

DIGITAL BRANDING IN ETHNIC MATHEMATICS AT BAKPIA PATHOK IN YOGYAKARTA

Yanto Sidik Pratiknyo¹, Wilson Bangun², Zainur Hidayah¹, Roni Kambara³

¹Universitas Terbuka, Indonesia

²Universitas Maranatha, Indonesia

³Universitas Sultan Agung Tirtayasa, Indonesia

Corresponding author e-mail: yantosp2013@gmail.com

Abstract

MSME Bakpia Pathok in Yogyakarta, almost all use brands in the form of digital numbers, namely from 01 to 5555. Initially, this number was used according to the house number of the industrial location. In this exploratory study, it can be seen that the numbers 5 and 3 are the most widely used. While the numbers that are least used are 8, 4 and 9. Likewise, the least used are the numbers forty, ninety and four hundred. Numbers that are always avoided in myths are also avoided in use in branding, for example the number 4. Numbers that are considered sacred such as the number 5 are widely used brand number of Bakpia Pathok.. Bakpia Pathok's number brand name is based on the house number rather than a specific marketing analysis. The brand number name in ethnic mathematics approach differs from the brand theory in marketing.

Keywords: bakpia, digital, brand, Pathok, ethnic mathematics.

Introduction

Findings from a study suggest that the digitization of ethnic artifacts can mediate and facilitate digital performances that together can transform ethnicity from a burden to an asset, sustaining performance through digital ethnicization, embracing performance through digital generativities (Etzkowitz, 2003). Ethnomathematics is still identified with a type of study in the philosophy of mathematics although it never uses its name, but is instead subsumed within some domain, such as anthropology or history (François & Kerkhove, 2010). Furthermore numerology, an ancient practice rooted in the belief that numbers have profound symbolic and practical meaning, continues to attract interest from academics and practitioners alike, where numerological principles are used to describe personality traits, predict life events, and guide decision-making processes, as well as contemporary perspectives on numerology, considering its integration with modern science and its role in shaping cultural beliefs and societal norms (Mehta, 2024). Numbers are ubiquitous in modern life and have evolved alongside humans for thousands of years and they structure, record and measure human behavior, spiritual belief systems and the evolution of innovation in all areas of life, quantifying a wide range of phenomena in populations from low literacy to high technology, rural and urban societies and traditional and developing societies, numbers have been and will continue to be central to all cultures as they have been from prehistoric times to contemporary times (Ayonrinde et al., 2021). Numerology, once considered an ancient mystical practice, has transcended the boundaries of history to find relevance and application in contemporary society and the beliefs and practical applications of numerology continue to evolve in modern contexts so that in contemporary society, numerology serves as a framework for understanding personal traits, predicting life events, and offering guidance in the decision-making process (Sharma, 2024).

In the worldview of the Chinese and Kazakh people, there are “sacred numbers”: one, three, seven, eight, nine, forty, etc., which indicate the character of traditional culture. These numbers have penetrated deeply into the cultures of both countries, have their own place in world civilization, and have instilled the meaning of sacred values into the minds of the people. Thus, these numbers are not only appreciated, but also turned into a trend of use as sacred concepts (Dossymbekova et al., 2015).

Culinary tourism in various regions is developed with various supporting factors (Idham et al., 2024). Research on memorable tourism experiences and memorable culinary tourism experiences has focused almost exclusively on positive experiences (Stone & Sthapit, 2024). From time to time in world history, various numbers, especially from 1 to 12, have been ascribed mystical meanings, but there can be no doubt that in terms of the breadth, variety and frequency of their use, the number 3 far surpasses all other numbers. The word “three” itself suggests three uses: one definite, its true intrinsic value; another, symbolic, mystical, esoteric; the third, uncertain, in an uncertain amount, even in the sense of “many” (Lease, 1919).

Limited attentional capacity is crucial for working memory. How its limits should be assessed is a matter of debate. Five experiments compared the magic number 4 and 7 models of limited working memory capacity, with presentation time and attention to operational schemas as potential explanations for this difference (Morra et al., 2024). The results of the study indicate that destination image and price have a significant effect on purchasing decisions, while food and beverage quality have a positive but insignificant effect. The implication of this study is the importance of improving destination image and pricing strategies to increase attractiveness (Iradawati, 2024).

Consistency among functions, on the other hand, depends on the number of interacting components; if there are many, the likelihood of inconsistency is greater, how many functions should be to fulfill a purpose, the answer given here has important implications for building physical and social systems so that in mathematics supported by examples that 7 to 8 seems to be the maximum number for any component of a complex system (Saaty, 2016), (Baddeley, 1994). There are some paintings, which appear in the Borgia Codex, in which the 260 symbols are the ones whose thirteenth number does not appear (Mendizabal, 1923). In health-related situations, mentioning the number four to a sick person is considered offensive or even threatening and a hospital room number that may contain the number 4 is considered ominous (Ayonrinde et al., 2021).

Methods

This research method, exploratory study that focus in digital branding or magic number brands, includes two things, namely data collection in the field by visiting the bakpia industry center in Pathuk, as well as outlets on Jalan Mataram and Jalan Solo in Yogyakarta City of Indonesia. The second is secondary data collection by searching for data with the keyword bakpia Pathuk for local branding and using the keyword global brand number for global products and services in the Google Image. Comparison of brands with local and global digital numbers brandings are used to deepen the analysis.

This research is also an inventory and documentation of the acculturation phenomenon that exists in society which is ongoing and continues until now in giving the name of the Bakpia Pathok business or brand by using digital branding which originates from the house number of the business premises at the beginning in an ethnic mathematical way which is sustainable until now.

Results and Discussions

In Pathuk village there are around 150 bakpia craftsmen, most of them are gathered in one village, so the bakpia center in Yogya is known as Bakpia Pathuk. Uniquely, although they have different brands, all bakpia craftsmen are members of the same cooperative, namely the Sumekar cooperative, which was established in 1996 with 68 members in Pathuk village, there are at least 40 brands, the head of the Sumekar cooperative, Sumiati said that the bakpia craftsmen association in the Pathuk area already existed, then in 2002 they took the initiative to create a cooperative which they named Sumekar. In one day these craftsmen are able to produce up to 3000 bakpia. Each craftsman produces around 150 boxes per day (Kota, 2025), (Damayanti et al., 2017).

At first, bakpia pathok producers branded their bakpia using the house number where they opened their business. For example, Liem Bok Sing and his successor, Yung Yen, branded it "Bakpia Pathok 75" because he initially opened his business at Jalan Pathuk No. 75. Likewise, Tan Aris Nio, who was a pioneer of the Bakpia Pathuk snack, branded it "Bakpia Pathok 25" because he initially opened his business at Jalan Pathuk No. 25 (Sekat, 2018) and when the surrounding residents, both those living on the side of the road and in the village, also opened home businesses with bakpia products, they also gave them brands with their respective house numbers, for example Bakpia 55, Bakpia 57, Bakpia 45, Bakpia 145, Bakpia 531, Bakpia 545, Bakpia 515, Bakpia 99, and so on (Wikipedia, 2024)

There were about 60 Pathuk bakpia brands obtained using numbers, as seen in Figure 1: Pathuk Brand by Number (Source: Key word Bakpia Pathuk in Google Image). The Pathuk bakpia brands that were collected were colorful, although they were all numbered.



7 ELEVEN

FOREVER 21

Capital One

FOUR SEASONS

3

A1

STEAK SAUCE

23andMe

CLOUD9

21ST CENTURY FOX

3M

FOUR PEAKS BREWING CO.

Control4

Six Flags

O2

BIG5 SPORTING GOODS

FIVE GUYS

BURGERS and FRIES

TIMBUK2

SAN FRANCISCO

2WIRE

6

F

BANK ONE

Figure 2: Global Brand by Number (Processed)

The most effective brand names with numbers employ digits to convey additional information about the company while also distinguishing it from competitors. Humans create emotional or psychological ties with specific numbers. Some numerals are considered lucky or unlucky, depending on a person's heritage. For example, consider the number "13." The number "13" may be regarded unfortunate in the Western culture, whereas the number "1" is frequently connected with excellence and success. Similarly, data might shed light on a company's character, history, or principles. Forever 21 adopted the number 21 as its moniker because the founders thought it was the most attractive age. 23andMe chose the number to represent the 23 chromosomes examined by the organization's DNA test. The key to success with alphanumeric business names is to ensure that clients understand why the number was picked and what it symbolizes for the brand (Harvey, 2024).

The recapitulation of the Figure 1, it can be seen in Table 1: Pathuk Brand Recapitulation. Initially, this number was used according to the house number of the industrial location. In this study, it was seen that the numbers 5 and 3 were the most used numbers. While the least used numbers were 8, 4, and 9. Likewise, the least used were the numbers forty, ninety, and four hundred. Numbers that are always avoided in myths are also avoided, for example the number 4. Numbers that are considered sacred such as the number 5 are widely used.

Table 1. Pathuk Brand

Group	Data						Tally
Units	01	03					2
tens	10	013	19				3
twenties	24	25	28	29			4
thirties	30	033	35	37	39		5
forties	45						1
fifties	51	52	53	55			4
sixties	63	65					2
seventies	71	72	74	75			4
eighties	81	086					2
nineties	97						1
hundreds	101	145	165				3
two hundred	214	216	234	243	252	255	5
three hundred	325	333					2
four hundred	411						1
five hundred	525	555	576				3
six hundred	605	653	675	694			4
seven hundred	700	727	731	750	757		5
eight hundred	803	805	871				3
nine hundred	933	969	999				3
thousands	2575	5555					2

Table 2 Frequency of Numbers shows a recapitulation of the numbers used as the brand of the Bakpia Pathuk product. The frequency of the numbers used is summarized before being realized in the form of a bar graph in the Figure 3. Frequency of Brand Numbers.

Table 2. Frequency of Numbers

Number	Tally						Frequency	%
	1	2	3	4	5	6		
0	7	5					12	8.6%
1	10	3	4				17	12.2%
2	5	5	2	2	1	1	16	11.5%
3	6	8	4	1			19	13.7%
4	4	1	2				7	5.0%
5	8	13	5	2	2	2	32	23.0%
6	2	5	2				9	6.5%
7	3	3	5		2		13	9.4%
8	2	2	2				6	4.3%
9	2	2	4				8	5.8%

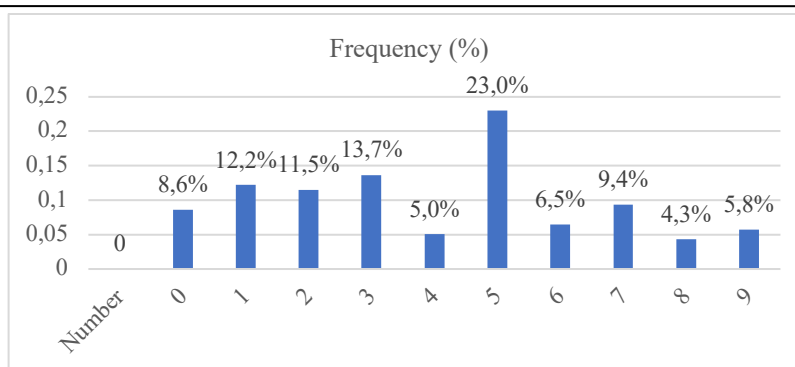


Figure 3. Frequency of Brand Numbers

Table 2. Frequency of Numbers is then depicted in a bar graph as in Figure 2: Frequency of Numbers. It appears that the number 5 is most preferred by bakpia producers in Patuk. The number 5 may have a special cultural value in Yogyakarta in particular. It can be seen in various examples, for example from the Pendawa Lima folklore or the philosophy and foundation of the Indonesian state, namely Pancasila, etc., which show the presence of the number 5.

Table 3. Recapitulation of Global Brand Number

Number	Frequency
1	3
2	2
3	2
4	4
5	2
6	2
7	2
8	-
9	1
21	2
23	1

However, the results are different from brands with global numbers, where the number 4 is a favorite number and the number 5 is rarely used as a brand by global companies. This difference needs to be considered for products that will be exported, by paying attention to local culture. Because for foreign tourist culinary, they have many choices of brands at the Bakpia Pathuk center in Yogya. Bakpia Pathok's number brand name is derived from its house number rather than a specific marketing analysis. The brand name method of bakpia Pathuk in Yogyakarta differs from brand theory in marketing.

Conclusion

Bakpia Pathok craftsmen in Yogyakarta almost all use brands in the form of numbers, namely from 01 to 5555. Initially, these numbers were used according to the house number of the industrial location in the beginning. In this study, it was seen that the numbers 5 and 3 were the most widely used numbers. While the numbers that were least used were 8, 4, and 9. Likewise, the least used were the numbers forty, ninety, and four hundred. Numbers that are always avoided in myths are also avoided, for example the number 4. that can be considered as an ominous. Numbers that are considered sacred such as the number 5 are widely used. However, the results are different from brands with numbers from global, where the number 4 is a favorite number from the case researched and the number 5 is rarely used as a brand by global companies.

For Indonesian MSMEs, not just bakpia, who want to go global, branding in the form of numbers is crucial, given cultural and ethnic differences. For example, the number 4 is widely used globally, but not in Indonesia. Similarly, other numbers, such as 5, are widely used in Indonesia, but rarely used globally. The number brand as the name in the case of Bakpia Pathuk is not based on a specific marketing analysis, but the house number used as the ethnic mathematics. So, the brand number name approach is different from the brand theory in marketing

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