Analyze Effectiveness of the Agritourism Development Program of Star Fruit Picking with Structural Equation Modelling (SEM)

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Abstract. Ngringinrejo star fruit agritourism is one of the Bojonegoro Regency regional tourism development programs, which is expected to develop from year to year to have a significant economic impact on increasing village independence. However, in the last three years, agritourism income has decreased drastically, thus affecting the economic stability of the community. This study aims to analyze the effect of program quality on the effectiveness of development programs through the mediation of information and promotion systems applied in agritourism. This study was conducted from October to November 2023 and used a quantitative method with a questionnaire to obtain information from respondents. It was chosen by probability sampling based on the Statistical Power of 80%, so the minimum number of respondents was 76 star fruit farmers in Ngringinrejo Agritourism, Ngringinrejo Village, Bojonegoro Regency, East Java. The data were analyzed using SEM-PLS, and the result shows a positive and significant influence between program quality and development program effectiveness. Meanwhile, the information and promotion system has no effect and is not significant to the effectiveness of the program, so it is not able to mediate the relationship between program quality and the effectiveness of the program. The effectiveness of the Ngringinrejo agritourism development program in terms of its impact on social, economic, and environmental aspects is considered adequate because it provides benefits for the social development of the community, a decrease in poverty levels with an improvement in the community's economy, and is proven to be able to overcome environmental problems such as soil erosion and flooding.

Keywords: agritourism; effectiveness; development program; program quality; SEM-PLS

INTRODUCTION

The tourism sector is an opportunity in the community-based economy, so it needs development to realize the improvement of community welfare and regional development. Agritourism is a form of tourism that utilizes artificial natural beauty, offers agricultural activities as the main attraction, and involves the surrounding community as managers of the tourist area (Visa Sandy et al., 2021). The development of agricultural tourism potential requires synergized aspects ranging from the development of tourism products, human resource development, management and institutional management, forms of promotion and marketing, to investment. The existence of potential support from strategic tourism products can be an attraction that is in demand by tourists if it continues to be developed (Ari Cahyani et al., 2022).

Ngringinrejo star fruit picking agritourism is one of the efforts to develop regional tourism in Bojonegoro Regency, which used to be an area with unproductive land caused by floods that often hit when the rainy season arrived. Then, the community took the initiative to turn this unproductive land into productive land and protect residential areas by planting star fruit plants. The initiative was successful until finally, an agritourism area was formed, which was managed independently by a tourism awareness group and local farmer groups so that it was able to attract visitors. Until now, in Ngringinrejo Village, Kalitidu District, 104 farmers are members of the tourism awareness group with a star fruit garden area reaching 20.4 hectares with a total of approximately 10200 star fruit trees planted. Star fruit produced by agritourism is sold directly to visitors who come to the location.

Based on data from the Culture and Tourism Office of Bojonegoro Regency, the

number of tourist visits in 2022 in Bojonegoro Regency shows a drastic increase of 428.5%. However, this increase does not correlate positively with the number of tourist visits in the Ngringinrejo star fruit picking agritourism, which ranks 2nd with the most visitors. In fact, visitors who are absorbed in this agritourism are only 5.9% of the total visitors in the last year. This is very different from the number of visitors absorbed in the number 1 tourist destination, with a percentage of 70% of the total tourist visits in Bojonegoro Regency in 2022. In the last three years, more precisely since the COVID-19 pandemic hit, the income from this agritourism has decreased drastically, which certainly affects the economic stability of the community (Navalle & Rohman, 2022).

The factual conditions of Bojonegoro Regency are still hampered by the constraints of tourism products that have not been packaged optimally, many attractions are mostly only oriented towards local potential products without paying attention to the tourism product packaging system as well as strategy and promotion innovations that can support the local potential of the region. To support the sustainability of these tourism activities, guidance, training, and counseling are needed related to development strategies, packaging, and innovation of tourism products. In addition to the development of existing local resources and potential, there needs to be a strategy to develop new product lines and differentiate different tourism products to build a destination image with good quality tourism products that can attract tourists. Besides the support and assistance from the government and related agencies, the renewal of the program management system is the primary reference for managers to be able to compete with existing tourism. This is because more and more tourism objects will appear with their uniqueness and potential if the existing program management system does not have a new value, the existing tourism objects will be left behind and unable to compete, especially in the digitalization era like today.

Based on the various problems above, it is necessary to research the effect of program quality on the effectiveness of development programs through the mediation of information and promotion systems applied to Ngringinrejo agritourism. The purpose of this study was to analyze the factors that influence the effectiveness of agritourism development programs in terms of their impact on social, economic, and environmental aspects and to determine the role of information and promotion systems as mediating variables in Ngringinrejo agritourism.

METHODS

This research was conducted from October to November 2023, utilizing qualitative methodologies to process numerical and statistical data. The purposive sampling method was used to select the research area. The study was intentionally carried out in Ngringinrejo Agritourism, Kalitidu District, Bojonegoro Regency, East Java because so far no research has been carried out regarding the effectiveness of tourism development programs in this area.

The sample selection was done using the probability sampling method with a random sampling technique. Determination of the number based on the 80% statistical power table (Hair et al., 2017) with a total of 9 arrows and 1% alpha significance, the desired number of respondents is a minimum of 76 people who are star fruit farmers in Ngringinrejo agritourism. The data gathering employed the interview technique, including questionnaire instruments, to acquire information from respondents. The data that has been obtained is then analyzed using SEM-PLS to test the influence between variables with Smart-PLS software.

The variables used in this study are Program Quality (X), which is reviewed from 3 dimensions, namely Tourism Products (X1), Implementation System (X2), and Human Resources (X3). The mediating

variable of Information and Promotion System (Y) and the variable of Program Effectiveness (Z) are viewed from 3 dimensions, namely Social Aspects (Z1), Economic Aspects (Z2), and Environmental Aspects (Z3). Indicator measurement uses a Likert scale with score levels, namely (1) not good, (2) less good, (3) quite good, (4) good, (5) very good. The hypothesis in this study is as follows:

H1: There is an effect of program quality on the effectiveness of the development program

H2: There is an effect of program quality on information and promotion systems

H3: Information systems and promotion influence the effectiveness of development programs.

H4: Program quality affects the effectiveness of development programs mediated by information and promotion systems.

H5: The effectiveness of agritourism development program is considered effective in terms of its impact on social, economic, and environmental aspects.

RESULTS AND DISCUSSION

a. Evaluation of the Measurement Model (Outer Model)

Evaluation of the measurement model (outer model) is used in determining what kind of relationship specifications occur between latent constructs and their indicators (Hair et al., 2017). Model evaluation in this study was carried out to test the instrument reliability of each variable indicator and the validity of the model. Validity testing measures the extent to which indicators reflect the concepts to be measured, which can be checked using convergent validity and discriminant validity. Meanwhile, reliability measures the extent to which indicators are reliable and consistent in measuring latent variables, which can be measured using composite reliability and Cronbach Alpha.

b. First Order (Reflective)

Evaluation of the outer model stage 1 (first order) refers to a structural model involving latent variables or constructs that are measured directly by their indicators.

Table 1. Convergent validity analysis based on outer loading

Indikator	Outer Loading	Indikator	Outer Loading	Indikator	Outer Loading	Indikator	Outer Loading
X1.1	0.844	X2.1	0.827	Y1	0.738	Z1.1	0.799
X1.2	0.787	X2.2	0.800	Y2	0.705	Z1.2	0.868
X1.3	0.797	X2.3	0.810	Y3	0.729	Z1.3	0.905
X1.4	0.797	X2.4	0.751	Y4	0.700	Z1.4	0.889
X1.5	0.753	X2.5	0.805	Y5	0.799	Z2.1	0.865
X1.6	0.819	X2.6	0.818	Y6	0.728	Z2.2	0.824
X1.7	0.774	X2.7	0.828	Y7	0.763	Z2.3	0.755
X1.8	0.843	X2.8	0.824	Y8	0.790	Z2.4	0.769
X1.9	0.819	X3.1	0.822	Y9	0.890	Z2.5	0.830
X1.10	0.733	X3.2	0.870	Y10	0.796	Z2.6	0.794
X1.11	0.803	X3.3	0.804	Y11	0.707	Z2.7	0.868
X1.12	0.810					Z2.8	0.786
						Z3.1	0.901
						Z3.2	0.892
						Z3.3	0.813

Based on **Table 1** above, it can be seen that the loading factor or outer loading value on all sub-indicators shows a value of > 0.70, which reflects the measurement of all sub-indicators is said to have met the requirements of convergent validity (valid). According to research (Hair et al., 2017) the fixed amount that must be met to measure

convergent validity is > 0.7 for the outer   loading value.

Table 2. Convergent validity analysis based on *AVE*

Dimensions	Average Variance Extracted (AVE)
Tourism Products (X1)	0.638
Implementation System (X2)	0.653
Human Resources (X3)	0.693
Information & Promotion (Y)	0.579
Social Aspects (Z1)	0.750
Economic Aspects (Z2)	0.660
Environmental Aspects (Z3)	0.756

Based on **Table 2**, it can be seen that the AVE value obtained by each construct in this study is more than 0.5, which means that 50% or more of the variance of the indicator can be explained well (Hair et al., 2017). So, it can be concluded that convergent validity has met the requirements and has the required validity or can be said to be valid.

Table 3. Composite reliability and Cronbach's Alpha Analysis

Dimensions	Cronbach's Alpha	Composite Reliability
Tourism Products (X1)	0.948	0.955
Implementation System (X2)	0.924	0.938
Human Resources (X3)	0.777	0.871
Information & Promotion (Y)	0.930	0.938
Social Aspects (Z1)	0.889	0.923
Economic Aspects (Z2)	0.926	0.939
Environmental Aspects (Z3)	0.838	0.903

According to (Hair et al., 2017), the Composite Reliability and Cronbach's Alpha values can be said to be reliable if they have a value of > 0.7. The value above is a rule of thumb, as stated by (Hair et al., 2017), with a significance level of 5%. Based on the results presented in **Table 3**, it can be seen that the results of Composite Reliability testing carried out on all research dimensions have a value greater than 0.7. Meanwhile, the Cronbach's Alpha test results show that all variables also have a value greater than 0.7. Thus, it can be concluded that from the results of these two tests, all research dimensions have met the reliability test criteria, so they have a strong reason to continue with the second-order test.

c.   Second Order (Reflective)
Based on **Table 4**, it can be seen that the loading factor or outer loading value at the second order stage, which measures all dimensions of the reflective variable, shows a value of > 0.70, which reflects the measurement of all dimensions said to have met the requirements of convergent validity or said to be valid based on research (Hair et al., 2017) the fixed amount that must be met to measure convergent validity is > 0.7. Meanwhile, the AVE value obtained by each construct in this study is more than 0.5, which means that 50% or more of the variance of the dimensions can be explained well, and it can be concluded that convergent validity has met the requirements and can be said to be valid.

According to (Hair et al., 2017), the Composite Reliability and Cronbach's Alpha values can be said to be reliable if they have a value of > 0.7. Based on the results of Table 4, it can be seen that both the Composite Reliability and Cronbach's Alpha values are above 0.7, so it can be concluded that from the results of these two tests, all research variables have met the reliability

test criteria so that they have a solid reason to be tested in the structural model (inner model).

Table 4. Validity and reliability analysis second-order

Variable	Dimensions	Outer Loading	AVE	Composite Reliability	Cronbach's Alpha
Program Quality (X)	X1	0.892	0.858	0.948	0.917
	X2	0.940			
	X3	0.946			
Program Effectiveness (Z)	Z1	0.846	0.779	0.913	0.861
	Z2	0.891			
	Z2	0.908			

d. Structural Model Evaluation (Inner Model)

Evaluation of the structural model (inner model) is used to describe the causal relationship between latent variables that have been built based on the substance of the theory. Structural model testing is done by looking at the relationship between latent constructs (Bhale, 2024). There are several tests for structural models, namely multicollinearity analysis, Path Coefficient significance, hypothesis testing, R-squared, and Effect Size F-squared.

Table 5. Colinearity statistic analysis (VIF) Inner Model

	VIF	Results
X--->Y	1.000	There is no multicollinearity
X--->Z	1.025	There is no multicollinearity
Y--->Z	1.025	There is no multicollinearity

Table 5 shows that the correlation between all variables has an inner VIF value of 1.000, 1.025, and 1.025, where the value is < 5 so that the results of the multicollinearity level between variables are low, or it can be said that there is no multicollinearity between variables. These results strengthen the results of parameter estimation in SEM-PLS, which is robust (unbiased).
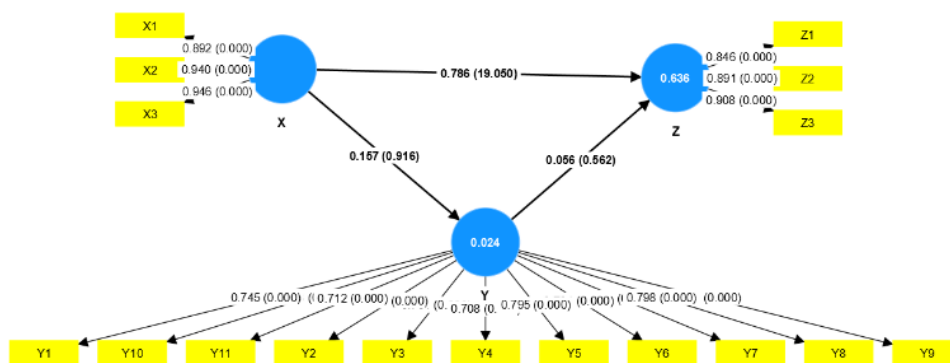

Figure 1. The results of SEM-PLS

Figure 1 shows the results of SEM-PLS can show the Path Coefficient Significance and Hypothesis Testing. Based on the path coefficient and P-value testing data in **Table 6**, it is known that:

H1: Program Quality variable (X) on Information & Promotion System variable (Y) has an ordinal sample value of 0.157 (+), T-Statistic 0.916 < 1.96, and P-value 0.360 > 0.05 so that the hypothesis is **rejected.**

H2: Program Quality variable (X) on Program Effectiveness variable (Z) has an ordinal sample value of 0.786 (+), T-Statistic 19.050> 1.96, and P-value 0.000 < 0.05 so that the hypothesis **is accepted** (highly significant).

H3: The Information & Promotion System variable (Y) on the Program Effectiveness variable (Z) has an ordinal sample value of 0.056 (+), T-Statistic 0.562 < 1.96, and P-value 0.574 > 0.05 so that the hypothesis is **rejected.**

H4: The relationship of variable X to Z mediated by Y has an ordinal sample value of 0.009 and a P-value above 0.05, so the hypothesis is **rejected.**

H5: The effectiveness of the development program in terms of social, economic, and environmental aspects is considered effective because all dimensions meet the loading factor value > 0.7, where the social aspect is 0.846, the economic aspect is 0.891, and the environmental aspect is 0.908 so that the hypothesis **is accepted.**

Table 6. Path coefficient and P-value (direct effect)

	Original Sample (O)	Sample Mean (M)	STDEV	T-Statistic	P-Value	Note
X-->Y	0.157	0.192	0.171	0.916	0.360	Rejected
X-->Z	0.786	0.778	0.041	19.050	0.000	Accepted
Y-->Z	0.056	0.059	0.100	0.562	0.574	Rejected
X-->Y--Z	0.009	0.018	0.021	0.415	0.678	Rejected

Table 7. Analysis of R-Square and Adj. R-Square

Variable	R-Square	R-Square Adjusted
Information & Promotion Systems (Y)	0.024	0.011
Program Effectiveness (Z)	0.636	0.626

The R-square value obtained illustrates the influence of exogenous variables on latent variables. Based on **Table 7**, it can be seen that the results of the R-square value of the Program Effectiveness Variable (Z) can explain the dependent variable by 63.5%, while the remaining 36.5% is explained by other variables outside the model that are not used in the study. In this study, the Program Effectiveness variable (Z) has an R-square value in the range of 0.51 to 0.75 so it can be concluded that the endogenous variables have good variance.

Analysis of effect size (f^2) to measure the strength and significance of an effect or relationship in the SEM model (**Table 8**). According to (Hair et al., 2021), Effect size is used to see the contribution of exogenous variables to endogenous variables. (f^2) is defined as the proportion of variability in endogenous variables that can be explained by exogenous variables in the model. The recommended values of (f^2) are 0.02, 0.15, and 0.35 with exogenous latent variables in the small, moderate, and large categories at the structural level.

Table 8. *Effect size* analysis (f^2)

	X	Y	Z
X		0.025	1.656
Y			0.008

PLS is a variance-based SEM analysis to test the theory of models that emphasize prediction studies. Therefore, several measures were developed to declare the proposed model acceptable, such as SRMR (Hair et al., 2021) and checking the robustness of the model by testing the

linearity of the relationship between variables (Hair et al., 2021). Based on **Table 9**, the results of the model estimation are obtained, namely the SRMR value of 0.079 < 0.10, and the model is declared perfect SRMR if < 0.08 so that it is declared fit or suitable. Furthermore, by looking at the

Normal Fit Index (NFI), where the score range is 0-1, the closer the score range is to 1, the better the model is built. The results of the NFI value in this research model obtained a result of 0.738 (close to 1), so it is concluded that the data has described the overall model or model fit with the data.

Table 9. Standardized Root Mean Square Residual (SRMR) fit test results

	Saturated Model	Estimated Model
SRMR	0.079	0.079
d_ULS	0.962	0.962
d_G	0.741	0.741
Chi-Square	284.650	284.650
NFI	0.738	0.738

The next test is the linearity test, which, according to (Hair et al., 2017), stated that it is necessary to check the linearity of the relationship between variables. The assumptions built into the influence between

variables are linear. This examination is part of the Robustness model in SEM-PLS. The examination carried out was to test the square form of the variable or Quadratic Effect (QE).

Table 10. Quadratic Effect (QE) Fit Test Results

	Original Sample (O)	P-Value	Information
QE(X)-->Y	-0.125	0.325	Linearity Fulfilled
QE(X)-->Z	-0.039	0.597	Linearity Fulfilled
QE(Y)-->Z	-0.054	0.485	Linearity Fulfilled

Based on the results of data processing that can be seen in **Table 10**, the square form of Program Quality (X) is not significant to Information and promotion Systems (Y) and Program Effectiveness (Z), and the square form of Information Promotion Systems is not significant to Program Effectiveness (Z). This can be seen from the P-value results, which are all above 0.05, so it can be concluded that the linearity effect of the model is fulfilled *(Robust).*

e. Effect of Program Quality on Program Effectiveness

Based on the path coefficient and P-value testing data, the Program Quality variable (X) on Program Effectiveness variable (Z) has an ordinal sample value of 0.786 (+), T-statistic 19.050> 1.96, and P-value 0.000 < 0.05 so that the hypothesis is

accepted (highly significant). The results of the analysis show that the quality of the Ngringinrejo picking agritourism development program as measured by the dimensions of product quality, implementation system, and human resources can directly increase the effectiveness of the program as measured by the dimensions of social, economic, and environmental aspects. The coefficient is positive, which indicates that the higher the quality of the program, the higher the effectiveness of the agritourism development program. This is in accordance with (Ari Cahyani et al., 2022), which states that high tourism quality will provide a high effectiveness value as well, in the sense that to increase effectiveness both in terms of social, economic, and environmental aspects, it is also necessary to improve the

quality and quality of tourism products. In other words, in the agritourism development strategy, the quality of the program must place more emphasis on improving quality both in terms of the quality of the tourism product itself, as well as in terms of technical implementation which includes the quality of the implementation system and also the quality of human resources in supporting the development of agritourism which will lead to the effectiveness of the development program which focuses on its impact in various aspects. Based on the highest outer loading value in each dimension, it is found that three factors must be maintained to achieve the effectiveness of tourism development programs, among others: tourist attractions, BUMDesa assistance, and knowledge and skills development. (Ahmadin, 2022) states that the condition of the attractiveness of a tourist destination has a positive and significant effect on the number of visits, which means that the better the tourist attraction, the more tourist visits will increase. Tourism attraction is anything that can trigger a person or group of people to visit a place because it has a certain meaning, which can be in the form of natural, artificial, or cultural charm (Pertiwi & Aliyah, 2017). Research conducted by (Cisan et al., 2021) states that BUMDesa is one of the parties that play a role in empowering local potential to improve the welfare and economic level of rural communities. The development process carried out by BUMDesa Tirto Abadi is to empower the Ngringinrejo community to develop farming communities by forming a combined farmer group (Gapoktan) and a combined tourism awareness group (Pokdarwis) that synergize together until the formation of agritourism. The development of knowledge and skills of managers to improve the quality of human resources is important in supporting the development of agritourism. Human resources are one of the factors that play an important role as a driving force in managing and advancing the tourism sector (Pajriah, 2018). In a service-based organization, human resources also play a crucial role in realizing successful performance. (Bhowmik et al., 2019) lack of experience of farmers in running a tourism business, lack of knowledge, skills, and training in the tourism sector, limited marketing channels and relationships are obstacles to developing agritourism so it is necessary to develop new skills in agritourism management.

f. Effect of Program Quality on Information and Promotion Systems

Based on the path coefficient and P-value testing data, the Program Quality variable (X) on Information and Promotion System variable (Y) has an ordinal sample value of 0.157 (+), T-Statistic $0.916 < 1.96$, and P-value $0.360 > 0.05$ so it means that has no effect and is not significant to the information and promotion system applied. When viewed from the outer loading value of the three dimensions, tourism products have the lowest value among the three. Where in theory tourism products play a key role in tourism promotion because they focus on what is offered to potential tourists and become the focus of promotional efforts. The role of tourism products in promotion includes (1) Attracting attention, (Sari et al., 2021) added that tourism products can only be felt when tourists visit tourist destinations directly because they cannot be tried or tested beforehand, so tourism products should be packaged as attractively as possible because it will be an important point in making decisions to visit tourists. (2) Inspire interest, (Illah et al., 2019) state that the factor that is the basis for making tourist visit decisions is tourism products, so one of its functions is as a reference in making visits to tourist destinations. (3) Expanding awareness, (Silalahi, 2022) states that brand awareness can make someone who initially did not recognize the brand (unaware of the brand) make the brand top of mind for visitors. (4) Encourage conversion, (Hidayatullah Elmas, 2019)

states that there is a positive and significant relationship between tourism products and visiting decisions where the higher the quality of tourism products supported by proper promotion, the stronger the influence of tourist visiting decisions. (5) Generate positive reviews, destination image is a belief and impression that is relied on in visiting a destination where tourists will tend to choose well-known products or those that have been recommended and visited by many people rather than visiting destinations that they did not know before (Loi et al., 2017). (6) Communicating the value, products in preserving the environment clearly and consistently can attract visitors promotions that communicate tourism who have environmental awareness and make a positive contribution to nature conservation (Rachmita & Koestoer, 2021). By paying attention to the role of tourism products and ensuring that the products offered are of high quality, attractive, and meet the expectations of potential tourists, promotional efforts can be more effective in strengthening the destination's image and attracting visitors. (Miller et al., 2023) state that tourism development must be in accordance with tourist expectations according to promotions on social media so that visitors feel satisfied with what is provided, thus making them stay longer in the place and also creating an intention to visit again.

g. The Effect of Information Systems and Promotion on the Effectiveness of Agritourism Development Program

Based on the path coefficient and P-value testing data, the Information and Promotion System variable (Y) on the Program Effectiveness variable (Z) has an ordinal sample value of 0.056 (+), T-Statistic $0.562 < 1.96$, and P-value $0.574 > 0.05$, so is considered unable to increase the effectiveness of the regional tourism development program based on Ngringinrejo star fruit picking. The same results were also obtained in (Ahmadin, 2022), where it was found that promotion had no significant effect, partially or individually, on the level of tourist visits to the Panrita Lopi Beach tourist attraction. Based on a review of various literature, there are two possible causes, namely, if it is associated with the Tourist Area Life Cycle (TALC) theory, it is suspected that the Ngringinrejo star fruit picking agritourism is already in the stagnation phase. If associated with marketing optimization theory, it is suspected that the information and promotion system carried out is still not optimal. The stagnation phase is a phase where tourist destinations are at a saturation point, so promotional efforts must be more effective in bringing in new tourists or customers. Two or more tourist destinations competing with each other for limited resources (local tourists) cannot coexist because when one tourist destination has an advantage it will dominate in the long term, causing the extinction of the weaker destination (Rodrigo et al., 2023). Furthermore, research by (Nugroho et al., 2021) shows that visitors' representation of rural tourism is in line with the theory of post-tourism, which states that visitors no longer enjoy what is considered different from the usual objects, including natural beauty and culture; they want more than that, to be more spontaneous and want to find surprises and excitement in every location visited. As a result, if the management does not innovate or rethink its development pattern, loyal tourists will not visit, potentially causing a decrease in the number of visits (decline phase) (Gusriza, 2022). From the explanation above, it is suspected that Ngringinrejo Agritourism is in the stagnant category. This is supported by the results of research conducted by (Ovitasari, 2019), which states that the majority of visitors to Ngringinrejo star fruit agritourism come from around the tourist attraction or within Bojonegoro Regency itself. From this research, there may be a saturation of visitors in the district, so a

promotional strategy is required to bring in new visitors, especially those from outside the district. Moreover, the COVID-19 pandemic during 2020-2021 caused agritourism to be temporarily closed due to lockdown and physical distancing, so management must carefully assess the impact of the epidemic on their business and develop new risk management strategies to overcome the crisis. (Jena & Behera, 2022), in their research, proposed ecotourism innovations that focus on sustainable management of the natural and cultural environment, such as waste reduction, etc. Another perspective, according to (Sahli, 2020), is to increase events and entertainment, which is a major asset for the promotion of a destination that acts as a catalyst in reviving a destination that is in a decline phase. (Indreswari et al., 2021) stated that several development strategies that can be implemented to maintain agribusiness are: diversifying products, improving management of natural resources and human resources, improving infrastructure and technology, policy government for more permits easier, developing distribution networks products, and partnership program development systematically and sustainably.

Based on the results of research conducted at the Ngringinrejo star fruit picking agritourism, statistically obtained results that have no effect and are not significant between the information system and promotion on program effectiveness, supported by the outer loading value of all sub-indicators of the information system and the majority of promotions ranging from 0,700-0,790 so that it is considered still less than optimal where marketing must also pay attention to current habits or trends. Tourism promotion has a dynamic nature and is unique, so it tends to follow changes from time to time. One of the impacts of the COVID-19 pandemic is a significant increase in technology, which is directly proportional to the number of social media users. This certainly provides a great

opportunity to optimize social media as a medium of communication, information, and promotion. (Isdarmanto, 2020) explains that promotion is the most mandatory thing to do so that tourists know the tourist attractions offered in an area, so the lack of promotion is a very important weakness to overcome. If the social media that is formed is not interactive, tourists who search for information online will form a negative perspective on the destination (Beal et al., 2019). (Susanto, B & Astutik, 2020) shows that social media promotions have a positive influence on tourist visits. The better the promotion with wider promotional reach, the quality of the messages conveyed, and continuous tourism development making tourists interested in visiting the place again. Research by (Bowman et al., 2020) in Oklahoma, social media promotion is carried out by creating interesting content so that it gets lots of likes from followers which has implications for FYP (For Your Page) which is a page recommended to social media users. (Bowman et al., 2020) also added that a stronger influence occurs on the number of content posts on community pages which can create more likes.

h. The Role of Information Systems and Promotion as Mediating Variables between Program Quality and Development Program Effectiveness

The relationship of variable X to Z mediated by Y has an ordinal sample value of 0.009 and a P-value above 0.05, so the results of the mediation hypothesis test that has been carried out show that the information system and promotion applied are not able to mediate the relationship between program quality and the effectiveness of the development program as a mediating variable. Promotion carried out in Ngringinrejo agritourism is still unable to mediate the effectiveness of the agritourism development program because promotion tends to affect public awareness and interest in agritourism but does not directly affect the effectiveness of the agritourism

development program itself. There are several allegations why promotion is not able to act as a mediating variable in this case, including the limitations of influence, where the conditions in each tourist destination have different characteristics, the lack of continuity of influence, where promotions often have a short-term impact, while the effectiveness of agritourism development programs usually requires sustainable and long-term efforts, the existence of external factors, such as political factors that will affect the policies applied, as well as the influence of context & environment, where the effectiveness of promotion is strongly influenced by the context and environment in which the program is run if external conditions do not support effective promotion, then promotion will not be able to mediate the relationship between program quality and program effectiveness correctly. Based on (Nugroho et al., 2021) research, there is a knowledge gap between visitors and tourism managers because tourists prefer to see "authenticity" while managers want to build "artificial" attractions. This gap will add to the long list of tourist attraction management failures and potentially burden the village government budget due to unnecessary investment.

i. Effectiveness of the Agritourism Development Program in terms of Impact on Social, Economic and Environmental Aspects

Based on the results of the analysis, it is found that the outer loading value of the impact dimension of social aspects (0,846), economic aspects (0,891), and environmental aspects (0,908), where the environmental aspect is considered the most dominating among the other two aspects. This is reinforced by (Kipkorir et al., 2022), which states that tourism development has an impact on various aspects, including economic, social, and environmental. (Popescu et al., 2023) also added that the impact of agritourism on society in rural areas in the Bukovina region is positive,

with many opportunities to become a tool for sustaining local rural entrepreneurship and local sustainability. With the development of community-based agritourism, it will undoubtedly make a positive contribution to the development aspects of the village community so that it can manage and develop its internal and external resources. This is in accordance with research conducted by (Leh et al., 2017) on Malaysian Agritourism that agritourism can encourage community development to a higher level because the presence of tourists who come will increase insight and also improve attitudes in a better direction. (Kurniawan et al., 2022) also added that a natural tourism area also has the potential to influence community social conditions, environmental decisions, and public policy because it can provide educational value and economic improvement of the community that can grow quite rapidly with the emergence of new businesses. Poverty alleviation in Ngringinrejo Village itself is also very much felt after the existence of agritourism. The small village located on the banks of the Bengawan Solo River was once often hit by floods, which resulted in crop failure and certainly had an impact on the economic conditions of the surrounding community. However, after the existence of agritourism, the problem of flooding can be resolved and offers many opportunities for local communities, especially farmers, to increase their source of income, quality, and welfare of life along with the sustainability of agritourism development. In Ngringinrejo agritourism with star fruit commodities, it is considered to have a long enough productive period of up to 20 years so that it can be used as an investment for generations that can provide a long-term income stream. In addition, it also provides environmental benefits such as controlling soil erosion and flooding, environmental sustainability, and maintaining ecosystem balance. (Grillini et al., 2023) also added that in the agritourism business, managing farmers also have a

strong tendency to implement environmentally friendly practices, such as water conservation, recycling programs, and providing education to tourists regarding sustainable environmental conservation practices.

CONCLUSION

The quality of the program has a positive and significant effect on the effectiveness of agritourism development but has no effect and is not significant to the information and promotion system applied in Ngringinrejo agritourism. While the information and promotion system that is applied has no effect and is insignificant to the effectiveness of the agritourism development program, it is also unable to act as a mediating variable between program quality and program effectiveness. The effectiveness of the development program in terms of its impact on social, economic, and environmental aspects is considered effective. In addition to providing benefits to the social development of rural communities and reducing poverty levels with improvements in the community's economy, agritourism, with the main attraction of natural resources in the form of agricultural activities, has also proven to be able to overcome environmental problems such as soil erosion and flooding that always hit Ngringinrejo Village. Apart from being a long-term investment in natural resources, agritourism can also provide awareness of safe and sustainable environmental conservation practices through the reduction of chemicals and pesticides to produce safe and healthy agricultural products.

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