"The Explorer":
Introducing The Potential of *Kota Lama* Semarang through Mobile Game

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ABSTRACT

The restoration process of Kota Lama Semarang over the past decade has made it a leading tourist destination in Semarang. However, government regulations still focus on restoration management and the management of Kota Lama Semarang planning, while tourism promotion has not received main priority. Promotion through various media, is absolutely necessary to encourage tourist visits to Kota Lama Semarang. This study aims to develop a promotional media for Kota Lama Semarang in a mobile game format. Method used to develop this mobile game is ADDIE approach using the visualization of iconic buildings in Kota Lama Semarang as the reference. The development process resulted a board game mobile entitled" the Explorer" to introduce various existing tourism potentials. Through the game testing stage, the hypothesis is obtained that mobile game is effective as tourism promotional media to increase tourists awareness of Kota Lama Semarang sites. The interaction model and visual reference system in the game "the Explorer" can be used as a tourism promotion model for various tourist destinations.

Keywords: Kota Lama Semarang, mobile game, the explorer, tourism destination

1. INTRODUCTION

Kota Lama (the old city) of Semarang in the last 5 years has become increasingly known by the wider community as a tourist location that exposes colonial buildings inherited from the Dutch East Indies government [1]. The tourist area of *Kota Lama* Semarang offers architectural sites with various styles dating back to the Middle Ages, Baroque, Indische architecture, and modern architectural styles. A very unique layout with several central government buildings, trade and business areas (banks, brokerage offices, consulate offices from various countries, shops), prayer rooms, defense and security rooms, public spaces, entertainment rooms, and rivers. Semarang is a transportation route between the Java Sea and Semarang City and the surrounding areas In *Kota Lama* Semarang there are 157 buildings with occupied status (both for housing or offices, dominated for offices), 87 units with the status of vacant buildings (both those that are still maintained and those that have been damaged / stalled), 28 units with the status of being leased (offices), and 2 units whose status is for sale. Of this number, 116 buildings are declared as cultural heritage [2].

Kota Lama area has been revitalized in the last decade and transformed into a tourist destination that attracts many visitors. The process of revitalizing *Kota Lama* Semarang has two functions, namely the conservation of buildings or areas and is aimed at reviving and redeveloping areas that have experienced a decline in function, this is in accordance with the definition presented by the Minister of Settlement and Regional Infrastructure [3]. The revitalization is supported by several regulations such as: 1) Law Number 11 of 2010 concerning Cultural Conservation; 2) PERMEN PU Number 6/PRT/M/2007 concerning Building and Environmental Planning; 3) Semarang City Regional Regulation Number 8 of 2003 concerning the Old City Area Building and Environmental Planning.

The revitalization of *Kota Lama* Semarang from the point of view of the conversion of several buildings is considered quite successful because it can revive activities in the old city area both in terms of public and tourist interest as well as from an economic point of view.

The conversion of the buildings that have been revitalized into public places such as cafes, restaurants and coffee shops has become an attraction that brings local tourists.

The development of tourism in *Kota Lama* Semarang is also inseparable from the selfie economy culture. Personal branding culture through various social media has become a trend to express oneself through photos that are shared with the public [4][5][6][7] For some people, selfie has a mediating function to show self-existence which needs to be verified empirically through an image [8]. Individuals who upload photos and videos can fulfill the need to establish relationships with other individuals, because with social media individuals can connect with extensive social networks and can make these individuals more known by other individuals [9]. The selfie background object is one of the motivations for someone to show their existence, this is what makes the selfie tourism trend in the last decade [10]. The typical building of the Old City of Semarang is an attraction that is hunted by tourists as a selfie background.

Kota Lama tourism and its relation to the selfie phenomenon is in line with the segmentation of tourists who visit this area. *Kota Lama* tourists have a dominant age range of 18-39 years (Department of Youth, Sports and Tourism of Central Java Province, 2020). This is in line with the fact that 91% of smartphone users with an age range of 18-39 years use social networks on smartphones, one of which is to upload selfie photos [11]. This fact can be used as a basis in determining the right promotional media for Semarang old city tourism.

Tourism promotion of *Kota Lama* Semarang has been carried out through several media such as travel guide books, brochures, websites and travel guide applications by the Semarang City Tourism Office. The youth segment is one of the market niches to be achieved. Thus a cutting edge media is needed, such as interactive digital media that is able to provide educative information in promoting or attracting tourists to visit the *Kota Lama* Semarang. One of the media that is close to this segmentation is mobile games. Mortara [12] states that game media has a high potential to convey information effectively to its players. Specifically, games that are used as promotional media are referred to as advergames. Advergame is currently one of the popular marketing communication media because it is considered accurate, both for branding activities and attracting potential consumers [13]. Games are also able to reconstruct certain periods, and describe detailed processes in a certain area [14]. Therefore, this study aims to design a mobile game with the name "the Explorer" which specifically promotes *Kota Lama* Semarang to its players, especially in the youth segment.

2. METHOD

The development of game "the Explorer" as *Kota Lama* Semarang tourism promotion media used the ADDIE approach. ADDIE is a generic model that is often used by instructional designers for the development of Instructional System Design. This model is considered suitable for the development of tourism promotion games, because in it there is an instructional model related to the details of the tourist destinations that players will go to in the game. The ADDIE model consists of 5 steps, namely Analysis, Design, Development, Implementation, Evaluation.

2.1. Analysis

At this stage the problem was defined, identified the source of the problem and determined possible solutions. At this stage, a visual scan using drone was carried out as well as a literature review to map the area of *Kota Lama* Semarang.
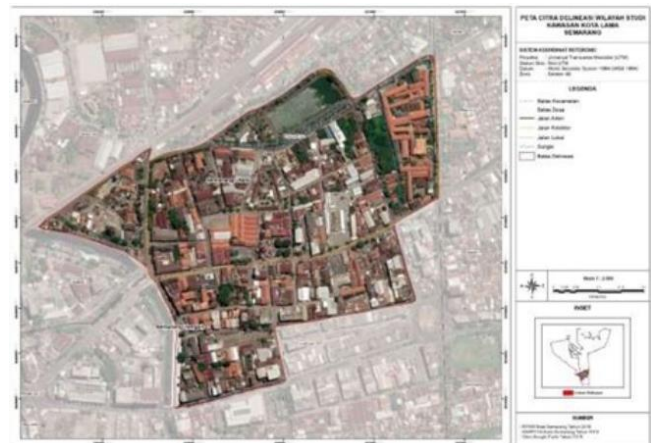

Figure 1 *Kota Lama* Semarang Area
(Source: Firdausyah and Dewi, 2020)

Through visual scanning and based on data from the tourism office of *Kota Lama* Semarang, the main problems related to the distribution of tourists and the focus of visitors were found. The focus of visitors is mainly on the Blenduk church building, Spiegel and westward to the Mandiri bank building. The area is less than 30% of the *Kota Lama* area that can be explored by tourists. The solution offered through the game "The Explorer" is a game area that takes the setting of *Kota Lama* with gameplay that allows players to explore most areas of *Kota Lama*. Through the gameplay offered, players are invited to find spots that are still rarely explored by tourists.

Table 1. Research data needs

Objective	Variable	Data	Sources
Building Identification	*Kota Lama* Spatial Physical Condition	- Building Name - The physical structure of the building - Building Condition	- Aerial Photos (drone) - Documentation (location photography) - BPK2L (*Kota Lama* Area Management Agency)
	Historical Background	- Building History - Year Built - Architect	- BP2KL (*Kota Lama* Area Management Agency) - Journal
	Revitalization / Transfer of Function	- Initial function of the building - Current building function - Surrounding facilities and infrastructure	- Documentation - BPK2L
Spatial Pattern	The Change of Spatial Pattern	- Zone of change in spatial management pattern	- Bappeda (Regional Development Planning Agency)
Tourists Behaviour	Tourist mobility pattern	- Tourist area distribution - Tourist movement flow - Tourist focal point	- Aerial Photos (drone) - Field Observation

The literature review was intended to found documents related to the revitalization of *Kota Lama*, along with the variables to complement the secondary data of the study. Secondary data supports research on the analysis of the effect of revitalization on changes in spatial patterns in *Kota Lama* Semarang and to determine field conditions. Secondary data collection has several data collection techniques, namely institutional surveys, field observations and literature studies from BPS and the Spatial Planning Office.
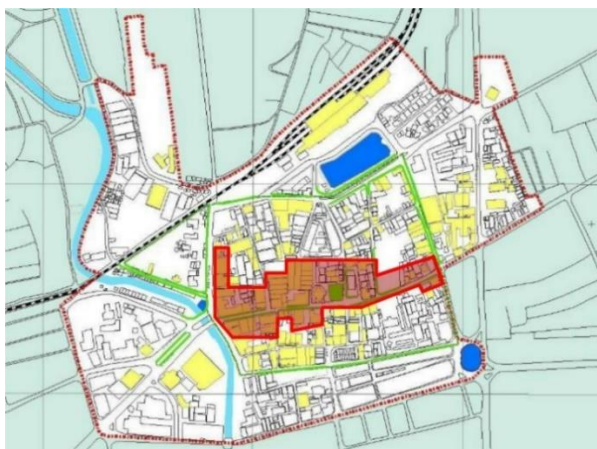

Figure 2 The focus of the spread of tourists from *Kota Lama* Semarang (Source: processed from RTBL *Kota Lama* Semarang, 2020)

2.2. Design

The game "the explorer" was designed with a turn based gameboard approach. Board games have the capacity to display complex details and high interactivity when combined with digital techniques [15][16]. The main characteristic of board game type games is the existence of game rules, game boards, and tokens that represent players [17][18].

The game graphics used a realistic approach with a mix of 3D graphics and photography. The use of 3D graphics was able to display realistic and manipulative environmental landscapes, and has the flexibility to be explored by users from various sides or is termed "interactor" [19]. The board game was arranged according to the old city layout with photographic techniques that represent the actual buildings and locations so that players can simulate the player's position in the real old city environment.

Details of locations and buildings were accompanied by explanations and historical backgrounds, the aim was to instill perceptions into the minds of players regarding each location in the *Kota Lama* Semarang.

Figure 3 Game board of "the Explorer *Kota Lama* Semarang" (Source : researcher data, 2021)

2.3 Development and Implementation

Game "the explorer" was developed through the PC and Android platforms. In the next stage, the game "the explorer" had the opportunity to be one of the advergames managed by the tourism office to promote *Kota Lama* Semarang through nyatakan.id, a program from the Indonesian ministry of tourism.

Figure 4 Screenshots of Game "The Explorer"
(Source: researcher data, 2021)

2.4 Evaluation

At this stage an evaluation of the performance of the game "the explorer" was carried out. The evaluation used a survey technique [20] [21] to gain insight from players regarding *Kota Lama* and the effectiveness of the game in increasing the attractiveness of visits to tourist sites. Through the evaluation stage, plans were also made to add other features such as selfie challenges that were integrated with the sponsorship model.

3. RESULTS AND DISCUSSION

3.1 Exposure of Tourist Areas Through Games

The use of games as a tourism promotion medium has been carried out by various agencies from various countries [22][23][24]. The game is able to display detailed visualizations along with the accompanying information. Games can be positioned as an effective medium in educating players through the games in it [25][26]. The game provides interactivity for players to have free will, seek information independently, and explore the features offered to achieve the highest points.

Likewise with the Game "the Explorer", this game is a kind of game that positions the player as a tourist trying to explore the entire area of *Kota Lama* Semarang with a gamification system that demands skill and luck of the player. Through this game, the tourist area of the old city is exposed as a setting or game setting. Players have several variables that determine the course of the game, namely money, energy and the number of steps determined through the spin wheel. The moves gained by the player will be converted into the movement of the pawn, and the game will display the details of the area where the player's pawn stopped. When a piece stops, information regarding the area or building will be displayed along with the history, functions and activities that can be done in that area.

Figure 5 Gameplay "the explorer"
(Source : researcher data, 2021)

Figure 6 Explanation of *Kota Lama* buildings
and player activities

Field data related to tourist areas that can be visited by tourists from *Kota Lama* Semarang were represented through a symbolic analogy approach [27] as a form of simplification. Iconic locations in the form of buildings/buildings or certain areas were added to the game with justification for the selection, namely: (1) being on the main circulation route, namely Jl. Letjen Suprapto and Jl Kepodang , (2) are still actively used today, and (3) are included in cultural heritage buildings or have tourist attractions.

The visualization of the game used a realist approach with the use of photographic techniques to display the area of *Kota Lama* Semarang, buildings, along with important aspects such as facilities and infrastructure. In the game "The Explorer", 74 buildings are displayed that can be accessed by players with the location (building position) referring to the actual position so that the real tourist map can be known by players through the game.

Figure 7 Visual representation of Marba Building (left: original building, center : game visualization, right : information visualization)
(Source: research data, 2021)

3.2 Trial and Evaluation of The Explorer

Trial game "The Explorer" was done through 2 techniques. First, to 30 visitors to *Kota Lama* Semarang. This trial activity was conducted to determine the effectiveness of interactive learning media through pretest and post-test questions. Second, through the review system in the game. In the first condition, samples were taken from tourists randomly, both those who had been around *Kota Lama* Semarang and those who had just arrived at the location. Players were tested for their insight regarding buildings or areas in *Kota Lama* Semarang, along with their location and history through pretest and post-test. Pretest and post-test were carried out through the N-Gain test equation (normalized gain). To find out the results of N-Gain, the formula developed by Hake [28] is used with the following formula:

$$\text{N-gain} = \frac{Posttest\ Score - Pretest\ Score}{Maximum\ Score - Pretest\ Score} \qquad (1)$$

The average value of N-Gain is then interpreted based on two criteria to get accurate results. The criteria for the N-Gain value can be seen in Table 1 while the category of effectiveness interpretation based on the N-Gain value can be seen in Table 2 and Table 3.

Table 2. Normalized Gain Criteria

Limitation	Category
g ≥ 0,7	High
0,3 ≤ 0,7	Medium
g ≤ 0,3	Low

Table 3. Category of Gain Effectiveness Interpretation

Percentage (%)	Interpretation
< 40	Ineffective
40-55	Less effective
56-75	Effective enough
> 75	Effective

(Source: Arikunto in Widianto, 2001: 45)

The pretest and post-test results that have been obtained were then processed based on the formula. The results of the pretest and post-test can be seen in Table 4.

Table 4. Results of Pretest, Post-test, and N-Gain Tests

Component	Pretest	Post Test
Average	60	87.67
N-gain		0.74
N-gain (%)		74.15
Gain Criteria		**High**
Gain interpretation		**Quite Effective**

Based on the data in Table 3, it was known that the average result for the pretest score is 60, the average post-test score is 87.67 and the results of the N-Gain score test calculation show an average value of 0.74 with the "High" category. So it can be explained that there was an increase in insight related to tourist destinations after playing the game. To strengthen the results of the N-Gain score test, an interpretation of the effectiveness of the gain is carried out. Through the interpretation of the effectiveness of the N-Gain score (%) it can be seen that the average N-Gain score is 74.15% with the criteria of "Effective Enough".

The second review process was carried out to a wider audience, not only visitors in *Kota Lama* Semarang, but also for public in general. In this review process, the evaluation feature of the game was used. The game will provide review results related to several aspects, namely the area passed, culinary, selfie spots, and souvenirs accessed by players.
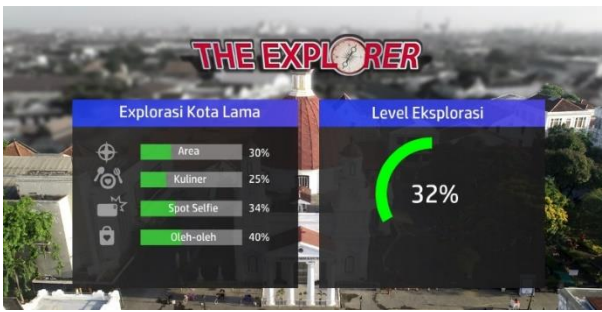
Figure 8 Game review results
(Source : researcher data, 2021)

4. CONCLUSION

The development process resulted a board game mobile entitled" the Explorer" to introduce various existing tourism potentials. Through the game testing stage, the hypothesis was obtained that mobile game is effective as tourism promotional media to increase tourists awareness of *Kota Lama* Semarang sites. The interaction model and visual reference system in the game "the Explorer" can be used as a tourism promotion model for various tourist destinations.

AUTHORS' CONTRIBUTIONS

The authors confirm contribution to the paper as follows: Study conception and design: Wibawanto, W; Data collection: Nugrahani, R; Analysis and interpretation of results: Husain, A.H and Wibawanto, W.

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REFERENCES

[1] M. Chawary, *Wajah Kota Lama Semarang*. Kementerian Pendidikan dan Kebudayaan Badan Penelitian dan Pengembangan Pusat Penelitian Arkeologi Nasional Balai Arkeologi Daerah Istimewa Yogyakarta, 2019.

[2] M. Pratama and E. Purwanto, "Kajian Terhadap Revitalisasi *Kota Lama* Semarang," *Arcade*, vol. 5, no. 1, 2021.

[3] D. Kimpraswil., "Pedoman atau petunjuk Teknik dan Manual: Air Minum Perkotaan Bagian: 6 (Volume I)," Jakarta, 2003.

[4] L. J. and B. A, "The Role Of Status Seeking in Online Communities: Giving The Gift of Experience," *J. Comput. Mediat. Commun.*, vol. 12, no. 2, pp. 27–37, 2007.

[5] S. D., *Me 2.0: Build a Powerful Brand to Achieve Career Success*. New York: Kaplan Books, 2009.

[6] V. A.K., "Analog Vs. Digital Personal Branding-A New Twist on Personal Marketing Plans," *CPA Pract. Manag. Forum*, vol. 5, no. 11, pp. 10–19, 2009.

[7] L. L.I., M. E., and M. G. R, "Online personal branding: processes, challenges, and implications," *J. Interact. Mark.*, vol. 25, no. 1, pp. 37–50, 2011.

[8] W. Kucharska and I. Confente, "Selfie and Personal Branding Phenomena in The Context of The Network Economy:A literature review," *Handel Wewnętrzny*, vol. 6, no. 371, pp. 161–169, 2017.

[9] H. Rinjani and A. Firmanto, "KEBUTUHAN AFILIASI DENGAN INTENSITAS MENGAKSES FACEBOOK PADA REMAJA.," *J. Ilm. Psikol. Terap.*, vol. 1, no. 1, pp. 76–86, 2013.

[10] I. Ningrum, "Analisis Peran Modal Sosial Terhadap Pemberdayaan Masyarakat Dalam Melestarikan Kebudayaan Dan Pengembangan Sektor Pariwisata (Di Desa Padang Tegal, Kecamatan Ubud, Kabupaten Gianyar, Bali)," *J. Ilm. Mhs. Fak. Ekon. dan Bisnis Univ. Brawijaya*, vol. 2, no. 2, pp. 1–10, 2014.

[11] A. G. Parikesit, "Fakta menarik pengguna instagram Indonesia," *CNN Indonesia*, 2016.

[12] M. Mortara, "Learning cultural heritage by serious games," *J. Cult. Herit.*, vol. 15, no. 3, pp. 318–325, 2015, [Online]. Available: https://www.researchgate.net/publication/2626793 19_Learning_cultural_heritage_by_serious_games

[13] A. Wicaksana, R dan Bajari, "Kampanye Produk Minuman Kesehatan Melalui Games Interaktif (Studi Kasus Go Sweat Go Ion Game Sebagai Media Kampanye Pemasaran Produk Pocari Sweat)," *J. Kaji. Komunikasi,* vol. 3, no. 1, pp. 81–91, 2015.

[14] E. Adams, *Fundametals of Game Design Third Edition*. San Francisco: New Riders, 2014.

[15] W. Freeman, "Why board games are making a comeback," *2012*. [Online]. Available: www.theguardian.com/lifeandstyle/2012/dec/09/bo ard-games-come%0Aback-freeman%0A

[16] E. M. Raybourn, "Applying simulation experience

design methods to creating serious game-based adaptive training systems," *Interact. Comput.*, vol. 19, no. 2, pp. 206–214, 2007, doi: 10.1016/j.intcom.2006.08.001.

[17] J. 2015. 1-27 Barbara, "Measuring User Experience in Multiplayer Board Games," *Games Cult.*, vol. 12, no. 7–8, pp. 623–649, 2015.

[18] B. Mayer, "Game-based Learning," *Business*, vol. 39, no. 1, pp. 50–66, 2005, doi: 10.1007/978-1-4614-3185-5_38.

[19] D. Wyeld T.G, *Gaming Cultures and Place in Asia-Pacific*. Routledge Studies in New Media and Cyberculture, 2015.

[20] U. Plesner and L. Phillips, *Researching Virtual Worlds : Methodologies for Studying Emergent Practices*. New York: Routledge, 2014.

[21] C. Freeman, S. Marcketti, and E. Karpova, "Creativity of images: using digital consensual assessment to evaluate mood boards," *Fash. Text.*, vol. 4, no. 1, 2017, doi: 10.1186/s40691-017-0102-4.

[22] E. Celtek, "Mobile Advergames in Tourism Marketing," *J. Vacat. Mark.*, vol. 16, no. 4, pp. 267–281, 2017.

[23] Y. Elsayeh, "Investigating the Effectiveness of Applying Mobile Advergames in Tourism Marketing - An Exploratory Study about Egypt," *Int. J. Res. Tour. Hosp.*, vol. 6, no. 2, pp. 21–32, 2020.

[24] P. Garrido-Pintado, "Advergaming in Tourism: Spanish Cases," in *Gamification for Tourism*, F. Xu and D. Buhalis, Eds. Bristol: Blue Ridge Summit, 2021, pp. 153–183.

[25] R. et al Ibrahim, "Students Perceptions of Using Educational Games to Learn Introductory Programming," *Comput. Inf. Sci.*, vol. 4, no. 1, pp. 27–38, 2011.

[26] M. Prensky, *The Games Generations: How Learners Have Changed Digital Game-Based Learning*. New York: McGraw-Hil, 2001.