for making our database more powerful and dynamic, so that we could enhance user experience and provide the learners with the best services when they visit our website and use our services.

3.4 SECURITY

3.4.1 DATABASE PASSWORD PROTECTION

Security is the most important aspect of any website or even applications. The websites that we create are always always under a threat of being misused by some anonymous users. You need to secure your website and along with that, your database too, which means putting protection in place to keep out hackers, bugs, and other online nasties. Otherwise, your data could be at risk, your site could crash, or you could even lose money.

Hence we have implemented security standards into the website to protect our database at its best. Any user who wants to sign up on the website has to go through some authentication steps, to make sure that he does not insert any bug into the database.

3.4.2 PREVENT SQL INJECTION

SQL injection is a type of injection attack. Injection attacks occur when maliciously crafted inputs are submitted by an attacker, causing an application to perform an unintended action. Because of the ubiquity of SQL databases, SQL injection is one of the most common types of attack on the internet.

In order to protect the website from such sql injections, we have implemented the concept of filtered inputs into our website. Whenever a user enters data into any form etc, it undergoes a filtering process which removes anything malicious if and when found in the data. Thus way any injection, even if tried cannot be injected into the platform.

3.4.3 ARGON2ID ENCRYPTION ALGORITHM

To securely manage credentials, one has to only store a cryptographic hash of the credential. Whenever the credential has to be checked, the hash of the provided credential is computed and compared to the stored hash. This ensures that no one is able to retrieve the credentials, even with full access to the system's storage.

Argon2 is a cryptographic hash algorithm specifically designed to secure passwords. It is recommended by OWASP in the Argon2id variant as a modern, secure and flexible algorithm. This flexibility means that one has to choose some parameters and is probably the reason why we have used this particular encryption method in our website.

4. IMPLEMENTATION

4.1 MODULE 1

HOME PAGE:

The starting page of the website consisting of an overview of the confidence group and the contents of the website. It will give an instance of the overall website, to the new visitors of the website, without digging deep into the contents or other modules of the platform.



4.2 MODULE 2

REGISTRATION PAGE:

This page allows user to login to the website, if already a member, and to sign up, if the user is a first time user of the website. It is a necessary page on any platform. The user could directly sign up using their gmail account, or can manually enter their details into the sign up form.

Login

EMAIL

name@email.com

PASSWORD

Enter your password

Login

New to Confiance? Sign up

Sign up

We teach you the right skills to be prepared for tomorrow.

FULL NAME

Enter your full name

EMAIL

name@email.com

We'll never share your email with anyone else.

PHONE No.

Enter your 10 Digit Phone No.

PASSWORD

Create password

Sign up

Already on Confiance? Log in

4.3 MODULE 3

COURSES AVAILABLE:

All the courses a user can access, appear under this tab. The user can choose from a wide range of courses and get all the

informtaion regarding the course such as: time duration, fees required, contents in the course. All of this can be read by the learner and after making up his/her mind, they can dive into the course the like.

All Courses

Learn Guitar The Easy Way

Complete PHP Bootcamp

Learn Python A-Z

Course Name: Complete PHP Bootcamp

Duration: 3 Months

Price: ₹700

Lesson No.	Lesson Name
1	Introduction to PHP
2	How PHP works
3	is PHP really easy?

4.4 MODULE 4

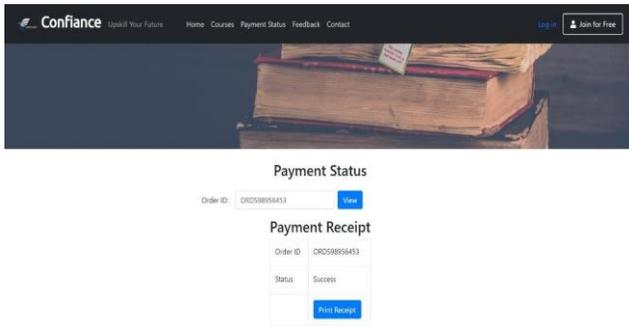
PAYMENT GATEWAY:

The course fees can be paid on the website itself, and fees receipt will also be made available then and there. The module all of this is available is the payment gateway module. Here, after choosing the course that the user wishes to continue with, they will be automatically redirected to the payment page.

With some simple and secure steps, the students can pay the course amount online, get the receipt and continue their online learning.

7. REFERENCES

- [1] E-Learning and Students' Motivation:
A Research Study on the Effect of E-Learning on Higher Education
<http://dx.doi.org/10.3991/ijet.v9i4.3465>
M. Samir Abou El-Seoud 1, Islam A.T.F. Taj-Eddin1 , Naglaa Seddiek1,
Mahmoud M. El-Khouly2 , Ann Nosseir1 1 British University in Egypt-BUE,
Cairo, Egypt, 2 Helwan University, Cairo, Egypt
- [2] M. Nehme, "E-Learning and Students' Motivation", (2010) 20 Legal
Education Review, 223-239, SSRN-id2347142, 2010.
Retrieved from SSRN: <http://ssrn.com/abstract=2347142>
- [3] T. FitzPatrick, "Key Success Factors of eLearning in Education: A
Professional Development Model to Evaluate and Support eLearning",
US-China Education Review, 2012, A 9 , 2012, 789-795.
<https://files.eric.ed.gov/fulltext/ED537174.pdf>
- [4] The Future of the Internet Technology in Egypt, A Statistical Profile,
March 2009, Ministry of Communication and Information Technology,
Egypt. <http://www.new.egyptictindicators.gov.eg/en/Publications/PublicationsDoc/The%20Future.%20of%20the%20Internet%20Economy%20%20Version%20II.pdf>
- [5] Cite as: Rhema, A., & Miliszewska, I. (2014). Analysis of student
attitudes towards e-learning: The case of engineering students in Libya.
Issues in Informing Science and Information Technology, 11, 169-190.
Retrieved from <http://iisit.org/Vol11/IISITv11p169-190Rhema0471.pdf>
- [6] Fee, K (2009). Delivering E-Learning A Complete Strategy for Design,
Application and Assessment. Kogan Page. London and
Philadelphia. : Creative Education, Vol.8 No.2, February 6, 2017.
<https://scirp.org/journal/paperinformation.aspx?paperid=73929>



5. CONCLUSION

An e-learning experience with interactive features and enhanced user interface will be provided to the students. The website provides courses in multiple fields and has a wide range to choose from. It makes learning so easy and hassle free through its simple yet elegant features such as the payment gateway. It also provides the learners with a safe and secure environment to study from the comfort of their home.

6. ACKNOWLEDGEMENT

We would like to express our gratitude to CONFIANCE GROUP who helped us in configuring all the requirements and the technologies that could be used for the project and provided us with their technical assistance throughout the project. It would'nt have been possible without them. We would also like to thank our project guide Prof. Vaibhav Deshpande for guiding us in every possible way.