

# Analysis of Cyber Learning Application Implementation and Use of E-learning Content for Learning Quality Improvement in Higher Education

Case Study at Sultan Agung Islamic University-UNISSULA

Muhammad Khosyidin

Department of Electrical Engineering, Faculty of Industrial  
Technology  
Semarang 50112, Indonesia

Nuzulia Khoiriyah

Department of Industrial Engineering, Faculty of Industrial  
Technology  
Semarang 50112, Indonesia

**Abstract**—The implementation of e-learning has become a demand for Higher Education, with the provision of the management of Sultan Agung Islamic University (UNISSULA) which require the lecturer to upload teaching material on the application of Cyber Learning, the lecturer was able to maintain the intensity of communication with the students without the constrained of space and time. The research was conducted by analyzing the activity of learning with the application of the use of cyber-learning and e-learning contributes for students as well as identifying factors that influence the successful implementation of learning systems with cyber learning. This study uses questionnaires, referring kracjie table. The assessment was using a Guttman scale, so that the existing data is nominal data. The results of validity and reliability testing of the questions and answers contained in the questionnaire respondents. This research make the conclusion that students are familiar with the cyber learning application, but the benefits that have not been obtained and has no effect to increase the performance index of student. Overall the system components and applications of e-learning in UNISSULA were good expressed by the majority of student respondents and were able to support the implementation of the course with e-learning models.

**Keywords:** *e-learning; cyber learning; chi-square; Improving the Quality of Learning.*

## I. INTRODUCTION

The implementation of e-learning as a means to improve the quality of learning an educational institution has become a necessity, the principle of the implementation of e-learning is providing services in the field of information technology (academic) faster, better, and easier for the academic community. Implementation of e-learning can encourage creativity and enhance the professionalism of lecturers and students in implementing the *Tri Dharma Perguruan Tinggi*, the education and teaching, Society Researches and Dedications [1]. The existence of e-learning is naturally make the lecturers moved to prepare and make teaching materials (soft copy) be as attractive as possible, lecturers are able to maintain the intensity of communication with the students without the constrained space and time. The existence of e-

learning enables interaction between faculty and students through the Internet and network access services e-learning website.

Sultan Agung Islamic University (UNISSULA) as one of the leading universities in Central Java are expected to provide the best service for students. Therefore UNISSULA support the existence of e-learning as a means for improving the quality of services in the learning process, some effort to support the college management policy has been made, such as the provision of supporting internet access in the campus environment, training in the use of e - learning for faculty and students, Certificate of teaching that will only be given if the professor has been uploaded material on e-learning media. E-learning or cyber-Learning applications, this Moodle-based application services can be enjoyed UNISSULA faculty and students for more than four years, so it takes a research study whether the program has been run and has been able to provide benefits in accordance with the plan. The study was conducted by analyzing the activity of learning with the application of the use of cyber-learning and e-learning contributes to students as well as identifying factors that influence the successful implementation of learning system with cyber learning application.

This study identifies whether cyber-learning facilities as well as e-learning content has been familiar to use and contribute to the students to improve academic performance index, identify what factors may affect the successful implementation of learning systems with cyber learning

## II. MATERIAL AND METHOD

### A. E-learning definition

According to Sohn (2005) in Surjono [2]. E-learning is short for electronic learning. E-learning contains a very broad sense, so many experts who elaborate on the definition of eLearning from various viewpoints. [3]. stated as follows:

- E-learning is learning at a distance that uses computer technology (usually the Internet).
- E-learning enables employees to learn at their work computers without traveling to a classroom.
- E-learning can be a scheduled session with an instructor and other students, or it can be an on-demand course that the employee can take for self-directed learning at a time when it's convenient.

One of common definition of e-learning is given by Gilbert & Jones (2001) in Surjono [2] that the delivery of learning material through an electronic medium such as the Internet, intranet, satellite broadcast, audio / video tape, TV interactive, CD-ROM, and computer-based training (CBT). Similar definition is also proposed by the Australian National Training Authority (2003) which includes applications and processes that use a variety of electronic media such as the Internet, audio / video tape, interactive TV and CD-ROM learning materials in order to deliver more flexible. One of the accepted definition of many parties is the definition from Darin E. Hartley [4], which states that e-Learning is a type of learning system that allows the teaching materials to be conveyed to the students using the media of the Internet, Intranet or other computer network media. Diana [5] summarizes the meaning or definition of e-learning from multiple experts to be as follows:

- a. New teaching and learning method that uses computer networks and internet media
- b. Teaching materials conveyed through electronic media, automatic form of teaching materials as well as in digital form.
- c. The existence of electronic systems and applications that support the teaching and learning process.

The components that make up an e-learning according to Diana [5] are:

- a. Infrastructure of e-learning, can be a personal computer (PC), computer networks, internet and multimedia equipment, including teleconference equipment if necessary.
- b. Systems and applications such as e-learning software systems virtualize conventional teaching and learning process.
- c. E-learning content, content and learning materials that exist in e-learning multimedia system in the form of text-active and can be accessed by students anytime and anywhere as long as it is connected to the Internet.
- d. Actor, consists of lecturers and students who receive teaching materials as well as the administrators who manage the administration and the teaching and learning process.

#### B. Measurement Scale Questionnaire

Based on the figures used in the data collection questionnaire (questionnaire), there are several scales used, namely: the Likert scale, scale Guttman, Thurstone scale, rating scale (rating scale), and semantic differential.

##### a. Likert scale

This scale is used to measure the attitudes, opinions, perceptions about a person or group of people who want to know a particular phenomenon. In a Likert scale questionnaire is usually accompanied by 5 answers, for example *Sangat Setuju* (SS), *Setuju* (S), *Netral* (N), *tidak Setuju* (TS) and *sangat tidak Setuju* (STS).

So that researchers can easily determine whether a respondent answers with a really - really or abroad - random, the questionnaire should be prepared based on positive statements and negative statements. For positive statements, answer scores ranging from number 5 to SS, 4 for S, 3 for N, 2 for TS, and 1 for STS. As for the negative statement is the opposite.

TABLE I. EXAMPLES OF LIKERT SCALE STATEMENTS

No	Statements	The Answer				
1.	Lecturer ability for teaching has been in line with expectations and desires of me.	SS	S	N	TS	STS
2.	Lecturer coming late for teaching in the classroom	SS	S	K	J	TP

Note :

- SS = *Sangat Setuju*, S = *Setuju*, N = *Netral*, TS = *Tidak Setuju*, STS = *Sangat Tidak Setuju*
- SS = *Sangat Sering*, S = *Sering*, K = *Kadang - kadang*, J = *Jarang*, TP = *Tidak Pernah*

##### b. Guttman scale

This scale is used to measure a firm and consistent about the attitudes, opinions, perceptions about a person or group of people who want to know a particular phenomenon. In a Guttman scale is only provided two alternative answers, such as yes - no, agree - disagree, never - never. The value written in this scale are 0 and 1, or 1 and 2 where the figure is a nominal or ordinal scale categories

TABLE II. THE EXAMPLE STATEMENT OF GUTTMAN SCALE

No	Statements	The Answer	
1.	Lecturers have fulfilled 14 times attendance in accordance with schedule.	Yes	No
2.	Lecturer provides penalties on students who are often late to class	Agree	Not Agree

##### c. Thurstone scale

This scale is used to measure the attitudes, perceptions of a person or group of people about a particular phenomenon that we want to know.

##### d. Rating Scale

Respondents provide an assessment of the statements given by way of scoring has been provided so that the results of the respondents' answers will form the quantitative data

(numeric) which would then be converted into qualitative data by researchers

#### e. Semantic Differential

Used to measure attitudes that are not multiple choice or checklist, but compiled a continuum line is very positive that the answer lies in the extreme right of the line, while a negative answer lies at the extreme left of the line, or vice versa. Respondents could provide an answer to the positive and negative range

#### C. Determination of Sample Size

The number of samples is often expressed by members of the sample size. The number of samples is 100% representative of the population is the same as the population. The greater the number of samples closer to the population, then the chances of generalization error gets smaller and smaller otherwise the number of samples away from the population, the greater the generalization error [6]. There are several methods of determining the number of samples in the study. Is there a method by using the calculations (formula applications) there is also a practical way to look at the table and nomogram Krejcie Harry King [6].

##### a. Calculation formulas

When the sample size is more than 100,000, the researcher could not see the table again. Therefore, researchers should be able to calculate its own. There are 2 formula is: unknown standard deviation and the standard deviation is known.

For the calculation formula of the unknown sample standard deviation is as follows:

$$n \geq \frac{Z^2 \cdot p \cdot q}{e^2} \quad (1)$$

Note:

- n = population size required
- p = percentage hypothesis (H0) is expressed in units of magnitude opportunity = 0.5
- q = 1 - 0.5 = 0.5
- $\frac{Z^2}{e^2}$  = difference between estimated on the working hypothesis (Ha) with the null hypothesis (H0) divided by Z at a given confidence level

The calculation of the unknown sample standard deviation is as follows:

$$n \geq \frac{Z^2 \cdot \sigma^2}{e^2} \quad (2)$$

Note =

- n = sample size required
- b = the difference between the estimated benchmark interpretation
- z = the price depends on the specified confidence level (table z)
- $\sigma$  = standard deviation

#### b. Determination of Sample With Tables and nomogram Krejcie Harry King

Krejcie in the calculation of sample size was based on an error of 5%. So it has obtained a sample of 95% of the population. Table Krejcie shown in Table 3. Example of the table it is seen when the total population of 100, the sample is 80, if the population is 100, the number of samples is 278.

TABLE III. TABLE FOR DETERMINING NEEDED SIZE S OF A RANDOMLY CHOSEN SAMPLE FROM A GIVEN FINITE POPULATION OF N CASES SUCH THAT SAMPLE PROPORTION WILL BE WITHIN  $\pm 0.5$  OF THE POPULATION PROPORTION P WITH A 95 % LEVEL OF CONFIDENCE

N	S	N	S	N	S
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	100000	384

Harry King calculate the sample was not only based on an error of 5%, but varies up to 15%. But the amount of the highest population when the population is only 2000 Example 200, confidence in the sample represents 95% of the population, the sample size is about 58% of the population. So  $12:58 \times 200 = 116$ . When a population of 800, 90% confidence sample or 10% error, the number of samples = 7.5% of the population. So  $0.075 \times 800 = 60$ .

#### D. Validity and Reliability Measurement

##### a. Validity

Validity means the extent to which the precision and accuracy of a measuring instrument in carrying out the measuring function. A test or measuring instrument can be said to have high validity if the device is able to run a measuring function. When used questionnaire, the questionnaire must be able to measure what is desired [7]. An item is declared valid if the correlation points with positive factors and opportunities errata p of the correlation maximum of 5%

Method of testing the validity of:

- a. Operationally define the concept to be measured.
- b. To test the meter scale to the number of respondents
- c. Preparing answers tabulation table.

- d. Calculate the correlation between each statement with a total score correlation technique using the formula (product Moment) as follows :

$$r = \frac{\sum (X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum (X_i - \bar{X})^2 \sum (Y_i - \bar{Y})^2}} \quad (3)$$

Note:

- N = Number of sample.  
X = each item Question Scores.  
Y = Score Total Item Question

Statistically, the correlation numbers obtained should be compared with figures criticism Table Correlation values - r. How to know the number of criticism is seen on line N - 2. Taraf significance used was 5%. If the numerical value obtained is less criticism than criticism numbers correlation table grades - r then the data is not significant, it means that the statement is not valid.

#### b. Reliability

Reliability is an index that indicates the extent to which a measuring instrument can be trusted. Questionnaire can reflect the value of the satisfaction dimensions of reliability, the questionnaire should demonstrate high reliability. Reliability measurements performed with Cronbach Alpha statistical test. A reliable if the measurement is said to have a measurement coefficient (Cronbach Alpha) of 0.6 or greater (>) than 0.6. The measurement results can be trusted only if the number of times the implementation of measures against the same group of subjects who obtained relatively similar results, as long as the measured aspect in the subject is not changed [7].

#### E. Chi Square testing (X<sup>2</sup>)

Chi Square distribution is a distribution with a continuous random variable. Chi Square distribution shape is determined by the degree of its free. For the Chi Square distribution with degrees of freedom v, mode and the peak value of the curve will be located at  $X^2 = v - 2$ . Chi-square value is always positive, because the value is the sum of squares of the standard normal variable Z. The distribution of  $X^2$  starting from point zero skew to the right and has a very long tail. If a very large degree independent, then  $X^2$  distribution approaches a normal distribution [8].

#### F. Eesearch Methods

##### a. The first stage

The early stages the study is to conduct a literature study, to provide an overview of the basic theory that can be applied in the study, and then to identify the problem, problem formulation, goal setting research, the determination of the limits of research. After that, armed with the literature study and the issues to be investigated, then drafted a questionnaire as a means to obtain information related to the use and utilization of cyber learning. Here are the questions.

TABLE IV. ITEM QUESTIONNAIRE QUESTIONS

No.	Item Question
1.	You are a student who has a laptop / computer
2.	You are a student who usually use the internet facility
3.	You are a student who constantly (every day) use the internet
4.	You are a student who has an account to log into cyber learning
5.	You are very familiar with the application of cyber learning
6.	You often access the cyber learning to support your learning process
7.	You have to know the function of the menu on the application of cyber learning
8.	You have been accustomed to send your assignments via the class of cyber learning
9.	The assignments that you send through cyber learning is always accepted by the lecturer
10.	You always download the material lecturer in cyber learning
11.	<i>Cyber learning is needed in teaching and learning activities</i>
12.	Every faculty in your department has been using the facilities of cyber learning
13.	Lecturers always upload the material in the cyber learning
14.	Lecturers are already using the facility of cyber learning when given a task, giving announcements, discuss and implement quizzes
15.	Your lecturers has given lecture material in a cyber classroom learning (uploaded material) before the class begins
16.	The existence of a class of cyber learning can replace face-to-face method between lecturers and students in a real classroom
17.	Cyber classroom learning more interesting than the real class
18.	The existence of cyber-learning classes help you learn if you are left behind in the material given in class lecturers
19.	The existence of cyber learning during class is able to be a smooth process of teaching and learning support
20.	Utilization of cyber learning has been able to improve the quality of teaching and learning in your department
21.	Utilization of cyber learning class has been able to help improve students' academic performance index
22.	Cyber learning has optimal function where students and lecturers can collaborate actively in class of learning Cyber
23.	Class is more fun than the real class from lecturers and students can interact with utilizing existing menu
24.	You are satisfied with the learning process through cyber learning which has been running
25.	features that exist in cyber learning already suitable for online learning
26.	Display material softcopy of lecturers contributing influence student motivation to learn
27.	Your lecturers has made a softcopy display interesting and creative in the cyber classroom learning
28.	The information provided by the lecturers in cyber-learning is more complete than the information in the real classroom
29.	Students prefer the presentation of material in the format of Ms. Word compared to the power point format

No.	Item Question
30.	Computers are available on campus enough to access the internet
31.	There are sufficient computers for internet access in each faculty 6 each
32.	You access the Internet with a personal modem when on campus
33.	You access the internet with the facilities provided by the campus network UNISSULA
34.	Wi Fi / Hotspot areas can be found and accessed easily in the environment UNISSULA
35.	You are often use Wi-Fi to access the internet from the modem if the person on campus
36.	You are satisfied with the facilities available in the campus Wi-Fi UNISSULA
37.	You access the services of cyber learning UNISSULA from url : www.unissula.ac.id
38.	You access the services of cyber learning UNISSULA from url : www.cyberlearning.unissula.ac.id
39.	Portal of Cyber learning UNISSULA very easily accessible anywhere, anytime from any Internet-connected students
40.	Cyber learning has online helpdesk service that can be accessed by users
41.	Admin cyber learning easily contacted when there is a problem in the cyber learning
42.	Admin cyber-learning provides a quick response when there is a problem with the account owner cyber learning
43.	Admin cyber learning always be polite and pleasant when contacted student-related issues in the class of cyber learning

Distribution of the components forming the e-learning and the benefits derived from the implementation of e-learning are as follows:

- Infrastructure of e-learning : questionnaire No. 1, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40
- System and application of e-learning : questionnaire no 7, 25, 40
- The content of e-learning : questionnaire No. 9, 15, 17, 26, 27, 28, 29
- Actor : questionnaire No. 2, 3, 4, 5, 6, 8, 10, 12, 13, 14, 22, 23, 41, 42, 43
- Benefits of e-learning : questionnaire No. 11, 16, 18, 19, 20, 21, 24.

#### b. Data Collection stages

After the questions for the questionnaire is completed questionnaire followed by the deployment process. Based kracjie table, for a population of 10000 people, the minimum number of samples to be taken is 370 question questionnaires was developed by 43 items. And assessment is done by using a Guttman scale ("yes" or "no"). So that the existing data is nominal data.

#### 1) Identification of Respondents

Respondents in this study were students and registered as a student UNISSULA active until the academic year 2011/2012 Currently Sultan Agung Islamic University

(UNISSULA) has 12 faculties were divided into 28 courses. The total number of students amounted to 10845 students.

#### 2) Questionnaire distribution

Data mining of student opinion about the implementation of Cyber Learning is done by Simple Random Sampling. 1000 questionnaires were distributed, it means that the 1000 samples is the subject of the respondents in the inclusion criteria, from the 1000 sample contained 384 samples that included in the exclusion criteria, consisting of 300 respondents that does not return the questionnaire or assumed respondents cancel filling the questionnaire and 84 respondents did not answer questions in the questionnaires consistently or field results cannot be read properly, so it can be concluded that only 616 questionnaires were declared eligible to be processed.

#### c. Data Processing and Analysis stages

After the questionnaire data collected, tested the validity and reliability test and answer the questions contained in the questionnaire respondents. Data is valid if the value of the product moment (r) is greater than the table value. The data is reliable if the test results of questionnaires showed values > 0.6. Invalid data will be discarded and re-testing. Meanwhile, if there are concerns about validity and reliability, then continued with the chi square test (hypothesis testing). This test is done because the shape of the data respondent nominal data.

#### 1) Data Sufficiency test

The number of questionnaires were processed as many as 616 of 10845 the eligible student population of UNISSULA.

#### 2) Validity and reliability of data

Validity in the questionnaire can be calculated with manual calculations (Excel >> Pearson), with the following results:

TABLE V. VALIDITY QUESTIONNAIRE TEST

Item Question	Value Product Moment	Table value	Description	Item Question	Value Product Moment	Table value	Description
1	0.107	0.08	Valid	23	0.364	0.08	Valid
2	0.229	0.08	Valid	24	0.61	0.08	Valid
3	0.169	0.08	Valid	25	0.5	0.08	Valid
4	0.325	0.08	Valid	26	0.366	0.08	Valid
5	0.46	0.08	Valid	27	0.55	0.08	Valid
6	0.53	0.08	Valid	28	0.514	0.08	Valid
7	0.513	0.08	Valid	29	0.276	0.08	Valid
8	0.52	0.08	Valid	30	0.399	0.08	Valid
9	0.49	0.08	Valid	31	0.4	0.08	Valid
10	0.5	0.08	Valid	32	0.154	0.08	Valid
11	0.341	0.08	Valid	33	0.37	0.08	Valid
12	0.53	0.08	Valid	34	0.37	0.08	Valid
13	0.541	0.08	Valid	35	0.311	0.08	Valid

Item Question	Value Product Moment	Table value	Description	Item Question	Value Product Moment	Table value	Description
14	0.6	0.08	Valid	36	0.375	0.08	Valid
15	0.56	0.08	Valid	37	0.51	0.08	Valid
16	0.473	0.08	Valid	38	0.45	0.08	Valid
17	0.45	0.08	Valid	39	0.45	0.08	Valid
18	0.511	0.08	Valid	40	0.52	0.08	Valid
19	0.58	0.08	Valid	41	0.48	0.08	Valid
20	0.59	0.08	Valid	42	0.5	0.08	Valid
21	0.535	0.08	Valid	43	0.55	0.08	Valid
22	0.356	0.08	Valid				

After testing the validity then testing reliability. Reliability test results are as follows

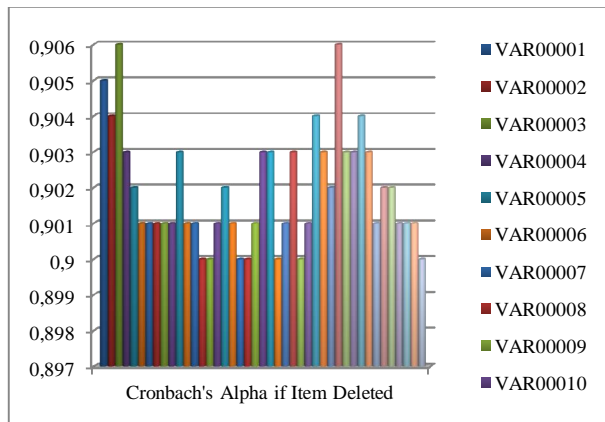


Fig. 1. Test of Reliability per item questionnaire

Data can be declared reliable measurement because of the value of the coefficient (Cronbach Alpha) of 0.6 or greater (>) of 0.6

### 3) $\chi^2$ Test (Chi Square)

Having tested the validity and reliability testing hypothesis test is then performed with the chi-square test to determine whether there are similarities or differences of the respondents gave their answers to the questionnaire.

Chi Square Test Item Question 1 and then calculation and testing a similar hypothesis was also performed on the respondents' answers to the questions 2 to 43 in the questionnaire

TABLE VI. CALCULATION OF CHI SQUARE RECAPITULATION OF ALL ITEM QUESTION

Question item	Chi Square calculation	Chi Square Table	Description	Question item	Chi Square calculation	Chi Square Table	Description
1	57.88	19.675	Ho rejected	23	100.39	19.675	Ho rejected

Question item	Chi Square calculation	Chi Square Table	Description	Question item	Chi Square calculation	Chi Square Table	Description
2	52.28	19.675	Ho rejected	24	59.19	19.675	Ho rejected
3	52.99	19.675	Ho rejected	25	93.09	19.675	Ho rejected
4	45.79	19.675	Ho rejected	26	31.3	19.675	Ho rejected
5	68.05	19.675	Ho rejected	27	95.20	19.675	Ho rejected
6	89.59	19.675	Ho rejected	28	16.96	19.675	Ho accepted
7	102.81	19.675	Ho rejected	29	132.46	19.675	Ho rejected
8	70.89	19.675	Ho rejected	30	38.18	19.675	Ho rejected
9	157.80	19.675	Ho rejected	31	43.44	19.675	Ho rejected
10	72.19	19.675	Ho rejected	32	25.97	19.675	Ho rejected
11	58.73	19.675	Ho rejected	33	14.7	19.675	Ho accepted
12	70.55	19.675	Ho rejected	34	36.17	19.675	Ho rejected
13	97.57	19.675	Ho rejected	35	17.85	19.675	Ho accepted
14	115.57	19.675	Ho rejected	36	18.18	19.675	Ho accepted
15	68.41	19.675	Ho rejected	37	72.43	19.675	Ho rejected
16	39.26	19.675	Ho rejected	38	41.14	19.675	Ho rejected
17	40.42	19.675	Ho rejected	39	60.91	19.675	Ho rejected
18	74.79	19.675	Ho rejected	40	75.84	19.675	Ho rejected
19	102.71	19.675	Ho rejected	41	55.54	19.675	Ho rejected
20	54.01	19.675	Ho rejected	42	75.92	19.675	Ho rejected
21	41.91	19.675	Ho rejected	43	89.80	19.675	Ho rejected
22	59.26	19.675	Ho rejected				

#### 4) Conclusions stages

Contains the answers of research results is a summary of the discussion and the proof of the statement or the problems associated with the implementation of cyber learning in UNISSULA.

Flow chart of the research methodology can be seen in the following Figure:

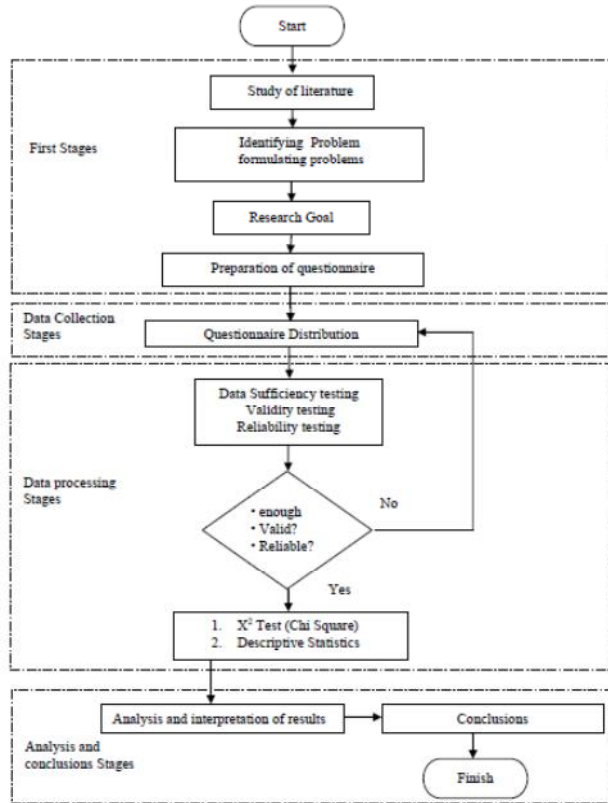


Fig. 2. Flowchart of research methods

### III. RESULTS AND DISCUSSIONS

#### A. Data Sufficiency Test

The number of eligible questionnaires were processed. 616 refers to UNISSULA student population, amounting to 10845, then based on the number of data tables Krejcie stated enough. Based on a population of 10000 krejcie table for the number of samples is 370, and for a population of 15000 people, the number of samples is 375.

Having tested the validity and reliability was found that all of the questions is valid and reliable. Validity stated accuracy and precision of a measuring instrument. While the reliability of a measure indicates the extent trustworthy or reliable.

#### B. Discussions of $X^2$ (Chi Square)

From square test results who wanted to know whether the respondents' answers students from 12 faculties are similar or not. It appears that of 43 of the questions are only a small part

question stating H0 is accepted. Based on the hypothesis that built it can be stated that only a fraction of the questions that are answered by the same student respondents in 12 faculties. This indicates that there are different conditions - different in 12 faculties associated with the implementation of cyber learning

#### C. Discussions of Data Processing With Descriptive Statistics

Here are presented the results of data processing of the results of questions on the questionnaire in the format of descriptive statistics

#### D. Infrastructure of e-learning :

1) *Item Question 1:* is seen that the majority of students in 12 faculties of respondents stated that they have a personal laptop that is used in the learning process.

2) *Item Question 30:* Respondents from 9 faculty expressed that their campus computer facilities are not reasonably available, the addition of computers needed for students in each faculty.

3) *Item Question 31:* Question similar review was conducted to determine whether the correct answer is still the same student respondents associated with the presence of physical facilities to access the cyber classroom learning. Respondents from 9 faculty expressed insufficient computer facilities available

4) *Item Question 32:* Respondents from 8 faculties over many claimed not.

5) *Item Question 33:* Overall student respondents expressed that they always access the internet with Wi-Fi network facilities UNISSULA when on campus. This indicates that UNISSULA have internet network facilitated by the campus and the student needs in facilities where extremely high.

6) *Item Question 34:* Respondents on average expressed that the Wi Fi or Hotspot areas can be found on campus and can be easily accessed.

7) *Item Question 35:* Respondents on average often use Wi-Fi for internet access than personal modem if it is on campus. It indicates that the student will need a very high smoothness of the Internet network.

8) *Item Question 36:* Respondents were students of 9 faculty expressed no that is necessary to repair the existing facilities on campus Wi-Fi UNISSULA either in the form of network quality and quantity.

9) *Item Question 37:* Respondents on average expressed that they access the services of a web of cyber learning UNISSULA from URL: [www.unissula.ac.id](http://www.unissula.ac.id). It indicates that students are familiar with UNISSULA website.

10) *Item Question 38:* More than 60% of the average students of Unissula cyber-learning classes are accustomed to access from the web [www.cyberlearning.unissula.ac.id](http://www.cyberlearning.unissula.ac.id).

11) *Item Question 39:* Most of the 12 students from the Faculty of respondents expressed very easily accessible anywhere, anytime from any Internet-connected students. This indicates that the cyber classroom learning any time can be



easily accessed by the user as long as he is connected to the Internet

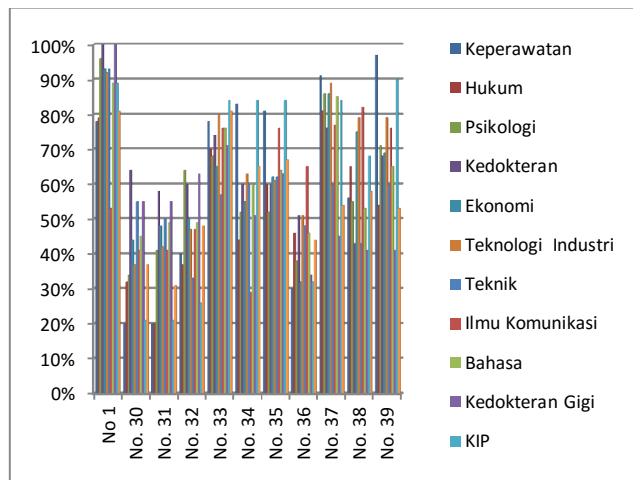


Fig. 3. Graph of Respondents answering "yes" to the infrastructure component

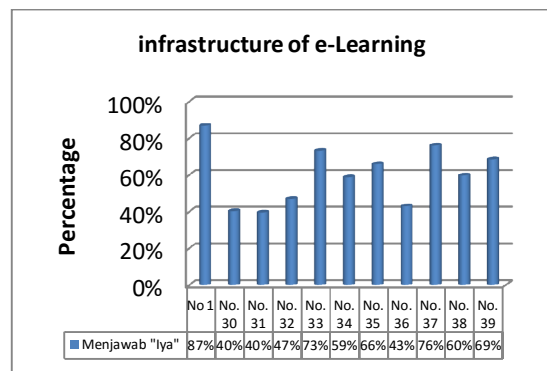


Fig. 4. Average percentage of respondents answering "yes" to the infrastructure component

From the factors of e-learning infrastructure can be known that the students will need physical facilities (computers and networks) is very high. There are some shortcomings that need to be addressed, namely: the number of computers available in each of the campus, the quality and quantity of Wi-Fi networks as a means of internet access.

#### E. Systems and e-learning applications :

1) *Item Question 7*: From the respondents were distributed from 12 faculties, students of 5 faculty respondents expressed that they had been familiar with the functions of the menu - a menu that is in a class of cyber learning. While the student respondents from other faculties 7, less than 50% who claim to know the function of the menu on the cyber learning application.

2) *Item Question 25*: Most of the students of 9 faculty respondents expressed that there has been appropriate menu or suitable for online learning.

3) *Item Question 40*: Most of the respondents expressed that the student has a learning cyber services online helpdesk service that can be accessed by the user.

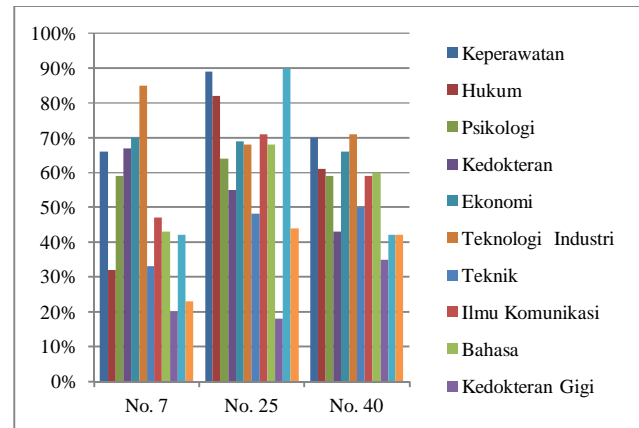


Fig. 5. Graph of Respondents answering "yes" to the components of system and e-learning applications

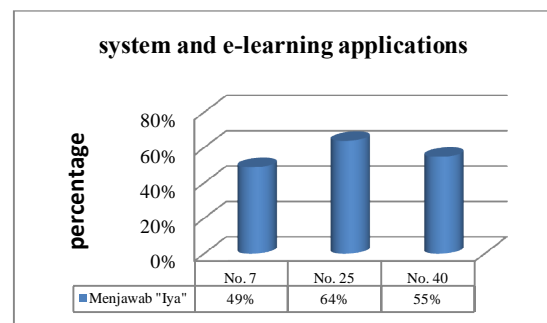


Fig. 6. Average percentage of respondents answering "yes" to components of system and e-learning applications

Overall the components of system and e-learning applications in UNISSULA already well and is able for supporting the implementation of learning with an e-learning model.

#### F. Content of e-learning :

1) *Item Question 9*: Respondents from 8 faculties expressed their assignments send through cyber learning is always accepted by the lecturers who gave the assignments. This indicates that e-learning system has been running.

2) *Item Question 15*: Respondents from 12 faculties answered *tidak*. it indicates that not all lecturers in some faculty familiar with class of cyber learning

3) *Item Question 17*: Almost the majority of respondents expressed students in 12 faculties cyber class is less attractive than the real class.

4) *Item Question 26*: Most of the students expressed that the appearance of softcopy material contributing lecturers



affect student enthusiasm for learning. Therefore, it is expected that the lecturers to be more creative in the process and display the material in the class of cyber learning.

5) *Item Question 27*: More than 50% of respondents from 5 faculties expressed that lecturers has made a softcopy display interesting and creative in the cyber class learning.

6) *Item Question 28*: Most of the respondents said no. This indicates that most of the lecturers in UNISSULA distributed in 12 faculties, yet cyber class manage them optimally.

7) *Item Question 29*: In general, respondents tended to expressed öNoö.

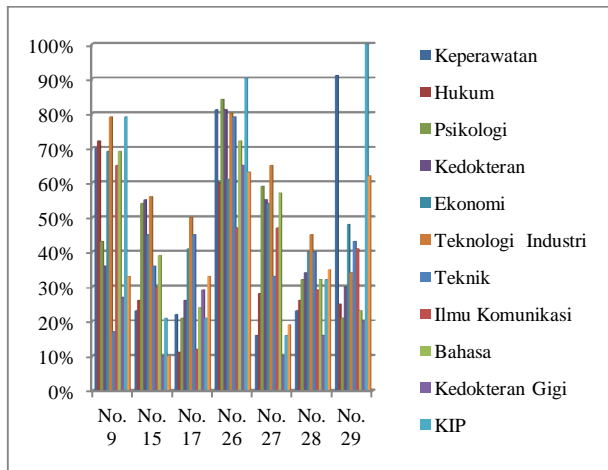


Fig. 7. Graph of Respondents answering "yes" to the components of e-learning content

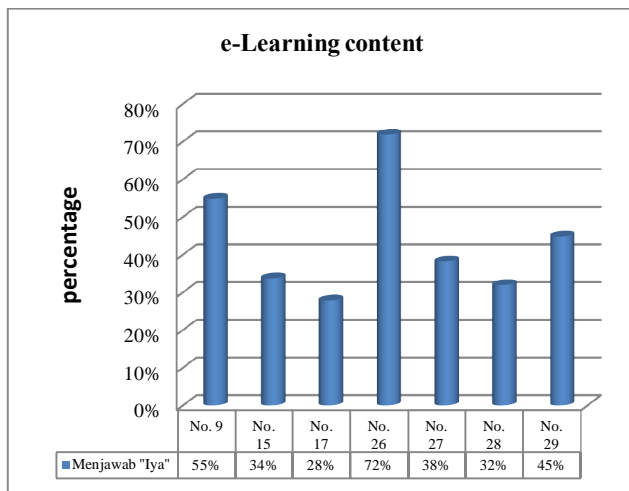


Fig. 8. Average percentage of respondents answering "yes" to the components of e-learning content

Content material affect student interest in class of cyber learning. If the information provided in the cyber class constantly updated, communicative and interactive, students will be interested in attending this class.

#### G. Actor

1) *Item Question 2*: Most of the student respondents were distributed in 12 faculties expressed that they are accustomed to using the internet. It indicates that the student UNISSULA are familiar with information technology.

2) *Item Question 3*: More than 50% of respondents expressed students almost every day they use the internet. This means that there is no reason for students not to access the class of cyber learning.

3) *Item Question 4*: 85% of the respondents said they had cyber-learning account. This indicates that most of the students know that there is a class of cyber learning.

4) *Item Question 5*: More than 50% of respondents from 8 faculty expressed they are very familiar with cyber-learning program, while students from 4 faculties, less than 50% of respondents say they are very familiar with cyber-learning programs.

5) *Item Question 6*: More than 50% of respondents from 4 faculty declared that they frequently access the cyber-learning to support the learning process. While other faculty less than 50% of respondents who answered öyesö. This factor could appear because the existing content on the cyber classes less updates, less informative, so that students are likely not interested in accessing.

6) *Item Question 8*: Only the Faculty of Industrial Technology are more than 50% of the respondents used to send assignments through cyber classroom learning, while respondents from other faculties were less than the 50% who answered öyesö. This indicates that the lecturers at FTI quite active gave the material in class of cyber learning.

7) *Item Question 10*: Unless respondents from FIKOM, FKG, FAL, more than 50% of respondents admitted students from other faculties that they always download the material from the lecturers in cyber classes.

8) *Item Question 12*: more than 50% of respondents from F.Psi, FK, FE, FTI every lecturers in the department expressed they have used the cyber-learning in teaching and learning. While other faculty less than 50% who answered öyesö.

9) *Item Question 13*: Less than 50% of respondents from 5 faculty who answered öyesö to the questions Lecturers always upload the material in the cyber classroom learning. Meanwhile, from the other faculties, more than 50% of respondents answered öyesö.

10) *Item Question 14*: There are some faculty that more than 50% of respondents expressed that they have made use of the facilities Lecturer cyber learning when given assignments, giving announcements, discuss and organize quiz.

11) *Item Question 22*: On average 74.92% of all respondents expressed that Cyber student learning can function optimally if the students and lecturers are able to cooperate actively in class of Cyber learning.

12) *Item Question 23*: Unless respondents from 3 faculties, 50% more respondents than other faculty expressed

agreement that the class is more fun than the real class if lecturers and students can interact with utilizing existing menu

13) *Item Question 41*: Most of the respondents of 3 faculty agreed with the statement that the admin cyber learning easily contactable when there is a problem in the cyber learning class, while the students of the faculty respondents most other claimed not.

14) *Item Question 42*: Only respondents from 5 faculty of more than 50% of respondents agreed with the statement that the Admin cyber learning provides a quick response when there is a problem with the account of cyber learning.

15) *Item Question 43*: Most of the respondents stated that the Admin cyber student learning always be polite and pleasant when contacted students on issues related to cyber learning class.

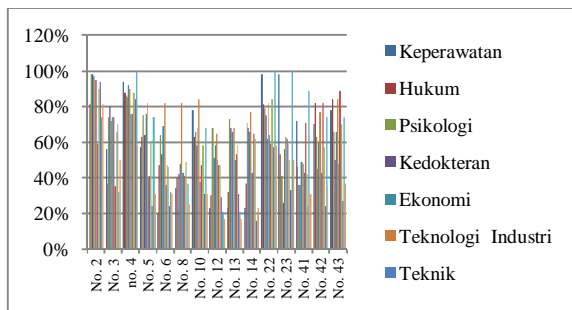


Fig. 9. Graph of Respondents answering "yes" to the actor component

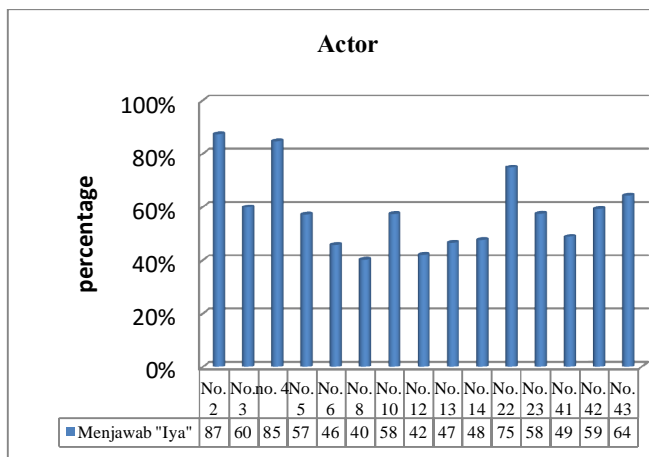


Fig. 10. Average percentage of respondents answering "yes" to the actor component

Actor factors indicate that the lecturers be a factor that affects the activity of cyber classes. Because after lecturer is able to be a puller for students to follow the cyber learning class

#### H. Benefits of e-learning:

1) *Item Question 11*: 91% of respondents said cyber learning is important and needed in the teaching and learning

activities. It means that students are aware with the functionality and usability of cyber learning.

2) *b. Item Question 16*: Only respondents from the Faculty of Industrial Technology are more than 50% of respondents expressed existence of a class of cyber student learning can replace face-to-face method of lecturers and students in a real classroom

3) *Item Question 18*: More than 50% of respondents expressed the existence of a class of cyber student learning can help the learning process if they have no material that was given by lecturers in class

4) *Item Question 19*: More than 50% of respondents expressed that the use of cyber-learning has been able to be supporting the learning process

5) *Item Question 20*: From 6 faculty, 50% of respondents expressed that the use of cyber-learning has been able to improve the quality of teaching and learning in their majors.

6) *Item Question 21*: Only from FK, FE and FTI were more than 50% of respondents expressed that cyber-learning can help improve the student's IP. While respondents from other faculties most claimed not.

7) *Item Question 24*: Only respondents from students of FH, FTI, FIKOM more than 50% of respondents expressed that cyber pleased with the class so far. While more students from other faculties respondents who expressed dislike.

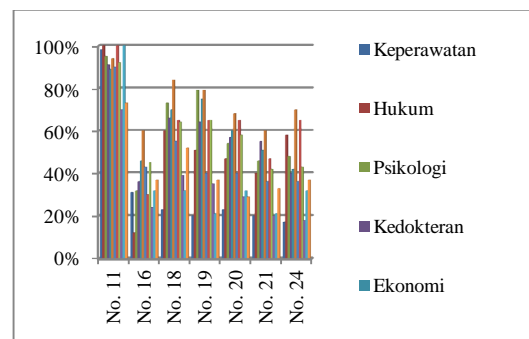


Fig. 11. Graph Respondents answering "yes" to the benefits of e-learning component

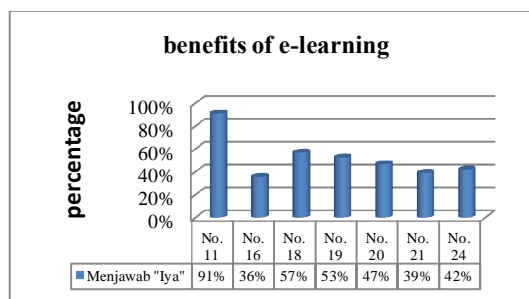


Fig. 12. Average percentage of respondents answering "yes" to the benefits of e-learning component

Overall it can be concluded that the respondents agreed that if a class of students learning cyber useful to support the learning process that is in UNISSULA. The benefits that have been obtained are not yet optimal. It is related to other factors, namely: infrastructure factors, material content, which is not available in adequate portions and cyber perpetrators have not been able to proceed optimally

#### IV. CONCLUSION

This paper shows that students in UNISSULA expressed they are accustomed to using the internet and have been familiar with cyber learning. Almost all respondents agreed that if a class of students learning cyber useful in supporting the process of learning in UNISSULA. However, the benefits of which have not yet obtained the optimal and has no effect on the improvement of student achievement.

The needs of students to physical facilities (computers and networks) in college are very high. There are some disadvantages that need to be improved such as the number of computers in the respective faculty, the quality and quantity of Wi-Fi networks as a means of internet access. Overall the system components and applications of e-learning is in UNISSULA expressed by the majority of respondents have a good student and was able to support the implementation of the course with a model of e-learning.

Content materials affect student interest in cyber classes, if the information given in class cyber constantly updated, more

communicative and interactive course, students will be interested in attending this class. Actor, implementation factors lecturersø factor seems to be a factor that affects the activity of cyber classes. Because after lecturer is able to be a puller for students to follow the cyber classes

#### References

- [1]. UPT Telematika UPNV Jawa Timur, Pedoman Implementasi e-learning dan pengembangan website, UPNV , Surabaya, 2011.
- [2]. H. Surjono. Pengantar E-Learning Dan Penyiapan Materi Pembelajaran. Yogyakarta: UNY, 2009.
- [3]. A. J. Henderson, The E-learning Question and Answer Book. New York: American Management Association, 2003.
- [4]. R. S. Wahono, istem eLearning Berbasis Model Motivasi Komunitas. Jurnal Teknodik No. 21/XI/TEKNODIK/Agustus/2007.
- [5]. Dian Elviza. Sistem E\_Learning Menggunakan Sharable Content Object Reference Model (SCORM). Jurnal MEDIA SISFO Vol. 2 No. 2,2008, pp. 65 ó 77.
- [6]. Sugiyono. Statistika Untuk Penelitian. Bandung: CV. Alfabeta, 2005.
- [7]. S. Azwar. Reliabilitas dan Validitas. Yogyakarta: Pustaka Pelajar Offset, 2006.
- [8]. M. Hasan, M. Pokok ó pokok Materi Statistik 2 (Statistik Inferensia). Jakarta: Penerbit Bumi Aksara, 1999.
- [9]. ANTA. Definition of key terms used in e-learning (version 1.00). 2003, Retrieved 7 October, 2005, from <http://www.flexiblelearning.net.au/guides/keyterms.pdf>
- [10]. P. A. Widiartha, Memahami Lebih lanjut Tentang e-Learning, Ilmu Komputer.Com, 2008.