
The Act of Mass Production in Kelantan Traditional Pottery, Malaysia

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Abstract

The study of pottery artefact as been helpful in developing theories on the cultural development of societies that produced or acquired them. The traditional pottery of Kelantan as been known for its utility functions. Hence, this paper seeks to illuminate on the traditional pottery of Kelantan state in Malaysia. The paper investigates and reviewed the history of Malay pottery down to Kelantan pottery, and also analysed the techniques and processes used for mass production in Kelantan traditional pottery production.

This was achieved by first visiting four traditional pottery centers in Kelantan. The places visited include; Mambong Pottery in Kampung Ulu Sungai, Zutah Ceramic in Ceribong, Kesdec Ceramics in Pulau Chondong and Belipot Ceramics in Bunut Payong. The outcome of the visit revealed how Kelantan potters use plaster to create prototypes using turning wheel and thereafter use it to generate master mould and case mould for mass production.

Keywords: Act, Mass production, Kelantan Traditional Pottery

1. Introduction

Pottery is made by forming a clay body into objects of a required shape and heating them to high temperatures in a kiln to remove water from the clay and this induce reaction that leads to permanent changes and increase in strength. ASTM (2007) defines pottery as fired ceramic wares that contain clay when formed, except technical, structural and refractory products. Pottery also refers to the art of craft of the potter or the manufacturer of pottery wares (Paul R., 1988). The major types of pottery include earthenware, stoneware and porcelain (Allen D., 1986).

The study of pottery artefacts as been helpful in the development of theories on the organization, economic condition and the cultural development of societies that produced or acquired them. According to Tajul S. S. (2011), the art in Malay culture traditionally existed alongside with the invention of utility items. Kelantan traditional pottery is known for its utility functions and also has integral with local genius aspects. Hence, this paper seeks to illuminate on the traditional pottery of Kelantan state in Malaysia. The paper investigates and reviewed the history of Malay pottery down to Kelantan pottery, and also analysed the techniques and processes used for mass production in Kelantan traditional pottery production.

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2. Historical Background

Malaysia art has been greatly influenced by the external influences of the Hindu & Buddhist cultures, the advent of Islam in the 10th century, and the intrusion of the European colonial power like Portuguese, Dutch and British. Also the mass immigration of Chinese and Indian workers in Malaysia to meet out the ever increasing needs of the British colonial economy. Thus, Malaysia art forms are derivatives of Hindu art, Chinese art, British art, Buddhist art and Islam cultures (Wikipedia, 2011).

However, Mohamad S. (2005) stated that the presence of these external influences especially from China since the year 1100AD did not in the least influence the local potters. He stated that one reason was that the creative techniques of the Malays were still in the primitive stage. Their tools were simple and their pottery was fired at ordinary temperature without any form of control. Therefore, cottage industry pottery is still in existence in Malaysia today and the techniques and materials remain basically unchanged. "This is due to the lack of knowledge and skill in high firing technique and quality materials such as porcelain, bone china and stoneware" (Mohamad S., 2005).

According to Ham, R. K. (2005), traditionally in Malay communities, pottery was typically a woman's work which she would do once her chores were over. Malay pottery was first discovered in caves and excavation sites throughout Malaysia, this includes fragments of pottery found in Tembeling, Pehang; Bukit Wang Pisang, Bukit Tengku Lembu, Perlis and Bukit Cuping in Gua Ca, Kelantan (Mohamad, S., 2005). He further explained that the functional aspects of pottery and abundant clay resources where people lived leads to the history of pottery making.

Kelantan state is located in the East Coast of Malaysia Peninsular and is divided into ten provinces, namely Tumpat, Pasir Mass, Kota Bharu, Bachok, Tanah Merah, Pasir Puteh, Machang, Kuala Krai, Gua Musang and Jeli. Several articles discuss specifically about prehistory pottery in Kelantan, this include Tweedie M. W. F. (1953) who revealed the discovery of pottery wares in Gua Musang. Also Sieveking G. et al (1956) revealed the discovery of pottery wares in Cha cave, Ulu Kelantan.

According to Tajul S. S. et al (2011), the Mambong pottery in Kelantan as being in existence since 1868. Kelantan pottery is not only known for unique forms and techniques, but also the realistic aesthetic pottery tradition concept of art in Malay. However, the domination of Islamic culture in Kelantan has great influences on their pottery art. Some of the pottery wares produced by Kelantan potters are; kitchen wares, table wares, flower vase, flower pot, smoke pot e. t. c.

3. The Act of Mass Production

The Oxford English Dictionary defines act as the particular thing somebody does or the process of doing or performing something while mass production is define as manufacturing products in large quantities. Therefore, the act of mass production can be explained as the process of manufacturing products in large quantities. The increasing demand for Kelantan pottery wares due to its uniqueness and the seek for faster, easier and less costly production process by Kelantan potter as brought about the present method they use for mass production of their products. Therefore, this section illuminates the step by step approach used by Kelantan potter to mass produce their wares, its limitations and also briefly explain the materials and equipments they use.

3.1 Materials and Equipment

Local pottery makers in Kelantan community also works in basic science related material which includes the basic aspects of selection of materials suitable for use as clay to produce pottery that is easy to process forms, not fragile and has unique features such as colours and interesting effects of a mixture of natural materials. The mineral materials present in the clay composition used by Kelantan potters are Aluminium Oxide, Iron Oxide, Silica, Calcium Oxide, Sodium Oxide, Potassium Oxide, Phosphorus Oxide and Magnesium (Tajul S. S. et al, 2011). Each mineral has a material interest and function either as an alternative to facilitate the process of production work or it works as a media character who embody the aesthetic Kelantan pottery.

Some of the major materials and equipments used by local potter in Kelantan are; plaster, ball clay, glaze composition, oxides (e.g. red oxide), sodium silicate, clay mixer (plunger), turning wheel and gas kiln.

3.2 Production Process and Techniques

The process used in Kelantan pottery production is illustrated by figure 1 below.

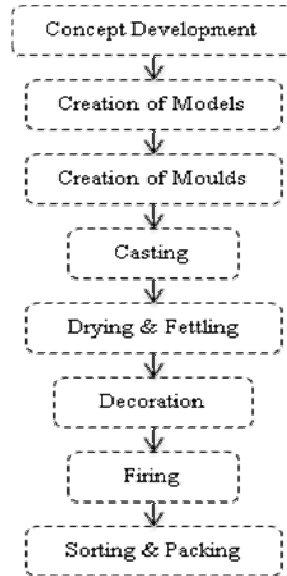


Figure 1: Mass Production process in Kelantan Pottery

3.2.1 Concept Development

This is the first stage of product development process used by potters in Kelantan. The product idea is brought out into well detailed 2D-drawings. This is achieved with the aid of some common drawing instruments such as pencil, ruler etc. Some potters also improvise the instruments they use at the stage. Figure 2 below shows an example of detailed drawings developed at KESDEC ceramics.

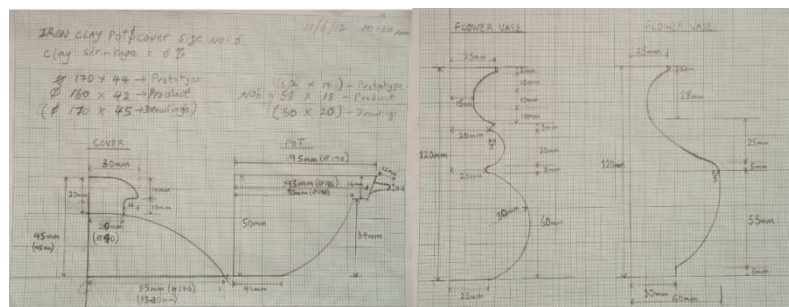


Figure 2: Detailed 2D drawing developed at KESDEC Ceramics

3.2.2 Creation of Models

The idea developed into detailed drawing is used at this stage as guideline to create physical models. The technique used is hand turning method and the material use for creating models is plaster. The plaster is mixed in the appropriate proportion with water and the mixture is allowed to solidify, after which the solidified plaster is mounted on the turning wheel (see fig. 3a) and the plaster is shaped out into desired form. This method as restricted most Kelantan pottery to perfect round shape because intricate geometric shapes cannot be achieved with this method. Figure 3b shows some examples of models produced with the turning wheel.



Figure 3a: Turning Wheel



Figure 3b: Plaster Models produced on the turning wheel

3.2.3 Creation of Mould

The technique used by Kelantan potter at this stage as three steps. Firstly, the plaster model created from the turning wheel is used to produce a master mould. Thereafter, the mould is used to create case mould and lastly, the case mould is then used to generate multiple master moulds which are then use for slip casting (mass production). Figure 4 shows how a case mould is used for creating master mould.



Figure 4: Pictures of how Master Mould is created from Case Mould

3.2.4 Casting

This is the stage where the master moulds produced from the case mould are used for slip casting. At this stage, the clay slip is prepared by mixing all the composition together. According to Mr. Wong (a potter interviewed at KESDEC ceramics), the composition of the slip used includes processed clay, water and few drops of sodium silicate. This composition is mixed together inside plunger (see fig. 5a) after which the slip is poured into the plaster mould. Casting takes between 30-90 minutes depending on the weather condition, as they all use normal atmospheric pressure casting (see fig. 5b).



Figure 5a: Images of Plungers used in KESDEC for mixing compositions



Figure 5b: Normal atmospheric pressure casting in Zutah Ceramic

3.2.5 Drying and Fettling

Fettling is the process of correcting parts that has any defect after casting process. This is done after removing the pieces from the plaster mould, after this, the wares are allowed to dry under atmospheric condition (see fig. 6) to reduce the moisture contents down to around 0.8%.



Figure 6: Drying of casted piece at KESDEC Ceramics

3.2.6 Decoration

There are different methods used by Kelantan potters to decorate their pottery wares. Some wares are decorated using glaze, coloured oxides and or carving/engraving.

- Glazing: it is interesting to realise that Kelantan glazed wares are fired ones (directly from green ware to gloss ware). After the drying process, the glaze is applied on the wares and then loaded into the kiln for firing process (see fig. 7). The common glaze application method used by Kelantan potters are dipping and brushing method. However, not all Kelantan pottery wares are glazed (gloss wares), some are bisque wares. Therefore, bisque product don't pass through this stage, they are bisque fired immediately after drying process.



Figure 7: Green wares ready for direct gloss firing

- Oxides: Apart from glazing, some wares are decorated with coloured oxides. This is applied using brush as the ware rotates on the turning wheel (see fig. 8).



Figure 8: Decorating with coloured oxide

- Carving/ Engraving: Kelantan pottery wares are also decorated by carving/engraving on the surface of the wares. Kelantan potters use natural patterns on wares; these include the combination of dots, lines or patterns of flowers and leaf (see fig. 9). This is due to the influence of Islam culture as most (if not all) Kelantan potters are Muslims. Islamic culture encourages natural forms and styles but rejects portrayal of figures (Mohamad S., 2005).



Figure 9: Pictures of wares with engraved/carved patterns

3.2.7 Firing

Firing makes physical and chemical reaction takes place on the ware and gives it a fixed shape. The common kiln used by Kelantan potters is gas kiln. Glazed wares are fired to 1200°C while bisque wares are fired to 1000°C. Figure 10 shows a gas kiln at KESDEC ceramics under firing operation while figure 11 is a gas kiln at Zutah ceramics loaded for firing.



Figure 10: KESDEC's kiln under firing operation



Figure 11: Loaded gas kiln at Zutah ceramics

3.2.8 Sorting and Packing

After firing, the wares are sorted to separate wares with defects from the successful ones. Therefore, wares without defects are package for selling or dispatch (see fig. 12).



Figure 12: Packaged finished products

Source: Zutah Ceramics

3.3 Limitations of the method

The method used by Kelantan potters for mass production of their pottery wares has some limitations, these include;

- The Subtractive method (hand turning) used for creating the models/prototypes waste materials (plaster)
- The plaster models can only be use once for creating master mould. This is because does not have enough strength to withstand long usage, therefore potters loss their models after using it once to create master mould.
- The hand turning method used in creating models restricted them to perfect round shapes for their products. This limits their creative ability to a specific shape.

4. Conclusion

Mass production , a process of producing products in large quantity as being a process employed by most manufacturers so as to meet up with consumers demand by reducing production time and also the cost of production. The said process has also been widely use by potters in Kelantan state of Malaysia.

Therefore, this paper has been able to investigate and illuminate on the systematic process used by Kelantan Potters for mass production. This paper reviewed the production process from the conceptualisation stage to realisation stage and also analyse the limitations of the method.

Acknowledgement

I sincerely appreciate my supervisor Ass. Prof. Ab Aziz Shuaib for his moral support and encouragement during the process of writing this paper. Also I would like to thank KESDEC Ceramics, Zutah Ceramics and Belipot Ceramics centre for their support and permission to use their factories for the purpose of this research.

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