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Abstract

Knowledge systems have been the focus of much anthropological work, although there have been shifts in definitions and perspectives. One aspect of knowledge is that it is learned, mostly informally through a process of trial and error. The keuneunong is one such knowledge system, known to be distributed among Acehnese farmers and used mainly to determine planting schedules and crop selection. Although it serves as a guide for agricultural activities, most farmers do not understand it fully, and leave its interpretation to an authority known as the kejrun blang. Research for this article was conducted in Mane, Nanggroe Aceh Darussalam. The findings suggest that the process of trial-and-error learning among farmers is hindered by authority, and that transmission of knowledge of the essence of keuneunong does not occur.

Key words: keuneunong, knowledge, learning

Abstrak


Kata kunci: keuneunong, pengetahuan, pembelajaran
Introduction

Knowledge systems have been the focus of much anthropological work since Ward Goodenough wrote in 1957 that culture was “…whatever it is one has to know or believe in order to operate in a manner acceptable to its members.” Studies were geared toward the discovery of domains and taxonomies, and the use of componential analysis, as explained by Sturtevant (1964), Frake (1963), and Spradley (1972) among many others. The work purported to show the cognitive maps within peoples’ minds—how they organize objects, actions, and their surroundings in their thinking. Although many of the descriptions given were detailed, they provided a rather static picture of culture as fixed and unchanging bounded systems. Furthermore, the approach hardly paid attention to how these systems developed in interaction with other systems; and as the history of anthropology has shown, interest began to wane. Even James Spradley, one of the proponents of this (then) “new ethnography”, conceded that “…the data gathered by ethnoscience techniques is sometimes divorced from the reality of social interaction”, and that it “…appears to be a method in search of a theory…” (Spradley 1972: 65-66).

Much has been written about the shortcomings of, and alternatives to, the early studies of cognition in anthropology (see, for instance, Dougherty 1985, Holland and Quinn 1985, Strauss and Quinn 1997). The details will not be presented here, but the discussion centers on the need for discovering how knowledge is acquired, modified, distributed, and used within the context of everyday life—in short, Spradley’s search of a theory—in this case agriculture is tightly linked to the religious—involving individuals whose authority is seldom questioned.

The discussion below is based on research undertaken in the district of Mane, Nanggroe Aceh Darussalam, near the end of 2015. Ramadhan collected the data through in-depth interviews with farmers and local leaders, while much of the analysis was conducted by Choesin. The brief research period did not allow us to gather certain data that we believe should be collected, especially those that can be obtained only through observation. This being the case, we wish to emphasize the tentative nature of our findings.

Among the many groups in Nanggroe Aceh Darussalam, we find a body of knowledge farmers refer to as a guide for their activities.
in the field. This knowledge system, known as keuneunong, provides the schedule for seeding, planting, and harvesting, as well as predictions for the appearance of pests during the season. There are rules to follow in using or consulting keuneunong and in previous times this fell under the purview of the village heads\(^2\). The village authority must have sufficient knowledge of keuneunong to ensure a good outcome for the farmers. The person holding this position is called the kejrun blang\(^3\); and aside from determining the planting schedule, he also bears the responsibility of settling disputes in the farming areas.

**Keuneunong**

Based upon analysis and data processing […] it may be concluded that the percentage of the discrepancies between Keunong and the occurrence of flooding is tied to high intensity rains of 1 to 7 days. This means that these discrepancies represent the accuracy of the Keunong calendar. The accuracy of Keunong is at 83% after meteorological analysis. At 83%, then from a meteorological standpoint it we may conclude that the Keunong almanac can be consulted and provide an analytic base for early warning of extreme weather as well as the determination of planting season (Adil 2014: 11).

Keuneunong is an Acehnese knowledge system used to predict natural conditions. In its literal sense keuneunong means “on-target”, in the sense that the position of the moon and stars are parallel (Adil 2014: 2).\(^4\) During the course of a year, Acehnese farmers will work their fields for two planting seasons. It is in determining the start of these seasons that the keuneunong is consulted. The calculations follow a set of formulas and rules. A local leader from the area of Pidie Gampong Turue Cut mentioned that the formulas come from a book called the Tajul Muluk.

Apart from serving as a guide to determine the beginning of planting season, keuneunong also includes rules on what crops to plant, and predictions on the pests that appear in a certain period of time. The formula for determining the start of planting season is as follows.

\[
K = C - 2 \times \text{current month}
\]

Example: January = 1; thus \(K = 25 - 2(1) = 23\). Therefore, January has the keuneunong of dua ploh lhee (twenty three). May = 5; thus \(K = 25 - 2(5) = 15\).

(Adil 2014: 5)\(^5\)

Every number calculated with the formula brings its own meaning. For instance, by following the formula we know that the keuneunong for the fifth month is 15. The number 15 in keuneunong means a stable season, whereby the paddy stems are neither too long nor too short, and the weather is neither dry nor rainy. To understand the keuneunong calculations and numbers, one must first realize that the system refers to the Acehnese month derived from the Hijriah months of the Islamic calendar. Table 1 displays the conversion from the Hijriah to the Acehnese.

Acehnese months have the same number of days as the months of Hijriah, that is 29 – 30 days. This means that the year consists of 354 days (355 days for a leap year), which is also to say that it has 11 days less than the Gregorian calendar. As a consequence, a given date on the Hijriah calendar will appear 11 days earlier in the Gregorian calendar of the following year. For example, the 1\(^\text{st}\) of Muharam in the year 1438 Hijriah (or the 1\(^\text{st}\) of Hasan-Husein in the Aceh calendar) coincides with the 2\(^\text{nd}\) of October 2016; but the 1\(^\text{st}\) of Muharam of 1439 Hijriah will fall together with the 21\(^\text{st}\) of September 2017. Thus, the keuneunong calculated for the month of Hasan-Husein of any Hijriah year applies to a different time frame in the concurrent Gregorian calendar. The calculation of keuneunong will normally begin on the 25\(^\text{th}\) of each month\(^6\), or when the sky shows a sawai (crescent) moon. The sawai moon marks

\(^2\) The province of Nanggroe Aceh Darussalam is granted special autonomy under the Indonesian state. Here, the administrative and territorial unit of desa (village) does not apply, and is replaced by the mukim and gampong. Mukim is equivalent to the district or kecamatan in the state system, while gampong is at the village level.

\(^3\) At present, only the elderly steeped in religious teaching understand the calculations.

\(^4\) Adil translates keuneunong to the Indonesian word kena, which in colloquial English can be represented by words such as “spot-on”, “so”, or “rightly so”.

\(^5\) Adil (2014) uses the Gregorian calendar in his calculations, but interviews with several locals suggest that the Aceh/Hijriah (or Islamic) calendar can also be used, depending upon one’s interpretation. We refer to the Aceh calendar in this article in line with explanations given in interviews by local leaders at Pidie, Mukim Lutueng.

\(^6\) The months here refer to the Gregorian calendar.
the beginning of a new month, and the full moon is said to be mid-month. The appearance of the moon can be seen in the Illustration 1.

### Table 1. Conversion of Month Names

<table>
<thead>
<tr>
<th>Hijriah Month</th>
<th>Aceh Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Muharam</td>
</tr>
<tr>
<td>2</td>
<td>Safar</td>
</tr>
<tr>
<td>3</td>
<td>Rabi’ul Awal</td>
</tr>
<tr>
<td>4</td>
<td>Rabi’ul Akhir</td>
</tr>
<tr>
<td>5</td>
<td>Djumaidil Awal</td>
</tr>
<tr>
<td>6</td>
<td>Djumaidil Akhir</td>
</tr>
<tr>
<td>7</td>
<td>Rajab</td>
</tr>
<tr>
<td>8</td>
<td>Sya’ban</td>
</tr>
<tr>
<td>9</td>
<td>Ramadhan</td>
</tr>
<tr>
<td>10</td>
<td>Syawal</td>
</tr>
<tr>
<td>11</td>
<td>Dulqaidah</td>
</tr>
<tr>
<td>12</td>
<td>Dzulhijah</td>
</tr>
<tr>
<td>1</td>
<td>Hasan-Husein</td>
</tr>
<tr>
<td>2</td>
<td>Hasan-Husein</td>
</tr>
<tr>
<td>3</td>
<td>Maulud Pertama</td>
</tr>
<tr>
<td>4</td>
<td>Maulud Kedua</td>
</tr>
<tr>
<td>5</td>
<td>Maulud Ketiga</td>
</tr>
<tr>
<td>6</td>
<td>Maulud Keempat</td>
</tr>
<tr>
<td>7</td>
<td>Apam</td>
</tr>
<tr>
<td>8</td>
<td>Kenduri Bu</td>
</tr>
<tr>
<td>9</td>
<td>Puasa</td>
</tr>
<tr>
<td>10</td>
<td>Uro Raya Puasa</td>
</tr>
<tr>
<td>11</td>
<td>Berapit</td>
</tr>
<tr>
<td>12</td>
<td>Uro Raya Haji</td>
</tr>
</tbody>
</table>

Approaching the end of the month as determined from observations of the moon, kejrun blang will calculate keuneunong and inform the keuchik (village head) of the results, so that the latter can spread the information to the farmers.

As mentioned earlier, numbers from every keuneunong calculation imply different conditions. These are what farmers consult when they begin to work their fields. Table 2 describes the meaning behind each keuneunong number.\(^7\)

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\(^7\) For a more detailed description, see Zulchaidir, Indra, and Syamsidik (2015).

![Illustration 1. The lunar cycle, depicting (top to bottom) the moon during the start, middle and end of the month.](image-url)
Table 2. The Meaning of Keuneunong Numbers

<table>
<thead>
<tr>
<th>Keuneunong Number</th>
<th>Natural Conditions</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>23 to 19</td>
<td>Khuong</td>
<td>A dry season is predicted, but rain will still fall intermittently</td>
</tr>
<tr>
<td>17</td>
<td>Gelantue</td>
<td>Cloudy, frequent lightning, but low intensity of rain</td>
</tr>
<tr>
<td>15 to 13</td>
<td>Stabil</td>
<td>A balance between dry and rainy days</td>
</tr>
<tr>
<td>11 to 7</td>
<td>Khuong</td>
<td>A long dry spell, with a duration depending upon location</td>
</tr>
<tr>
<td>5 - 1</td>
<td>Serue Ujeun</td>
<td>Rainy season, the preferred time for farmers to work the fields</td>
</tr>
</tbody>
</table>

Of all numbers resulting from the keuneunong calculations, 5 is the favored, and farmers are strongly encouraged to begin planting during the month. On the other hand, the number 7 denotes a bad time with unfavorable weather conditions and frequent infestation. The results of the keuneunong is announced during the village assembly to determine whether or not farmers can begin planting. If it is Khuong, then farmers will not go to the fields. Should a farmer proceed despite Khuong, it is believed that he will suffer ill fortune, and he will be fined by the gampong as well.

Keuneunong as a method for determining planting schedules involves the observation of ecological signs that support the validity of the calculations. These signs include not only changes in the weather, but also the movement and behavior of wildlife. At keunong 5, for example, the rainy season most favorable for farmers to begin planting, forest animals give birth and it is forbidden for people to hunt them. Other signs are animal migrations during the dry season. Bees are said to migrate to the east in the dry keuneunong count.

Most people have knowledge of keuneunong, especially those who work as farmers; but detailed understanding belongs to a certain few only. A thorough understanding of keuneunong can only be acquired by those who have followed Islamic education to the highest degrees. It is not just anyone who can obtain this knowledge, since it requires fierce dedication and a deep commitment to studying Islam. One informant noted that there are many prohibitions during the study, and any transgression leads to horrific consequences, such as the loss of one’s common sense.

During interviews, it was apparent that people were knowledgeable of the meanings of keuneunong numbers, and some knew of the method for calculations. Nevertheless, their answers and explanations would almost always be followed by the suggestion to “go ask Mister […] later on; he understands it more”, referring to individuals considered to be experts and believed to have a more detailed understanding of keuneunong. Although the explanations of the calculations provided by these experts were similar to the others, they referred to the Tajul Muluk. The book is transcribed in Arabic letters, written in the Malay language. It is said that the secrets of life itself are contained in the book, which can be discovered by those who can interpret it correctly.

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8 Fines may vary, but payment is usually in the form of poultry.

9 This would mean that the person has acquired a deep understanding of Islam and has grasped the essence of life according to the Islamic paradigm.
Discussion

One question we had wished to pursue from the outset was the fate of *keuneunong* in the face of global climate change—whether or not it remained relevant for farmers in their activities. This line of inquiry would have been complementary to the ongoing work of Winarto, who has looked into how the *pranata mangsa* has been reinterpreted by Javanese farmers (see, for example, Winarto and Stigter 2011). However, the brevity of our own research precluded that. Instead, we shifted our attention to how some Acehnese farmers continue to follow custom based mostly on instruction from an authority figure, with little choice on their part.

The problem became apparent when farmers were asked about the consistency between *keuneunong* calculations and the ecological signs said to be associated with them. The appearance of the moon in the sky seems to take precedence over other indicators. Despite not having seen the migration and changing behavior of animals themselves, farmers say they will elect to plant and work their fields. When further asked whether there was a window or time period during which animal migration would occur, most farmers simply replied that it takes a certain expertise to notice these movements. There is a sense of finality in the words of the *kejrun blang*, with farmers readily accepting his verdict. This is not to say there have never been objections or disagreement. Here we have the idea of learning through trial and error, but not of the *keuneunong* itself—rather of the severe consequences of not adhering to it. So far we have no information of farmers reaping a good harvest when planting against the *keuneunong*.

In terms of connectionist theory, the case of a farmer not following the *keuneunong* can be explained by the presence of other stimuli and mental structures that outweigh the significance of the words of the *kejrun blang* or the *keuneunong* itself. We will not speculate on what these may be—but it is clear that the *keuneunong* has no motivational force on the individual. As to the farmers who work their fields according to the *keuneunong*, they are motivated. But if most farmers admit to not fully understanding the *keuneunong*, then what schema is actually motivating them? We suggest that these farmers are less driven by the *keuneunong* than by the person announcing it. The *kejrun blang* is an essential and inseparable part of the *keuneunong*, without whom the system cannot run. Recent developments in the region indicate the importance of this authority. Villages where farmers still observe the *keuneunong* are also the villages where the *kejrun blang* reside, whereas the practice seems to be abandoned in other villages. Thus the extrapersonal structures that feed into the knowledge of farmers are not simply the observable regularities of *keuneunong*-directed farming practices, but of the steady presence of the *kejrun blang*.

Another point to take into consideration is the tendency for people to defer any detailed explanation of the *keuneunong*. Certainly at this point in our research we can only guess at the multitude of reasons for this behavior. Yet the interviews suggest that most farmers believe they are not capable of knowing, not having the proper religious training or depth in understanding the *Tajul Muluk*. Knowledge, then, resides with the *kejrun blang*. While farmers have the practical or technical knowledge of working their fields, the when and why of planting is mostly left to others.

Implications

We have argued that there appear to be constraints on the transmission of *keuneunong* as a knowledge system. The relevance of the system is learned when farmers are able to see the relation between the lunar and ecological signs which they act upon on the one hand, and the success or failure of their crops on the other. This process of trial-and-error learning does not seem to transpire. Instead, farmers rely on an authority figure to interpret the signs and then follow his pronouncement. The knowledge required to interpret these signs correctly remain with a single individual.
We are not saying that all farmers must have the same knowledge as that of the *kejrun blang*. Although shared experiences are an important aspect of culture, we take note of Ross’ caveat that

“…we should not forget that the social world itself is the product of human agents. The decision of who is allowed to share certain experiences (e.g., who is an in-group member) is not always with the individual, and access to relevant information is often limited from the inside out” (Ross 2004: 67)

But certainly, the number of individuals who are considered masters of the *keuneunong* is decreasing. The fact that there are farmers who no longer depend upon the *keuneunong* because of the absence of a *kejrun blang* in their village suggests that farmers will be left with their own devices.

At a practical level, the situation described above would lead to the conclusion that *keuneunong* will soon disappear without the presence of people motivated enough to undertake the religious study that would endow them with the knowledge to make correct interpretations. However, the technical knowledge required for working the fields remain. This short discussion of *keuneunong*, then, underlines the importance of analyzing knowledge not as clearly demarcated systems, but as overlapping ones. Furthermore, many studies of knowledge focus on content that pertain to some specific domain of activity, but often neglect the speaker’s role and effect in the transmission of such knowledge. We are not talking here about work in applied anthropology or diffusion studies in which knowledge transmission mostly involves individuals from outside the socio-cultural system in interaction with those within. Our concern is more of authority as one among many stimuli in the learning process. However tentative our findings, we feel that this is a line of inquiry that merits attention.
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Zulchaidir, Indra, and Syamsidik
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