



Building Value Creation Through Promotion, Quality of Relationships and Physical Infrastructure, and their Implications for the Image of Higher Education in Banten

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Abstract

The low value of institutional image among the private higher education institutions in Banten Province is allegedly caused by the lack of promotion, lack of quality relationships, lack of physical infrastructure, and lack of value creation. The research is aimed to find out and to analyze the effects of promotion, relationship quality, and physical infrastructure on value creation and its implications for the image of private higher education in Banten Province. The population in this research is ten private higher education institutions administering the Informatics Engineering Programme. The method used in this research is a descriptive and explanatory survey with a population of 320 samples, and the method of data analysis used is Structural Equation Modelling (SEM). The research finds that Promotion has a significant positive effect on Value Creation; Relationship Quality has a significant positive effect on Value Creation; Physical Infrastructure positively affects Value Creation in a significant way; Promotion, Relationship Quality, and Physical Infrastructure simultaneously have a significant effect on Value Creation as much as 51%, whereas the remaining 49% is affected by other factors. Partially, however, it is the Relationship Quality which is proven to dominantly affect the Value Creation. Promotion has a significant positive effect on Institutional Image. Relationship Quality has a significant positive effect on Institutional Image. Physical Infrastructure also has a significant positive effect on the Institutional Image, and so does Value Creation. Promotion, Relationship Quality, Physical Infrastructure, and Value Creation simultaneously have a significant effect on Institutional Image as much as 76%; meanwhile, the remaining 24% is affected by other factors. It is, however, Value Creation which partially has a dominant effect on Institutional Image.

Keywords: Image, Value Creation, Promotion, Relationship Quality, and Physical Infrastructure.

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INTRODUCTION

In this era of globalization, it can be understood that the national economies of various nations are integrated into the global economic system. Therefore, since the signing of the GATT agreement (General Agreement on Tariffs and Trade), various other arrangements such as NAFTA (North American Free Trade Agreement), APEC (Asia Pacific Economic Conference), WTO (World Trade Organization), and the implementation of the Structural Adjustment Program by the World Bank have also been signed. Thus, this significantly indicates that globalization is taking place. If viewed from the history of economic development, globalization is one phase of the long journey of the development of liberal capitalism, which was developed theoretically by Adam Smith (Ayenagbo, 2011). Thus, globalization is a continuation of colonialism and developmentalism. Indonesia is one of the countries in ASEAN that is affected by globalization. In response to this, Indonesia must be ready to face these challenges, one of which is through education. The liberalization of education is a consequence of Indonesia's participation in the WTO (World Trade Organization) since 1994. The public (through its representatives in the General Assembly) has implicitly agreed to join the WTO precisely since the publication of Law Number 7 of 1994 concerning ratification. "Agreement Establishing the World Trade Organization". As a WTO member, Indonesia cannot avoid various trade liberalization agreements, including trade in educational services. Moreover, WTO member countries signed the General Agreement on Trade in Services (GATS) in May 2005. This agreement regulates trade liberalization in 12 service sectors, including health services, information, communication technology, accounting services, higher education, and lifelong education services.

Higher education management now benefits businesses, especially in the service sector, so it must be handled effectively. To compete globally, the quality of education must be emphasized as a "service product." Stakeholder satisfaction is critical to the success of service companies. Besides that, learning satisfaction is a hot conversation topic for organizers to achieve customer satisfaction (Kashif and Ting, 2014). Educational reform responds to worldwide calls for change in educational systems. This system can train workers in developing countries. Education reform must protect human rights through optimizing potential and achievements for future life. In carrying out business processes during increasingly fierce and complex global competition, universities are required to have the ability to develop strategic choices in the field of marketing to be able to adapt to a dynamic environment. Seeing this reality, marketing efforts must be managed systematically for optimal results. Marketing educational services is a social and managerial process carried out by individuals and groups to get what educational institutions need and want through creating offers with other parties (Russel, 2005). In building educational institutions, there are two philosophical foundations, namely the epistemological basis, where educational institutions must try to understand the world around them and think deeply about the problems that exist in society, and various considerations and policies must not distort one another here. Educational goals must still adhere to the issues that exist in a community. (Brubacher, 1982). The seventh part of Learning Facilities and Infrastructure Standards, Article 30, states that the basic standards of facilities and infrastructure reflect the demands for content and learning processes to meet the learning objectives of graduates.

Learning infrastructure standards Article 30, Article 31 (1), requires: a. land; B. class; C. library; D. laboratory, studio, workshop, or production unit; e. Sports venues; F. art room; G. student activity unit room; H. college leadership room; I. lecturer room; J. administrative room; and K. public facilities. The province in Indonesia that is very close to DKI Jakarta is Banten. Even though Banten has a smaller area compared to other regions, its economic development, population, and transportation are very high, so the opportunities for developing higher education are huge (Priyanto, A., 2009).

Table 1
Recap of PTS Informatics Engineering Study Program
PTS Banten Region 2015/2016

No	Name of University	Student Total
1	Universitas Serang Raya	1908
2	Universitas Muhammadiyah Tangerang	1416
3	STMIK Bina Sarana Global	600
4	STMIK Raharja	830
5	Universitas Multimedia Nusantara	540
6	Universitas Islam Syekh Yusuf	536
7	Universitas Banten Jaya	248
8	Universitas Surya Bogor	133
9	STMIK Dharma Putra	54
10	STMIK Masa Depan	235
11	STMIK PGRI	84
12	Universitas Pramita Indonesia	297
Total		6881

In Table 1.3. The above shows that the recapitulation of the number of PTS in Banten that opened the Informatics Engineering study program in 2015 was Serang Raya University with 1,908 students, Tangerang Muhammadiyah University with 1,416 students, STMIK Bina Sarana Global with 600 students, STMIK Raharja 830 students, Multimedia Nusantara University 540 students, University Islam Syekh Yusuf 536 students, Banten Jaya University 248 students, Surya Bogor University 133 students and STMIK Dharma Putra with 54 students, Future STMIK 235 students, STMIK PGRI 84 students, Paramita Indonesia University 297 students.

Literature Review

This research uses 5 (five) previous studies as study material and references in writing:

No	Author	Title	Equality	Difference	Research Findings
1	Murshid, M. A. Halim, M. S. Osman, A. 2014	Marketing Mix strategy and Physicians' Satisfaction: A Mediation Effect of Perceived Value in the Pharmaceutical industry in Yemen, IOSR Journal Of Humanities And Social Science (IOSR-JHSS) Volume 19, Issue 5, Ver. I (May. 2014), PP 73-81	Infrastructure Physique, Promotion, creation mark	quality relationship, management knowledge and image	The results of the study indicate that physicians' perceived value is significantly influenced by marketing mix strategies, particularly in the dimensions of price, distribution, and promotion. Meanwhile, the four elements of the marketing mix—product, price, distribution, and promotion—directly influence physician satisfaction with pharmaceutical products. These findings indicate that high-quality drugs, affordable prices, good availability, and informative promotions can increase physicians' perceived value and satisfaction. Therefore, pharmaceutical companies need to ensure product quality through effective quality planning and control to create superior value and enhance customer satisfaction.
2	Krenz, P, Basmer, S, Buxbaum-Conradi, S, Redlich, T., Wulfsberg, J.-P. (2014)	Knowledge Management in Value Creation Networks: Establishing a New Business Model through the Role of a Knowledge-Intermediary	Management Knowledge, creation mark	Promotion, quality relationship and image	Knowledge management is a strategic element integrated into the management of value-creating networks. Knowledge management not only supports operational activities but also shapes network structures, influences collaboration processes, and determines value-creation outcomes. Therefore, integrating knowledge management into overall network management is a critical factor in developing new business models and enhancing an organization's competitive advantage.

3	Haitham M.A Nakhleh. 2012	THE RELATIONSHIP BETWEEN CUSTOMER RELATIONSHIP MARKETING TACTICS, RELATIONSHIP QUALITY AND CUSTOMER'S LOYALTY IN MOBILE COMMUNICATION INDUSTRY. Vol 3 No. 2.	Quality relationship, marketing tactics (promotion), brand image (image)	Promotion, management knowledge creation value, image	Effectively implementing a Customer Relationship Marketing (CRM) strategy can increase customer loyalty. Relationship quality has been shown to mediate the relationship between CRM and customer loyalty. Furthermore, better service quality fosters stronger relationships between companies and customers, thereby increasing their loyalty. However, several dimensions of CRM and relationship quality indicate relatively low levels of engagement.
4	Rehman, Shakeel and Syed Ibrahim (2011)	Integrated Marketing Communication and Promotion	Promotion and Value	IMC	Integrated marketing communications and promotions have a positive and significant impact on consumer perceived value. Advertising is the promotional element that has the most dominant influence in shaping consumer value perceptions. Therefore, implementing an effective promotional strategy, particularly through advertising, can increase consumers' perceived value for a product or service.

5	Saeed, Rashid, SaNaeem, Bilal, Muhammad Bilal, Uzma Naz (2013)	Integrated Marketing Communication: A Review Paper	Promotion, Satisfaction, image, and Value Creation	Product, Price, Place, Loyalty	Integrated Marketing Communication (IMC) positively impacts various marketing aspects, including brand awareness, customer satisfaction, brand loyalty, brand image, and company profitability. IMC has also been shown to improve organizational performance and strengthen brand equity. However, effective IMC implementation still faces a number of challenges and obstacles in practice.
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METHODS

The research method used in this research is a survey method that takes samples from a population by relying on questionnaires as a data collection instrument. Thus, this research is categorized as explanatory research that explains the causal relationship between several research variables through hypothesis testing.

Based on the description of the framework above, a research paradigm is formulated regarding building value creation through promotion, the quality of relationships, and physical infrastructure and their implications for the image of higher education institutions, as shown in Figure 1 below.

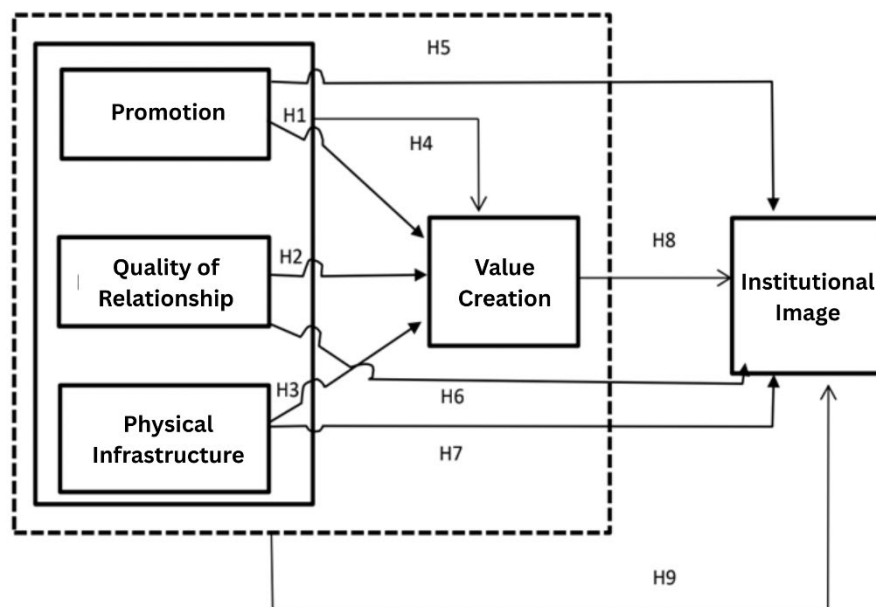


Figure 1. Research Paradigm

From the research paradigm mapping, the hypothesis that can be drawn in this research is a temporary answer to the problem formulation, so based on the framework above, it can be structured as follows:

H1: There is an influence of Promotion on institutional value creation

H2: There is an influence of relationship quality on institutional value creation

H3: There is an influence of physical infrastructure on institutional value creation

H4: There is an influence of Promotion, quality of relations, and physical infrastructure together towards the creation of institutional value

H5: There is an influence of Promotion on Institutional Image

H6: There is an influence of relationship quality on the image of the institution

H7: There is an influence of physical infrastructure on the idea of the institution

H8: There is an influence of value creation on Institutional Image

H9: There is an influence of promotion, quality of care, physical infrastructure, and value creation together influence the Institution's Image

Variable	Variable Concept	Sub Variables/ Dimensions	Indicator	Code
Promotion (ξ_1)	Communication between manufacturers and consumers and one company way For increase volume sale product	Promotion Advertising (advertising) (X1)	Accuracy of advertising media used	P1
			Accuracy of advertising messages	P2
			Creativity in advertising appearance	P3
			The attractiveness of the advertising appearance	P4
		Promotion personal (personal selling) (X2)	Clarity of delivery product	P5
			Promotion officer readiness to explain the product	P6
			The attractiveness of the promotion officer	P7
			Promotional skills In explaining the product	P8

		Promotion sale (sales promotions) (X3)	The attractiveness of scholarships for outstanding students	P9
			Laptop compensation appeal for the first 50 registrants	P10
			Discount on tuition fees for student who recommend	P11
		Connection Public (public relations) (X4)	Accuracy of communication with community/prospective students	P12
			Attraction does off-campus activities	P13
		Marketing Direct (Direct Marketing) (X5)	Accuracy of prospective students contacted via telephone	P14
			Accuracy of prospective students contacted by letter	P15
			High school precision visited	P16

This study uses a questionnaire to survey the population. Thus, the "explanatory research" that tests the hypothesis explains the causal relationship between the research variables. This study included students of the Informatics Engineering Study Program, Banten Private University, class of 2013/2014. They are accredited C in Tangerang Regency, Tangerang City, Serang, and Cilegon. The structural equation model used to test the hypothesis determines the sample size (Structural Equation Model).

In this research, there are five variables, so a minimum sample size of 200 respondents is required, considering outlier data and the principle that the larger the sample size, the better. By using a 1:5 ratio and having 64 parameters (indicators), a minimum sample size of 320 respondents is obtained. The research design shows the activities carried out by the author, starting from the hypothesis formulation to the data analysis. The research design reveals the type of research to be carried out and forms the basis for determining the kind of research. Research on Building Value Creation Through Promotion, Quality of Relationships and Physical Infrastructure and Its Implications for the Image of Higher Education (Empirical Study at PTS Informatics Engineering Study Program, Banten Province - Indonesia). Respondents filled out a population questionnaire to reflect the total population. Survey research uses questionnaires to obtain views on a topic from a

sample of people. This research uses a questionnaire to survey a population. Thus, "explanatory research" demonstrates causal relationships between research variables through hypothesis testing.

Research Instrument Test Design

Validity Test Design

Construct validity correlates item scores, which might be questions or assertions, with the overall Score to establish fact. Summating item scores yields this overall Score. Statistics suggest a substantial link between item scores and overall scores. The measuring instrument is legitimate if all items sorted by conceptual dimensions are associated with the overall Score. The correlation formula used in this study is the product-moment formula as follows:

$$r_b = \frac{n(\Sigma XY) - (\Sigma X)(\Sigma Y)}{\sqrt{(n\Sigma X^2 - (\Sigma X)^2)(n\Sigma Y^2 - (\Sigma Y)^2)}} \quad (1)$$

Information :

Rb = Pearson correlation coefficient between instrument items to be used with the variable in question.

X = Score of instrument item to be used

Y = Score of all instrument items in that variable

n = The number of respondents in the instrument test

While testing, the significance of the correlation coefficient (rb) was measured with a significance level of 5%. The t-test formula used is as follows:

$$t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}; db = n - 2 \quad (2)$$

The decision to test the validity of consumers using the 5% significance level is as follows:

1. The research questionnaire questions are valid if they are greater than or equal to the t-table.
2. The research questionnaire questions are invalid if the t count is smaller than the t table.

If the validity of each factor is positive and the amount is 0.3 and above, then the element is a solid or valid construct.

Reliability Test Design

This exam assesses measurement consistency by using the same items and tools. Reliability shows that a good instrument can be utilized to gather data. Dependability indicates reliability. Reliable implies trustworthy and reliable. To test the reliability, the authors use the alpha formula. The steps are as follows:

1. Make a value distribution list for each questionnaire item with the following steps:
 - a) Give a number to the incoming questionnaire.
 - b) Give a score for each item according to the weight that has been determined, namely the category 5 Likert scale.
 - c) Add up the scores for each respondent, and then the sum of these scores is squared.
 - d) Add up the scores that exist in each item of each answer given by the respondent.
 - e) Square the answer scores of each respondent for each item and then add them up.
2. Calculate the r coefficient for reliability testing using the alpha formula as follows:

$$r_{11} \left[\frac{k}{k-1} \right] - \left[\frac{\sum \sigma_b^2}{\sigma_1^2} \right] \quad (3)$$

(Arikunto, Suharsimi, 2022:171)

Information :

r_{11} = Reliability of Instrument

k = The number of items

$\sum \sigma_b^2$ = Number of grain variants

σ_1^2 = Total variance

The provisions are as follows:

- a) To get the instrument reliability coefficient, first, each item is added to get the number of grain variants with the following formula:

$$= \frac{\sum X^2 - \frac{(\sum X)^2}{N}}{N} \quad (4)$$

- b) The next step is to perform calculations to get the total variance
- c) Consult ther-valuee with the correlation coefficient interpretation guidelines to determine whether the questionnaire instrument used is reliable or not. If the alpha reliability value is more significant than 0.7, the instrument can be declared trustworthy.

Design Analysis and Hypothesis Testing

This dissertation measures the influence of the independent variable on the dependent variable with intervening variables using the structural equation model (SEM). Indirectly measuring constructs with indicator and latent variables was selected. The structural equation model may evaluate the indicator-latent measurement equation. Structural equations include measurement errors and link latent variables. Structural equation models have endogenous dependent variables and exogenous independent variables. The structural equation model analysis will indicate the relationship and magnitude of the influence between research factors, which may improve service value and institution image. Goals guided this study's design.

The steps required in carrying out SEM analysis are:

Step 1: Formulate the Model

After the research problem has been formulated, based on the theoretical framework and a study of relevant research results, a framework is put forward, and a research hypothesis is proposed. This research hypothesis is a proposed model to be confirmed empirically through the SEM analysis method. Once again, SEM is not intended to produce models but to confirm models (measurement models and structural models) that have been

successfully formulated based on certain theoretical studies and studies of relevant research results.

Step 2: Create a Path Diagram

When the model is successfully formulated, the next step is to demonstrate the model (measurement and structural) to be tested in the form of a complete path diagram. This complete path diagram in the Lisrel program is called the basic model. Figure 4.1. below is a complete lisrel version of the path diagram. This means that all notations and pictorial marks in the image refer to the convention as described above. Figure 4.1 below describes the relationship between five variables, namely, three exogenous latent variables (ξ_1 , ξ_2 , ξ_3) and two endogenous latent variables (η_1 and η_2), where:

ξ_1 = Promotion

ξ_2 = Quality of Relation

ξ_3 = Physical infrastructure

η_1 = Value Creation

η_2 = Institutional Image

The schematic model of the relationship between variables is described as follows:

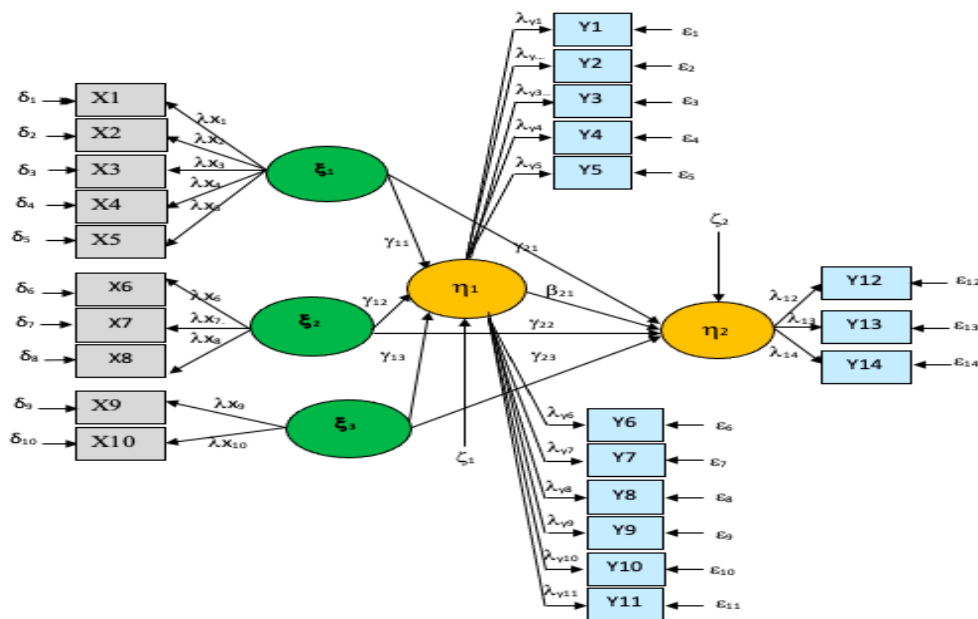


Figure 2 Basic Model Structure Equation Model (SEM)

Step 3: Formulating Measurement and Structural Equations

After creating the route diagram, turn it into equations for exogenous, endogenous, and structural latent variables. As for how to formulate the three equations, the following guidelines are used:

1. Equation Model Measurement
 - a. Exogenous manifest variable = function of the exogenous latent variable + error
 - b. Endogenous manifest variable = function of endogenous latent variable + error
2. Structural Model Equations
 - a. Endogenous latent variable = function of the exogenous latent variable + other endogenous latent variable + error

Adhering to these guidelines, as well as the conventions as stated above, three general equations can be expressed in SEM, as follows:

The Equation of the Exogenous Latent Variable Measurement Model, called the X-Measurement Relationships or the X-model, is expressed as:

$X_p = \lambda^{(x)}_{pm} \xi_m + \delta_p$; Assumption: δ_p with ξ_m uncorrelated.

The equation for measuring the exogenous latent variables for the model in Figure 4.1, namely 4.1, that is; ξ_1 , ξ_2 , and ξ_3 can be formulated as follows:

a. Exogenous latent variable measurement equation ξ_1 that is:

$$(1) X1 = \lambda^{(x)}_{11} \xi_1 + \delta_1$$

$$(2) X2 = \lambda^{(x)}_{21} \xi_1 + \delta_2$$

$$(3) X3 = \lambda^{(x)}_{31} \xi_1 + \delta_3$$

$$(4) X4 = \lambda^{(x)}_{41} \xi_1 + \delta_4$$

$$(5) X5 = \lambda^{(x)}_{51} \xi_1 + \delta_5$$

b. Equations for measuring exogenous latent variables ξ_2 that is:

$$(6) X6 = \lambda^{(x)}_{62} \xi_2 + \delta_6$$

$$(7) X7 = \lambda^{(x)}_{72} \xi_2 + \delta_7$$

$$(8) X8 = \lambda^{(x)}_{82} \xi_2 + \delta_8$$

a. Exogenous latent variable measurement equation ξ_3 that is:

$$(9) X9 = \lambda^{(x)}_{93} \xi_3 + \delta_9$$

$$(10) X10 = \lambda^{(x)}_{10.3} \xi_3 + \delta_{10}$$

The model equation for measuring endogenous latent variables is called the Y-Measurement Relationship or Y-model, which is stated as follows:

$Y_p = \lambda^{(y)}_{qn} \eta_n + \varepsilon_q$; Assumption: ε_q with η_n uncorrelated.

The measurement equation for the endogenous latent variables for the model in Figure 4.1, i.e. that is η_1 and η_2 can be formulated as follows:

a. Endogenous latent variable measurement equation η_1 :

$$(1) Y1 = \lambda^{(y)}_{1.1} \eta_1 + \varepsilon_1$$

$$(2) Y2 = \lambda^{(y)}_{2.1} \eta_1 + \varepsilon_2$$

$$(3) Y3 = \lambda^{(y)}_{3.1} \eta_1 + \varepsilon_3$$

$$(4) Y4 = \lambda^{(y)}_{4.1} \eta_1 + \varepsilon_4$$

$$(5) Y5 = \lambda^{(y)}_{5.1} \eta_1 + \varepsilon_5$$

$$(6) Y6 = \lambda^{(y)}_{6.1} \eta_1 + \varepsilon_6$$

$$(7) Y7 = \lambda^{(y)}_{7.2} \eta_1 + \varepsilon_7$$

$$(8) Y8 = \lambda^{(y)}_{8.2} \eta_1 + \varepsilon_8$$

$$(9) Y9 = \lambda^{(y)}_{9.2} \eta_1 + \varepsilon_9$$

$$(10) Y10 = \lambda^{(y)}_{10.2} \eta_1 + \varepsilon_{10}$$

$$(11) Y11 = \lambda^{(y)}_{11.2} \eta_1 + \varepsilon_{11}$$

b. Endogenous latent variable measurement equation η_2 :

$$(12) Y12 = \lambda^{(y)}_{12.2} \eta_2 + \varepsilon_{12}$$

$$(13) Y13 = \lambda^{(y)}_{13.2} \eta_2 + \varepsilon_{13}$$

$$(14) Y14 = \lambda^{(y)}_{14.2} \eta_2 + \varepsilon_{14}$$

The structural model equation among latent variables is referred to as a structural model expressed as:

$\eta_n = \gamma_{mn} \xi_m + \beta_{nn} \eta_n + \zeta_n$; Assumption: ζ_n with ξ_m dan η_n uncorrelated.

So that the structural equation for the model as shown in Figure 4.1 above can be stated as follows:

- a. $\eta_1 = \gamma_{11}\xi_1 + \gamma_{12}\xi_2 + \gamma_{13}\xi_3 + \zeta_1$
- b. $\eta_2 = \beta_{21}\eta_1 + \gamma_{21}\xi_1 + \gamma_{22}\xi_2 + \gamma_{23}\xi_3 + \zeta_2$

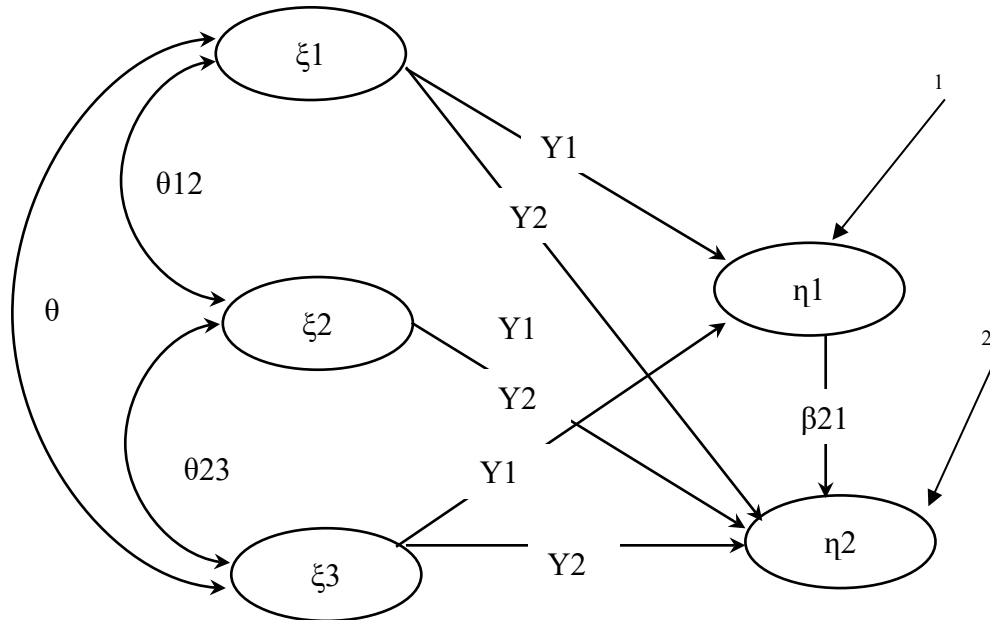


Figure 3 Structural Models of Exogenous and Endogenous Latent Variables

Step 4: Selecting Input Data and Model Estimates

One difference between SEM and other multivariate dependency data analysis methods lies in the input data used. In SEM, the input data analyzed is a covariance matrix or a correlation matrix. For SEM applications, experts mostly recommend using a covariance matrix rather than a correlation matrix. The correlation matrix is a standardized covariance matrix, that is, if the data is set with an average value equal to zero and the standard deviation equal to one. Therefore, if the correlation matrix is used as input data, the SEM statistical estimation results will always be expressed in the form of standardized units whose values range between -1.00 and $+1.00$. After the input data is selected, the next step is to estimate the model, choosing an estimation method and choosing a computer program to use.

Step 5: Model Identification

Model identification relates to the question of whether the proposed model can produce a unique (single) estimation or not. The requirement that a model is possible to produce a unique assessment is that the model is just-identified or over-identified. A model is said to be just-identified if the model has zero degrees of freedom, and it is said to be over-identified if the degrees of freedom are more significant than zero. In this context, the degrees of freedom are defined as follows:

$$df = \frac{1}{2}(p + q)(p + q + 1) - t \quad (5)$$

Where: (p + q) is the number of manifest variables analyzed and t is the total number of parameters estimated.

Step 6: Model Fit Test

First test the measurement model, then test the measurement and structural models concurrently to test the SEM model. The t-test tests each statistical estimate in SEM analysis. Lisrel verified the whole t-test findings with a 0.05 test error rate using path diagram output (PTH) t-value statistics. Lisrel prints a red line graphic if the test findings are insignificant. The model appropriateness test is another way SEM examines the given model. "Model appropriateness" in SEM analysis means the sample covariance matching the population covariance matrix estimate. Thus, the statistical hypothesis:

H0: There is no difference between the sample covariance matrix and the population covariance matrix

H1: There is a difference between the sample covariance matrix and the population covariance matrix

Model appropriateness tests use numerous metrics (goodness of fit statistics, GOF). GOF measurements are absolute, comparative, and parsimonious. Table 4.2 lists various Lisrel Version GOF sizes.

GOF size	Formula	Description
1. A measure of Absolute Fit		
The goodness of Fit Index (GFI)	$GFI = 1 - \frac{1}{2}tr(S - \Sigma)$	Model suitability was assessed using the Goodness of Fit (GFI) index and the Root Mean Square Error of Approximation (RMSEA). A model is considered to have a good fit if the GFI value is ≥ 0.90 and the RMSEA is ≤ 0.08 . A high GFI value indicates that the model is able to explain the data well, while a low RMSEA value indicates a small level of approximation error.
Root Mean Square Error of Approximation (RMSEA)		
Expected Cross-Validation Index (ECVI)	$ECVI = \frac{\chi^2}{N-1} + \frac{2(k)}{N-1}$ k= the number of parameters estimated the number of parameters estimated	A measure of the model's suitability if the estimated model is tested again with a different sample but of the same size.
2. Comparative Fit Measure		
Adjusted GFI (AGFI)	$AGFI = 1 - \frac{(p+q)(p+q+1)/2}{df} (1 - GFI)$	Adjusted GFI value. $AGFI \geq 0.90$ indicates the model fits the data
Normal Fit Index (NFI)	$NFI = \frac{\chi^2_{null} - \chi^2_{proposed}}{\chi^2_{null}} (1 - GFI)$	A measure of the model's suitability lies on a comparative basis to the baseline or the null model. The null model is generally a model which states that the variables contained in the estimated model are not interrelated. According to this measure, the model is fit if the NFI is ≥ 0.90 . NFI = 0.90 means that the model is indicated to be 90% better than the null model.
Comparative Fit Index (CFI)	$CFI = 1 - \frac{\chi^2_{null} - \chi^2_{proposed}}{\chi^2_{null} - df_{null}}$	A measure of the suitability of the comparative-based model with the null model. CFI values

GOF size	Formula	Description
		range from 0.0 to 1.0. CFI ≥ 0.90 is said that the model is fit with the data
		3. Parsimonious Conformity Measures
Norm Chi-Square (NCS)	$NCS = \frac{\chi^2}{df}$	A parsimony measure of suitability is to test whether the estimated number of coefficients meets the requirements to achieve a fit model. NCS ranges from m 1.0-5.0, indicating a fit model with the data.
Parsimonious Normed Fit Index (PNFI)	$\frac{df_{proposed}}{df_{null}} \times NFI$	Parsimony suitability measure as a correction to GFI. PGFI $\geq$), 90 indicates a more parsimonious model

Step 7: Model Interpretation and Modification

Model interpretation is basically a discussion or discussion of statistics on the results that have been obtained. The aim is to answer the research problem that is proposed. The interpretation of the results is carried out based on the output of the Lisrel program, which includes:

1. Path diagram
2. The statistical, computational output of the measurement model
3. The statistical and computational output of the structural model
4. Decomposition of the influence between variables

Because the Lisrel program outputs are relatively large, to make it easier to interpret the results, these outputs should be summarized.

Summary Table of Model Fit Test

Table 4 Summary of Model Fit Test Results		
Size GOF	Estimates	Test results
RMSEA	RMSEA < 0.08	Good/ Marginal/ Bad Fit
GFI	GFI > 0.90	Good/ Marginal/ Bad Fit
NNFI	NNFI > 0,90	Good/ Marginal/ Bad Fit
NFI	NFI > 0,90	Good/ Marginal/ Bad Fit
AGFI	AGFI > 0,90	Good/ Marginal/ Bad Fit
RFI	RFI > 0,90	Good/ Marginal/ Bad Fit
IFI	IFI > 0,90	Good/ Marginal/ Bad Fit

If, from the results of the model suitability test, it turns out that the proposed model is not a good fit or does not match the data, then there are two alternatives. First, accept the fact that the model does not include the data. Second, use all available information to modify the proposed model.

2. Summary of the Decomposition of Influence Between Variables

- a. Direct Causal Effect is the effect of one latent variable without going through other latent variables.
- b. Indirect Causal Effect is the effect of one latent variable on other latent variables that occurs through other endogenous latent variables (in SEM, the indirect effect of one exogenous latent variable on one endogenous latent variable through other endogenous latent variables is not counted as an indirect causal effect).
- c. Total Effect is the sum of the direct causal effect and the indirect causal effect.

Population and Sample

This research included 2013/2014 Banten private university Informatics Engineering Study Program students. The structural equation model used to test the hypothesis determines the sample size (Structural Equation Model). In this research, there are five variables, so a minimum sample size of 200 respondents is required by considering outlier data and the principle that the larger the sample size, the better. Using a 1:5 ratio and having 64 parameters (indicators), a minimum sample size of 320 respondents is obtained. To identify the chosen 320 responders, random sampling, namely simple random sampling, was done, and random sampling, namely simple random sampling, was carried out.

As explained in the research method, this research is a research of perceptions. Therefore, in this study, self-reports were obtained directly from the source, namely primary and secondary data for supporting data. The data sources, namely (1) Secondary data sources, are from the Higher Education or Kopertis Region IV, Banten provincial office. (2) The primary data source is from private universities in Banten province.

Table 1 Number of Variables and Minimal Sample Size Analysis of Structural Equation Model (SEM)

Number of Variables	Sample Size
3	200
5	200
10	200
15	360
20	630
25	975
30	1395

Surveys collected primary and secondary data on perceptions and phenomena. The two kinds of data are collected using these methods:

1. Communication Engineering

The questionnaire collects primary data using a list of questions arranged according to the research objectives to be shared.

1. Observation Technique

Observation, making direct observations to obtain other information that cannot be predicted; reviews of annual records/reports and other documents from various institutions related to the problems are studied.

1. There are five variables in this study, so a minimum sample size of 200 respondents is required. Taking into account the presence of outlier data and the principle that the larger the sample size, the better, by using a ratio of 1: 5 and having 64 parameters (indicators), the minimum sample size is obtained:

$n = \text{Number of parameters} \times \text{variable}$

$= 64 \times 5$

$= 320 \text{ respondents}$

This study's minimal sample size was 320 respondents. To identify the chosen 320 responders, random sampling, namely simple random sampling, was done, and random sampling, namely simple random sampling, was carried out. In this research, the population comprised nine private institutions having informatics engineering study programs in Banten Province.

Table 2 Population and Sample

No	College Name	Population Class of 2013/2014	Sample
1	STMIK Global	200	38
2	STMIK Raharia	189	36
3	UNIS	201	38
4	Univ Muhammadiyah Tangerang	221	42
5	Univ Multimedia Nusantara	196	37
6	Univ Serang Raya	205	39
7	Univ Banten Jaya	211	40
8	Univ Surya Bogor	109	21
9	STMIK Dharma Putra	165	31
Amount		1697	320

Source : Kopertis Wilayah IV Jawa Barat, 2014

RESULT AND DISCUSSIONS

Discussion

This research has achieved its goal of Building Value through Promotion, Quality of Relationships, Physical Infrastructure, and its Implications for the Image of a Private Higher Education, focusing on the Informatics Engineering study program implemented in Banten. This study applies a descriptive survey method and an explanatory survey method. This research is the first to analyze an image builder in a tertiary institution, which in turn contributes to the improvement of the quality of the college itself. Currently, private universities are competing with each other to create a positive image because this research is relevant to be developed.

The promotion is reflected by the dimension of public relations (X4), which is proven to have a positive and significant effect on value creation as reflected by the dimension of accreditation of study programs (Y10) with an influence of 0.27. The quality of the relationship reflected by the commitment dimension (X8) is found to have a positive and significant effect on value creation as reflected by the accreditation dimension of the study program (Y1) with a significant influence of 0.46. Physical infrastructure, which is reflected by the dimension of attractive physical facilities (X9), is proven to have a positive and significant effect on value creation as reflected by the dimension of study program accreditation (Y10) with an influence of 0.25. Promotion, shown by the dimension of public relations (X4), relationship quality, indicated by the dimension of commitment (X8), and physical infrastructure, reflected by the dimension of appealing physical facilities (X9), have a favorable and substantial influence on reflected value generation. by the study program accreditation (Y10) with 51%. When just a section of the connection is studied, the quality with a magnitude of effect of 0.46 is the most significant in value generation. Public relations promotion (X4) has a favorable and substantial impact on the institution's image as represented by the practice (study program orientation in the world of work and emphasis) (Y13) with a moderate influence of 0.13. The connection quality, expressed by the commitment dimension (X8), positively and significantly affects the institution's image, reflected by the practical dimension (study

program orientation in the world of work and attention) (Y13), with a strong impact of 0.16. The practical feature of study program direction in the professional world and emphasis (Y13), which is expressed by the appealing characteristics of physical facilities (X9), has a high impact of 0.34 on the institution's image.

The value creation reflected by the accreditation dimension of the study program (Y10) is proven to have a positive and significant effect on the image of the institution, which is reflected by the practical dimension (study program orientation in the world of work and focus) (Y13), with a large influence of 0.70. Promotion is reflected by the dimension of public relations (X4), the quality of relationship reflected by the dimension of commitment (X8), the physical infrastructure that is reflected by the dimension of attractive physical facilities (X9), and the value creation that is reflected by the dimension of accreditation of study programs (Y10). Together, they are found to have a significant positive effect on the image of the institution, which is reflected by the practical dimensions (study program orientation in the world of work and focus) (Y13) with a contribution of 76%, and the remaining 24% is influenced by other factors. However, when viewed partially, it turns out that value creation most dominantly affects the institution's image.

Conclusion

The following conclusions are based on the research: Promotion, relationship quality, and physical infrastructure contribute to value generation, whereas other elements affect it. When evaluated partly, connection quality dominates value generation. Promotion, connection quality, physical infrastructure, and value production contribute to the institution's image, while other elements account for. However, value generation dominates the institution's image. Thus, additional data from certified institutions that are altering evaluation methods is required. These studies found that relationship quality and physical infrastructure affect value creation and its consequences, and they urge that schools with C accreditation improve.

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