

Smart Tourism Experiences: Virtual Tour on Museum

Tiurida Lily Anita and Lianna Wijaya

Hotel Management Department, Faculty of Economy;
Management Department, Faculty of Binus Online Learning
Bina Nusantara University,
Jakarta, Indonesia
tiurida.anita@binus.ac.id, lianna.wijaya@binus.ac.id

Athea Sarastiani

Service Management,
Trisakti University,
Jakarta, Indonesia
athea.sarastiani@gmail.com

Elang Kusumo

Hospitality and Tourism Faculty,
Pelita Harapan University,
Karawaci, Tangerang
elang.kusumo@lecturer.uph.edu

Santi

Faculty of Management,
STIE BISMA LEPISI,
Tangerang, Indonesia
santi@lelisi.com.id

Abstract

Virtual Tour is one of the most promising virtual technologies that has appeared in recent years and has a considerable influence on community activities during the Covid19 pandemic. This research aims to study the factors that influence public acceptance of Virtual tour technology in museums, by utilizing the concept of Unified Theory of Acceptance and Use Of Technology/UTAUT model, then assessing its influence on smart tourism and smart experience. The method used in this research is quantitative research. The data was collected using questionnaires and analyzed using descriptive analysis and structural equation modelling (SEM) analysis. The population and samples in this study were 115 visitors of Museum Nasional, Jakarta, Indonesia. The questionnaire survey was conducted to collect the data needed for this study. The results of the study generally showed that there is a significant influence of UTAUT to smart tourism and smart Experience. Smart Tourism and Smart Experience can be improved by maximizing technology-based services and UTAUT.

Keywords

UTAUT, Smart Tourism, Smart Experience, Virtual Tour.

1. Introduction

The pandemic of Covid-19 has spread rapidly around the world and has also disrupted the daily lives of people around the world. Many countries have implemented lockdown and quarantine policies on domestic cities to prevent the spread of virus (Xie et al., 2020). In order to limit further transmission of the virus, many leisure facilities areas or outdoor activities have closed. Stay-at-home orders particularly impacted and have brought significant stress to global

community (Bao et al., 2020). The previous research found that prolonged home stay may increase sedentary behaviors, such as spending longer of time sitting, reclining, or lying down for playing games, watching television, using mobile devices; reducing daily physical activity, lead to an increased risk for and potential worsening of chronic health conditions (Owen et al., 2010).

Periodically people want to enjoy activities outside their home. The outdoor activities and recreation provide important ecosystem services in recreational activities (e.g. stress, relief, socialization, nature appreciation, etc.) through physical interaction with the nature (Scholte et al., 2018). Visiting outdoor activities and recreation can significantly improve health and social interaction needs (Xie et al., 2020).

During the pandemic, the creativity and digital engagement were developed to offer the outdoor experience is accessible by online. In the era of pandemic caused by the SARS-CoV-2 caused limit of mobility. In the wake of the pandemic crisis, the tourism providers adhere to accept the health practice and safety standard and should be able to link to the digital infrastructure in order to mitigate Covid-19 impacts on tourism. The implementation of big data has proven impacted to health factor during the current pandemic of Covid-19 (Kummitha, 2020).

The tourism destinations, therefore, are actively and dynamically developing virtual walk services. This innovation for e-tourism considered as a step toward sustainable tourism recovery in the pandemic crisis (Gretzel et al., 2020). The rapid advancement of technology brings new opportunity to tourism development. Smart tourism technology experience showed significantly associated with the travel experience satisfaction (Pai et al., 2020). The adoption of smart technologies such as the Internet of Things (IoT), big data, and Artificial Intelligence (AI) will create smart experiences. During stay-at-home showed the increased usage of online services, remote work and virtual entertainment. Zoom's online virtual meeting software reports a 78% profit growth, and a Google Meet reports a 60% increase in user traffic, where people spend 2 billion minutes meeting online every day (Kim, 2020). Smart tourism as a new ecosystem can support and facilitate the creation of new innovations, especially those related to the application of technology and the development of intelligent travel experiences (Femenia-Serra and Neuhofer, 2018). One example of the virtual entertainment can be virtual museum which effective representation of digital museum bringing virtual walks and entertainment that everyone able to access from home.

Virtual tour is an immersive technology that places the users inside the image, enabling significantly enhance situational awareness and providing the highest level of features for viewing, capturing and analyzing virtual data (Osman et al., 2009). A virtual tour is a simulation of an existing location, usually consists of a series of videos or still images and also able to use other multimedia elements such as sound effects, music, narration, and text (Zheng et al., 2018). Virtual tour also can be explained as a reflection of an existing location that is composed of a sequence of video images (Osman et al., 2009). Museum Nasional in Jakarta is using the virtual tour with a 360° view and able to offer user the reality impressions and visibility about the museum in virtually by accessing the link <https://www.museumnasional.or.id/virtual-tour>.

The main advantages of using new technologies and virtual tours in particular at the tourism industry are significant (Pantano & Corvello, 2014). However, as for new technology, the user's acceptance is the most important issue to determining the success (Lee et al., 2005). The aim of this paper is to test users' acceptance of a virtual tour in Museum Nasional Jakarta. This paper tests the potential users' acceptance model (TAM) based on the Unified Theory of Acceptance and Use of Technology (UTAUT) model, how this acceptance could impact the smart tourism and smart experiences to fulfill people's need during pandemic.

1.1 Objectives

The authors formulated three objectives of this study; they are:

1. To investigate the influence of UTAUT (Performance Expectancy, Effort Expectancy, Social Influence, Perceived Trust, Perceived Quality) to Smart Tourism at Virtual Tour on Museum.
2. To investigate the influence of Smart Tourism to the Smart Experiences at Virtual Tour on Museum.
3. To investigate the influence of UTAUT (Performance Expectancy, Effort Expectancy, Social Influence, Perceived Trust, Perceived Quality) affect Smart Tourism at Virtual Tour on Museum.

2. Literature Review

Unified Theory Of Acceptance And Use Of Technology / UTAUT

The UTAUT model was developed by combining eight technology acceptance theories into one, which are: Theory Reasoned Action (TRA), Technology Acceptance Model (TAM), Motivational Model (MM), Theory of Planned Behavior (TPB), Combined TAM and TPB, Model of PC Utilization (MPCU), Innovation Diffusion Theory (IDT), Social Cognitive (SCT) (Venkatesh et al., 2003). UTAUT has five factors that can use in research they are performance expectancy, effort expectancy, social influence, perceived trust and perceived quality (Boes et al., 2015). Performance expectancy used to determine individual's expectations in using technology to gain benefits for their job performance. Effort expectation can be interpreted as the anticipation of individuals' technological complexity when using this technology. The complexity here refers to the level of difficulty experienced by individuals in technology operation so that it takes a lot of effort and time to adjust to its use. Social Influence usually obtained from an individual's belief in other people's assumptions that are considered essential and encourages him to continue to use the system. Social Influence plays a role in making decisions for technology acceptance and is subject to various influences related to it and is quite complicated. Social Influence can influence behavior through compliance, internalization, and identification. Perceived trust is related to individual privacy and security as part of a complex interaction, this concept concerns faith associated with feeling safe when relying on something. The idea of perceived trust has obstacles such as a sense of security, and personal information is a combination of complex interactions in technology use. Perceived quality in this discussion, is considered as a consumer judgment based on the perception of the superiority of the Product or Service as a whole, the form of a product in the form of information or Service that is relevant, complete, interesting, is what gives a positive perception of someone using technology (Vermaut, 2017). Using UTAUT to examine acceptance of people using technology will support smart tourism (Pai et al., 2020)

H1: There is an influence from UTAUT (Performance Expectancy, Effort Expectancy, Social Influence, Perceived Trust, Perceived Quality) to Smart Tourism at Virtual Tour on Museum

Smart Tourism

The idea of smart tourism came in European countries in early 2000, when Gordon Philips defined smart tourism as a holistic, long-term, and sustainable approach to planning, developing, operating and marketing tourism products and businesses. According to him, smart tourism divided into two, namely, smart demand and management techniques capable of managing demand and access. Second, smart marketing used to target the right customer segment to convey the appropriate message. On the other hand, another concept of smart tourism comes from The Organization for Smart Tourism, when the use and application of technology in the tourism sector are considered digital or smart tourism. The concept of smart tourism was born from the development of studies on technology relations and tourism. Smart Tourism can describe the current situation regarding how development in the field of tourism has also been affected by the evolution and development of technology and information (Gajdošik, 2019). Meanwhile, with the ongoing and widespread pandemic, while the human need to entertain themselves in this period of restriction remains a necessity, adopting smart tourism is considered a strategy for developing existing tourism. Tourists can get information on time to organize and adjust their travel plans, through the intelligence and convenience of users of all types of tourism information (Li et al., 2017). The purpose of smart tourism is to focus on meeting the needs of tourists by combining the development of ICT with culture and innovation to promote, improve the quality of tourism services, improve tourism management and enlarge the scale of the industry to a wider range (Buhalis & Amaranggana, 2013). The development of smart tourism concept is certainly inseparable from technology so it is explained that the dimensions of smart tourism technology are: a) Informativeness: How the information provided by this smart tourism technology can be useful, reliable, or valuable to users during their travels. b) Accessibility; How easy access is felt by smart tourism technology users during use. c) Interactivity: How interactions occur or are felt by smart tourism technology users during use. d) Personalization: How users are given the freedom to set the look of this smart tourism technology according to their wants (J. Lee et al., 2017).

H2: There is an influence from Smart Tourism to Smart Experience at Virtual Tour on Museum

Smart Experience

Service experience or customer experience lately has become a popular topic. Customers now choose to seek experience by consuming services rather than buying goods or products. Therefore, to improve the service experience, customer needs and preferences are very important to be collected, evaluated, and responded in a way that does not interfere with customers (Wuenderlich et al., 2015). To do so, recent research has shown the importance of technological devices, such as smartphones and other devices connected to technology (Neuhofer et al., 2012). Thus, customers experience significantly would feel different experiences by using smart services from regular services. This smart experience should emphasize the interaction among service providers, customers, smart technologies (objects, devices and sensors interconnected through wireless technology), services (intra- and inter) and shipping channels (Atzori et al., 2010). So that the smart experience obtained by customers is the subjective response of customers from smart service. Smart experience dimensions consists of customer empowerment, smart technology, accuracy of service delivery, privacy, security and overall enjoyment on the activity (Kabadayi et al., 2019). Smart experience involves direct customer interaction with smart technology and its cognitive, affective, and behavioral elements (Roy et al., 2017).

H3: There is an influence from UTAUT (Performance Expectancy, Effort Expectancy, Social Influence, Perceived Trust, Perceived Quality) to Smart Experience at Virtual Tour on Museum

3. Methods

In this study, researchers used quantitative approach and applied Partial Least Square – Structural Equation Model (PLS-SEM) in analysis techniques. According to the approach, the data collected is done by recording and analyzing data using statistical calculations. Quantitative research will look for explanations and predictions to be generated against people and elsewhere, then subject to statistical treatment for rejecting 'alternative Knowledge claims' (Creswell, 2017). The sampling technique used in this study was non-probability sampling with Purposive Sampling type. Purposive sampling is a technique to determine research samples with several considerations, criteria, or special characteristics that aim to obtain data that can later be more presentative. Based on samples in structural models and certain latent conditions, sample sizes can be considered to be ten times the total number of structural pathways (Hair et al., 2019). This study has a total of 3 structural paths, so based on the sample size proposed by Hair, it takes 3×10 or equal to at least 30 samples for a minimum. PLS-SEM as an analysis technique used is a measurement model that shows how observed variables represent latent variables to be measured. PLS is characterized as the most suitable technique in which the purpose of research is predictive or explorative modeling. Evaluation of measurement models is grouped into reflective and formative model evaluations. The study used reflective models in which measurements of covariates were influenced by latent construction (Ghozali, I. and Latan, 2015)

4. Data Collection

For the purposes of this study, the data was collected in The City of Jakarta, using a questionnaire survey aimed at the general public who like to explore the Museum. Questionnaires are allocated to 200 people who have used and visited the website of the National Jakarta Museum which organizes the Virtual Tour Program. During the period from November 2020 to January 2021, people were given questionnaires to fill out, and the number of questionnaires returned and valid was 115 questionnaires. UTAUT's main construction was measured using items proposed by Boes et. al (2015) to measure five constructs of UTAUT, namely performance expectancy, effort expectancy, social influence, perceived trust and perceived quality. Smart Tourism is measured by constructive items from J. Lee et. Al (2017), which consists of; informativeness, accessibility, interactivity, and personalization. While the third variable is smart experience, using construction items from Kabadayi et. Al (2019), which consists of; customer empowerment, smart technology, accuracy of service delivery, privacy, security and overall enjoyment on the activity. A five-point Likert scale is applied to measure the main construction of conceptual models. Cronbach's alpha coefficient was also tested to ensure the reliability level of the construct was good, and all constructs were found to have an acceptable value higher than 0.70 (Ghozali and Latan, 2015).

5. Results and Discussion

Demographically, data obtained from the questionnaire as follows; about 60.87% of respondents were female while 39.13% were male. The majority of respondents were recorded in the 20-25 age group(43.48%) and 31-35 years (14.78%). The respondents had the most bachelor's degrees (33.91%), followed by those with diplomas (26.09%). Approximately 36.52% of respondents had a job as a student, and 33.91% of respondents were recorded as working in the private sector. The largest number of respondents (84.35%) is on the frequency of visits to the Virtual Tour program website as much as 1 time per month.

Problem analysis in this study will use the approach structural equation model (SEM) with the help of Smart PLS 3.2.8 software (Ringle et al, 2015). In SEM analysis, two stages of modeling will be applied, namely the first stage of measurement models are tested to ensure an adequate level of conformity of the model as well as the validity and reliability of the construct. Then the main hypothesis of the research was tested in the second stage, namely structural models.

Measurement Model Results

Based on Figure 1, convergent validity results show that the value of all items has a loading factor value greater than 0.5. It can be concluded that all indicators of variable construction; UTAUT, Smart Tourism and Smart Experience are valid. The AVE value in each latent variable is greater than 0.5 which means each variable can explain 50% or more to that variable. This means that each variable is also declared valid and meets the convergent validity criteria shown in Table 1.

Table 1: Ave Result

Latent Variabel	AVE Result	Conclusion
UTAUT	0.510	Valid
Smart Tourism	0.735	Valid
Smart Experience	0.650	Valid

The test results of whether reflective indicators are really good construction measurements based on the principle that each indicator must be strongly correlated with its construction is carried out by testing the results of value validity using cross-loading criteria and Fornell-Larcker (Ghozali, I. and Latan, 2015). The value of cross-loading all indicators on its own construction has a value greater than the loading factor indicators in other constructions. It is concluded that all unrelated constructs are unrelated and meet the criteria for discriminant validity. The results of the discriminant validity of each latent variable can be seen in Table 2, the Fornell-Larcker result meets the criteria, then all latent variables entered in this study are declared to meet the requirements of discriminant validity. Based on Table 3, the Construct Reliability (CA and CR) values of each variable are greater than 0.7. Thus, it can be concluded that all variables are considered reliable to be included in the hypothesis testing.

Table 2: Fornell-Larcker Criterion Result

	Smart Experience	Smart Tourism	UTAUT
Smart Experience	0.806		
Smart Tourism	0.763	0.857	
UTAUT	0.799	0.797	0.714

Table 3: Construct Reliability

Variable	Cronbach's Alpha (CA)	Composite Reliability (CR)	Conclusion
Smart Experience	0.893	0.918	Reliable
Smart Tourism	0.879	0.917	Reliable
UTAUT	0.892	0.911	Reliable

Structural Model Results

Table 4 shows that the R-square value for each dependent variable (endogenous latent variable). The R-square value for the Smart tourism endogenous variable is 0.635, meaning the percentage of UTAUT that can be explained by smart tourism is 63.5% and the remaining 36.5% is explained by other variables not studied in this study. The R-square value indicates that the model belongs to a moderate classification. While R-square for Smart Experience variable is 0.682 meaning the percentage of smart experience that can be explained by smart tourism variable is 68.2% and the remaining 31.8% is explained by other variables that were not studied in this study. This R-square value indicates that the model belongs to a moderate classification. Table 5 shows Q2 value of Smart Experience of 0.391 and Q2 value in Smart Tourism of 0.433. Both variables show a value of more than 0 meaning that this research is predictive of relevance.

Table 4: Determinant Coefficient Result

Dependent Variable	R-square	Conclusion
Smart Experience	0.682	Moderate
Smart Tourism	0.635	Moderate

Table 5: Predictive Relevance Result

Variable	SSO	SSE	Q ² (=1-SSE/SSO)
Smart Experience	690.000	420.302	0.391
Smart Tourism	460.000	260.683	0.433
UTAUT	1.150.000	1.150.000	

Hypothesis Testing

The t-statistic test is intended to test the influence between variables. The result of the path coefficient is summarized in Table 6. T statistics is a statement of the value of significance of the relationship between one variable and another variable (significance level taken at error level of 5%) and T statistic value is 1.96. Each variable must have value more than 1,96 to have significant relationship between variables. Based on table 6, the t statistic of each variable value is more than 1,96. UTAUT variable has a positive and significant effect to smart tourism, with 20.3>1.96. So, H1 is accepted. Smart Tourism variable has a positive and significant effect to Smart Experience, with t statistic 4.0>1.96. So, H2 is accepted. UTAUT variable has a positive and significant effect to Smart Experience, with t statistic 6.2>1.96. So, H3 is accepted. The Inner model evaluation for the path analysis shown at Figure 1.

Table 6: Path Coefficients

	Path Coefficients		
	Original Sample (O)	T Statistics	P Values
ST → SE	0.348	4.067	0.000
UTAUT → SE	0.521	6.248	0.000
UTAUT → ST	0.797	20.355	0.000

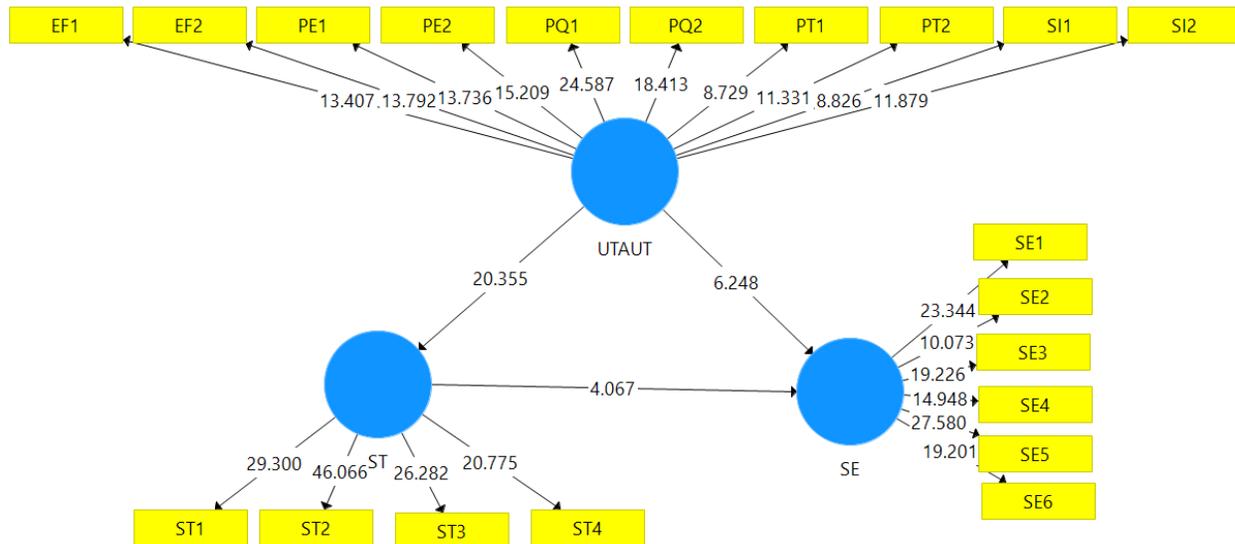


Figure 1. Inner Model

6. Conclusion

This research was created to test determinants that affect customers' smart experience when doing recreational activities through virtual tour in museums during the Covid19 pandemic. UTAUT variables and their indicators are given to measure public acceptance of the technology displayed in the virtual tour program at the museum. Then UTAUT Variables tested its effect on smart tourism variables and community smart experience on this program. Based on the test results structural equation modelling analysis can be concluded as follows;

UTAUT Influence on Smart Tourism

UTAUT proved to have a significant influence on Smart Tourism, with an R square value of 63.5% and t statistic $20.3 > 1.96$. After the research conducted by Boes et al. (2015), this research adapted the UTAUT indicators to examined this study. Performance expectancy, which is the first indicator of UTAUT, can be accepted by visitors because the virtual tour of the museum makes visitors feel directly the performance of the virtual tour program displayed on the museum's website screen and makes the community have different activities when it comes to social distancing. Effort expectancy as a second indicator makes visitors do not feel confusion when trying to understand the technology used in virtual museum tours and visitors do not need many efforts to understand the system. Social influence as the third indicator, felt by visitors when they get a proposal from close friends or other friends who are able to influence them to join and enjoy a virtual tour in the museum. Perceived trust as the fourth indicator, proving that visitors feel safer doing recreational activities through a virtual program tour of the museum. This program suited community in connection with the Covid19 pandemic outbreak also support the social distancing regulations, so people will prefer to do activities in the house. Thus, the virtual tour program in this museum is easily acceptable to the public. Perceived quality as the fifth indicator received by visitors because the display of the museum on the screen looks very clear and clean, including all museum collections can be easily seen.

The Influence of Smart Tourism on Smart Experience

Smart Tourism variables have a significant effect on smart experience variables, with an R Square value of 68.2%, and a static t value of $4.0 > 1.96$. J. Lee et al. (2017), explained that the concept of smart tourism is inseparable from the use of technology in its implementation. Thus visitors can feel for themselves a smart experience of how the technology is applied in recreational activities during social distancing. Smart tourism indicators provided in the research of J. Lee et al (2017), in this study showed that visitors are quite satisfied with the information about the museum obtained on the virtual tour program at the museum. Accessibility in this program is very easy, including

interactivity that occurs in the program makes visitors feel smart in enjoying their virtual visit. In addition, personalization that visitors can enjoy is also a part that makes visitors feel happy with this program.

The influence of UTAUT on Smart Experience

In this study, UTAUT Variables also directly affect Smart Experience with t statistic $6.2 > 1.96$. The involvement of visitors to experience the technology used in virtual tours of museums is evidenced by visitors who are enthusiastic to enjoy this program during social distancing. With the accuracy of instructions in the operation of this program, visitors can enjoy delivery from all facilities in the National Museum of Jakarta that organizes this program. Personally, visitors feel great privacy in enjoying their visit through a virtual tour program at the museum. Security in doing activities is also guaranteed, because visitors do not need to travel at risk of going out of the house, so overall visiting activities with a Virtual tour program in this museum is very enjoyable (Kabadayi et al., 2019).

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Biography

Tiurida Lily Anita is a faculty member of Hotel Management Department, Faculty of Economic and Communications, Bina Nusantara University, Jakarta, Indonesia. She gained her Master Degree in Hospitality Management with an emphasis on E-Commerce and Customer Satisfaction from Trisakti University, Jakarta. Right now, She continues her study of Doctoral Degree on Service Management at Trisakti University. Her research interest mainly concerns Hospitality Management, Service Management, Hospitality Electronic Commerce and Consumer Behavior.

Lianna Wijaya is a faculty member in Management Department of Bina Nusantara Online Learning, Bina Nusantara University. She gained A.Md in Tourism Management at Pelita Harapan Tourism Academy, Bachelor Degree in Business Management at Bina Nusantara University and Master in Information System at Bina Nusantara University. She started the career as practitioner in the hospitality and tourism industry for 15 years. Currently pursuing Doctoral Degree in Service Management at Trisakti University. Her research interest including management, marketing, tourism, hospitality artificial intelligence, internet of things and education. She is member of FMI (Forum Manajemen Indonesia).

Athea Sarastiani currently works as a political worker and has been placed as an expert for the Indonesian House of Representatives members. She completed his Bachelor of Architecture and Master of Management degrees at Trisakti University. As a political worker, she started her movement with women's equality. She is participating in several

women's and socio-cultural organizations to improve the quality of family resilience in the surrounding environment into daily life. Research on improving the quality of the elderly, women and families is the focus of her every thought.

Elang Kusumo, Hospitality and Tourism Faculty, Pelita Harapan University, Karawaci, Tangerang. Undergraduate study at Faculty of Law Gadjah Mada University Yogyakarta. Master of tourism at Pelita Harapan Karawaci University Tangerang. has 25-years work experienced in various industry, include hospitality industry, and as an associate consultant for human resources and hospitality management, has completed several research projects including research on Ancient Sites of the Majapahit Kingdom Trowulan East Java Indonesia, Tourism Promotion through Indonesian Currency, Sports Tourism in Palembang South Sumatra, Ombilin Mining Heritage of Sawahlunto West Sumatra as UNESCO World Heritage.

Santi is a permanent lecturer in the Management Study Program and serves courses in Bank and Other Financial Institutions (BLKL) and Risk Management at STIE BISMA LEPISI Tangerang, Indonesia. She holds a Master's degree concerning on Human Resources issues, at STIE Kusuma Negara Jakarta, Indonesia. Her research interest is in Human Resources.