

Didactic Solutions: A Service-based Application for Corporate Training Program and Learning Modality.

¹Aftab Harun, ²Sana Khan, ³Muskan Khan, ⁴Zikra Shaikh

^{1,2,3,4}BE

1,2,3,4University of Mumbai,

Abstract: As technological advancements continue to reshape the corporate landscape, it is crucial to update training methodologies to improve work efficiency. E-Learning has emerged as a vital component of employee training and internal human resource development. In recent years, web-based training has gained immense popularity in the corporate world as a cheaper, faster, and more efficient way to train large numbers of employees and individuals worldwide. Blended learning, a combination of face-to-face and online modalities, has also taken on a more important role in corporate training program design and implementation, providing a more flexible learning modality. We developed a service-based project, the Didactic Solution, designed to provide training to both students and employees. The Didactic Solution offers free trials and low-cost courses, leveraging user-friendly web-based training. The project platform offers live online training, and students can access recorded videos of their sessions upon successful completion of their courses. The project chatbot feature enables students to ask their instructor any questions they may have. In this paper, we provide an in-depth analysis of the design and implementation of the Didactic Solution, and highlight the benefits of web-based training for corporate training programs. The project research findings suggest that the Didactic Solution's design and implementation offer an efficient and cost-effective way to deliver high-quality training programs to students and employees, resulting in improved work efficiency and productivity.

Key Words: web-based, blended learning, corporate training, eLearning.

I. Introduction

Didactic Solution is a web-based training platform that offers training courses to both students and employees. The system is user-friendly and easy to use, as users only need to register with their personal information such as name, email address, password, credentials, and interests. Once registered, users can log in using their email address and password to access the system.

The platform offers four different types of user roles: Administrator, Trainer, and Students. The course designer is also included as a user role. The system recommends courses to users based on their areas of interest and provides a list of popular courses with ratings of at least 4. Students can enroll in the courses they are interested in and receive certificates upon completion.

In addition to live online training, students also have access to recorded training sessions, which they can watch anytime. Students can ask their instructor questions using the chatbot feature provided in the system. The course creator can upload videos and PDFs as notes, and handle session recording and notes, which will be signed off to the trainer.

The platform categorizes courses using topics, and trainers can upload course notes anytime. The system also displays the number of courses a particular trainer is signed up for, and the administrator can view the duration of the training session, meeting link, and other details. The system also includes recording session details. Didactic Solution is designed to provide low-cost courses to students and employees, making it globally accessible and offering on-demand learning solutions of the highest quality. The platform is adaptable and simple to use, making it an ideal solution for those seeking efficient and effective corporate training.

In this paper, we present the design and development of our web, as well as its potential benefits for e-learning training programs. We also discuss the challenges and opportunities of implementing didactic solutions for training programs in a web application context, including data privacy, algorithm complexity, and user engagement. By offering an efficient and cost-effective way to deliver high-quality training programs to students and employees, resulting in improved work efficiency and productivity.

II. Literature Survey

A literature survey was conducted to assess the current state of web-based training solutions, specifically focusing on the Didactic Solution initiative. The available literature was reviewed in terms of the theoretical and practical aspects of e-learning. The articles were evaluated for their contributions to the field and critical issues were identified. Additionally, gaps in the literature were highlighted to better understand the factors that contribute to the success of web-based training solutions like Didactic Solution. Based on the review, a framework for success with web-based training was developed, with a focus on the unique features and benefits of Didactic Solution. The framework includes considerations for course design, user experience, technical support, and evaluation of learning outcomes. Didactic Solution has great potential for meeting the growing need for continuous learning and training in a rapidly changing technological environment.

III. Application Design

In educational institutes learning deals with three major elements: teacher, students and content of teaching. Very basic communication is between Application with Student and Content. Communication between elements is maintained using technical facilities and hardware which used to communicate via web-based corporate trainers.

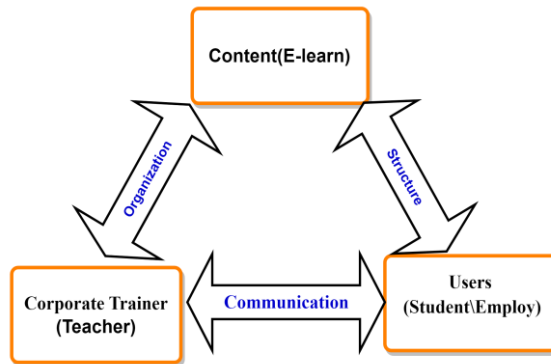
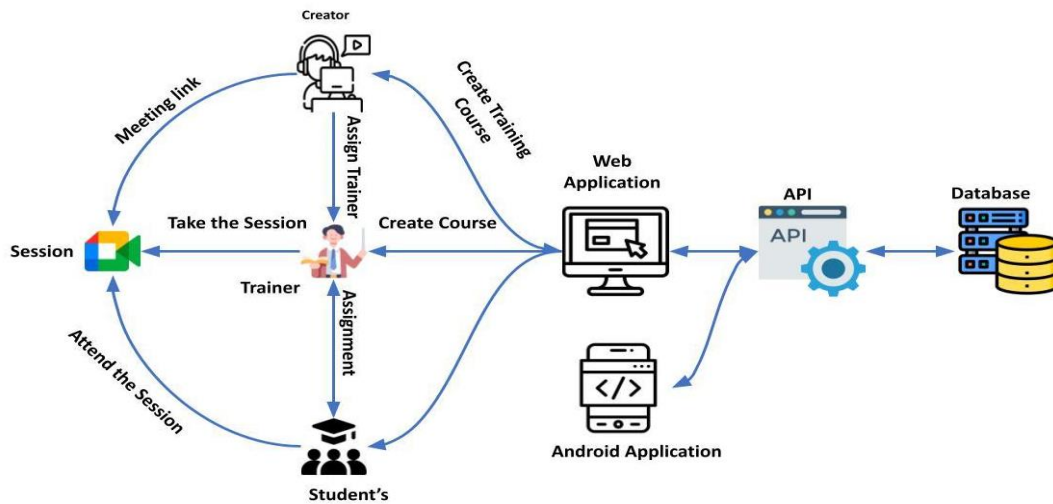


Fig. Didactic Relation in learning process

A. Application Blueprint

The corporate training methods range from open free sources to payable commercialized ones. Two entities are listed out as involved



in the system as the trainer & the students.”

Learner:

- Study course online/offline
- Exams (E-Learning Apps Online)
- Feedback Input
- Learning Assignment.

Professor: (Trainer)

- Course Generation
- Online Exam preparation
- Result Assessment
- Assigning Learning task to students
- Prepare Feedback Output
- Interaction with Students (through blog, chat...etc)

B. System Architecture Model

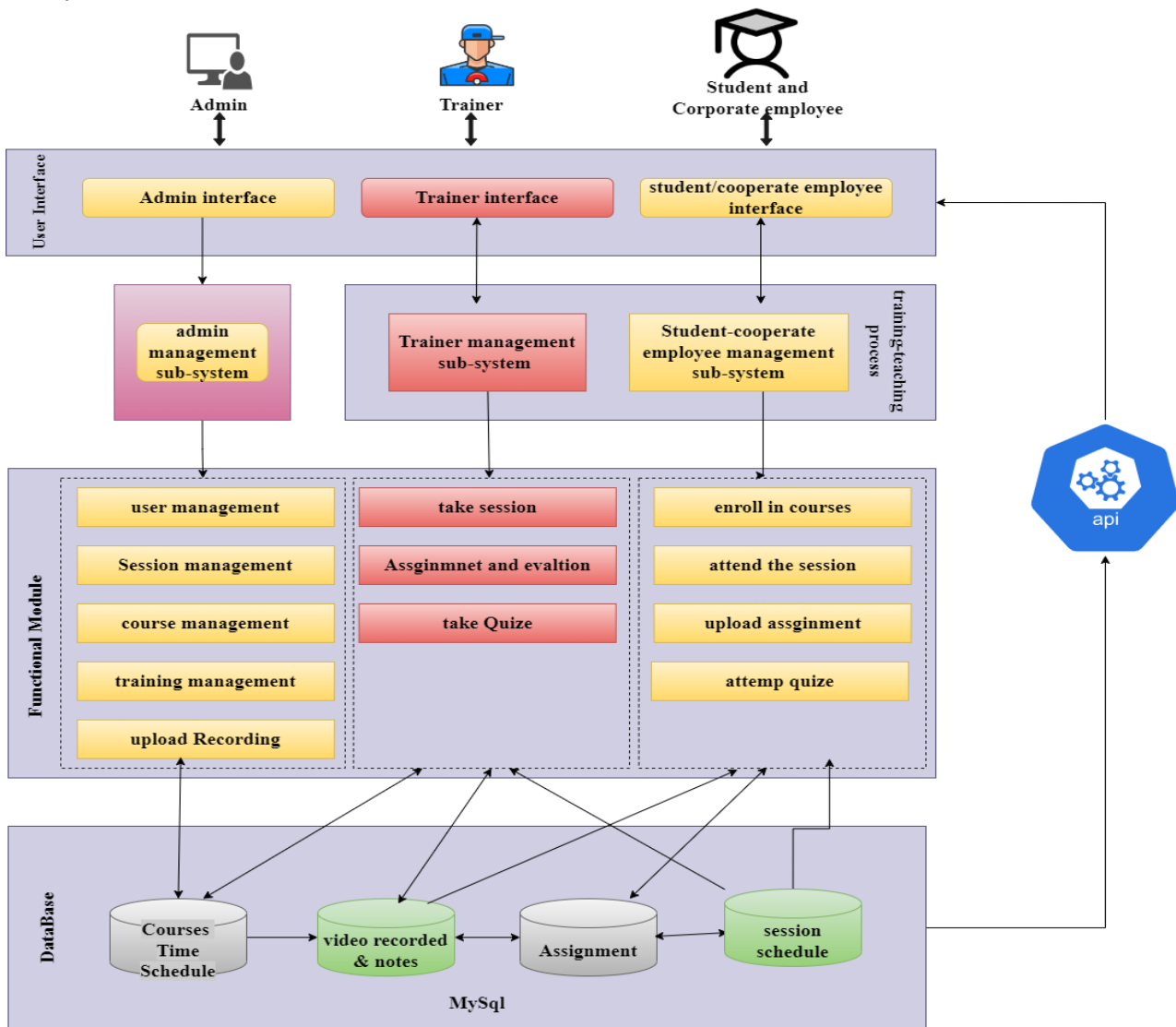


Fig. System Architecture Model

C. Architecture Implementation Study

A corporate training website is a complex system that consists of different components that work together to provide users with a smooth learning experience. In the system design of the project, a REST API has been incorporated to establish a link between the front end and the back end of the website. This REST API would allow for the possibility of creating mobile applications in the future, thereby increasing the accessibility and convenience of the training website.

The web application of the project has three different logins: creator, trainer, and student. The creator is responsible for designing the training courses and assigning trainers to these courses. Trainers have the ability to design and deliver courses to students. Students can access the training sessions, view course materials, take quizzes, and access the recorded sessions.

This website is designed to provide a seamless and efficient learning experience for users. By creating different roles, the system ensures that users have the appropriate permissions to access the necessary components of the website. The creator has complete control over the training courses, while the trainers have the ability to design and deliver courses. The students have access to all the necessary course materials and recordings of the sessions.

This system architecture is designed to facilitate effective corporate training through an intuitive and user-friendly web application. The integration of a REST API ensures that the website is flexible and adaptable to future changes, and the inclusion of different logins ensures that the website can cater to the needs of different users with varying levels of responsibility and access.

D. Application Implementation Model Flow

E.

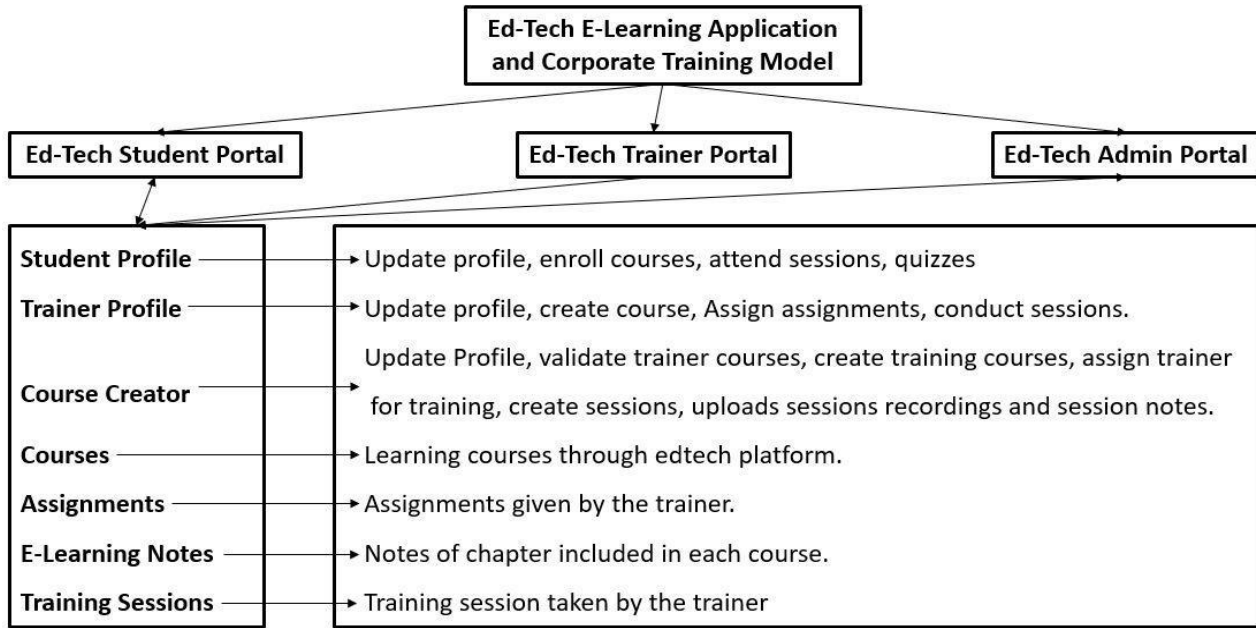


Fig. Application Implementation Model Fl



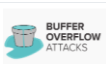

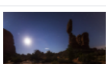


F. Application Implementation Model Output

Trainer Courses: -

Dashboard

- Dashboard
- Training
- Courses
- Enrolled Users

All Courses (8) Add Course

Name	Image	Enrolled	Action
elearning Rating: 1/5		1	✔ Add Chapter ✖
Web Application testing Rating: 4.5/5		2	✔ Add Chapter ✖
Buffer Overflow Rating: 2/5		1	✔ Add Chapter ✖
Exploit Development Rating: 0/5		0	✔ Add Chapter ✖
Bash Scripting Rating: 0/5		0	✔ Add Chapter ✖
BurpSuite Rating: 0/5		0	✔ Add Chapter ✖
Network Security Rating: 0/5		0	✔ Add Chapter ✖

Student Training Details: -

The screenshot displays a student training dashboard. On the left is a dark sidebar menu with the following items: Dashboard (highlighted in blue), Training, My Courses, Favorite Courses, Recommended Courses, Assignments, and Change Password. The main content area is titled 'Training Details(2)' and contains two course cards. The first card, 'Creator Course', features a scatter plot with 'Rating' on the y-axis and 'Number of Sessions' on the x-axis. Below the plot, it shows the course name as a link, a description starting with 'A course description can be defined succinctly as 'all the relevant details of your course.'', and a 'View' button. The second card, 'Training Course 2', shows a screenshot of a course interface, the course name as a link, a description 'Training Course 2 Training Course 2 Training Course 2...', and a 'View' button.

G. Application Design Features: Proposed Model

Application can deal with different standard of methodologies and concepts

- **Accessibility:** Didactic Solution is a web-based platform that is accessible to anyone with an internet connection.
- **E-learning website:** The application provides an online platform for people to study by accessing notes and recordings.
- **User-friendly interface:** The system is designed with a user-friendly interface, making it easy for users to register, log in, and access the courses they are interested in.
- **User roles:** There are four different types of user roles: Administrator, Trainer, Course Designer, and Student. Each role has specific permissions and access to different features of the system.
- **Online learning meetings:** Students have access to online learning meetings and can also access the recordings of these meetings.
- **Course popularity and enrollment:** Students can view which courses are most popular based on ratings and also check the courses they are currently enrolled in the courses they are interested in and receive certificates upon completion.
- **Trainer module:** Trainer can create their own courses, the trainer can see how many training sessions they have to conduct and when.
- **Access to recorded training sessions:** In addition to live online training, students also have access to recorded training sessions, which they can watch anytime.
- **Trainers' dashboard:** The system displays the number of courses a particular trainer is signed up for, and the administrator can view the duration of the training session, meeting link, and other details. The system also includes recording session details.
- **Course recommendations:** The system recommends courses to students based on the interests they indicated at registration and provides a list of popular courses with ratings of at least 4.
- **Course notes and materials:** The course creator can upload videos and PDFs as notes, and handle session recording and notes, which will be signed off to the trainer.
- **Quizzes:** Quizzes are added to each topic to test students' understanding of the subject matter.
- **Chatbot:** A chatbot is added to the system to allow students to ask questions whenever they like.
- **Business Model:** It is designed to provide low-cost courses to students and employees, making it globally accessible and offering on-demand learning solutions of the highest quality. Every user can view & access, sharing in terms of free or paid accesses.
- **Database type and features:** Database software used and classification of data & its type like Video Lecture, Pdf, Ppts, E-books, Assignments etc.

Among that main features are the E-learning Model, User-friendly, Trainer model, Course recommendations, Quizzes, Business Model, Database and Chatbot.

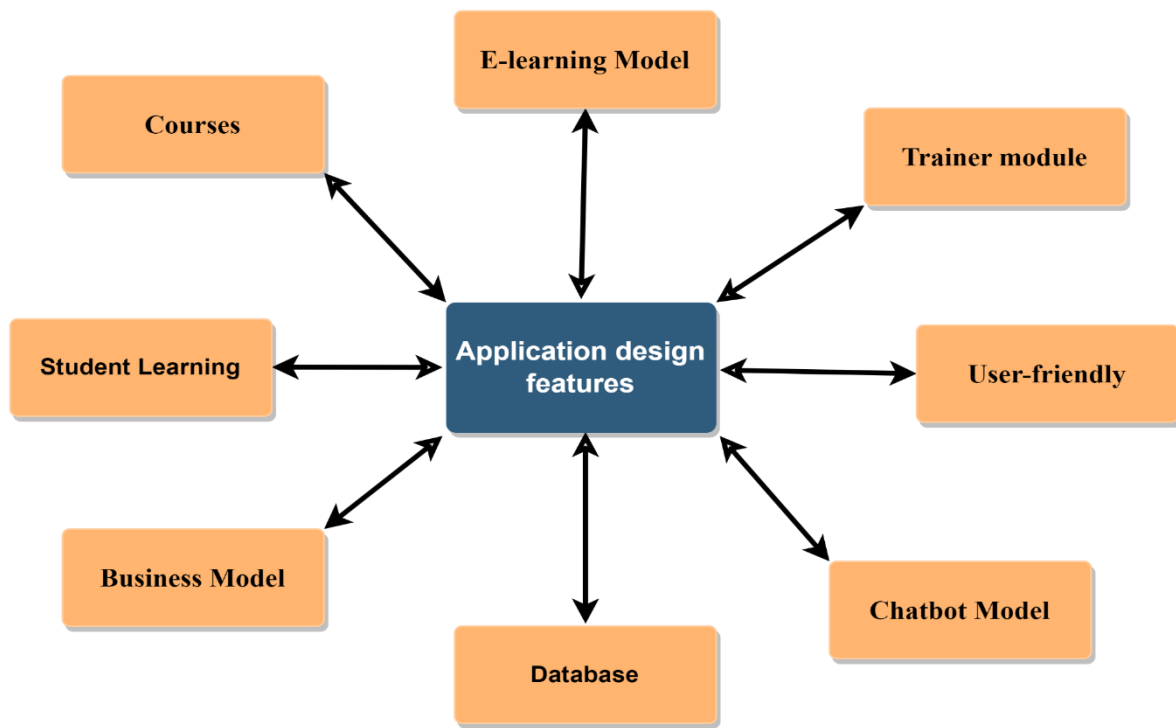


Fig. Application Design Features: Proposed

IV. Market Potential

The market potential for web-based corporate training solutions, like Didactic Solution, and as businesses increasingly seek to stay competitive and up-to-date with the latest technologies, the demand for efficient and effective training solutions is growing. Didactic Solution is significant as companies increasingly recognize the importance of providing ongoing training to their employees to improve their skills and productivity. This is particularly true in today's fast-paced and rapidly evolving technological landscape, where workers need to constantly upgrade their skills to remain competitive. The global e-learning market is expected to reach \$325 billion by 2025, driven by the growing demand for flexible and cost-effective training solutions.

Didactic Solution's focus on providing a low-cost, user-friendly, and efficient platform for corporate training positions it well to capture a significant share of this market. Its ability to recommend courses based on personal interests, provide certificates upon course completion, and offer a variety of training options, including live instruction, recorded sessions, notes, and videos, further enhances its value proposition. The platform's adaptability, simplicity, and scalability make it an attractive solution for companies of all sizes, seeking to deliver high-quality training programs to their employees.

V. Future Scope

In the future, Didactic Solution could expand its offerings to include additional features and capabilities. For example, the platform could incorporate chatbots to provide learners with personalized assistance and support, helping them to navigate the training materials and answer questions in real-time. Additionally, cross-platform learning could be further enhanced through the integration of mobile learning applications, enabling learners to access training materials on their mobile devices.

Furthermore, the integration of online virtual labs could provide learners with hands-on experience in simulated environments, allowing them to practice skills and apply knowledge in a safe and controlled setting. This could be particularly valuable for technical training programs that require learners to work with complex equipment or software.

To enhance the effectiveness of the platform, Didactic Solution could also incorporate advanced analytics and reporting capabilities. This could provide trainers and administrators with detailed insights into learner engagement, progress, and performance, enabling them to identify areas for improvement and adjust training programs accordingly.

The future scope of Didactic Solution is broad and varied, with numerous opportunities to enhance the learning experience for students and employees alike. By incorporating new technologies, features, and capabilities, the platform could provide a highly effective and engaging training solution that meets the evolving needs of today's learners.

VI. Results

To determine the usage of web-based training solutions like Didactic Solution, research has shown that the e-learning industry is growing rapidly, and the adoption of online learning is on the rise. According to a report by Research and Markets, the global e-learning market is expected to reach \$325 billion by 2025, growing at a CAGR of 7.5% from 2020 to 2025. This indicates a significant increase in the number of users who are using web-based training solutions like Didactic Solution for continuous learning and training.

Furthermore, the COVID-19 pandemic has accelerated the adoption of online learning solutions as many people were forced to work and study from home. This has led to a surge in demand for e-learning solutions, and many companies and educational institutions have turned to web-based training solutions to provide training to their employees and students.

In a recent survey conducted by Training Industry, Inc., 84% of organizations are using e-learning solutions to deliver training to their employees. The same survey also found that 59% of organizations are using mobile learning solutions, which are often web-based, to deliver training to their employees. It is clear that there is a growing trend towards the adoption of web-based training solutions like Didactic Solution, and the usage of these applications is expected to continue to increase in the coming years.

VII. Conclusion

In summary, we developed a service-based project, the Didactic Solution, designed to provide accessible and cost-effective training to both employees and students. The system offers a user-friendly interface with on-demand training options including live instruction, recordings, notes, and videos. The platform recommends popular courses based on rating and personal interest, and certificates are provided upon course completion. Future developments include the addition of quizzes for each topic and a chatbot to enhance communication between students. We are committed to continuously improving our platform and interface to provide high-quality, affordable training solutions. With the growing need for continuous learning in a rapidly changing technological world.

However, we acknowledge that further research and development are necessary to refine our algorithms and enhance the user experience of our web. We remain committed to advancing our technology and collaborating with affordable training solutions to provide a valuable resource to individuals and organizations seeking to enhance their skills and knowledge.

REFERENCES:

1. Buendia Garcia F, Hervas Jorge A. Evaluating e-learning platforms through SCORM specifications. In: Proceedings of IADIS Virtual Multi Conference on Computer Science and Information Systems (MCCSIS 2006); 2006 May 15-19. 2006. www.iadis.org/Multi2006/Papers/15/S020_EL.pdf [2/13/2007]
2. Patti Shank, "eLearning Guild Research: Reconsidering Bloom's Taxonomy" Learning Solutions Magazine, February 14, 2013.
3. T. Wolf, "Assessing student learning in a virtual laboratory environment," IEEE Trans. Educ., vol. 53, no. 2, pp. 216–222, May. 2010.
4. Development and evaluation of a mobile educational application to support teaching of management of pose in Operating Systems - IEEE Conference Publication-IEEE Xplore.
5. The blended learning study on corporate framing IEEE Conference Publication-IEEE Xplore.
6. M. Derawi, "E-learning protection of open access platforms," in Proc. Int. Conf. Web Open Access Learn. (ICWOAL), Nov. 2014, pp. 1–6.
7. A. Chiappe and L. L. Lee, "Open teaching: A new way of E-learning?"