

## Ministry of Labour and Vocational Training

Irfani Suar<sup>1\*</sup>, Shandy Tresnawati<sup>2</sup>  
Polytechic TEDC

**Corresponding Author:** Irfani Suar [irfani.suar@gmail.com](mailto:irfani.suar@gmail.com)

---

### ARTICLE INFO

*Keywords:* ICT, Learning Process, Education

*Received :* 09, December

*Revised :* 15, January

*Accepted:* 24, February

©2023 Suar, Tresnawati: This is an open-access article distributed under the terms of the [Creative Commons Atribusi 4.0 Internasional](https://creativecommons.org/licenses/by/4.0/).



### ABSTRACT

The learning process at the time of development of information and communication technology (ICT) such as this allows the teacher absent in class. The learning process is no longer dependent on the teacher as the only learning resources, and can take place anytime and anywhere. The learning process is no longer just a form of verbal communication between teachers and students. With the rapid development of ICT in education and the Internet as an integral part in it, many educational institutions offers web-based learning, or often referred to as online lectures or E-learning. This type of learning such as course requires good and maximum management, so that learning objectives can be achieved. Based on author observations, the interest of Indonesian youth against animation is increase over time. Meanwhile the available of information is still little or difficult to get, while Cimahi Creative Association (CCA) has a forum that can facilitate and accommodates its members to free ask questions and share information about animation between the members. Therefore, after getting to know the function of e-learning applications, finally the author decided to choose a topic about "E-learning Management System in Cimahi Creative Association (CCA)" which aims to facilitate the dissemination of relating information to members wherever they are.

---

## INTRODUCTION

E-learning is a teaching tool that uses media electronics to deliver a material content. E-learning is one strategy to improve education so that implementation needs to be expanded and developed. E-learning is currently used for distance learning, blended learning/teaching approach, and the use of technology to support a wide range of educational activity like. E-learning usually implemented for training site, school site and many more.

Recent studies show that the effectiveness of online instruction is considered equal to that of face-to-face classroom instructions but not as effective as the combination of face-to-face and online methods.

According to (Lipsitz, Lawrence, (Editor); Reisner, Trudi, *The Computer and Education*, Englewood Cliffs, NJ : Educational Technology Publications, January 1973. Articles selected from Educational Technology magazine) the worldwide e-learning industry is economically significant, and was estimated in 2000 to be over \$48 billion according to conservative estimates. Developments in internet and multimedia technologies are the basic enabler of e-learning, with consulting, content, technologies, services and support being identified as the five key sectors of the e-learning industry.

As mentioned in the book *Philology Education* by Santrock, one effective way to teach is to have technological expertise. In Indonesia, also have a lot of professors at a major university like UI, ITS, UGM, Airlangga University, ITB, USU and UB applying this technique. The learning method does not require face-to-face between students and lecturers. Students only have to sit in front of a computer or laptop and on line on the internet. Lecturers only serve as a mediator, facilitator, and motivator. Lecturers just give lectures or module assignment questions through email, and the students need to find the source of the data itself or from a lecture or a lecturer assigned task.

Cimahi Creative Association or (CCA) is a place for creative industry person in Cimahi. CCA inauguration on 28 October by the mayor of Cimahi as witness in Alam Wisata Cimahi. In inauguration CCA with Mr. Rudi Sutedia as dean will get help from his 7 vice that represent 7 sector of creative industry which is: Film & Photography, ICT, Animation/comic/game, Handicraft & art, Design, Fashion and tour. In here we are gather to exchange ideas, experiences, and information about 7 sector creative industries which described above.

At the moment, the researchers choose Cimahi Creative Association, which does not currently have an application web-based e-learning as a place of research and choose to implement an e-learning application that the author made. It is expected with this e-learning exchange experiences and information activities not limited by space and location.

## THEORETICAL REVIEW

In 1960, the University of Illinois initiated a classroom system based in linked computer terminals where students could access informational resources on a particular course while listening to the lectures that were recorded via some form of remotely device like television or audio device.

In the early 1960s, Stanford University psychology professors Patrick Suppes and Richard C. Atkinson experimented with using computers to teach math and reading to young children in elementary schools in East Palo Alto, California. Stanford's Education Program for Gifted Youth is descended from those early experiments. In 1963, Bernard Luskin installed the first computer in a community college for instruction, working with Stanford and others, developed computer assisted instruction. Luskin completed his landmark UCLA dissertation working with the Rand Corporation in analyzing obstacles to computer assisted instruction in 1970. Educational institutions began to take advantage of the new medium by offering distance learning courses using computer networking for information. (Bernard J. Luskin, *Casting the Net over Global Learning: New Developments in Workforce and Online Psychologies* (Santa Ana, CA: Griffin Publishing, 2002).) (Bernard J. Luskin, "Professional Development: Who Might Today's CIO Be Tomorrow?" *Greentree Gazette* (May 2006), p. 44.)

Early E-learning systems, based on Computer-Based Learning/Training often attempted to replicate autocratic teaching styles whereby the role of the E-learning system was assumed to be for transferring knowledge, as opposed to systems developed later based on Computer Supported Collaborative Learning (CSCL), which encouraged the shared development of knowledge.

Computer-based learning made up many early E-learning courses such as those developed by Murray Turoff and Starr Roxanne Hiltz in the 1970s and 80s at the New Jersey Institute of Technology, and the ones developed at the University of Guelph in Canada. In 1976, Bernard Luskin launched Coastline Community College as a "college without walls" using television station KOCE-TV as a vehicle. By the mid-1980s, accessing course content become possible at many college libraries. (Hiltz, S. (1990) 'Evaluating the Virtual Classroom', in Harasim, L. (ed.) *Online Education: Perspectives on a New Environment* New York: Praeger, pp. 133-169)

Cassandra B. Whyte researched about the ever increasing role that computers would play in higher education. This evolution, to include computer-supported collaborative learning, in addition to data management, has been realized. The type of computers has changed over the years from cumbersome, slow devices taking up much space in the classroom, home, and office to laptops and handheld devices that are more portable in form and size and this minimalization of technology devices will continue. (Whyte, Cassandra Bolyard, "Student Affairs-The Future", *Journal of College Student Development*, 30, January 1989, 86-89.)

The Open University in Britain and the University of British Columbia (where Web CT, now incorporated into Blackboard Inc. was first developed) began a revolution of using the Internet to deliver learning, making heavy use of web-based training and online distance learning and online discussion between students. Practitioners such as Harasim (1995) put heavy emphasis on the use of learning networks. (Marton, F. & Booth, S. Learning and Awareness. Mahwah: Lawrence Erlbaum Associates, 1997, p. 47)

With the advent of World Wide Web in the 1990s, teachers embarked on the method using emerging technologies to employ multi-object oriented sites, which are text-based online virtual reality system, to create course websites along with simple sets instructions for its students. As the Internet becomes popularized, correspondence schools like University of Phoenix became highly interested with the virtual education, setting up a name for itself in 1980. (Mason, R. (1999). 'European Trends in the Virtual Delivery of Education' in The Development of Virtual Education: a Global Perspective (Glen Farrell ed) Vancouver, Canada: The Commonwealth of Learning)

In 1993, Graziadei described an online computer-delivered lecture, tutorial and assessment project using electronic mail. By 1994, the first online high school had been founded. In 1997, Graziadei described criteria for evaluating products and developing technology-based courses include being portable, replicable, scalable, and affordable, and having a high probability of long-term cost-effectiveness. (Graziadei, W. D. & McCombs, G. (1996). Wiring the trenches: Teaching faculty and librarians working together on the Internet. The Reference Librarian Internet References Quarterly 1(1), 89-103.) (Graziadei, W. D. (1996). VICE in REST Part IV. In T. M. Harrison & T. D. Stephen (Eds.). Computer networking and scholarship in the 21st Century university (pp. 257- 276). New York: SUNY Press.)

By 1994, CALCampus presented its first online curriculum as Internet becoming more accessible through major telecommunications networks. CALCampus is where concepts of online-based school first originated, this allowed to progress real-time classroom instructions and Quantum Link classrooms. The idea of Virtual Education soon became popular and many institutions began following the new norm in the education history. (learners, mature. "CALCampus - About." Accredited Distance Learning Courses- CALCampus Online. CALCampus, n.d. Web. 12 Feb. 2013)

The emergence of E-learning is arguably one of the most powerful tools available to the growing need for education. The need to improve access to education opportunities allowed students who desire to pursue their education but are constricted due to the distance of the institution to achieve education through "virtual connection" newly available to them. Online education is rapidly increasing and becoming as a viable alternative for traditional classrooms. According to a 2008 study conducted by the U.S Department of Education, back in 2006-2007 academic year, about 66% of postsecondary public and private schools began participating in student financial aid programs offered some distance learning courses, record shows only 77% of enrollment in for-credit courses being for those with an online component. In 2008, the

Council of Europe passed a statement endorsing E-learning's potential to drive equality and education improvements across the EU. (Realising the full potential of E-learning for education and training. Council of Europe. Retrieved 7 May 2013, doc 3018)

The definition of E-learning is often changed concomitant with technological advances of today. Various opinions put forward for E-learning can be defined precisely.

Soekartawi, Haryono and Librero (2002) defines E-learning as: E-learning is a general term for technology that support learning, such as the telephone, audio and video, teleconference, satellite transmission, and web-based training or assistance computer instruction. (Soekartawi, Haryono dan Librero, "Reinventing Education", 2002, p 59.)

Jaya Kumar C. Newspapers (2002) in his paper stated E-learning as: E-learning is a teaching and learning that uses electronic circuits (LAN, WAN, or internet) for the delivery of content and interaction. (Jaya Kumar C. Newspapers, (2002), Applications E- (1), 37-46.)

Of the various opinions on the above it can be concluded that the E-learning it is as follows:

1. The new method of teaching and learning that use computer media,
2. Network and the Internet.
3. Delivered teaching materials (content) via the electronic media. Automated material form is also material in electronic form or digital.
4. The existence of electronic systems and applications that support the learning and teaching process.
5. In some cases, the E-learning or face-to-face interaction in class is not required. So that E-learning can be categorized as individual learning activities.

## **METHODOLOGY**

### **General Description on the System**

Below are some of the functions that make e learning as a necessity in learning activities and delivery information between web members and between users.

1. All members automatically become a member of CCA Learning Management System Online. Membership is valid as long as the member is still active for being a part of CCA. Each member having each user account to be able to get into the web and share information through the post and upload files.
2. Members do not need to be face to face to share their knowledge with others. They can use this website to share to each other.
3. Assist members who are outside the Java Island or someone who life far away can remain in touch with other members wherever they are.

**Schedule**

Table 1. Schedule

No.	Activities	Month			
		July	Augustus	September	October
1	Planning				
2	Analysis				
3	Design				
4	Implementation				
5	Maintenance				

**System Requirement**

**Server Requirement**

- Processor: Pentium IV or more
- Memory RAM: 256 MB
- Harddisk: 30GB
- Monitor: VGA (64 MB)
- Mouse
- wampserver2.3
- apache2.2.23
- mysql5.5.28
- php5.4.9

**Client Requirement**

- Intel Core 2, or AMD Phenom
- 4 GB memory (4 GB if you plan to upgrade to Vista/Seven)
- 250 GB hard drive or higher
- Ethernet card and cable
- WPA2 A/G/N Intel wireless card. (Atheros cards may or may not work on our network)

Table 3. Browser Requirement

Google Chrome	Latest 3 Version	When using the content editor and you click "Browse server", the new window that opens, is minimized. You can see it in the tray on your desktop and can right click to maximize.
Firefox	Latest 3 Version	
Internet Explorer	Version 9 Version 8 Version 7	Internet Explorer 10 is currently NOT recommended
Safari	Latest 3 Version	Safari will be supported with the new building of Sakai (2.9)

## Expectation

- a. It is expected that with the establishment of e learning can facilitate the user either member or teacher to share knowledge and information.
- b. It can help people who want to learn from far away. Especially those outside the Java Island.
- c. Can help spread interest in the arts whether it is 3D animation, photography, and movies.
- d. In the future is expected to support the creative industries that have sprung up that value the importance of the creative industries in Indonesia will raise.

## System Analysis and Design

### Analyzing the System

#### Use Case Diagram

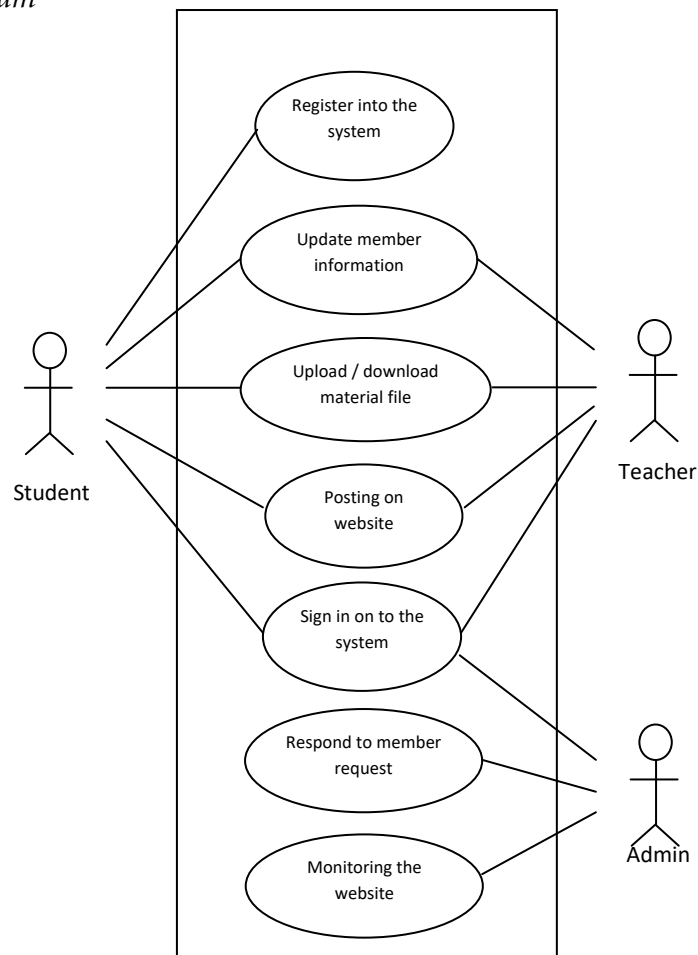


Figure 1. Use Case Diagram

Context Diagram

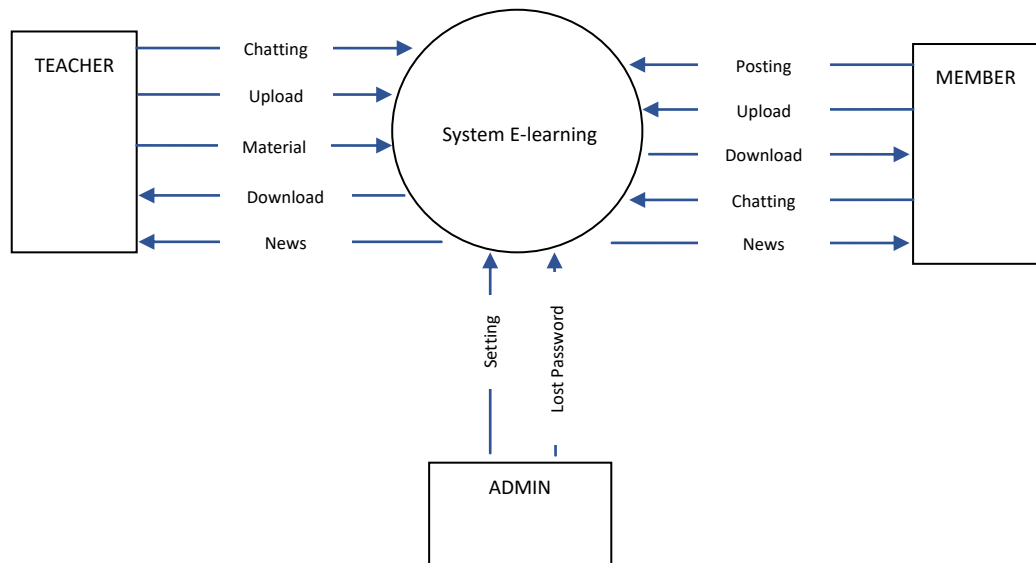


Figure 2. Context Diagram

From picture above it can be seen that the E-Learning system has 3 external entities associated with the system, which is:

1. Member

A member can post, upload, download from the web. And also members can interact with fellow web users either teachers or members.

2. Teacher (Instructor)

A teacher can post, upload, download from the web. And also teachers can interact with fellow web users either teachers or members.

3. Admin

Here an admin can do all the activities that were done by the member and teacher. But in this system, the admin only in charge of overseeing the website. Usually an admin is a teacher who has knowledge about the website.

Data Flow Diagram Level 0

Data Flow Diagram Level 0 Login

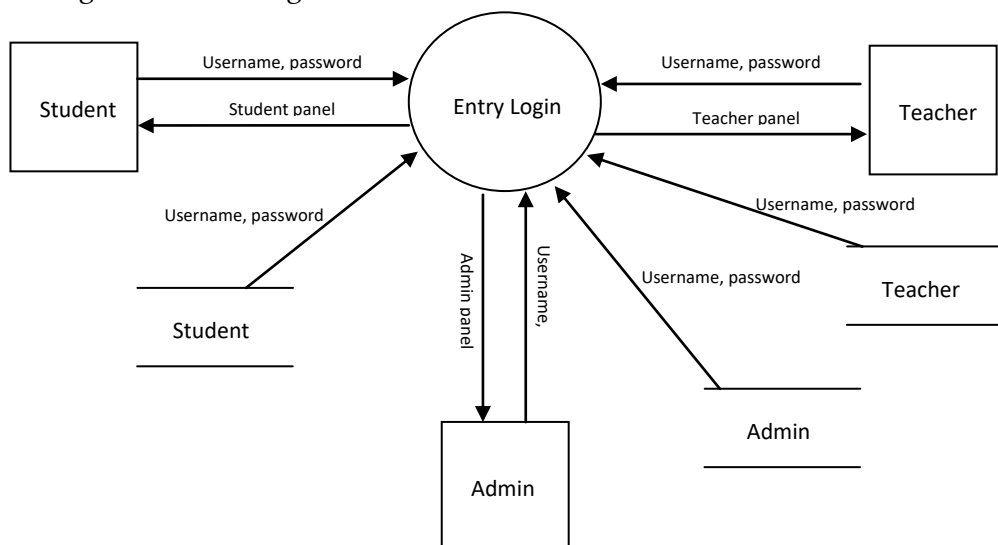


Figure 3. Data Flow Diagram Level 0 Login

*Data Flow Diagram Level 0 Admin*

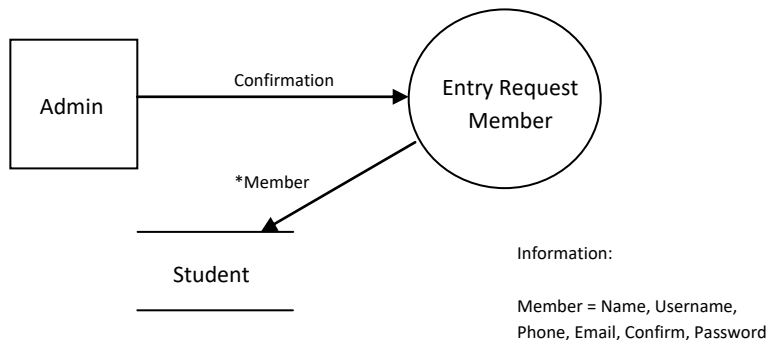


Figure 4. Data Flow Diagram Level 0

*Data Flow Diagram Level 0 User*

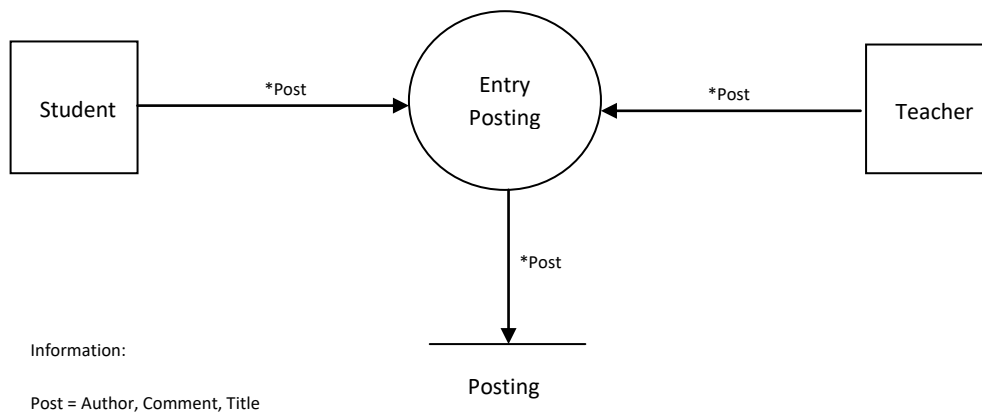


Figure 5. Data Flow Diagram Level 0 User

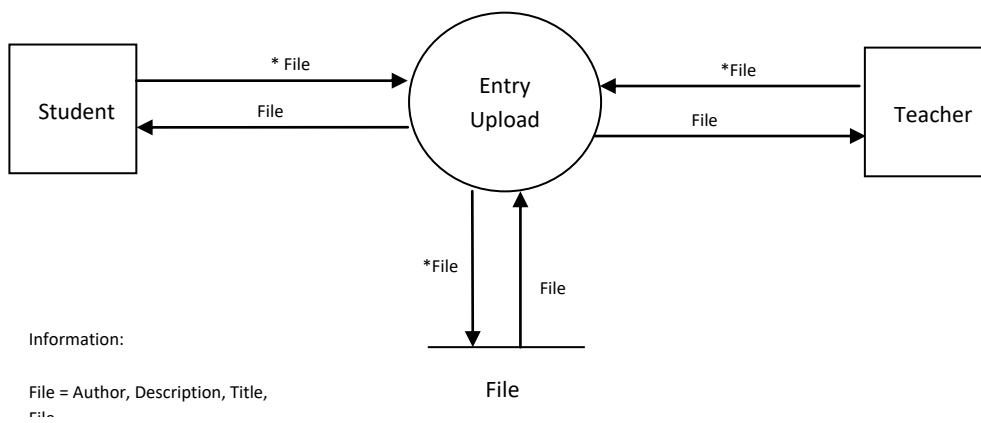


Figure 6. Data Flow Diagram Level 0 User (Upload and Download File)

Data Flow Diagram Level 0 Visitor

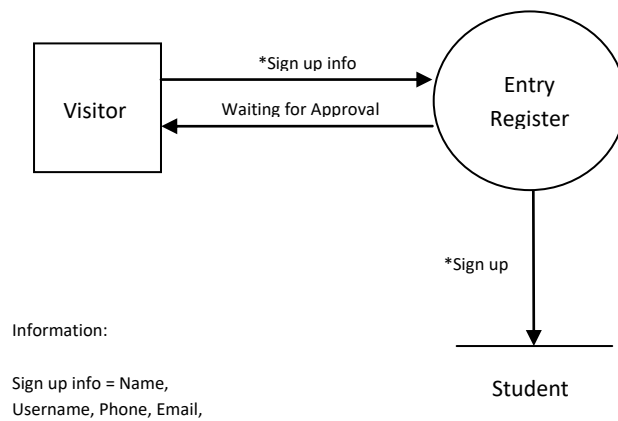


Figure 7. Data Flow Diagram Level 0

**Data Dictionary**

*Entity Relationship Diagram*

- a. Admin monitoring Student
  1. First Table: admin
  2. Second Table: student
  3. Relationship: one-to-many (1:n)
  
- b. Admin monitoring Teacher
  1. First Table: admin
  2. Second Table: teacher
  3. Relationship: one-to-many (1:n)
  
- c. Admin control Post
  1. First Table: admin
  2. Second Table: posting
  3. Relationship: one-to-many (1:n)
  
- d. Admin control File
  1. First Table: admin
  2. Second Table: file
  3. Relationship: one-to-many (1:n)
  
- e. Teacher upload File
  1. First Table: teacher
  2. Second Table: file
  3. Relationship: one-to-many (1:n)
  
- f. Teacher make Post
  1. First Table: teacher
  2. Second Table: posting
  3. Relationship: one-to-many (1:n)

- g. Student upload File
  - 1. First Table: student
  - 2. Second Table: file
  - 3. Relationship: one-to-many (1:n)
  
- h. Student make Post
  - 1. First Table: student
  - 2. Second Table: posting
  - 3. Relationship: one-to-many (1:n)

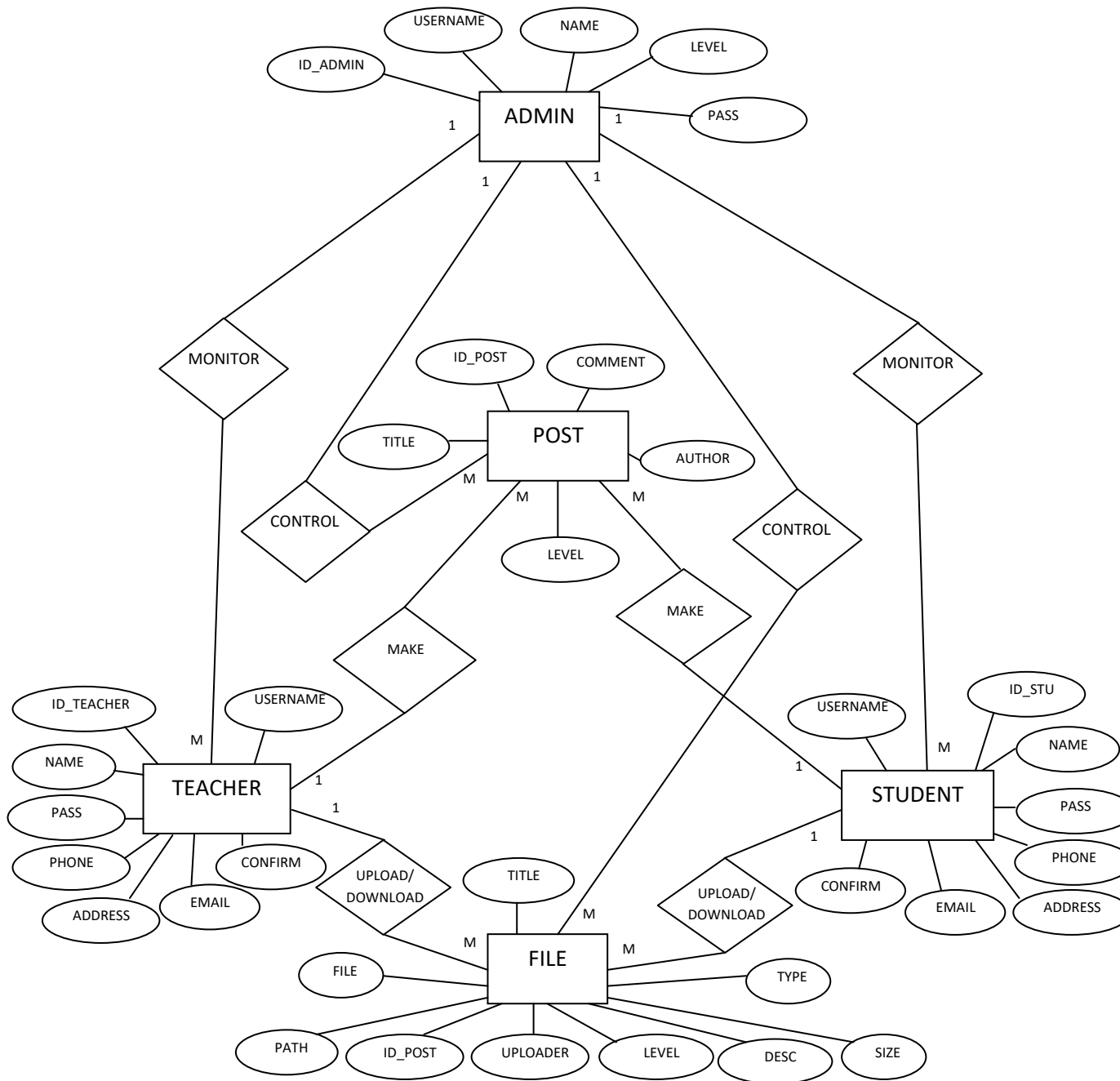


Figure 8. Entity Relationship Diagram

**Data Flow**  
*Admin Table*

Table 4. Admin Table

Field Name	Type	Length	Description
Id admin	Int	2	
Username	Varchar	12	For id login
Name	Varchar	50	For author name
Pass	Varchar	15	Password
Level	Varchar	1	Priority of user

**File Table**

Table 5. File Table

Field Name	Type	Length	Description
Id file	Int	4	
Uploader	Varchar	50	Author of file
Level	Varchar	1	Priority of user
Title	Varchar	32	Title for file
Description	Text		Description of file
Path	Varchar	32	Location where the file saved
File	Varchar	32	The file
Size	Int	11	Size of file
Type	Varchar	32	Type of file

Post Table

Table 6. Post Table

Field Name	Type	Length	Description
Id Post	Int	5	
Author	Varchar	50	Author of post
Level	Varchar	1	Priority of user
Title	Varchar	30	Title of post
Content	Text		Content of posting

Student Table

Table 7. Student Table

Field Name	Type	Length	Description
Id file	Int	4	
Name	Varchar	50	Will appear as author
Username	Varchar	12	For id login
Password	Varchar	15	Password user
Phone	Text	18	Phone of user
Address	Varchar	50	Address of user
Email	Varchar	32	Email of user
Confirmed	Enum	Y, N	Status confirmed by admin. Y for confirmed, N for Not yet confirm

## Teacher Table

Table 8. Teacher Table

Field Name	Type	Length	Description
Id file	Int	4	
Name	Varchar	50	Will appear as author
Username	Varchar	12	For id login
Password	Varchar	15	Password user
Phone	Text	18	Phone of user
Address	Varchar	50	Address of user
Email	Varchar	32	Email of user
Confirmed	Enum	Y, N	Status confirmed by admin. Y for confirmed, N for Not yet confirm

## System Implementation

### Input, Output, and Interface Design Home



Figure 9. Home Page

This is the preview that seen by visitors first time they visit the website, although visitors cannot see the content of the website they still can see schedule and participate chatting in the shout box. Homepage also contains news, CCA address, etc. Any visitor can register themselves on the registration button in the top right corner.










### Admin Page

**Cimahi Creative Association**  
"When a hobby turned into a profession"

Home List Post Schedule Admin Page About CCA Contact Us

You Are Here » Home » Grand Parent » Parent » Child

#### Teachers Table

ID TEACHER	USERNAME	NAME	PHONE	ADDRESS	EMAIL	OTHER	CONFIRMED	< ACTION >
1	kang kur	Kurnia	081234567890	Bandung	kurnia@gmail.com	it is all about money	Y	  
6	shandy	Shandy	098756535	siliwangi street no 18	shandy@yahoo.com	learning by doing!	Y	  
7	fani	Irfani	0789635245	pesantren street no 10	fani@yahoo.com	google is your uncle	Y	  

Page: [ 1 ]


  
**Add New**

Figure 10. Admin Page

In this page an admin can oversee all members, posting and uploading. Admin can change the information of a member by clicking on the paper image or change the password of a member by clicking on the key image, they can even delete the member by clicking on the recycle bin image. Other than that, in this page an admin can add and delete posts and upload files.

*Teacher Page*

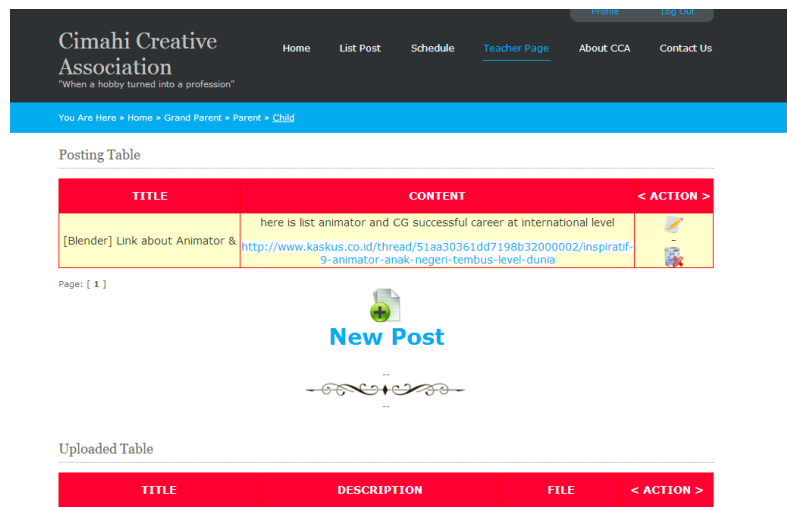
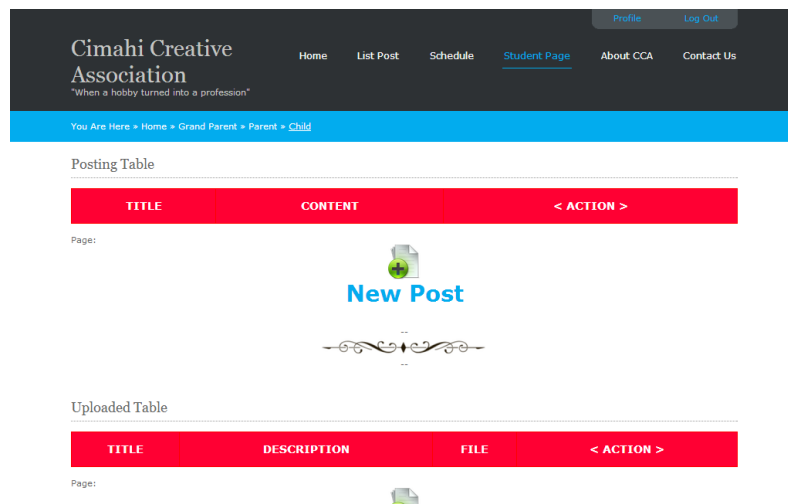


Figure 11. Teacher Page

On this page a teacher can add, edit and even delete a post and add a file to share to other members. To add files or posting they can click paper images on the column action, while they can click the recycle bin image to delete on column action.

*Student page*



Has the same functionality as teacher page. On this page a student member can add, edit and even delete a post and add a file to share to other members. To add files or posting they can click paper images on the column action, while they can click the recycle bin image to delete on column action.

### Schedule Page

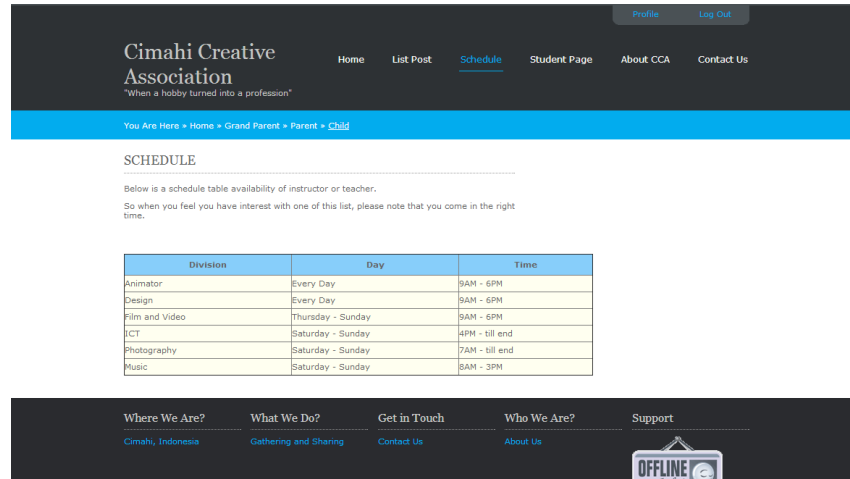


Figure 13. Schedule Page

This page can be visited by anyone both member and visitor. This schedule is divided by contained field in the CCA and the availability of instructors. Procurement schedule aims to make it easier for anyone who wants to share by face to face with instructor and ask some frequently asked questions about the material, ease the instructor to guide them further.

### List Post Page

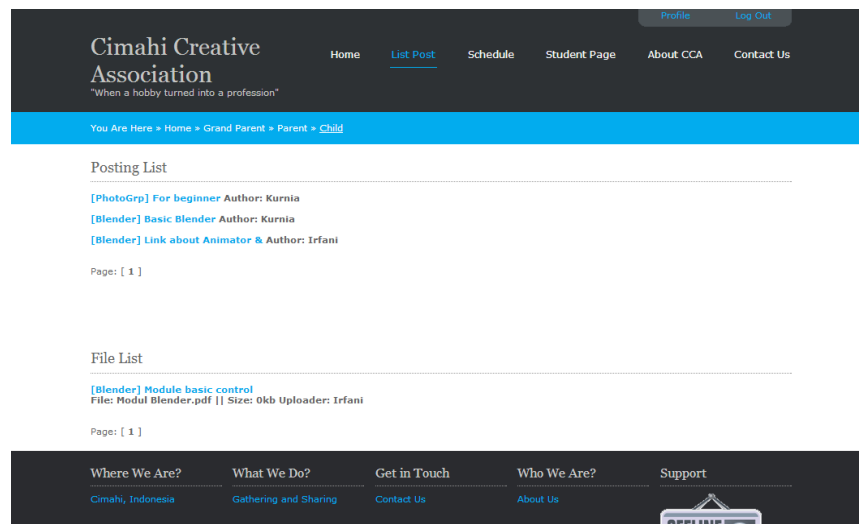
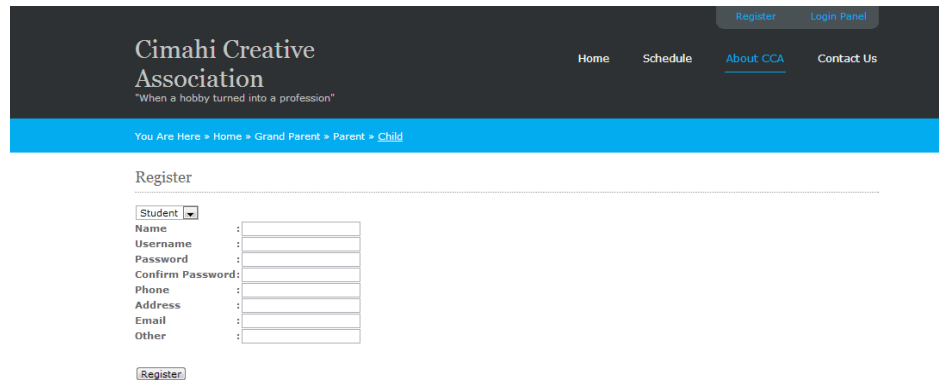


Figure 4.14 List Post Page

List post page is limited and can only be opened by a member. Here the list of posts and files different, the members can read entire post and be able to download a file that has been uploaded. Latest post and upload can be found at news updates on main page.

### *Register panel*



The screenshot shows the registration page for Cimahi Creative Association. The header includes the organization's name and tagline, along with navigation links. A breadcrumb trail indicates the user's path through the site. The registration form includes fields for Name, Username, Password, Confirm Password, Phone, Address, Email, and Other, with a Register button at the bottom.

Figure 15. Register Page

Both students and teachers can register them self in this page. There are several points that should be they fill such as name, username, password, phone, and email. Here name will appear when members update something, meanwhile useful of username is for the id when a member will be logged.

### *Black Box testing*

Black box testing, also called functional testing and behavioral testing, focuses on determining whether or not a program does what it is supposed to do based on its functional requirements. Black box testing attempts to find errors in the external behavior of the code in the following categories: (1) incorrect or missing functionality; (2) interface errors; (3) errors in data structures used by interfaces; (4) behavior or performance errors; and (5) initialization and termination errors. Through this testing, we can determine if the functions appear to work according to specifications. Report of testing is as follows:

Table 9. Black Box testing

Test ID	Description	Result
1	Input valid data	Success message appear, data successfully added
2	Input invalid data	Failure message appear
3	Modify with invalid data	Failure message appear, data will not change
4	Modify with valid data	Success message appear, data has been successfully updated
5	Delete data	Success message appear, data successfully deleted

## CONCLUSION AND RECOMMENDATION

CCA can easily collect the data members that register themselves through this website, Allows members to download and upload files that they want to share.

No special distinction both teachers and students in this website, which distinguishes them is experience and knowledge. Teachers in this website are people who are experienced and have worked in the DreamtoOn Cimahi which are willing to share their knowledge and experience in this website.

The writer realizes that in this paper as well as e-learning applications that writers make have not been able to match and even exceed the capabilities of other e-learning applications. The author attempted to make an e-learning application that does not exist in Cimahi Creative Association. Finally, with humility, the authors are looking forward to constructive criticism and suggestions in order to develop e-learning applications.

## FURTHER STUDY

This research still has limitations so that further research is still needed related to this topic Ministry of Labour and Vocational Training.

## REFERENCES

- Lipsitz, Lawrence, (Editor); Reisner, Trudi, *The Computer and Education*
- Hiltz, S. (1990) 'Evaluating the Virtual Classroom', in Harasim, L. (ed.) *Online Education: Perspectives on a New Environment* New York
- Mason. R. and Kaye, A. (1989) *Mindweave: Communication, Computers and Distance Education* Oxford, UK: Pergamon Press

- Bates, A. (2005) *Technology, e-Learning and Distance Education* London: Routledge
- Farrell, Glen M.. *The development of virtual education: a global perspective.* Vancouver: Commonwealth of Learning, 1999. Print.
- Graziadei, W. D., et al., 1997. *Building Asynchronous and Synchronous Teaching-Learning Environments: Exploring a Course/Classroom Management System Solution*, [http://horizon.unc.edu/projects/monograph/CD/Technological\\_Tools/Graziadei.html](http://horizon.unc.edu/projects/monograph/CD/Technological_Tools/Graziadei.html)
- "What is the History of Online Education?." *Degrees & Courses from Top Colleges and Universities: Degree Directory.* DegreeDirectory, n.d. Web. 12 Feb. 2013, <http://degreedirectory.org/articles/What>
- Realising the full potential of e-learning for education and training.* Council of Europe.  
Retrieved 7 May 2013, Url: <http://assembly.coe.int/Main.asp?link=/Documents/AdoptedText/ta08/EREC1836.htm>
- Arbie, *Manajemen Database dengan MySQL*, Andi Yogyakarta, 2004.
- Eko Budiarto, "E-learning", <http://issuu.com/elitraharja/docs/e-learning>
- Peranginangin, Kasiman, *Aplikasi WEB Dengan PHP dan MYSQL*, Andi Yogyakarta, 2006.
- Soekartawi, Haryono dan Librero, "Reinventing Education", 2002, p 59.
- Sugianto, David, Hapsoro Renaldy N, dan Muhammad Farhan Sjaugi, *Langkah Demi Langkah Membangun Website Dengan PHP*, Datakom Lintas Buana, Jakarta, 2004.
- Url: <http://www.techpluto.com/google-transit-benefits/>
- Madrigal, Alexis C. "How Google Builds its Maps--and What it Means for the Future of Everything," *The Atlantic*, 6 September 2012. Retrieved on 2013-2-9.
- Url: <https://support.google.com/earth/answer/21417?hl=en>
- Url: [http://docs.moodle.org/25/en/About\\_Moodle](http://docs.moodle.org/25/en/About_Moodle)

*Suar, Tresnawati*

Url: <https://drupal.org/node/265726>

"Data Modeling Made Simple 2nd Edition", Steve Hoberman, Technics Publications, LLC 2009

Url: <http://spot.colorado.edu/~kozar/DFDtechnique.html> Url: <http://databases.about.com/od/specificproducts/1/blentity-relationship-diagrams.htm>