

## Increasing the Acceptance of New Students Based on Digital Marketing and Service Innovation with ICT Literacy as a Mediating Variable (Empirical Study at the Muhammadiyah Boarding School (MBS Yogyakarta))

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**Abstract.** *The formulation of the problem in this study is 1) How does Digital Marketing affect the increase in the acceptance of new students?; 2) How does Digital Marketing affect ICT Literacy?; 3) How does service innovation affect the increase in the acceptance of new students?; 4) How does service innovation affect ICT Literacy? This study uses a qualitative ex-post-facto approach. The population in this study were the leaders of Islamic boarding schools, foundation administrators, teachers, Islamic boarding school administrators, and the new student admission committee totaling 81 people. The sample in this study was 81 people using a saturated sample technique. The technique used to collect data in this study was by using a questionnaire. Data analysis used includes descriptive analysis and Data Analysis with Structural Equation Model (PLS). The results of this study show the influence of Digital Marketing on the increase in the acceptance of new students at MBS Yogyakarta, in addition there is also an influence between Digital Marketing on ICT Literacy at MBS Yogyakarta. While for service innovation there is also an influence on the increase in the acceptance of new students. Furthermore, there is also an influence between service innovation on ICT Literacy. And ICT Literacy is able to mediate the influence of Digital Marketing on Increasing the Acceptance of New Students. There is an influence between Digital Marketing based on service innovation on increasing the acceptance of new students at MBS Yogyakarta which is mediated by ICT Literacy.*

**Keywords:** *Digital; Innovation; Literacy; Marketing.*

### 1. Introduction

The development of technology over time has made Islamic educational institutions such as Islamic Boarding Schools continue to innovate, especially in terms of educational marketing. The development of increasingly advanced technology has made marketing in educational institutions more profitable with various available digital media. The reach of educational

marketing, which was previously narrow, has become wider with digital media. The claim of digital media that can be accessed anytime and anywhere is an additional point for educational marketing to market its products. One example is social media whose consumers are of all ages. Educational marketing can take advantage of this to market its products. However, the phenomenon that occurred at the Muhammadiyah Boarding School MBS Yogyakarta Islamic Boarding School in terms of marketing educational services is currently considered to be less than optimizing digital media. The Islamic boarding school only uses brochures that are posted in several public places and information from students and alumni who return to their hometowns during the holidays. The digital media used by the Islamic boarding school is limited to administration and database interests. Meanwhile, the use of digital media that focuses on marketing is still underdeveloped. So this results in Islamic boarding school students not being optimal and the graph of the increase in the quantity of new student admissions not experiencing a significant increase.

No	Level	2019	2020	2021	2022	2023
1	JUNIOR HIGH SCHOOL	415	400	414	393	401
2	SENIOR HIGH SCHOOL	369	320	320	407	347
3	SPECIAL	90	84	84	85	102
		874	804	804	885	850

Table

Data on New Students of PPM MBS Yogyakarta 2019 to 2023

Source: PPM MBS Yogyakarta Document (2023)

Based on table 1 above, it can be concluded that the cycle of increasing data on new student admissions at PPM MBS Yogyakarta has not increased significantly, in fact the number has decreased even though the difference is small.

To overcome these problems, it is necessary to optimize and be consistent in using digital media in marketing educational services. The role of digital media in terms of promotion is as an intermediary to communicate, convey messages and disseminate information. Educational institutions marketing their products and services through digital media can be a solution in achieving marketing planning from educational institutions themselves by using various Digital Marketing concepts so that planned programs can be realized. The use of digital media can also help educational institutions find out about the increase in public interest through insights from each digital media they use (Samirah, 2021)

Meanwhile, objects marketed with digital media such as activities of students, ustadz and employees, information on accepting new students, achievements of students, and many more. On digital media such as Instagram and Facebook, the objects they market are designed to be very diverse and interesting, not just information with writing. Features such as Instagram stories and reels on Instagram are used to convey information in the form of

videos. Usually Instagram stories are used to convey the latest activities of the educational institution. While on digital media such as websites, the reach is even wider. The information conveyed there is more than other digital media. Information about the activities of students, teachers and employees is presented in the form of short articles. On the website, there is usually also information about the educational institution itself. Even the use of the website is also as an e-learning owned by educational institutions, new student admission forms to e-report cards. Digital media such as YouTube are used to convey information in the form of long videos. Usually educational institutions upload videos of Islamic boarding school profiles so that the public can see the condition of the educational institution without having to come to the location.

In addition to Digital Marketing, no less important in increasing the acceptance of new students in a boarding school is service innovation. Service innovation is a framework of thought that provides benefits to the community, which is broad and directly and indirectly from previous innovations. Innovation in the form of explanations of new ideas in the form of service services, both products and other methods used (Pratiwi & Syukur, 2018).

## 2. Research Methods

The type of research used in this study is quantitative research, namely research that focuses on testing theories through measuring research variables with numbers and conducting data analysis with statistical procedures. Quantitative research is ex-post-facto, because the data obtained from the results of events that have taken place, so researchers only reveal facts based on measurements of symptoms that already exist in respondents (Suharsimi, 2010). With quantitative methods, the significance of the relationship between variables will be obtained. The purpose of this study was to determine the increase in the acceptance of new students based on Digital Marketing and service innovation with ICT Literacy as a Mediation at the Muhammadiyah Boarding School (MBS Yogyakarta).

## 3. Results and Discussion

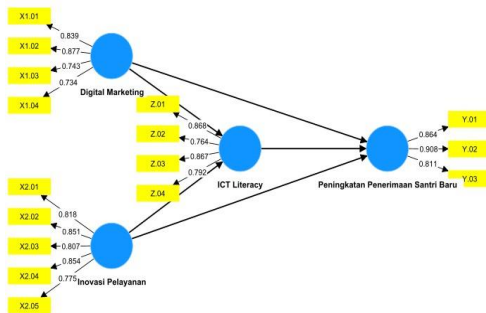
### Partial Least Square (PLS) Analysis

The Partial Least Square (PLS) approach was used to further the data analysis for this investigation. PLS-based Structural Equation Modeling (SEM) is an alternative analytical technique. The SmartPLS version 4 application is the tool used, and is specifically designed to calculate structural equations based on variance.

#### 1. Data Quality Testing / Evaluation of Measurement (Outer) Model

Convergence Validity is one of three criteria used to evaluate external models in PLS the other two criteria are Discriminant Validity, measured by the square root of the average variance extracted (AVE), and Composite Reliability SmartPLS software, convergent validity for the measurement model, along with Composite Reliability and Discriminant Validity in the form of the square root of the average variance extracted (AVE).

Analyzing the correlation between item values/component scores calculated using SmartPLS software, the convergence validity of the assessment model using dimensional reflection was evaluated. According to Ghozali & Latan (2017), a single reflective measure is considered high after correlating with at least 0.7 components tested. The total correlation for each variable is shown in the following Figure:



Source: SmartPLS 4 output

Figure Full Structural Model Partial Least Square (Outer) Model

The majority of validity indicators of each variable in this study have a loading factor value greater than 0.70, so they are considered genuine, in accordance with the findings of data processing by SmartPLS 4 as shown in the figure above. The Digital Marketing variable has 4 indications, all of which are declared valid because the outer loading value is more than 0.70. The service innovation variable has 5 indications, all of which are declared valid because the outer loading value is more than 0.70. The ICT Literacy variable has 4 indications, all of which are declared valid because the outer loading value is more than 0.70. And the variable for increasing the acceptance of new students has 3 indications, all of which are declared valid because the outer loading value is more than 0.70.

Based on the image above, the following is a table of outer loading that has been processed, as follows:

Table Outer Loading Score Table

Variables	Indicator	Score	Information
<i>Digital Marketing</i>	X1.01 X1.02 X1.03	0.839	Valid Valid Valid
	X1.04	0.877	Valid
		0.743	
		0.734	
<i>Service Innovation</i>	X2.01 X2.02 X2.03	0.818	Valid Valid Valid Valid
	X2.04	0.851	Valid
	X2.05	0.807	
		0.854	
		0.775	
<i>ICT Literacy</i>	Z.01 Z.02 Z.03	0.868	Valid Valid Valid
	Z.04	0.764	Valid
		0.867	
		0.792	

Improvement	Y.01	0.864	Valid
New Student Admissions	Y.02 Y.03	0.908	Valid Valid
		0.811	

Source: Processed primary data (2024)

All values are more than 0.7, then this data will be analyzed and used as primary data in this study. In addition to outer loading, there are two more criteria used with the SmartPLS 4 data analysis method to evaluate the outer model, namely discriminant validity (cross loading, AVE, Fornell Larcker criterion) and composite reliability.

### Average Variant Extracted (AVE) Table

No	Variables	AVE	Information
1	Digital Marketing	0.641	Valid
2	Service Innovation	0.675	Valid
3	Increased Acceptance New Students	0.743	Valid
4	ICT Literacy	0.679	Valid

Source: Processed primary data (2024)

All research variables have AVE values greater than 0.5, according to the information in the table above. As a result, each variable has strong discriminant validity.

#### a. Discriminant Validity

The cross loading value is used in the discriminant validity test. If the cross loading value of an indicator on a variable is higher compared to other variables, then it is said to have Discriminant Validity (Ghozali, 2014:39). The cross loading value for each indication is as follows:

Information from table above shows that compared to the cross loading value of other variables, then each indication of the research variable has the highest cross loading value of the variables it creates. Based on these results, it can be concluded that the indicators used in this study show strong discriminant validity when collecting data. Another method for assessing the information in the table above shows that when compared to the cross loading value of other variables, then each indication of the research variable has the highest cross loading value of the variables it creates.

#### b. Composite Reliability

To strengthen the reliability test, the cronbach alpha value is used together with the composite reliability value. A variable is said to have high reliability if the Composite Reliability value is more than 0.7. Meanwhile, if the cronbach alpha value of a variable is

more than 0.6, it can be considered reliable or in accordance with the cronbach alpha criteria. Ghozali (2014:43). The Composite Reliability reliability value of each variable and the Cronbach Alpha alpha for this study are listed below.

### Composite Reliability and Cronbach Alpha Table

Variables	Composite Reliability	Cronbach Alpha	Information
Digital Marketing	0.833	0.812	Reliable
Service Innovation	0.885	0.880	Reliable
ImprovementAcceptance of Students New	of 0.829	0.827	Reliable
ICT Literacy	0.860	0.842	Reliable

Source: Processed primary data (2024)

Based on the information in the table above, all research variables have a composite reliability value > 0.7 and have a cronbach alpha value > 0.6. This finding indicates that each variable meets composite reliability, which leads to the conclusion that each variable has a high level of dependence.

No	Structural Model	Estimated	Cut Off Value	Information
1	SRMR	0.086	< 0.10	Fit
2	d_ ULS	1,008	> 0.05	Fit
3	d_ G	0.692	> 0.05	Fit
4	Chi-Square	271,859	0.05	Fit
5	NFI	0.719	Approaching 1	Fit

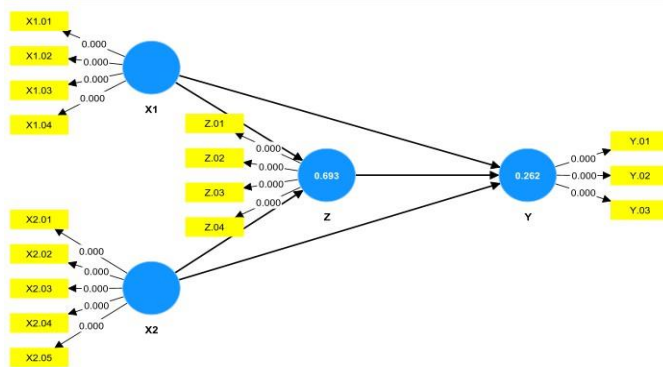
### Goodness of Fit Model Test Results Table

Based on the results of the goodness of fit test of the PLS model in the table above, it shows that the SRMR value of the PLS model is 0.086, which means it is lower than 0.10, thus indicating a good model. For the d\_ ULS Output result, which is 1.008, it shows a result higher than 0.05, which means it shows a good model. For the d\_ G Output result, which is 0.692, it shows a result higher than 0.05, which means it shows a good model. The Chi square result is 271.859, which means the model is good. The NFI Output result shows a result of 0.719, which means the model can be accepted well.

According to Simanjuntak & Hamimi (2019) that the analysis of the goodness of fit test has many criteria, if a model shows almost all the criteria indicate that the model is already at the good fit criteria, then the model can be continued for hypothesis testing. In this study, it was found that out of 5 goodness of fit model tests, 5 tests were met, so the model in this study can be continued for hypothesis testing.

## 2. Structural Model Testing (Inner Model)

The proportion of explained variance, namely R2 for the dependent variable with the structural path coefficient, is used to evaluate the structural model or as an inner model. The bootstrapping method is used to assess the stability of the estimates.



Source: SmartPLS 4 output

Figure Full Structural Model Partial Least Square (Inner) Model

Structural model testing (inner model) is conducted to ensure that the structural model built is robust and accurate. Therefore, the SRMR value of the model is below 0.10, this PLS model is declared fit, so it is suitable for testing the research hypothesis.

## 3. Hypothesis Testing

### a. Path Coefficient(Direct Impact)

The PLS structural model is applied to the dependent variable and coefficient values for the independent variables, then the significance of each route is determined using the t-statistic value. We can examine the t-statistic relationship between the dependent and independent variables for the path coefficients in the SmartPLS 4 Output (shown below) to determine the relevance of the model predictions to the context of the structural model (Jogiyanto & Willy, 2014: 12).

Table Path Coefficient in Model Testing

Hypothesis	Connection	Path Coefficient	P-Values	Information
H1	Digital Marketing towards Increasing the Acceptance of New Students	0.612	0.023	Influential
H2	Digital Marketing towards ICT Literacy	0.642	0.010	Influential
H3	Service Innovation for Increasing Student Admissions New	0.622	0.020	Influential
H4	Innovation Service towards ICT Literacy	0.718	0,000	Influential

	<i>ICT Literacy</i> towards Improvement Reception	New Students	0.594	0.037	Influential
H5					

Source: Processed primary data (2024)

### 1) Hypothesis Testing 1

The first hypothesis, this study shows that Digital Marketing has an effect on increasing the acceptance of new students, where the value is determined by calculation using the SmartPLS version 4 software program. obtained p-value 0.023 <0.05 at a significance level of 5%. This indicates that H1 can be accepted.

### 2) Hypothesis Testing 2

The second hypothesis, this study shows that Digital Marketing has an effect on ICT Literacy, where the value is determined by calculation using the SmartPLS version 4 software program. obtained p-value 0.010 <0.05 at a significance level of 5%. This indicates that H2 can be accepted.

### 3) Hypothesis Testing 3

The third hypothesis, this study shows that service innovation has an effect on increasing the acceptance of new students, where the value is determined by calculation using the SmartPLS version 4 software program. obtained p-value 0.020 <0.05 at a significance level of 5%. This indicates that H3 can be accepted.

### 4) Hypothesis Testing 4

The fourth hypothesis, this study shows that service innovation has an effect on ICT Literacy, where the value is determined by calculation using the SmartPLS version 4 software program. obtained p-value 0.000 <0.05 at a significance level of 5%. This indicates that H4 can be accepted.

### 5) Hypothesis Testing 5

The fifth hypothesis, this study shows that ICT Literacy has an effect on increasing the acceptance of new students, where the value is determined by calculation using the SmartPLS version 4 software program. obtained p-value 0.037 <0.05 at a significance level of 5%. This indicates that H5 can be accepted.

### Proof of Mediating Variables

To see mediation, namely by comparing the value of direct effect with indirect effect, it can be said that the mediating variable has an indirect influence on the relationship between the two variables. The following is a table to see mediation between variables.



Table Specific Indirect Effects

	Mark Coefficient	P Values	Information
<i>Digital Marketing</i> → ICT Literacy → Increasing the Acceptance of New Santri	0.613	0.005	<i>ICT Literacy</i> able to mediate the influence of Digital Marketing on Increasing New Student Admissions
<i>Service Innovation</i> → ICT Literacy → Improvement New Student Admissions	0.660	0.001	<i>ICT Literacy</i> able to mediate the influence of Service Innovation towards Increasing the Acceptance of New Students

## 6. Hypothesis Testing 6

The sixth hypothesis, this study shows that ICT Literacy is able to mediate the influence of Digital Marketing on increasing the acceptance of new students, this is evidenced by the specific indirect effect with a p-value of 0.005. This shows that H6 can be accepted.

## 7. Hypothesis Testing 7

The seventh hypothesis, this study shows that ICT Literacy is able to mediate the influence of service innovation on increasing the acceptance of new students, this is evidenced by the specific indirect effect with a p-value of 0.001. This shows that H7 can be accepted.

### **Analysis of the influence of Digital Marketing on increasing the acceptance of new students at MBS Yogyakarta.**

The first hypothesis, this study shows that there is a substantial positive relationship between Digital Marketing and increasing the acceptance of new students. This is in accordance with the indicators including:

1. Fulfillment website design shows that information can be easily accessed by prospective new student applicants.
2. The MBS Yogyakarta design website is easy to understand, thus increasing the knowledge of information for prospective applicants.
3. There is two-way communication between prospective registrants and the management of the Islamic boarding school website, making registration easier.
4. Data and information are kept confidential, thereby increasing the trust of registrants.

The existence of this positive relationship influence was determined by calculations using the SmartPLS version 4 software program. Tstatistic (4.955)

> Table and sig value 0.023 <0.05 at a significance level of 5%. This shows that H1 can be

accepted, which is indicated if Digital Marketing at MBS Yogyakarta has a positive and significant effect on increasing the acceptance of new students. This supports the research results of Ria Eka Novitasari (2021) which states that digital marketing has a positive and significant effect on student interest.

Analysis of the influence of digital marketing on ICT literacy at MBS Yogyakarta

The second hypothesis, this study shows that there is a substantial positive relationship between Digital Marketing and ICT Literacy. Indicators that show the relationship between the influence of digital marketing and ICT Literacy are:

- 1) Fulfillment website design makes it easy to search for information on the internet. So that the ability of registrants is better.
- 2) The design of MBS Yogyakarta is easy to understand, thus increasing the knowledge of information for prospective applicants.
- 3) Two-way communication will help understanding in navigation as well as building knowledge about the content.

The value is determined by calculation using the SmartPLS version 4 software program. Tstatistic (5.016) > Ttable (1.96) and the sig value of 0.010 < 0.05 at a significance level of 5%. This shows that H2 can be accepted, which is indicated if Digital Marketing at MBS Yogyakarta has a positive and significant effect on ICT Literacy. This is in line with the research of Alamsyah Agit and Siti Aisyah Juliana (2023) that digital marketing has an effect on Digital Literacy in Online Business.

Analysis of the influence of service innovation on increasing the acceptance of new students at MBS Yogyakarta

The third hypothesis, this study shows that there is a substantial positive relationship between service innovation and increasing the acceptance of new students. Indicators that support the influence of services on the acceptance of new students include:

- 1) New innovations are superior to those before
- 2) Innovation in accordance with the vision and mission of Islamic boarding schools
- 3) The latest innovations are easier to understand and monitor

The value is determined by calculation using the SmartPLS software program version 4. Tstatistic (5.003) > Ttable (1.96)

and a sig value of 0.020 < 0.05 at a significance level of 5%. This shows that H3 can be accepted, which is indicated if service innovation at MBS Yogyakarta has a positive and significant effect on increasing the acceptance of new students. These results support previous research, namely Citra Fildzah Ananda Hasibuan (2023) which states that Service

Innovation has an effect on MSME sales in Batubara Regency.

Analysis of the influence of service innovation on ICT Literacy at MBS Yogyakarta

The fourth hypothesis, this study shows that there is a substantial positive relationship between service innovation and ICT Literacy. The value is determined by calculation using the SmartPLS version 4 software program. Tstatistic (5.709) > Ttable (1.96) and the sig value is 0.000

<0.05 at a significance level of 5%. Some indicators that affect service innovation on ICT Literacy include: Service innovation has better advantages than before, this can spur the ability of managers to better understand digital literacy. In addition, online registration services use easy-to-understand internet usage guides.

This shows that H4 can be accepted, which is indicated if service innovation at MBS Yogyakarta has a positive and significant effect on ICT Literacy.

Analysis of the influence of ICT Literacy on increasing the acceptance of new students at MBS Yogyakarta

The fifth hypothesis, this study shows that there is a substantial positive relationship between ICT Literacy and the increase in the acceptance of new students. The indicators of the relationship of influence include the following:

- 1) Accepting new students through Internet searches can increase the number of new students accepted.
- 2) The distribution of origin of students who register is wider because registration is easy to access on the Islamic boarding school website.

The value of the influence is determined by calculation using the SmartPLS software program version 4. Tstatistic (4.487) > Ttable (1.96) and the sig value of 0.037 <0.05 at a significance level of 5%. This shows that H5 can be accepted, which is indicated if ICT Literacy at MBS Yogyakarta has a positive and significant effect on increasing the acceptance of new students. This supports previous research, namely Eka Khuzniatus Z (2020) which states that Digital Literacy can increase Business Profits among small business actors in the city of Surabaya.

#### 4. Conclusion

This study aims to determine how Digital Marketing and service innovation affect the increase in the acceptance of new students through ICT Literacy as a mediating variable at MBS Yogyakarta. The findings of this study can be concluded: There is an influence between Digital Marketing and the increase in the acceptance of new students at MBS Yogyakarta which is mediated by ICT Literacy based on the specific indirect effect with a p-value of 0.005. There is an influence between service innovation and the increase in the acceptance

of new students at MBS Yogyakarta which is mediated by ICT Literacy based on the specific indirect effect with a p-value of 0.001.

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