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CULTURALLY SPECIFIC SHAPE GRAMMAR OF BALINESE SONGKET PATTERNS

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Abstract: Songket weaving in Bali has been connected with the highest castes throughout the centuries. The noble ladies and daughters of the courts and the women of the Brahmanic houses. Nowadays, with the economic changes of the last five decades, Songket can be purchased by anyone who can afford to buy them. The Songket production process is complicated and time-consuming. Young people in communities may find the required, sometimes-lengthy apprenticeships too demanding. This knowledge may disappear if family members are not interested in learning them. More importantly, some traditional craftsmanship knowledge has been transmitted from generation to generation through an oral tradition, which is not well-documented. The preservation of cultural creation has been accomplished through the creation of digital formats, according to the Guidelines for the Preservation of Digital Heritage, as "texts, databases, still and moving images, audio, graphics, software, and web pages, among a wide and growing range of formats" (National Library of Australia, 2003, p.13). The Songket weaving motifs are stored in *Tulad*. However, *Tulad* was created with material that is fragile, and some of the information started to disappear. To sustain and preserve the information in *tulad* for the future generations of the local communities, a digital form of their cultural creations can be used to entice the younger generations to both understand and perpetuate their own cultures. The process of transforming an oral tradition into a digital form involves careful decoding to avoid misinterpretation by (1) Learning the Songket technique from the artisans on site and (2) translating the technique into a cultural shape structure. This study contributes to the digitization of Balinese Songket Patterns into a digital format.

Keywords: songket, *tulad*, shape structure, culture, motifs

INTRODUCTION

The process of making Songket is demanding and time consuming, starting from separating the threads, transferring the warp threads on the loom, making motifs or what is known as the injection process, and weaving. Of the four stages, making the motif is the most difficult process, because the motif maker is expected to be able to visualize the desired motif into the thread count. The concept of making Songket motifs is similar to bamboo woven motifs, but the difference is in the medium—bamboo fiber has a fairly large strand size. In contrast, yarn fiber for Songket motifs is subtle and small. Hence, the Songket motif makers must have visual acuity in calculating the threads that must go up and down, as well as the ability to visualise design into pixelation. Due to this complicated process, not many people can make Songket weaving motifs.

Songket weaving in Bali is produced in several provinces, including Singaraja, Negara, Gianyar, and Klungkung. According to history, the technique of making Songket weaving in ancient times was only controlled by the nobility or Puri. Therefore, the technique of making Songket developed in the puri area, one of which is famous on the island of Bali is Puri Gelgel which is located in Klungkung. Gelgel Songket weaving motifs that have been made by weavers are usually also stored in *tulad* form. *Tulad* is a fragment of the Songket weaving motif that stores information about how many threads go up and down in creating the Songket motif (Pebryani, 2022). Many of the makers of Songket motifs continue from the existing *tulad*

examples. *Tulad* is made of stick material, but this material is easily weathered and broken, so the information contained in the tulad becomes incomplete. Related to this, the preservation of *tulad* as a source of information for Songket motif makers needs to be made which is more durable and stored properly. According to the Guidelines for the preservation of Digital Heritage, digital format includes text, data sets, photos, audio, visual graphics, software, websites, and other digital formats (National Library of Australia, 2003, p.13). Digital format is one of the efforts to preserve by digitizing the information contained in the text, so that it can be accessed at any time.

The process of digitizing information in *tulad* must also be in line with the stages of the process of making Songket weaving motifs in the field so that the process of translating *tulad* into digital form is in line with the thoughts of motif makers in the field (Pebryani, 2019). After understanding the process of making Songket weaving in the field, then the data can be analyzed using shape structure theory to determine the character of the Songket weaving motif. By understanding the character of the Songket weaving of an area, the motif maker can give birth to new motifs that are in accordance with the norms of the area. The objectives of this research are (1) to understand the process of making Songket motif designs in the field, especially at Puri Gelgel, and (2) to analyze and translate information in *tulad* into digital format with shape structure theory. So, information about this will be useful for Songket weaving motif makers and also provide information and learning to the younger generation or the general public who are enthusiastic about learning local *wastra* or weaving.

METHOD

This study is divided into two stages, the first is the understanding stage and the second stage is the translation of the information obtained in the first stage. The first stage of data collection consisted of: interviews and participant observations. Interviews were conducted with 5 participants of Songket motif makers and weavers at Puri Gelgel. Then participant observations were carried out by researchers by observing and being directly involved in the stages of the process of making Songket weaving motifs in the field, this process took about three weeks.

The data obtained from the first stage is then used to translate the existing processes in the field into a digital format visualization which can later be used as an amplifier of the information contained in *Tulad*.

FINDINGS AND DISCUSSION

This research is divided into two stages, the first stage refers to the understanding process and continues with the second stage, namely the translation process.

Understanding Process

The understanding process begins with learning to use the *cagcag* loom and knowing the parts of the *cagcag* loom used to make motifs and weave. The technique of making motif designs in Songket is carried out on warp threads, where the motif maker counts the number of threads that go up and down in forming a motif. Warp threads are threads that extend vertically in front of the motif maker. The number of warp threads on the *cagcag* loom is 30 threads for 1 cm, then the maximum width of the *cagcag* loom is 56 cm, so the maximum number of threads is 1680 threads. Songket weaving motif makers usually have long thumb nails, this is because these nails are useful for making it easier to count threads from existing ones. But the motif makers can also use other tools, namely sharpened bamboo. The threads used are usually cotton or silk threads. The process of making Songket weaving motifs takes ten

days to a month, using a *cagcag* loom to produce a wide Songket sheet, which must be done twice because of the limited width of the *cagcag* loom.

The process of making Songket weaving requires precision and care so that the threads that are lifted and lowered do not break. *Tulad* which stores information on Songket motifs consists of several *guun*. *Guun* is the smallest part of *tulad* that stores information on the rise and fall of the yarn. For the Gelgel songket motif, it has characteristics that distinguish it from other regions, where the number of *guun* owned by the Gelgel Songket motif is approximately 10 to 150 guns.

The motif that appears on the Songket is looping, the repetition of the *guun* that has been set by the motif maker. Overall, the motifs that appear in Songket weaving are border motifs or edge motifs and middle motifs. The border motifs surround the Songket weaving which is usually an arrangement of several motifs. The core motif or middle motif consists of a complete motif which is usually in the form of geometric motifs and figurative motifs.

The process of understanding in the field when making Songket weaving motifs provides information about the stages of the weaver's procedure in making Songket weaving motifs on warp threads. The main difficulty in making a new Songket woven motif is when the motif maker visualizes the desired new motif.

Figure 1. Compilation of participant observation in creating Songket Motif

Translation Process

After understanding the process of making Songket weaving in the field, researchers comprehend an understanding of the character of Songket weaving. Songket weaving motifs are based on the visualization of motifs into a form of pixelation image fragments or in other words breaking the desired motif into a count such as making a cross stitch. The difference is in the counting box which is made according to the size of the strands. To facilitate the calculation

and design of a Songket woven motif, the design fractions are made in a square count, assuming one box is the size of one strand of yarn as shown in figure 2.

Figure 2. First simulation

The description of the characteristics of the image of a Songket weaving motif by describing it in a digital format based on the calculation of the *guun*. *Guun* is calculated based on the number of sticks towards the vertical. A ridge towards the vertical is counted as one box while the direction to the right is calculated based on the number of threads that cross each ridge. After completing a digital image, the researcher came back to the weaving location to interview the weavers to determine whether the calculations using the digital format visualization were in accordance with the calculation of making motifs. However, it turns out that the calculation of the figure above is not in accordance with field conditions. Then a process of drawing the motif is repeated with a more careful calculation. The second simulation is conducted by drawing one box that is assumed for one strand of yarn, then after the image is finished, it is stretched smaller with a ratio of one to two on the wide side of the motif, as shown in figure 3 below.

The calculation shown in figure 3 is more precise, where the technique used is to count one strand of yarn as the size of one box. Next, the image is reduced by a ratio of one to two in the width direction. With the above calculations, the existing width is more appropriate than the Songket weaving motif in the first picture. After understanding the character and calculation of Songket weaving motifs, then the Songket weaving motifs in *Tulad* can be translated into digital format with the calculations.

Figure 3. Second Simulation

CONCLUSION

Preservation of oral culture that is stored in the form of *tulad* which contains information on the Songket weaving motif needs to be done, because the material used in the form of *tulad* comes from materials that are easily brittle. Before the information is lost, then the process of digitizing it into a digital format needs to be done. The digital format that is realized is based on the understanding process in the field, especially in the process of making Songket weaving motifs, so that the information translated in digital format is in accordance with the calculation of Songket weaving motifs in the field. The results of this study can be used as a reference in the process of digitizing *tulad* into digital format.

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