

Generation Y E-Learning Satisfaction Measurement for Corporate Learning Improvement

A Case Study of PT. Telekomunikasi Indonesia

Sri Praptini Rahayu

Padjadjaran University, Bandung, Indonesia
sriprahayu69@gmail.com

Yunizar

Padjajaran University, Bandung, Indonesia
yunizar_2000@yahoo.com

Dyah Diwasasri Ratnaningtyas

Telkom Corporate University, Bandung, Indonesia
dyahdiwasasri@gmail.com

Yudi Azis

Padjajaran University, Bandung, Indonesia
yudiazis@yahoo.com

Abstract— The implementation of E-learning in corporate organization is a digital way to develop employees' competencies. User satisfaction is used as an indicator to measure the implementation of e-learning in the corporate environment. Business transformation of the company towards digital business is done as a way to change a corporation to comply with future business. It is an effort to handle the generational transition of human resource. The purpose of this study was to determine the effect of e-learning system quality on the level of user satisfaction in the digital learning process, especially for Generation Y. E-Learning satisfaction survey was conducted on Generation Y, Generation X, and Baby Boomers in the company. The conceptual model used in this research is adapted from E-Learning Satisfaction Model. This study resulted in gaps of learning between generations, as well as priorities and recommendations on e-learning improvement, especially for Generation Y in the corporation, so that it will be used to enable the application of digital business era in the future.

Keywords—e-learning; e-learning satisfaction; gen Y, corporate learning, digital business

I. INTRODUCTION

Human resource capabilities have become an important element in a company. Companies that wish to grow and develop in the future are required to always have good programs of human resource development. A company's business transformation is done as a way to change the company to comply with its future business. This often has to do with efforts to shift the generation of human resources who handle it. This is what is currently being done by PT. Telekomunikasi Indonesia (Telkom) in transforming the company into a digital business. This change has been made because of the growing need for digital services as customers in Indonesia are dominated by people of young age, and because of the increasing number of employees from the younger generation (Gen Y) which have different characteristics from those of Gen X employees.

Generational transition into one is a very important transformation agenda because it should be able to give a

correct understanding about the company's business among the next generation without changing the character of the future generations in accordance with the conditions of the customers in Indonesia. The intensive use of the Internet among young people gives an opportunity to online learning method or Digital Learning, which is more preferable than the classical method. This condition is in line with Telkom plans that will further intensify Digital Learning usage in the method of teaching employees.

There are some ways for managing Gen Y in the company related to the development of capabilities as listed below [1].

- a. Building an effective communication and discussion forum to establish mutual trust and commitment, because Gen Y requires related feedback on their performance and to not easily take it for granted an order or decision without questioning why.
- b. Creating a working environment with a continuous improvement atmosphere, because Gen Y needs space for flexibility and creativity.
- c. Conducting training and coaching on a regular basis since most Gen Y really want the company to have a system that can help them develop themselves.

A glimpse at Telkom employees shows baby boomers' age (born in 1965 or before), Gen X (born in 1966 until 1980), and Gen Y (born in 1981 until 2000). The composition is 56.41% of Baby Boomers, 35.83 % of Gen X and 7.76% of Gen Y.

Telkom is currently increasing digital learning utilization as a learning mechanism in the company so as to provide flexibility to employees in conducting learning activities with an expected result of upgrading the effectiveness of their learning capabilities. In addition, Telkom is also conducting business transformation; the expected role of Gen Y employees in relation to this is to be able to manage the digital business in the future. To provide an effective learning to Gen Y, especially through digital learning, the company needs to create a more effective mechanism in the implementation of

the digital learning in particular to suit the characteristics and capabilities of Gen Y employees.

This research paper aims to find an effective learning method, particularly through the Digital Learning, for Gen Y in a corporation as the company's future. The case study was conducted at PT. Telekomunikasi Indonesia (Telkom), a telecommunication company amidst transformation into a digital company, with an expectation for an effective management in the future conducted by today's Gen Y.

II. LITERATURE STUDY

A. E-Learning

The evolution of technology-based learning had its earliest beginnings with the development of computer-based training (CBT) using compact disc read only memory (CD-ROM). It was not until the early 1990s that the Internet became accepted as a natural platform which offers learning opportunities or training [2]. The initial usage of the Internet was to create a new learning method from conventional into digital.

E-Learning is an education via the Internet, network, or standalone computer which refers to the use of electronic applications and processes [3]. Another source defines e-learning as a wide set of applications and processes allied to training and learning that include computer-based learning, online learning, virtual classroom, and digital collaboration [4]. Nowadays, e-learning could be defined as a breakthrough of the online learning method. Most of institutions such as university, company, and corporate university have been using e-learning as a method to improve employees' skill and knowledge.

B. Corporate Learning

There are now over 2.400 learning institutions worldwide using the title "corporate university" [5]. Since many of the organizations with corporate universities have a global, or at least multi-national, footprint, these institutions are likely to have a significant impact on the nature and direction of the education of the current and future workforce [6]. Because of that intention, these institutions start to compose proper learning curriculum based on company vision, which serves as a guideline to develop their employees' skills and knowledge. Within the context of the growth of corporate universities, there is also an increasing use of e-learning based on CIPD note shown by the e-learning growth from 30.5% to 47.8% in the CIPD annual Training and Development Survey [6] [7].

Based on that fact, e-learning turns to have an important role on developing employees' skill and knowledge along with the recent issue of its adoption in the corporate university. Thus, e-learning has several benefits for the corporation, such as cost, speed, feedback, and compliance and tracking [8].

Due to the e-learning implementation in corporate universities, it turns out that e-learning has been defined as one of corporate learning icons (Rey-Lopez, M. et al., 2008). There are three main characteristics of corporate learning such as fast-paced, career-related, and benefits to organization [9].

C. E-Learning Satisfaction Model

When determining the success of e-learning, satisfaction may need special attention [10]. In order to measure e-learning satisfaction, Wang (2003) made an empirically validated model named E-Learning Satisfaction Model which consists of four underlying dimensions to support user satisfaction as shown on Figure 1 below.

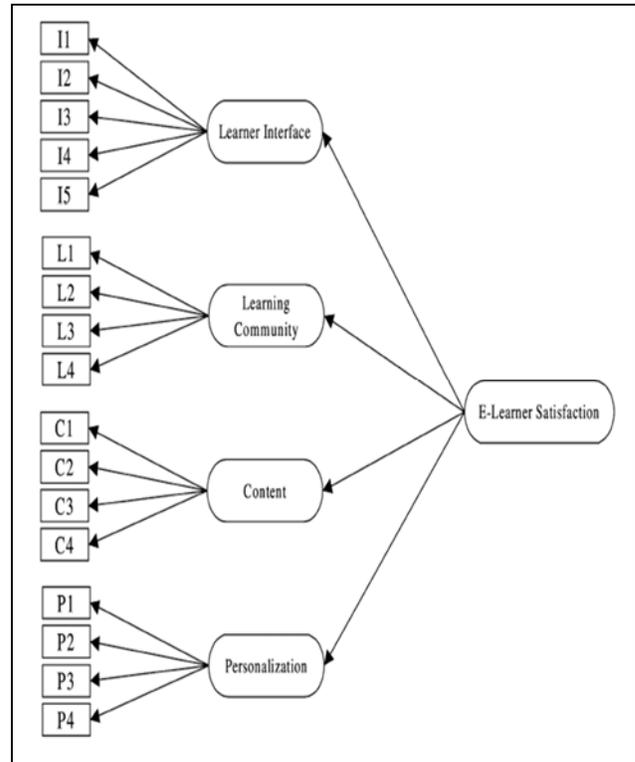


Figure 1. E-Learning Satisfaction Model [10].

As a modification of E-Learning Satisfaction Model, another research by Tarigan (2011) has resulted in a new conceptual model based on Wang (2003) and Doll, et al (1988) by adding a dimension about learner support quality. In this conceptual model, the dimension of learning community is replaced by learner support quality as the company provides learner with supports in the e-learning system such as: auto-enrollment email, functional support from e-learning coordinator, and infrastructure support from IT-Service Desk [11].

D. Generational Differences

A generational difference, or a "generation gap," is the common expression used to describe wide distinctions in cultural norms between members of a younger generation and the previous one [12]. This difference occurs when older and younger people do not understand each other because of their different experiences, opinions, habits, and behaviors [13]. Those differences create inter-generation gaps, causing people to start to group the differences under the name of the generation [14].

A generation has traditionally been defined as "the average interval of time between the birth of parents and the birth of their offspring" [15]. This term became popular when people started to describe the average intervals of time into several categories such as Traditionalist, Baby Boomers, Generation X, and Generation Y. The explanation about each category can be seen on Table 1 below [16] [17] [18].

TABLE I. GENERATIONAL DIFFERENCES

Gap	Traditionalist	Baby Boomers	Generation X	Generation Y
Birth Years	1900-1945	1946-1964	1965-1980	1980-2000
Current Age	63-86	44-62	28-43	8-27
Amount	-	80 Million	51 Million	75 Million
% of Workplace	5%	45%	40%	10%
Technology	Adapted	Acquired	Assimilated	Integral
Business Focus	Quality	Long Hours	Productivity	Contribution
Communication Media	Rotary phones One-on-one Write a memo	Touch-tone phones Call me anytime	Cell phones Call me only at work	Internet Picture phones E-mail

III. CONCEPTUAL MODEL

As the shifting of the company's aim is to implement digital business in the future, it will indirectly affect the process of learning, specifically the employees. Nowadays, the age composition of the employees in the State-Owned Enterprises is mostly dominated by Baby Boomers and Gen X, more than 90% of total employees. Although Gen Y only contributes about less than 10% to the total employees, Gen Y would dominate the strategic and operational positions in the company for the next several years.

A company dominated by Gen X and Baby Boomers has learning methods and atmosphere different from start-up businesses which are dominated by Gen Y. It will need a change in the learning method along with the change of its business direction in the future. The transition from employees dominated by Gen X and Baby Boomers to those by Gen Y would affect the way the company manages and provides learning contents according to their learning style. There are four e-learning dimensions which lead to user satisfaction as stated below.

1) *Learner Interface Quality* : Learner Interface Quality is associated with design, usability or stability of the system. Learner interface could be described as a primary requirement for any interactive system. It is because a learner should spend more time focusing on e-learning content rather than how to use the system.

2) *Content quality*: the quality of the content of e-learning systems.

3) *Personalization Quality*: the quality of personalization or customization according to the needs of the user of the e-learning system.

4) *Learner Support Quality*: the quality of supports of the e-learning team.

The conceptual model used in this research is shown in Figure 2. This conceptual model leads to the following hypothesis stated below.

H₀: X₁, X₂, X₃, X₄, meaning the Learner Interface Quality, Content Quality, Personalization Quality, Learner Support Quality do not have any significant effect on user satisfaction.

H_a: X₁, X₂, X₃, X₄, meaning the Learner Interface Quality, Content Quality, Personalization Quality, Learner Support Quality have significant effects on User Satisfaction.

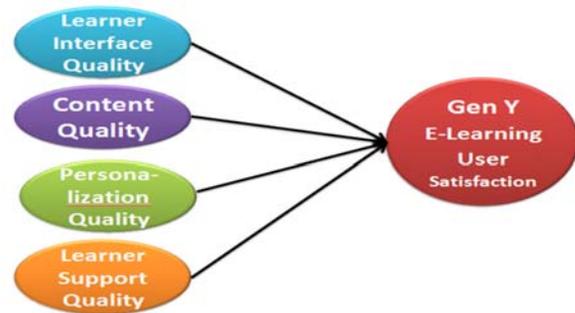


Figure 2. Conceptual Model for Gen Y User Satisfaction

IV. RESEARCH METHODOLOGY

Figure 3 shows the research methodology which consists of four major sections: input, process, tools, and output. Each process has its own input, tools to be used, and output. It should be done sequentially following the order number of the process. This methodology should be applied to all of the survey participants: Gen Y, Gen X, and Baby Boomers.

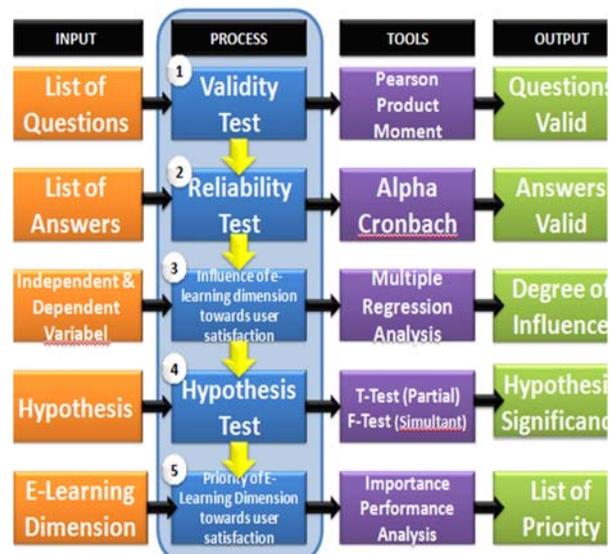


Figure 3. Research Methodology

1) *Validity Test*

Validity testing is the process of testing each item statement contained in the questionnaire. Testing was conducted to test the suitability of each question item in measuring the variables. Validity test of this research is done by correlating the score of each item statement addressed to the respondent with a total score for the entire item. Correlation techniques used to test the validity of the statements in this research is the *Pearson Product Moment*. If the validity coefficient statement of the item tested is greater than the critical r at 0:30, it can be concluded that the statement as a construction item (construct) is valid. The validity test using *Pearson Product Moment* formula is shown in Equation (1):

$$r = \frac{n \sum X_i Y_i - (\sum X_i)(\sum Y_i)}{\sqrt{\{n \sum X_i^2 - (\sum X_i)^2\} \{n \sum Y_i^2 - (\sum Y_i)^2\}}} \quad (1)$$

Where:

r = Pearson product moment correlation coefficient
 n = number of respondents
 $\sum X$ = total score X
 $\sum Y$ = total score Y
 $\sum XY$ = number of product of X and Y
 $\sum X^2$ = squared total score of X
 $\sum Y^2$ = squared total score of Y

2) Reliability Test

Reliability testing carried out on items is included in the statement of a valid category. Reliability testing is done by testing the instrument once, and then by analyzing it using *Alpha Cronbach* method. Questionnaire is reliable if the reliability coefficient is positive and greater than 0.60.

3) Influence of E-Learning Dimension Towards User Satisfaction

In this research, multiple linear regression analysis is used to determine the influence of Learner Interface Quality (X1), Content Quality (X2), Personalization Quality (X3) and Learner Support Quality (X4) towards User Satisfaction (Y). Multiple regression model formed is as shown on Equation (2):

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 \quad (2)$$

Where:

Y = dependent variable (User Experience)
X1 = variable Learner Interface Quality
X2 = variable Content Quality
X3 = variable Personalization Quality
X4 = variable Learner Support Quality
a = constant number of Y if X = 0
b = coefficient of regression

4) Hypothesis Test

The hypothesis test in this study was conducted to determine the significance of the formulated hypothesis as stated before. Hypothesis test is divided into two kinds of test,

namely partial hypothesis testing (T-Test) and simultaneous hypothesis testing (F-Test).

a) T-Test

T test is a test to determine the significant influence of the independent variable on the dependent variable partially. The significance of these effects can be estimated by comparing T_{table} and T_{count} . The hypothesis proposed in this study is:

H_0 : X_1, X_2, X_3, X_4 , meaning the Learner Interface Quality, Content Quality, Personalization Quality, Learner Support Quality do not have partially significant effects on Gen Y User Satisfaction.

H_a : X_1, X_2, X_3, X_4 , meaning the Learner Interface Quality, Content Quality, Personalization Quality, Learner Support Quality have partially significant effects on Gen Y User Satisfaction.

The test criteria are as follows:

1. If the value of Sig. > 0.05 then H_0 is accepted and H_a rejected, meaning there is no significant effect.
2. If the value of Sig. < 0.05 then H_0 is rejected and H_a accepted, meaning there is a significant effect.

b) F-Test

F-test is conducted to test the model simultaneously in order to see the link of the influence of the independent variable (X) on the dependent variable (Y). The hypothesis proposed in this study is:

H_0 : X_1, X_2, X_3, X_4 , meaning the Learner Interface Quality, Content Quality, Personalization Quality, Learner Support Quality have no significant effects simultaneously on User Satisfaction.

H_a : X_1, X_2, X_3, X_4 , meaning the Learner Interface Quality, Content Quality, Personalization Quality, Learner Support Quality have simultaneous significant effects on User Satisfaction.

The test criteria are as follows:

1. If the value of Sig. > 0.05 then H_0 is accepted and H_a rejected, meaning there is no significant effect.
2. If the value of Sig. < 0.05 then H_0 is rejected and H_a accepted, meaning there is a significant effect.

5) Priority of E-Learning Dimension Towards User Satisfaction

This section discusses the mapping of attributes that will serve as the basis for the company to set priorities for improving the quality of service. The tools that will be used in this step are *Importance Performance Analysis* (IPA). This analysis is set forth in a Cartesian diagram which is divided into four quadrants, which will be shown in the next section.

A. Research Survey

A survey was conducted towards 450 participants selected by random sampling. They are classified as 150 Gen Y, 150 Gen X, and 150 Baby Boomers. All participants are

employees of PT. Telkom Indonesia who use e-learning as their learning alternative.

The questionnaire is divided into four major sections based on the four dimensions of e-learning as shown in Table 2. There are 25 questions in total. The answers would be classified into four degrees: (1) Disagree, (2) Partly Agree, (3) Agree, (4) strongly Agree.

TABLE II. SURVEY QUESTIONNAIRE

No	Dimension
A. Learner Interface quality	
A.1	E-learning website is easily accessible
A.2	E-learning website is easy to use
A.3	E-learning systems is run stable
A.4	Easy to find the content needed
A.5	E-learning website attractive for use
B. Content Quality	
B.1	Easy to understand explanation of the e-learning content
B.2	The content of e-learning materials is always up-to-date
B.3	E-learning content available in accordance with the needs of the role / responsibility of user
B.4	Exercises / tests that are available according to the e-learning material
B.5	Easy to access to the link / other content available in some e-learning material
C. Personalization quality	
C.1	I can choose e-learning materials as needed
C.2	E-learning is able to encourage the user's ability to learn their own content you want to learn (self-learning)
C.3	E-learning systems provide sufficient data related to the development of learning users
C.4	I can continue the e-learning unfinished material from the last page visited
C.5	E-learning provides a personalized dashboard containing material that I have to follow, such as: mandatory course, certification, etc.
D. Learner support quality	
D.1	I got an email automatically when there is a new e-learning materials or graduating from a particular material
D.2	E-learning helpdesk team respond quickly to questions / comments related to the content or systems administration
D.3	E-learning helpdesk team respond quickly to questions / comments related to the problem of infrastructure / operations, such as networking, etc.
D.4	Discussion forums e-learning help me to solve the problems I encountered
D.5	E-learning makes me easier to share what I've learned to other employees
E. User Satisfaction	
E.1	I have a positive perception of relevant e-learning
E.2	I never have experienced a system breakdown every time learning through e-learning
E.3	I feel the benefits of learning e-learning
E.4	I feel that the information in the e-learning system is accurate
E.5	I feel that learning via e-learning is very efficient

B. Research Results

Research results described based on research methodology are as follows.

1) . Validity Test

The validity test results of the second questionnaire variables studied are presented in Table 3.

TABLE III. VALIDITY TEST RESULT

Statement	Validity		
	R count	R critical	Conclusion
A.1	0.751	0.30	Valid
A.2	0.829	0.30	Valid
A.3	0.782	0.30	Valid
A.4	0.738	0.30	Valid
A.5	0.713	0.30	Valid
B.1	0.706	0.30	Valid
B.2	0.804	0.30	Valid
B.3	0.788	0.30	Valid
B.4	0.667	0.30	Valid
B.5	0.818	0.30	Valid
C.1	0.691	0.30	Valid
C.2	0.722	0.30	Valid
C.3	0.769	0.30	Valid
C.4	0.708	0.30	Valid
C.5	0.722	0.30	Valid
D.1	0.774	0.30	Valid
D.2	0.840	0.30	Valid
D.3	0.853	0.30	Valid
D.4	0.835	0.30	Valid
D.5	0.756	0.30	Valid

From the table above, the test results have shown that the overall validity of the statement item is valid because it has a validity coefficient greater than the r critical, which is 0.361. It means that the entire item statement can be used in further research.

2) Reliability Test

The reliability test results based on Alpha Cronbach formula obtained are as shown in Table 4.

TABLE IV. RELIABILITY TEST RESULT

Variable	Reliability		
	R critical	Critical Point	Conclusion
Learning Interface Quality	0.811	0.60	Reliable
Content Quality	0.812	0.60	Reliable
Personalization Quality	0.765	0.60	Reliable
Learning Support Quality	0.859	0.60	Reliable
User Satisfaction	0.816	0.60	Reliable

The questionnaire statement reliability value on each of the variables studied is greater than 0.60. These results indicate that the questionnaire item for each variable reliably measures the variables respectively.

3) Influence of E-Learning Dimension on User Satisfaction

Analysis was performed using SPSS program; the results are as shown in Table 5.

TABLE V. MULTIPLE REGRESSION ANALYSIS RESULT

Gen	Model	Unstandardized Content		Standardized Coefficients	t	Sig
		B	Std. Error			
Baby Boomers	(Constant)	2.439	.874	-	2.790	.006
	Learning Interface Quality	.239	.076	.248	.3139	.002

Gen	Model	Unstandardized Content		Standardized Coefficients	t	Sig
		B	Std. Error	Beta		
	Content Quality	.041	.091	.044	.448	.655
	Personalization Quality	.427	.083	.453	5.165	.000
	Learning Support Quality	.173	.063	.182	2.744	.007
Gen X	(Constant)	4.237	1.067	-	3.972	.000
	Learning Interface Quality	.114	.079	.121	1.450	.149
	Content Quality	.254	.091	.264	.2786	.006
	Personalization Quality	.239	.085	.246	.2821	.005
	Learning Support Quality	.205	.071	.221	.2896	.004
Gen Y	(Constant)	.754	.981	-	.769	.443
	Learning Interface Quality	.201	.084	.199	2.382	.019
	Content Quality	.229	.085	.221	2.715	.007
	Personalization Quality	.414	.093	.389	4.438	.000
	Learning Support Quality	.095	.059	.102	1.615	.109

*Dependent variable: User Satisfaction

Based on the results of data processing in Table 5, the regression model obtained for Gen Y is as follows:

$$Y = 0.754 + 0.201X_1 + 0.229X_2 + 0.414X_3 + 0.095X_4$$

1. The value of the constant (a) is 0.754, meaning if the Learning Interface Quality, Content Quality, Personalization Quality and Learning Support Quality is 0, then User Satisfaction positive value is equal to 0.754.
2. The value of the variable regression coefficients (X_1) is 0,201. This means that every increase of Learning Interface Quality will lead to user satisfaction increase by 0,201, while other variables remain constant.
3. The value variable regression coefficient (X_2) is 0.229. This means that every increment of Content Quality will lead to user satisfaction increase at 0.229, while the other variables remain constant.
4. The value of variable regression coefficient (X_3) is 0.414. This means that every increment of Personalization Quality will lead to User Satisfaction increase of 0.414, while the other variables remain constant.
5. The value of variable regression coefficient (X_4) is 0.095. This means that every increment of Learning

Support Quality will lead to user satisfaction increase of 0.095, while the other variables remain constant.

4) Hypothesis Test

a) T-Test

Based on Table 5, the result of T-Test for Gen Y resulted the following.

- Value Sig. < α ie 0.019 < 0.05, which means that H_0 is rejected. Thus, Learning Interface Quality variables significantly influence Gen Y User Satisfaction.
- Value Sig. < α ie 0.007 < 0.05, which means that H_0 is rejected. Thus, Content Quality variables significantly influence Gen Y User Satisfaction.
- Value Sig. < α ie 0.000 < 0.05, which means that H_0 is rejected. Thus, Personalization Quality variables significantly influence Gen Y User Satisfaction.
- Value Sig. < α ie 0.109 < 0.05, which means that H_0 is accepted. Thus, Learning Support variables affect Gen Y User Satisfaction, but not significantly.

b) F-Test

Analysis was performed using SPSS program; the results are as shown in Table 6.

TABLE VI. F-TEST RESULT (ANOVA^B)

Model	Sum of Squares	df	Mean Square	F	Sig
Regression	1135.331	4	283.833	68.350	.000 ^a
Residual	602.130	145	4.153		
Total	1737.461	149			

a. Predictors (Constant): Learner Interface Quality, Content Quality, Personalization Quality, Learner Support Quality

b. Dependent Variable: User Satisfaction

Based on the obtained value in Table 6, The Sig. obtained is 0.000, which means Sig. < 0.05. It can be concluded that H_0 is rejected and H_a is accepted, meaning Learner Interface Quality, Content Quality, Personalization Quality, Learner Support Quality have simultaneous significant effects on Gen Y User Satisfaction.

The levels of influence of Learner Interface Quality (X_1), Content Quality (X_2), Personalization Quality (X_3), and Learner Support Quality (X_4) against User Satisfaction (Y) can be shown by Table 7.

TABLE VII. DISTRIBUTION COEFFICIENT RESULT

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.808 ^a	.653	.644	2.03780

a. Predictors (Constant): Learner Interface Quality, Content Quality, Personalization Quality, Learner Support Quality

Based on the table 7, the value of R square (R^2) or coefficient of determination shows the contribution of variable (X) on User Satisfaction. The coefficient of the determination obtained was 0.653. It can be concluded that the Learner

Interface Quality (X_1), Content Quality (X_2), Personalization Quality (X_3), and Learner Support Quality (X_4) have contributed to the User Satisfaction amounting to 65.3%. This indicates that *green marketing* has an influence on User Satisfaction by 65.3%, while the remaining 34.7 is influenced by other factors not examined by researchers.

5) Priority of E-Learning Dimension Towards User Satisfaction

This analysis for Gen Y is set forth in the Cartesian diagram which is divided into four quadrants, shown in Figure 4.

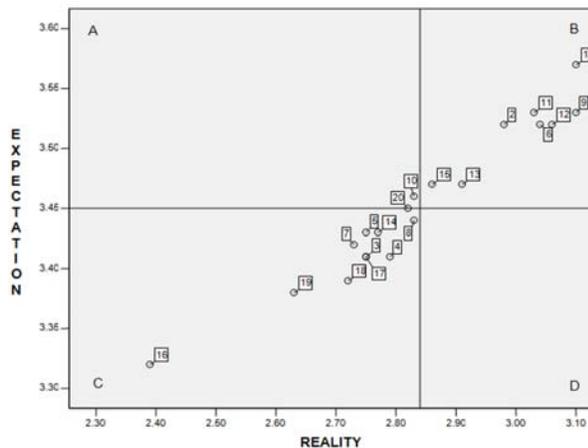


Figure 4. Importance Performance Analysis Result

Based on the Cartesian diagram above, each number represents an e-learning sub-dimension that can be described as the following interpretations.

• Quadrant A

Quadrant A indicates variables that are important to customers but not implemented at the expected level. The variable included in this quadrant is the variable number (10) of Easy access to the link/other content available in some e-learning materials.

• Quadrant B

Quadrant B shows variables that are important to customers and well executed by the company. The task is to maintain the company's high performance. Variables included in this quadrant are as follows.

- (1) E-learning website is easily accessible
- (2) E-learning website is easy to use
- (6) It is easy to understand the content explanation of e-learning
- (9) Problem training/test is available with e-learning materials
- (11) User can choose the e-learning materials based on needs

- (12) E-learning is able to encourage the users' ability to learn their own content based on things to learn (self-learning)
- (13) E-learning system provides sufficient data related to the learning development of the users
- (15) E-learning provides a personalized dashboard containing materials to follow, such as: mandatory course, certification, etc.

• Quadrant C

Quadrant C shows variables considered less important by customers and are not implemented by the company at the expected level. The variables included in this quadrant are as follows.

- (3) The system of e-learning runs steadily
- (4) It is easy to find content needed
- (5) E-learning website is attractive for use
- (7) The content of e-learning materials is always up-to-date
- (8) E-learning content is available and meets the needs of user's role/responsibility
- (14) I can continue the unfinished material from the last page visited
- (16) I got an email automatically when there is a new e-learning material or when completing a particular material
- (17) E-learning helpdesk team responds quickly to questions/comments related to the content or systems administration
- (18) E-learning helpdesk team responds quickly to questions/comments related to the problem of infrastructures/operations, such as networking, etc.
- (19) The discussion forum of e-learning helps solve the problems I encountered
- (20) E-learning makes it easier for me to share what I've learned to other employees

• Quadrant D

Quadrant D shows variables considered not important by customers but are implemented redundantly by the company. From all items on the statement above, there is no variable included in this quadrant.

C. Research Findings

Based on research results described before, there are some findings as stated below.

- a. Gen Y has the least constant of user satisfaction compared to Gen X and Baby Boomers, which is 0.754. It means that Gen Y are not yet satisfied with the present e-learning implementation, when compared to other generations.
- b. Personalization Quality plays the biggest role in defining e-learning user satisfaction for Gen Y and Baby Boomers, while Content Quality dominates it for Gen X.
- c. There are differences between generations regarding variables that partially influence the User Satisfaction, but not significantly. Baby Boomers have Content

Quality, Gen X has Learner Interface Quality, and Gen Y has Learner Support Quality. It means that the variables mentioned has the least influence on defining user satisfaction of each generation.

- d. Learner Interface Quality, Content Quality, Personalization Quality, and Learner Support Quality have simultaneously influenced the definition of User Satisfaction for all generations.
- e. All e-learning dimensions have influences of about 70.5% for Baby Boomers, 53.9% for Gen X, and 65.3% for Gen Y. It means that to improve the satisfaction of e-learning users at present, researchers need to find another 36.76% factors which has not been included in all e-learning dimensions. Hence, the degree of e-learning satisfaction would be improved.
- f. Based on the IPA result, there are 9 main priorities that should be implemented by the company to realize the degree of e-learning satisfaction by Gen Y for the next years. The main priorities are:
 - i. Easy access to the link/other content available in some e-learning materials
 - ii. E-learning website is easily accessible
 - iii. E-learning website is easy to use
 - iv. It is easy to understand the explanation of e-learning
 - v. Problem trainings/tests are available with e-learning material
 - vi. User can choose the e-learning materials based on needs
 - vii. E-learning is able to encourage the user's ability to learn their own content based on things he or she wants to learn (self-learning)
 - viii. E-learning system provide sufficient data related to the development of learning users
 - ix. E-learning provides a personalized dashboard containing material that I have to follow, such as: mandatory course, certification, etc.

V. CONCLUSIONS

This paper has drawn a conclusion that learning mechanism in a company needs to change when the organization business is transformed and generational shifting has happened. The right learning mechanism will ensure the success of this transformation. As the Internet increases use of e-Learning as the company's main learning infrastructure, we found several expectation gaps among generations in using e-Learning.

In facing the dynamic of business in the highly competitive era, e-Learning implementation should also be evaluated and enhanced to accommodate the changes in a company. This research was intended to measure the satisfaction of e-Learning implementation across employee generations, and recommend the right enhancement of e-Learning system especially for the learning purposes of Gen Y.

Personalization quality is the main requirement for Gen Y satisfaction in using e-Learning. There are nine aspects for e-Learning quality improvement for Gen Y users according to the Importance Performance Analysis (IPA) quadrants. These aspects cover accessibility, ease of use, content and data,

learning context, and personalization dashboard as a learning guidance for each user.

VI. RECOMMENDATION

Regarding the case study in this Paper, 1) Telkom needs to enhance their e-learning system according to nine aspects of e-Learning quality improvement for Gen Y users. This effort is in line with Telkom business transformation agenda and its generational shift. 2) The implementation should be managed by developing the right implementation of KPI such as growth of active users, growth of unique users, duration of e-Learning usage, and business impact of e-Learning. 3) Then, the target achievement should be measured, evaluated and improved periodically to ensure the benefit of e-Learning implementation model for Gen Y.

Acknowledgment

Data support is acknowledged by PT. Telkom Indonesia, especially Telkom Corporate University. We also acknowledge home institution, Padjadjaran University.

References

- [1] R. Dealtry, "The corporate university's role in managing an epoch in learning organisation innovation," *Journal of Workplace Learning*, vol. 18, no. 5, pp. 313-320, 2006.
- [2] B. Ruttenbur, G. Spickler and S. Lurie, "E-Learning : The Engine of the Knowledge Economy," 2000. [Online]. Available: <http://www.masie.com>.
- [3] R. Suhastini and D. T. Suganthalakshmi, "Corporate E-Learning," *Asia Pacific Journal of Management & Entrepreneurship Research (APJMER)*, vol. 4, no. 1, pp. 176-198, 2015.
- [4] N. Beamish, C. Armistead, M. Watkinson and G. Armfield, "The development of e-learning in UK/European Corporate Organizations," *European Business Journal*, vol. 14, no. 3, pp. 105-115, 2002.
- [5] J. Nixon and M. Helms, "Corporate Universities Versus Higher Education Institutions," *Industrial and Commercial Training*, vol. 34, no. 4, pp. 144-150, 2002.
- [6] G. Homan and A. Macpherson, "E-learning in the Corporate University," *European Industrial Training*, vol. 29, no. 1, pp. 75-90, 2005.
- [7] CIPD, "Training & Development Survey Report," CIPD, London, 2002-2003.
- [8] T. G. Devine, "Quantifiable Outcomes from Corporate and Higher Education Learning Collaborations," *ProQuest Information and Learning Company*, 2008.
- [9] Y. Ma and S. W. Harmon, "Integrating Knowledge Management Systems, Electronic Performance Support Systems, and Learning Technologies," *Performance Improvement Quarterly*, vol. 19, no. 3, pp. 107-120, 2006.
- [10] Y.-S. Wang, "Assessment of learner satisfaction with asynchronous electronic learning systems," *Information & Management*, vol. 41, pp. 75-86, 2003.
- [11] J. Tarigan, "Factors Influencing Users Satisfaction on E-Learning Systems," *Jurnal Manajemen dan Kewirausahaan*, vol. 13, no. 2, pp. 177-188, 2011.
- [12] T. O'Dell, *Generational Differences in Satisfaction with E-Learning in A Corporate-Learning Environment*, United States: ProQuest LLC, 2009.
- [13] W. Strauss and N. Howe, "Generations : The History of America's Future," *Harper Perennial*, pp. 1584-2069, 1993.
- [14] M. Roqueta, "Learning Management Systems : A Focus on the Learner," *Distance Learning*, vol. 5, no. 4, pp. 59-66, 2008.

- [15] R. McCrindle, "New Generations at Work," 2006. [Online]. Available: <http://www.mccrindle.com.au/>.
- [16] C. P. Schofield and S. Honore, "Generation Y and Learning," *The Ashridge Journal*, pp. 26-32, 2009.
- [17] R. Naish, "Generation X," *E-Learning Age*, pp. 10-11, October 2008.
- [18] D. Oblinger, "Understanding the New Students," *Boomers, Gen X-ers, and Millennials*, pp. 37-46, July/August 2003.
- [19] M. Rey-Lopez, P. Brusilovsky, M. Meccawy, R. Diaz-Redondo, A. F. Vilas and H. Ashman, "Resolving the Problem of Intelligent Learning Content in Learning Management Systems," *International Journal on E-Learning*, pp. 368-381, 2008.