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Determining Auspicious Days for Weddings and Circumcisions in Kuta Traditional Village

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Abstrak

Penelitian ini menyelidiki filosofi dan aktivitas matematika yang tertanam dalam menentukan hari baik untuk upacara pernikahan dan khitanan di Desa Adat Kuta. Dengan menggunakan metode penelitian kualitatif dengan pendekatan etnografi, pengumpulan data dilakukan melalui observasi, wawancara, dan dokumentasi terhadap tokoh adat, tetua adat, dan anggota masyarakat. Temuan ini mengungkapkan enam aktivitas matematika mendasar yang selaras dengan nilai-nilai budaya lokal: penghitungan (digunakan untuk menghitung kesesuaian dan menentukan hari baik), penempatan (untuk mengidentifikasi tanggal terlarang dan posisi spasial), pengukuran (untuk mengurutkan hari dan menyelaraskan waktu), perancangan (untuk mengatur tanggal dan waktu menurut adat istiadat), bermain (mengamati aturan dan menafsirkan hasil), dan menjelaskan (memberikan interpretasi perhitungan yang bermakna). Studi ini menunjukkan bahwa praktik etnomatematika ini tidak hanya mendukung tradisi lokal tetapi juga memperkuat identitas budaya dan warisan masyarakat Kuta. Integrasi konsep matematika seperti penjumlahan, pembagian, modulo aritmatika, dan barisan aritmatika dalam kebiasaan ini mengungkapkan hubungan rumit antara matematika dan praktik budaya, menawarkan perspektif unik untuk pendidikan matematika yang responsif terhadap budaya.
Kata Kunci: Adat istiadat; etnomatematika; hari baik; khitanan; nilai budaya; pendidikan matematika; pernikahan.

Abstract

This study investigates the philosophy and mathematical activities embedded in determining auspicious days for marriage and circumcision ceremonies in Kuta Traditional Village. Employing qualitative research methods with an ethnographic approach, data were gathered through observations, interviews, and documentation from traditional leaders, elders, and community members. The findings reveal six fundamental mathematical activities that align with local cultural values: counting (used in calculating compatibility and determining favorable days), locating (for identifying restricted dates and spatial positions), measuring (for sequencing days and aligning timings), designing (for organizing dates and times according to customs), playing (observing rules and interpreting outcomes), and explaining (providing meaningful interpretations of calculations). This study demonstrates that these ethnomathematical practices not only support local traditions but also reinforce the cultural identity and heritage of the Kuta community. The integration of mathematical concepts such as addition, division, modulo arithmetic, and arithmetic sequences within these customs reveals the intricate relationship between mathematics and cultural practices, offering a unique perspective for culturally responsive mathematics education.
Keywords: Traditional practices; ethnomathematics; auspicious days; circumcision; cultural values; mathematics education; marriage.

I. INTRODUCTION

Kuta Village, located in Karangpaningal Village, Tambaksari Subdistrict, Ciamis Regency, is widely known as a traditional village. Three key characteristics define Kuta Village as a traditional village: the uniformity of building materials and the design of residents' homes, the strong adherence to customs and traditions, and the presence of a customary leader overseeing the community's traditions. The residents of Kuta Traditional Village deeply trust the rules and norms passed down by their ancestors. These include beliefs in supernatural beings, sacred places, customary laws, taboos, and the significance of auspicious and inauspicious days.

The belief in auspicious and inauspicious days plays a crucial role in the community's life. These calculations are used to determine the most favorable and unfavorable times to undertake significant activities, such as naming a baby, starting a new project, building a house, or setting dates for weddings and circumcisions. According to Kusmayadi, Nurohman, Satori, and Widiastuti (2010), weddings and circumcisions are monumental events conducted once in a lifetime. As such, every detail, including the timing, is carefully calculated to ensure the events proceed smoothly.

For weddings, choosing the right day is believed to result in a harmonious and prosperous family life, free from marital problems. Similarly, for circumcisions, an auspicious date ensures a smooth ceremony, and the child is expected to grow up to be pious, successful, and devoted to their parents. The process of determining auspicious days for these events often incorporates terms with deep philosophical meanings. Moreover, this process also involves mathematical activities, which are frequently overlooked by the community, as they tend to view mathematics and culture as unrelated disciplines. In reality, mathematics and culture are deeply interconnected.

According to Hardiarti (2017), mathematics and culture are inseparable in daily life. While culture encompasses a comprehensive way of life within a community, mathematics serves as a tool for solving everyday problems (Rochim, Hidayati, & Masruroh, 2023; Afriansyah et al., 2024). These two domains intersect in what is known as ethnomathematics—a field that explores how mathematics is applied within specific cultural contexts (Hartono & Putra, 2022; Susanto, Setiawan, & Daniaty, 2023). Nasryah and Rahman (2020) define ethnomathematics as mathematics practiced by various cultural groups, including laborers, farmers, children from specific social classes, and professionals. Wahyuni (2013) expands this definition, explaining that ethnomathematics encompasses unique methods used by cultural groups for mathematical activities such as classification, counting, measuring, designing structures or tools, playing games, and determining locations.

Based on these definitions, the process of determining auspicious days for weddings and circumcisions in Kuta Village is an example of the integration between mathematics and culture. Prior research highlights the significance of cultural practices in determining auspicious days

and their influence on community life. For instance, Kusmayadi et al. (2010) emphasized the importance of these practices in major life events in Kuta Village. However, this research did not explore the connection between mathematical concepts and these cultural traditions.

This study provides a fresh perspective by linking the calculations for determining auspicious days in Kuta's traditions with the principles of ethnomathematics. It demonstrates how mathematical activities play an essential role in preserving cultural heritage. By adopting this approach, the study aims to bridge cultural traditions and mathematics education, particularly within the context of culturally relevant education.

Based on the above discussion, determining auspicious days for weddings and circumcisions involves both philosophical insights and mathematical activities. This intriguing connection inspired researchers to conduct a study on ethnomathematics in determining auspicious days for weddings and circumcisions in Kuta Traditional Village. The goal is to help the broader community understand the relationship between mathematics and culture.

II. METHOD

This study employs a qualitative research methodology with an ethnographic approach. Data collection techniques used include triangulation methods, namely observation, interviews, and documentation. The observations conducted in this study involved both overt and covert observation. The interview technique utilized was unstructured interviews, where the researcher only recorded key points. Documentation was carried out to obtain supplementary data related to the research subjects.

The research instrument in this study was the researcher themselves. The data analysis technique employed was the Miles and Huberman model, consisting of the following steps:

1. Data reduction – Summarizing and selecting key aspects of the data to clarify and refine the information.
2. Data presentation – Organizing the information to compress and simplify it, facilitating the researcher in drawing conclusions.
3. Conclusion drawing – Interpreting the presented data to uncover the mathematical activities and philosophies involved in determining auspicious days for weddings and circumcision ceremonies in the Kuta Traditional Village.

III. RESULT AND DISCUSSION

The philosophy behind determining auspicious days for weddings and circumcisions in Kuta Traditional Village is deeply connected to the values, teachings, and beliefs still upheld by the community. The people of Kuta Traditional Village firmly believe in the teachings passed down by their ancestors, including the meanings embedded in the determination of auspicious days for these significant events. Before holding a wedding or circumcision, calculations are made to determine good and bad days.

In today's modern life, the practice of calculating auspicious days for weddings and circumcisions is gradually being abandoned. However, this is not the case in Kuta Traditional Village. The community continues to trust and use these calculations, as they are considered a sacred inheritance from their ancestors.

In Kuta Traditional Village, a person's birthdate holds philosophical meanings or values, with each day carrying its own distinct significance. These values are as follows:

Table 1.
Day Values

No	Day	Value
1	Monday	4
2	Tuesday	3
3	Wednesday	7
4	Thursday	8
5	Friday	6
6	Saturday	9
7	Sunday	5

According to *Aki Sesepuh* (the elder), the attribution of values to specific days originates from ancestral traditions. *Aki Sesepuh* simply preserves these values without knowledge of their precise origins. This aligns with the statement of Prabowo, A., & Sidi, Pramono (cited in Yuniawatika, 2015).

In addition to days, there is the concept of "market days" (*pasaran*) or composite days, which also carry philosophical meanings. These values are used in calculating auspicious days for weddings and circumcisions. The philosophical meanings and values of the market days are as follows:

Table 2.
Market Day Values

No	Day	Value
1	Legi	5
2	Pahing	9
3	Pon	7
4	Wage	4
5	Kliwon	8

Table 3.
Order of Javanese Script (20 Letters)

Ha	Na	Ca	Ra	Ka
1	2	3	4	5
Pa	Dha	Ja	Ya	Nya
11	12	13	14	15
Da	Ta	Sa	Wa	La
6	7	8	9	10
Ma	Ga	Ba	Tha	Nga
16	17	18	19	20

For vowels (A, I, U, E, O), which are not represented in the Javanese script, a value of 0 is assigned. For consonants not included in the Javanese script, such as F, Q, V, X, and Z, their values are matched to those of phonetically similar letters. For example, F and V, which are pronounced similarly to P (*Pa*), are assigned the value 11.

The community believes that a wedding day should align with the male partner's birthdate, not the female partners. This practice is intended to prevent the female partner from becoming *mawa karep ongkoh* (acting selfishly or arbitrarily). If the wedding is held on the female partner's birthdate, it is believed that the male partner may become submissive, unwilling to work, and remain idle at home.

The calculation of auspicious days for weddings and circumcisions also involves precise *naptu* calculations. *Naptu* refers to the sequential numerical values of days and market days. Unlike the values assigned to specific days and market days discussed earlier, *naptu* calculations follow a sequence starting from 1, 2, and so on.

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1. The calculation of days is based on a seven-day week, starting with Friday as the primary day.
2. The calculation of market days is based on the five market days, starting with Kliwon

Table 4.
Sequence of *Naptu* Calculations

(+)	Kliwon (1)	Legi (2)	Pahing (3)	Pon (4)	Wage (5)
Friday (1)	2	3	4	5	6
Saturday (2)	3	4	5	6	7
Sunday (3)	4	5	6	7	8
Monday (4)	5	6	7	8	9
Tuesday (5)	6	7	8	9	10
Wednesday (6)	7	8	9	10	11
Thursday (7)	8	9	10	11	12

The calculation of *jejem* involves determining the combined values of the day and the market day (pasaran). To calculate *jejem*, the day and market day values are summed and then divided by 4. The day and market day values used in the calculation correspond to the date chosen for conducting weddings or circumcisions.

An ideal *jejem* calculation results in a remainder of 3. However, if the calculation yields a remainder of 1, it is still acceptable for use.

Table 5.
Calculation of *Jejem* (remainder)

$\left(\frac{+}{4}\right)$	Legi (5)	Pahing (9)	Pon (7)	Wage (4)	Kliwon (8)
Monday (4)	1	1	3	0	0
Tuesday (3)	0	0	2	3	3
Wednesday (7)	0	0	2	3	3
Thursday (8)	1	1	3	0	0
Friday (6)	3	3	1	2	2
Saturday (9)	2	2	0	1	1
Sunday (5)	2	2	0	1	1

The determination of results from the calculation is based on four entities: *Nini, Aki, Indung,* and *Bapak*. Among these, the favorable outcomes are associated with the first and third entities (*Nini* and *Indung*), while the second and fourth (*Aki* and *Bapak*) are outcomes to be avoided.

The philosophical meanings of these entities are as follows:

1. Nini: Symbolizes generosity or feeding others.
2. Aki: Implies dependency or needing to be provided for.
3. Indung: Represents worldly sustenance or fortune.
4. Bapak: Signifies empty talk or speech without action.

In *Kampung Adat Kuta*, choosing the month for weddings must also consider restrictions based on specific prohibited months. These prohibited months consist of certain days within particular months during which no activities, including weddings or circumcisions, may take place. The months are determined according to the Islamic calendar, and the restrictions shift every three months.

Table 6.
Prohibited Months

Name Months	Prohibited Months	Prohibited Days
Muharram	*Wetan* (East)	Monday and Tuesday
Shafar		
Rabiul Awal		
Rabiul Akhir	*Kidul* (South)	Wednesday and Thursday
Jumadil Awal		
Jumadil Akhir		
Rajab	*Kulon* (West)	Friday
Syaban		
Ramadhan		
Syawal	Kaler (North)	Saturday and Sunday
Dzulqaidah		
Dzulhijjah		

In addition to prohibited months, there is a concept known as *rijal hari*. *Rijal hari* refers to daily celestial alignments that must not be violated (*kasampek*). This system is used to determine the direction of the venue for weddings or circumcisions by observing the position of *rijal hari* on a specific day. The venue's orientation must not conflict with the position of *rijal hari*.

Rijal hari is divided into six categories. Calculating the *rijal hari* involves referencing the date in the Islamic calendar.

Table 7.
Rijal Hari

Date	Rijal Hari
1	East
2	South
3	West
4	North
5	Up
6	Down

In Kuta Traditional Village, there are days known as *naas tahun* and *potel puser*, during which no activities, including weddings or circumcisions, are allowed. *Naas tahun* refers to a day squeezed between two other days, while *potel puser* refers to the fourth day after one's birth. These days are also called "unlucky days."

For weddings, the community in Kuta Traditional Village pays close attention to the timing of the event. Specific hours in a day are considered either auspicious or inauspicious. Therefore, weddings must be scheduled during favorable times on the chosen day.

Circumcision, a fundamental practice in Islam, is performed not only for boys but also for girls. According to Purwosusanto (2020), the term *al-khitan*, derived from *al-khatn*, refers to the parts of the male and female genitals that are circumcised.

Determining an auspicious day for circumcision follows a similar calculation method to that of weddings. For example, a child's circumcision is typically scheduled on the same day of the week as their birth. If a child was born on a Monday, the circumcision should ideally take place on a Monday as well, provided the calculations yield favorable results. If not, an alternative day can be chosen, either *jaya depan* (the day immediately after the birth day) or *jaya belakang* (the day immediately before the birth day).

There are significant cultural differences regarding the appropriate age for circumcision. In Kuta Traditional Village, there are specific rules regarding the age at which circumcision is performed. Boys are circumcised at an odd age, with a minimum age of 5 years, while girls are circumcised at an even age, with a minimum age of 4 years. This odd-even rule carries philosophical and cultural meaning. Boys being circumcised at odd ages symbolizes their role as the "king" of the household, expected to excel in character, strength, and intellect. In contrast, girls being circumcised at even ages reflects their perceived nature as the "weaker" gender.

The calculations for choosing an auspicious day aim to ensure the smooth execution of the ceremony and hope for the child's future prosperity, piety, and devotion to their parents.

The fundamental mathematical activities involved in determining auspicious days for weddings and circumcisions in Kuta Traditional Village include:

p-ISSN: 2086-4280
e-ISSN: 2527-8827

1. Counting Activities

Mathematical counting is applied in compatibility calculations, naptu calculations, jejem calculations, and rijal day calculations. Compatibility is assessed by adding the names and birth dates of the couple, then dividing the sum by 3. The remainder is analyzed to predict the compatibility of the couple. For example:

Couple's names: Warsim and Iis

Warsim → Wa Sa Ma

↓ ↓ ↓

9 8 16

Then, $9 + 8 + 16 = 33$

Iis → Sa

↓

8

Then, $33 + 8 = 41 \div 3 = 13, sisa\ 2$

(Nice)

Birth Day: Monday Pon and Saturday Legi

Monday Pon

↓ ↓

4 7

Then, $4 + 7 = 11$

Saturday Legi

↓ ↓

9 5

Then, $9 + 5 = 14$

Then, $11 + 14 = 25` \div 3 = 8, sisa\ 1$

(Nice)

Thus, it can be concluded that Warsim and Iis are a compatible couple.

The calculation of *naptu* is done by adding the numeric values of the day and the market day (*pasaran*) associated with the planned date for a wedding or circumcision ceremony.

Example:

Mr. Warsim and Mrs. Iis plan to get married on Tuesday, December 27, 2022, which corresponds to 3 Jumadil Akhir in the Islamic calendars, with the *pasaran* being *Pahing*. Here's how to calculate:

Friday	Saturday	Sunday	Monday	Tuesday	Kliwon
1	2	3	4	5	6
Legi	Pahing				
7	8				

Figure 1. Naptu Calculation

or:

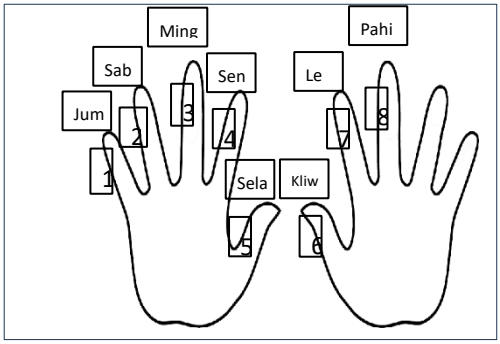

Figure 2. Calculating Naptu Using Finger Method

Using two methods to calculate *naptu*, the result shows that the *naptu* value is 8. Therefore, December 27, 2022, is considered an auspicious date for Mr. Warsim and Mrs. Iis to hold their wedding.

This is done by adding the numeric values of the day and *pasaran* of the planned date. Once summed, the total is divided by 4. The remainder of this division is then interpreted, with each remainder believed to predict the future life of the couple.

Example:

The couple Firman and Konoh plan to marry on December 26, 2022, which corresponds to 2 Jumadil Akhir 1444 H, on Monday (*Legi*). Here's the calculation:

Monday= 4 legi = 5

$4 + 5 = \frac{9}{4} = 2, sisa\ 1 \rightarrow$

Nini

Based on the calculations, December 26, 2022, or 2 Jumadil Akhir 1444 H, is also an auspicious date for Firman and Konoh to marry.

The *rijal hari* (daily energy cycle) is divided into six categories. To calculate this, the wedding or circumcision date is divided by 6.

Example:

A couple plans to hold their wedding on 16 Dzulhijjah 1444 H at the local religious affairs office (*KUA*). The calculation is as follows:

The remainder of the calculation is 4, indicating that the *rijal hari* on 16 Dzulhijjah 1444 H falls in the North.

$\frac{16}{6} = 2, sisa\ 4$

The result of the calculation is that the remainder is 4, so the rijal hari on the 16th of Dzulhijjah 1444 H is in the North.

2. Locating Activity (Determining Location)

The mathematical activity of locating involves calculating the restricted months and the "rijal hari" (day positions).

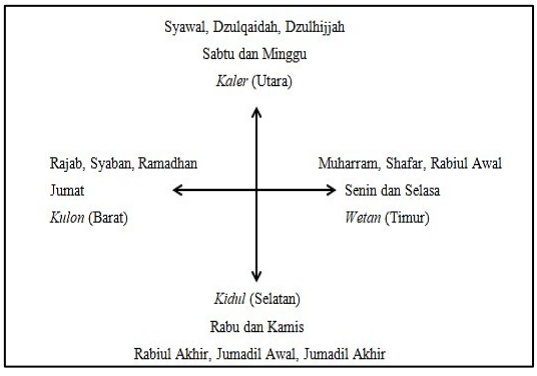

Figure 3. Restricted Months Based on Cardinal Directions

Example:

Firman and Konoh plan to get married in the month of Dzulhijjah. According to the restricted months, Dzulhijjah is associated with the North direction. The restricted days are Saturday and Sunday. Thus, Firman and Konoh must choose a day for their wedding that does not fall on Saturday or Sunday.

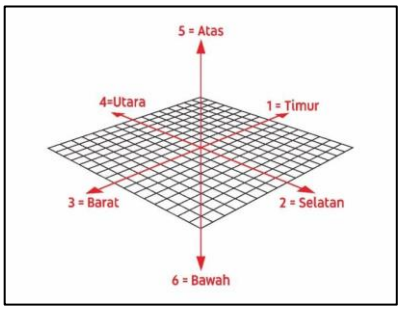

Figure 4. Restricted days are Saturday and Sunday

Example:

A couple plans to have their wedding ceremony at the Religious Affairs Office (KUA). When the KUA is located in the direction that coincides with the "rijal hari" (day position), which is North, they must take seven steps first to the West or East to avoid a conflict, and only then proceed to the North.

3. Measuring Activity (Measuring)

The mathematical activity of measuring is present in sequencing days and market cycles during the calculation of "naptu" (traditional Javanese numerology), the arrangement of the Javanese alphabet (*hanacaraka*), and selecting an appropriate time or hour for an event.

Table 8.
Sequencing Days and Market Cycles

Ranking	Day	Market
1	Friday	Kliwon
2	Saturday	Legi
3	Sunday	Pahing
4	Monday	Pon
5	Tuesday	Wage

For compatibility calculations, the names of each couple are analyzed using the Javanese alphabet (hanacaraka). Each

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letter in the hanacaraka has an assigned numerical value ranging from 1 to 20. Choosing the right time or hour is crucial. The couple must identify specific times on particular days that are deemed auspicious for holding the wedding.

4. Designing Activity (Planning)

The mathematical activity of designing is involved in determining the optimal timing for a wedding or circumcision ceremony. This process includes selecting the day, date, and month, ensuring that the calculations align with established traditions and rules.

The selection of the event date considers: *Naptu* calculations, *Jejem* calculations, Restricted months, Annual misfortunes (*naas tahun*), and *Potel puser* (traditional signs or marks).

5. Activity of Playing

Mathematical activities related to playing can be found in the rules for marriage or circumcision and the predictions for future life based on the results of calculations made. The rules for marriage include that the ceremony must be held on the birthday of the groom, avoiding certain months, unlucky years, the "potel puser" day, and the wage day. Similarly, the rules for circumcision include that it must be performed on the child's birthday, or if not, on the front or back of the good days. The child's age must be odd for boys and even for girls, with a minimum age of 5 years for boys and 4 years for girls, avoiding certain months, unlucky years, the "potel puser" day, and the wage day. Predictions for the future can be seen from the calculations and the selection of the time/day for the event. The calculation process for choosing the auspicious day for marriage or circumcision involves summing the values of the day and market day of the planned date and then dividing by 4. The remainder of this calculation can reveal philosophical meanings that describe the couple's household situation and future life. The selection of the time/day for the ceremony can also offer predictions about the couple's future life.

6. Activity of Explaining

Mathematical activities related to explaining occur when an elder (Aki sesepuh) explains to the community the calculations to find a good day for marriage or circumcision and explains the meanings contained in the auspicious day.

Based on the six fundamental mathematical activities used to determine the best day for marriage and circumcision, the mathematical concepts involved are as follows. According to Wijayanti (2009), mathematical concepts are ideas or thoughts that allow people to categorize objects, things, or events and to determine whether an object, thing, or event is an example of the idea based on its properties. The mathematical concepts involved in determining the auspicious day for marriage and circumcision, based on the six fundamental mathematical activities, are:

a. Addition and Division Operations

The first mathematical concept is the operation of addition and division used in determining the auspicious day for marriage and circumcision, practiced in pair

matching, naptu calculation, and jejem calculation. In pair matching, the names and birthdays of the partners are needed. The values of the names and birthdays are then calculated and summed. For example:

NP = Name of the female

NL = Name of the male

JN = Sum of both partners' names

The calculation is:

NP + NL = JN

Next, the sum of the values of the partners' names is divided by 3. If the remainder is 1 or 2, the couple is considered compatible based on the name calculation. The mathematical model is:

$\frac{JN}{3} = H, S$

JN = Sum of the partners' names

3 = Divisor for pair matching calculation

H = Quotient

S = Remainder

Next, the calculation for the birthdays of the partners is made. For example:

HP = Female's birth day

PP = Female's market day

HL = Male's birth day

PL = Male's market day

JP = Female's total day value

JL = Male's total day value

J = Total

The calculations are:

HP + PP = JP

HL + HP = JL

JP + JL = J

The total is then divided by 3. If the remainder is 1 or 2, the couple is considered compatible. The mathematical model is:

$\frac{J}{3} = H, S$

J = Total

3 = Divisor for pair matching calculation

H = Quotient

S = Remainder

The couple is considered compatible if the calculations for both names and birthdays yield good results, i.e., a remainder of 1 or 2.

For the naptu calculation, the values of the day sequence and market sequence are summed. There are three good naptu values: 5, 8, and 11. For example:

H = Day sequence value

P = Market sequence value

J = Total

The calculation is:

H + P = J

Next, for the jejem calculation, the values of the day and market are summed. For example:

H = Day value

P = Market value

J = Total

The calculation is:

H + P = J

The total is then divided by 4. If the remainder is 1 or 3, the day is considered auspicious. The mathematical model is:

$\frac{J}{4} = H, S$

J = Sum of day and market values

4 = Divisor for jejem calculation

H = Quotient

S = Remainder

If the remainder is 1, it is called nini, 2 is called aki, 3 is called indung, and if there is no remainder, it is called bapak. A good day is one where the remainder is 1 or 3.

b. Modulo Arithmetic

The next mathematical concept is Modulo Arithmetic. This concept appears in pair matching, jejem calculation, and determining rijal day. Modulo arithmetic

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refers to the process of calculating the remainder when one number is divided by another. For example, b and n are integers $(n > 0)$, and the operation b mod n gives the remainder when b is divided by n. The notation $b \ mod \ n = r$ for this is b mod n then $b = nq + r$, with $0 \leq r < n$. N called modulus or modulo, and arithmetic result of modulo n located in the set $(0, 1, 2 \ldots n - 1)$. Modulo arithmetic in determining auspicious days for marriage and circumcision involves modulo 3, modulo 4, and modulo 6. Here is the modeling derived from this research:

In modulo 3.

Warsim → Wa Sa Ma

↓ ↓ ↓

9 8 16

The sum of the two names is calculated:

Thus, 33 + 8 = 41

After the sum is obtained, the next step is to calculate using modulo arithmetic.

First step:

Remainder 2, or can be written as

Second step:

According to the modulo theory as follows:

so that

$b = nq + r$

$41 \ mod \ 3 = 2$ so that $41 = 3 \times 13 + 2$

Birth Day:

Monday Pon and Saturday Legi

Monday Pon

↓ ↓

4 7

$4 + 7 = 11$

Saturday Legi

↓ ↓

9 5

9 + 5 = 14

Thus,

$11 + 14 = 25$

First step:

$25 \div 3 = 8$

Reminder 1, or 1, or can be written as

$25 - 3 \times 8 = 1$

Second Step: $25 = 3 \times 8 + 1$

According to the modulo theory as follows:

$b \ mod \ n = r$ so that $b = nq + r$

$25 \ mod \ 3 = 1$ so that $25 = 3 \times 8 + 1$

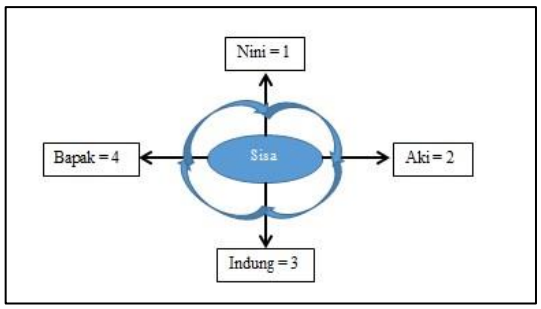

Figure 5. In Modulo 3

Modulo 6.

Example: A couple will get married on the 16th of Dzulhijjah 1444 H at the KUA (Religious Affairs Office).

First Step:

$16 \div 6 = 2$ remainder 4, or can be written as $16 - 6 \times 2 = 4$

Second Step: $16 = 6 \times 2 + 4$

According to the modulo theory as follows:

$b \ mod \ n = r$ so that $b = nq + r$

$16 \ mod \ 6 = 4$ so that $16 = 6 \times 2 + 4$

c. Arithmetic Sequence

Another mathematical concept used to determine auspicious days for marriage and circumcision in the Kuta Traditional Village is the arithmetic sequence. This sequence is used when determining the "potel puser" day. Based on the explanation, an arithmetic sequence is a series of numbers with a constant difference between two consecutive terms. The formula for an arithmetic sequence is:

$$U_n = a + (n-1)b$$

Description:

U_n = nth Tribe

a = Value of the birth date sequence

b = Difference in the sequence of dates

n = 4 = potel puser (a specific term used in the local context)

This finding aligns with Bishop's theory (1988), which identifies six mathematical activities in culture: counting, locating, measuring, designing, playing, and explaining. Bishop argues that mathematical activities are not just technical but are also integrated into cultural practices that support social balance and harmony. In the context of Kampung Adat Kuta, the calculation of auspicious days for weddings and circumcisions not only involves simple mathematical calculations but also contains profound philosophical values. This tradition demonstrates that mathematical activities support cultural values to maintain harmony between individuals and the community.

Furthermore, D'Ambrosio's (1985) concept of ethnomathematics strengthens the idea that mathematics in culture is not limited to symbols and numbers but involves ways of thinking and practices passed down through generations. In Kuta traditions, the calculation of auspicious days involves arithmetic operations such as addition, division, and modulo arithmetic, as well as complex day sequences, all of which are naturally integrated into their cultural system. This process not only supports cultural preservation but also reinforces the cultural identity of the Kuta people.

More broadly, this finding suggests that ethnomathematics can serve as a bridge between formal mathematics and local wisdom, especially in the context of mathematics education. By applying these concepts in education, students can learn culturally relevant mathematics, which ultimately enhances appreciation for local culture while facilitating a deeper mathematical understanding. This approach is relevant to contextual mathematics education and has the potential for wider application in other indigenous communities.

IV. CONCLUSION

Determining auspicious days for weddings and circumcisions in Kampung Adat Kuta contains many philosophical meanings, such as observing the character or personality of a person based on their birth date, with each day having its own distinct significance. Besides the day, the market days also have their own meanings, which can describe the character and personality of a person born on those days. A child's circumcision is carried out when the child reaches an appropriate age, with girls being at least 4 years old and boys at least 5 years old. The main philosophy behind calculating the date before a wedding is for the well-being of the couple's household, to ensure their marriage is strong and their livelihood is blessed. Similarly, the philosophy of calculating the date before a circumcision is for the child's safety, so that their life will be blessed and smooth.

The fundamental mathematical activities involved in determining auspicious days for weddings and

circumcisions according to Bishop include: First, the activity of counting (counting) occurs during the matching of partners, calculation of naptu (a traditional calculation), jejem, and determining rijal days. Second, the activity of locating (location) occurs when searching for forbidden months and determining the position of rijal days. Third, the activity of measuring (measuring) is seen in sorting the days and market days in the naptu calculation, the hanacaraka sequence in partner compatibility, and selecting the best time for the event. Fourth, the activity of designing (designing) occurs when planning to determine the day, date, and month, while considering the naptu calculation, jejem, forbidden months, unlucky years, and potel puser days. Fifth, the activity of playing (playing) is found in the rules for weddings and circumcisions, as well as predicting the future of the couple's life based on the calculation results. Sixth, the activity of explaining (explaining) occurs when the adat elders explain to the community members about the necessity of calculating the auspicious day first, and the meaning behind the results of the calculations.

From these six fundamental mathematical activities, mathematical concepts such as addition and division, modulo arithmetic, and arithmetic sequences are embedded.

Based on the research findings and conclusions drawn, the researcher offers the following recommendations: 1) For educators, it is hoped that this research can help develop introductory lessons that link mathematics with culture; 2) For future researchers, if inspired to research ethnomathematics, especially in determining auspicious days, it is recommended to present contextual mathematical problems to show the practical value of this research in mathematics education; and 3) For the people of Kampung Adat Kuta, who may not yet be familiar with the calculations and philosophies behind determining auspicious days for weddings and circumcisions, it is hoped that this research will increase their understanding and love for the local culture, enabling them to preserve it continuously.

This study demonstrates the integration of mathematics and local culture in the practice of determining auspicious days in Kampung Adat Kuta, which can serve as a foundation for culture-based mathematics education.

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