Technology Enhanced Learning: A Digital Timeline Learning System for Higher Educational Institutes

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Abstract
Now a day's technology is increasing gradually, and education is part of technology, so, everyone wants to learn visualization. Some institutes use projector-based learning and the other institutes adopt ICTs in education, that's also a good thing for learning and teaching. Actually, e-learning comes from using ICT to enlarge educational prospective. Creative visualization is a great way to see a possible future and move towards it. There are a lot of educational e-learning software or tools available, but no institutes follow these Digital Timeline Learning tools, because students are using smart handheld devices for getting knowledge. Some of the students are using such kind of devices in classrooms but still, there is no kind of tool to teach students in a digital way where all students can discuss collaboratively lecture and share their opinions or comments. This paper presents a model for Digital Timeline Learning. Education with the help of the system upper-level students can take more interest in classrooms. For the evolution of learning methodology, it gives more excellence in this digital era.

Keywords
Digital learning, digital learning system, smartphones, technology, technology-enhanced learning.

1. Introduction

Nowadays, 'Online Teaching' is most important for academics, in this era every student wants to learn by smartphones or digital lectures. Many of the universities and institutes are following the digital learning styles for providing better education in the world, and they do not forget that it is providing a teaching excellence framework. Digital learning is developing in modernity. It is easily adjustable for all institutes and the Digital learning style can be developed for comprehensive.

Some of the institutes think about how it can be possible to engage their students in online activities instead they miscommunicate with each other? As I have surveyed many institutes, one of the most common things I have observed while meeting with academics, is that students were engaged with 'Online Learning Activities'. They expressed a number of reasons. But the most common thing observed they had no reason to do it. If they want to engage their students in an online activity, they need to confirm that their students understand the given task, its purpose, and importance.

Manuscript received October 5, 2019
Manuscript revised October 20, 2019

The most important aspect of your responsibilities is to share your knowledge: to explain and share useful materials like audio and video lectures and articles. But students can take more interest to get your online artifacts; they can fully concentrate on it. On the spot Online Activity can be helpful to better understand. It gives students practice what they have learned, and gives them a chance for their opinion as well as feedback, so, they can easily share their own opinions regarding that material and practice. But should not share heavy on links to other information that these online heavy courses have a lower completion and little bit passing rate as compared to other related material.

The use of digital devices in the classrooms can be beneficial for better learning styles. It is not only just shifting traditional lectures to digital screen - it is about allowing students the use of smart handled devices to genuinely improve their learning ability while giving instructors better ways to get knowledge individually or personally.

2. Digital Learning

Digital learning is a new stage, whereas, Smartphones are considered a matter of the past decade. Adoption has possessed stronghold on the one hand, and technology has proved its maximum value with new wonderful dimensions. Furthermore, new possibilities are beyond our imagination. It is recorded fact, a decade ago, capabilities we think of as emerging, and others which can be barely imagined by us are likely to be as ubiquitous as the smartphones are today.

A. Digital learning technologies assist students:

- Learn better and more effectively in the minute period: Digital assessments offer students the fastest feedback with respect to their understanding and comprehension, allowing students as well as instructors to wholly concentrate on their endeavors where further understanding is needed the most. Adaptive hints providing guidance to defaulted responses correct misperceptions or misconceptions

rapidly and help students to find out destroying problems in real-time.

- Learn things accurately and comprehensively: Rapid assessments, virtual reality, visualizations, games, annotation technology, various types of virtual reality in the shape of 3D games bring for the richer-cum-interesting background towards a detailed understanding of concepts and ideas which were previously beyond the approaches
- Learn with mastery and full command: where the student has the ability to ask more and more questions from professional teachers and it is good to step for learning in a better way. On the other hand, can be able to solve their colleagues' problem in a better way.
- Learn the best and flawless way: Active engagements, addresses, and flipped classrooms at any of institutes helps and many of the students attract from their way. Some of the strategies were applied to learn in a better way or worldly recognized theories of learning.
- Learn all times at all places: Asynchronous classrooms attract and encourage students to "Go to schools, institutes and universities" anytime and anywhere when they are ready for learning and gaining knowledge. This helps especially graduate and post-graduate students' access to advanced and sophisticated information most needed during their thesis research whenever important and necessary for them. The flexibility provided by it, especially to undergraduates who like to study abroad or pursue an internship. On the other hand, it allows lifelong learners and students to persist the pursuit of education in this global village Digital learning has made education easy, accessible, and time saving, approachable to everyone and affordable to all students, especially those who only could dream of getting education in previous age, particularly, at high standard institutes and universities in the advanced and educationally forward countries. The digital learning way has shown in Fig.1.

Fig. 1. Illustrates Digital Learning Environment

B. Digital learning technologies are helpful to instructors:

- Leverage time better: The instructors are provided the fastest feedback through Digital learning whereas students use to struggle, making instructors give extra guidelines and responses to their common queries given online or in person. Automation relaxes and eliminates routine grading. It makes free course teams waste more time sitting face-to-face with fellow students.
- Spread knowledge to every nook and corner of the world: instructors are allowed extra platforms to access more and new ideas can be disseminated by instructors immediately. They approach a huge number because of digital learning technology.
- Engage and benefit audiences worldwide: Instructors by using digital platforms can meld countless participants worldwide into campus teaching which creates multi-conversations globally resulting decidedly in richer and excellent teaching. Build learning modules shortly: The instructors are empowered to formulate courses with the assistance of best content developed previously by other instructors within the department or received from other institutes' instructors. For modular learning content, this, "digital abstraction" is a real and actual purpose behind the word 'digital' of digital learning which is matchless and wonderful.
- Improve instructional techniques: It is not difficult to observe that through this proof of research shows that how to instructors learn in an effective way in a short time and instructor can share their experience or teach their students in an effective way and take keen interest in learning having quest for knowledge of all kinds on the other hand which will ultimately open new vistas of human development and new paths of human glory in this universe.

3. Literature Review

Many researchers have done work with digital learning. Rose [1] has discussed the technology used in classrooms which improves the students' grades, motivation, attitude, and attendance, as well as, including teachers. These results have been taken from Kaiserslautern schools that indicate the overall use of technology in classrooms at school. For the better performance of students, school management should use new technology and give specific training to the staff during the school time, and a full-time I.T specialist who communicate and share the information of technology among staff. It will prove beneficial for the classroom curriculum.

Carly [2] has introduced a new way of using mobile technology in education, for better improvement of quality education around the world. They have discussed a lot of things in different papers which are divided into fourteen separate papers. Some papers also contain that mobile technology can be helpful for teachers and improve their practice.

Karine [3] has surveyed that learning outcomes are key factors to develop educational patterns, and a more important learning outcome is to update diagnosis and improve the quality of teaching. It can take a better part in the improvement of student learning stage. Although there is a lot of traditional way of learning outcomes in higher educational institutes with their courses and programs. Developing a virtual measurement of learning outcomes has increased due to the scope of advanced education patterns, difficulties, and paradigm shifts.

Alan [4] has described the cisco technologies which play a more important part in education during. In recent years, it is being focused to change the multiple studies. Cisco's worldwide experience helps educational institutions implement video technologies and improve quality of education and learning ability/skills of students.

Tom [5] has surveyed that students can achieve a lot of things by using smart technology in classrooms for education. Every student can easily understand with visual graphic lectures. It is contained with three primary ways that identify digital learning and supports deeper learning. Avail smart technology to every student for personal grooming. Schools and administration should suggest every student adopt new technology and provide better quality education which leads to future technologies.

John [6] has discussed and designed a new way of online learning education and it can evaluate the better blending learning system. Through blending learning system students can take online lectures and online delivery of content part-time, they have made a supervised tool and it works like a virtual education.

Tatiana [7] has discussed the importance of E-learning in the higher education system. The educational system cannot get high results without integrating communication and information technology. The advancement of European higher education, which is part of Bulgarian, all new innovations and learning modern technology can improve the needs of the digital era.

Eric [8] has explored new vistas of learning with games that games work like rule-based learning systems as everybody can actively take part in making choices, solving complex mathematical problems, seeking gratified knowledge, getting feedback and considering views of others. Students can explore, mathematical problems, historical places, writers' thinking, and evolutionary ecologists.

Joan [9] has discussed the role of technology in teaching and learning stage, technology can fulfill the requirements of teachers and students. The teacher can easily deliver their lectures, students can visually understand the practice of that lecture and take more interest in learning education.

John [10] has discussed the new opportunity which enhances the students' learning ability. It is at the power that most innovations occur and where we can recognize patterns that specify new kinds of opportunities and challenges.

Allison [11] has improved the quality of higher education with a most demanding technology of the digital world, the concerned surveyor uses a huge amount of dataset to recognize educational problems and collecting information for institutions of higher education to work in a better atmosphere and use most advance technology among the students.

Mark [12] has collected information from two groups, one group worked on traditional storybook projects and the second group worked on computer-based projects after the competition of both projects interviews were held to collect the data. The more interesting results were taken from the second group who has completed their project on computer-based learning.

Thomas [13] has differentiated traditional learning and online learning cost. Online learning way saves a lot of money as compared to traditional learning. In this way, digital time learning technology is the most demanding capability of this digital age.

4. Proposed Framework of Digital Timeline Learning

In our proposed framework, initially, the user should have her/his unique student ID. The user can sign-up their account, it requests to server and server send the activation account link to the focal person of her/his institute. After the identity has been confirmed then the student can easily sign-in her/his account and meet all new functionalities of Digital Timeline. In the last student can select the subject and see all the related course material and comments. Fig. 2 has shown the proposed framework.

Initially, the intranet environment is created for application testing. Inbounds of the firewall involved with the port exception, which enables us to send and receive the request and response from the centralized server. Moreover, SQL Server has been installed for storing, retrieving and manipulating records accompanied by Data Definition Language (DDL) and Data Manipulation Language (DML).

Furthermore, C# integrated development environment along with ASP.Net technology has used for calling the classes. Namespaces and different libraries are used to accomplish the task. Cascade style sheet has been used to

design the application interface. The proposed application has the ability to give comments offline and online and their notification has been shown to all colleagues.

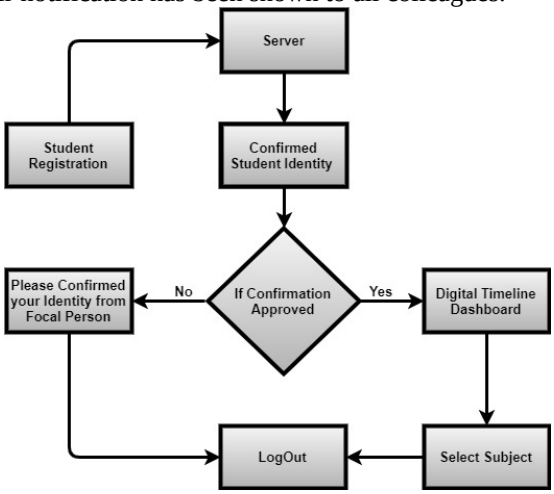

Fig. 2. Proposed Framework of Digital Timeline

5. Developed Web Application

In Fig. 3 students can see the Digital Timeline screen where a student can easily create her/his account and sign-in for further queries.

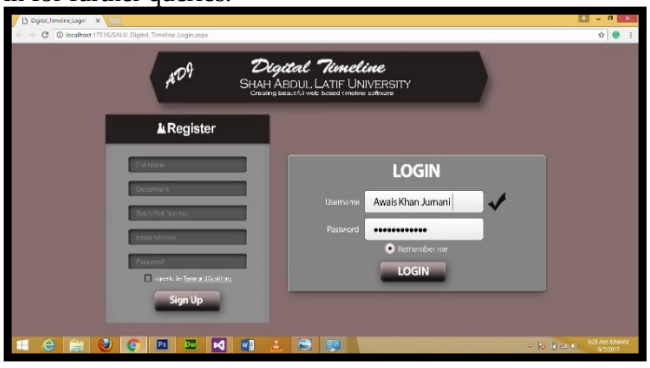

Fig. 3. The Sign-in and Sign-up Screen

In Fig. 4 after the successful login, the student can see the dashboard of Digital Timeline then the student can select the subject. Students can easily see who is online or not and who has given comments regarding today's and previous lectures.

Fig. 4. The Dashboard of Digital Timeline

In Fig. 5 students can see the lectures given by the teacher and also they can easily find out the related material and references. Students can see the assignments given by the instructor and they can perform these activities online.

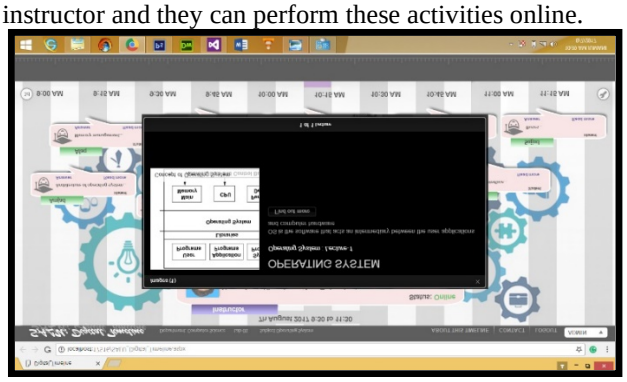

Fig. 5. Illustrates Previous Lectures

6. Discussion

Digital learning education has multiple flexibilities to teach or learn in different ways. Creative visualization is a great way to see a possible future and move towards it. Smartphone technologies give us a lot of facilities in a better education. Many of the students take interest to use smartphones in classrooms and the majority of the students want to learn to visualize technology-based learning. So many of the software's' and tools have been introduced for learning with technology but still, they do not fulfill students' requirements. We have proposed an application that fulfills our student's needs as compared to the traditional learning system. The experiment has been based on ASP.NET and CSS framework, and also it has an ability to retrieve previous records from the database.

7. Conclusion

The digital learning system is one of the best systems for all educational institutes where students can easily

comprehend what they learned and what they wanted from their instructor [14]. This paper presented a Digital Timeline system for Higher Educational Institutes. It has not been introduced previously. The system will be more beneficial for every new student who wants to share their knowledge with fellow students and the teacher and can easily express their ideas. The students can give comments and read others' comments regarding instructor's lecture. This is a one step ahead in the future educational learning systems [15].

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