

The Analysis of Technical Design of Special Effects in Musical Theatre Performances at Istana Budaya

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Abstract: *The aim of this paper is to examine the materials and techniques of technical production of special effects used in musical theatre performances at Istana Budaya. Musical theatre is a type of theatre that showcases various elements of awe in its performances. Local productions are non-exceptional in this and most of them are now performing in Panggung Sari, Istana Budaya, Kuala Lumpur, Malaysia. Feedbacks towards musical theatres at Istana Budaya have becoming more extravagant as each performance portrays lots of magical elements and more technical special effects (the designs of technical special effect that are mesmerizing). Research on technical designs (building structures and creation of technical special effect) and technical effects are done in intention to comprehend and analyze the technicalities of special effects such as building materials, techniques, energy sources, method of implementation and the impacts of it in musical theatre productions particularly in Istana Budaya. There are three selected materials used in this research, and they are "Aladdin the Musical" (2007), "Puteri Gunung Ledang the Musical" (2006) and "Cats the Musical" (2002). The artworks are selected based on certain staging elements of musical theatres such as its ability to be sophisticated, the use of technology and the strong theatre building. In contrast, in Malaysia, only simple or basic equipment and techniques are utilized to enhance the magical elements in musical theatre performance which is by using special effects and technical design. The research findings are based on qualitative studies undertaken at Istana Budaya in the year of 2014-2016, among directors, designers, and artistic team, by using semi-structured interview. The interview consists of responsive materials from performances observation as well as analysis of the design materials or artifacts such as drawings, photos and viewing the recorded video. This paper is discussing the technical designs in musical theatre performances that are helpful in providing beneficial guidelines and solutions on the technical impacts of special effects in context of Malaysian theatre performances.*

Keywords: Musical Performance, Stage Design, Stage Effects, Scenography, Technical Theatre.

I. INTRODUCTION

The field of theatre in Malaysia, specifically technical design of special effects is something new, unpopular as other industrial areas (e.g. business, medical, production, etc.) and not yet well known. By referring to various written materials, it proves that writings on technical designs of special effects of theatres have not been implemented widely and extensively.

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In Malaysia, there is less expertise or emphasis used in the field of technical theatrical designs. The one that are practiced now are simply self-taught while designs are created. In today's learning system, the field of technical design of theatres is not introduced in formal and expansive study. At the same time, there is no expert who is more professional or discerning about the field of technical theatre design in Malaysia, especially in Istana Budaya. Some of the productions also apply self-taught practices throughout the manufacturing and creation period. Najiffaizal Mohd Tawel, (personal interview, October 5, 2015) also states that "the expertise or technical skills of the theatre arts is still at an unfamiliar level with foreign countries such as Hong Kong or western countries that are far superior to producing specialists in technical stage and theatre art". Technical expertise plays an important role in the production of additional musical theatrical performances performed at Istana Budaya which involve large scale both in terms of cost, concept and story allocation.

Hence, in gaining the effectiveness of technical production of special effects, the knowledge and learning of the Istana Budaya stage technical system must be explored together with the idea and the concept of a large-scale performance such as musical theatre. Musical theatre production usually has a concept that employs Istana Budaya stage technology. However, the problem starts arising when a small group or production was appointed to stage a musical theatre at Panggung Sari, Istana Budaya. Musical theatres in Malaysia are not only staged at Istana Budaya. In fact, there are other stages that are not built with advanced technology tools. Lack of technological facilities presents challenges to designers in providing good technical designs. Guides and information from referred writing materials on theatrical technical fields also are still inadequate to help with the implementation of more specific designs.

The staging of musical theatres requires sophisticated, high technology and strong theatre building. However, Malaysian theatre performances utilized only basic equipment. Most theatre productions in Malaysia only use the hall, the auditorium and others simple elements even though musical theatre genre requires a more complete technical theatre (the use of newer, sophisticated and technical equipment). However, at Istana Budaya, there are stage facilities created especially for theatre performances, including the availability of advanced technological equipment, the physical structure of buildings and the main stage of Panggung Sari that has the type of proscenium theatre.



Najiffaizal Mohd Tawel, a set designer at Istana Budaya (Personal interview, October 5, 2015) also believes that most theatre plays in the theatre city of Kuala Lumpur still do not have complete technology facility or perfect base facility for a theatre stage. Referring to the three study materials, "Aladdin the Musical" (2007), "Puteri Gunung Ledang the Musical" (2006) and "Cats the Musical" (2002), it was shown that all musical theatre productions demand technical of stage technology such as stage lift, side wagon, portal bridge, side stage equalizer, rear wagon, flying bar or cyclorama. In addition, the use of the stage is appropriate for the musical genre where musical production also demands comprehensive space utilization including play space, wing room, apron space, backstage space, loading bay and so on.

Musical Theatre

The existence of diversity of concepts and style of theatrical performances has begun to take place in the Renaissance period of the revival of theatrical performances. Brockett (1984) states that,

During the eighteenth century, the theatre extended and consolidated the trends that had begun during the Renaissance. Throughout this century, the neoclassical ideal remained dominant, although its authority was challenged by a number of innovations and minor forms. The theatre also continued to gain prestige and to expand into new territories. (p. 123).

The presence of genre diversity (concepts and presentation styles) is also influenced by the creation of more precise and practical visual design visuals. Technical designs were first applied in Italy and also France which originally used large drawings as backdrops on wing and cyclorama. The use of large painting decorations has been more significant when the neoclassical theatre days in Italy and France have begun to prioritize diversity or universal stage for being able to play various theatre genres (concepts and styles of performances).

Demand for admiration for a theatre has become a focus and has given rise to special effects in medium sets and props. Brockett (1984) explains that, "since settings were generalized in accordance with the neoclassical demand for universality, a large number was not needed, and the same setting was used for many different plays. Pantomimes, operas and a few plays, however, demanded more detailed scenery and elaborate special effect. In these cases, new scenery was specially designed and widely advertised" (p. 125).

In the 18th century, a set designer, Philippe Jacques De Loutherbourg (1740-1812) made his appearance. He has invented few designs in Drury Lane by drawing a number of sketches like stone, mountain, grass or fence to create a natural sense of illusion, distance and space on stage. The result of his interesting idea led to the staging of theatre that later began applying and employing the designer set in each show. Parker (2003) explains that most types of theatrical forms involve the designer. The most obvious are the literary form or drama, emphasizing the spoken word; the musical form, including opera, book musicals, and revues, in which music tells part of the spoken word matter most. (p. 3).

Parker's statement shows the importance of the designer's role in a musical theatre production in visual inventions based on script analysis. The theatre industry in Malaysia is also no exception where most of musical theatre will ask the designers of designs to play a role in the creation of artistic designs of scenography elements especially sets and props, costumes, make-ups, lighting, sound and audio.

In musical theatre, the element of admiration is interconnected between the whole act, the scenography element and the technical stage. Through description given by Noresah Baharom (2010), the definition of the word 'admiration' means intimacy or amazement (p. 654). While Rockwell and Mau (2006) state that, "but I'm using "spectacle" to mean and event loaded with magical possibilities, one that inspire awe" (pg. 20).

Rockwell and Mau (2006) explain that spectacles are larger-than-life events and, most importantly, visceral experiences.

This is reflecting to Jean Fadding (2006) edition, who claims that spectacle will take you into vastness, it makes you feel expansive and grateful (p. 50).

Musical theatre exhibits magical elements (a miraculous and beyond reality) in some actions for the purpose of giving variants and surprises to the audience. The situation also took place in the local theatre industry in Malaysia, which always featured the application of magical elements in the show to find the difference, uniqueness, surprise, and identity to a show.

Technical Design for Stage Effects

The design process starts with the identification of the scene and the background of the place contained in the script. The creation of design requires the designer to review the texts multiple times to obtain the best quality of ideas for design. Scrutiny of scripts is made in detail to drive creative and innovative design revenue.

The creation of technical designs should be guided by some laws or design principles. Design is a creative creation or innovation of a subject. The creation of an inventory design needs to undergo several initial processes including preparation planning, technical drawings, models, group discussions, references or race. A design is created on three key points (formed from design, creative and innovative principles) that also affects the nature and use of it. Users' understanding and the environment is an important part of giving perfection to the inventory function created. A design should cover the field of theatrical performances, especially for the technical stage. Inventory creation also has the utility of technology and engineering. The three characteristics should be related and each one is tied to a result of creation. According to Adegbite (2010), the technicalities, as well as the dynamics of aesthetic elements of technical theatre are critically being considered via the utilization of lighting, props, lighting effects, sound and set designs. In an attempt to 'reinforce' the explorative tendency for "Sunset in the Noon?" project, the above elements must be carefully selected to give more meaning to the production.

As said by Adegbite (2010), it means that the theatrical technical design also covers the overall aspect of presentation. The technical design also involves the lighting, sets and props sections, the audio incorporated according to the creativity of the designer in order to convey the message to the audience through the image on the stage. Adegbite argued that technical lighting in the show had a more dominant effect on the audience.

The existence of technical use of lighting is directly linked to the purpose of clearing, identification and determination as compared to other parts.

All three key points have helped give a clear understanding to the audience about the actions that take place on the stage. Even, technical designs and special effects are more fuel-induced by technical illuminations which have a greater impact on mood creation, understanding, symbols and even clarity on the action shown.

The readings of scholarly articles have shown that a technical design for the production of special effects is not aimed at providing comfort to the audience or the production party alone. Instead, it demands the creation of a technical inventory that seeks to uniqueness, originality, and innovation that are different from other musical theatre products through technical special effects. Additionally, musical theatre needs a lot of surprises or amazement along the show.

The Stage of Istana Budaya: Technology and Technicality

Istana Budaya is an institution operating under the Ministry of Information Communication and Culture (KPKK), located in Kuala Lumpur, Malaysia. Istana Budaya has a proscenium stage equipped with advanced technology, audio system and lighting fixtures. The main stage known as Panggung Sari is located in an iconic building of Istana Budaya. The stage is created for a variety of performances either in dance, theatre, or in music with a total audience seat of 1,421 units. Panggung Sari is built with a stage performance of theatre with a floor area of 21,000 square metres placed in an area of 5.44 hectares. Panggung Sari features a wide range of technological advances including technical parts. Physically, the proscenium stage has some partial fragments known by the terms based on different functions such as Proscenium arch, stages, wing, apron, orchestra pit, auditorium, proscenium stage equipment, fly loft, fly systems, and stage drapes.

The construction of the main stage of Panggung Sari is divided into four different layers. Stage layers are mobile which can be adjusted to the height that you want to determine. The proscenium stage structure is also built with mobile properties equipped with an electric system. Its physical stage has a width of 14.2 meters and a height of 11.0 meters. It can be broken into 4 parts in horizontal order. Each stage has a width of 14.2 meters and has a length of 4 meters which is a vast area that can still accommodate the creation of a large set. Its heaviest and heavier nature with 350cm thickness is incapable of being lifted or driven by the ability of manpower. Hence, a mechanical technical system is installed on stage as a motor and hydraulic system that can accommodate and move the stage in vertical direction (from the top and bottom levels).

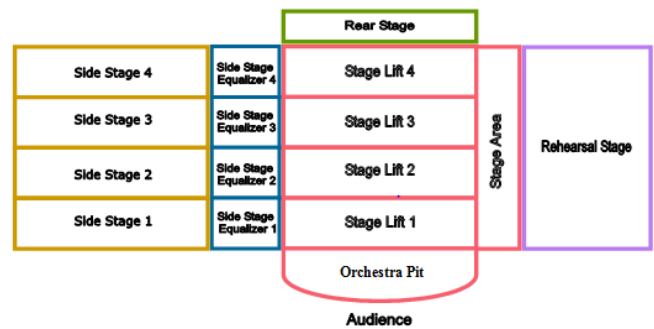


Fig. 1 Istana Budaya proscenium stage distribution with mechanical system and motorize technology

The technology and technicality of Istana Budaya, the Panggung Sari proscenium stage fixtures or equipment are still inadequate to produce amazing diversity of ideas and effects. As a result, various technical designs and its support system are required in creating special effects to help designers realize the ideas of directors on stage space in diverse form.

II. THE DISCOVERY OF TECHNICAL DESIGN OF SPECIAL EFFECTS IN MUSICAL THEATRE PERFORMANCES

Technical designs in musical theatres in Malaysia also apply the technical design process. The reversal of the technical design process also took place in the three production studied, which are "Aladdin the Musical", "Puteri Gunung Ledang the Musical" and "Cats the Musical" performed at Panggung Sari. The technical design of special effects is also non-exception in the preparatory stage during pre-production phase. The designs were performed on scripts breakdown, graphic preparation, technical impact manufacturing process materials and special design techniques of special effects.

The performance of "Aladdin the Musical" applies a total of four technical effects that have different design techniques such as technical special effects of Genie and the Magic Lamp, by using a holographic / display system, technical special effects of Fly-Offs using a ground/roller coaster, technical special effects of Wizard's Cave that uses the suspension structure system and another technical effect of the Wizard's Crescent Moon Specialist that uses the chain-cycling system. "Puteri Gunung Ledang the Musical" has displayed a total of four technical effects which each use different system of engineering. Among the technical features of the special effects contained in the performance are like Gunung Ledang which implied the technique of wheel - push structure, Gunung Ledang Waterfall which applied fabrics overflowing technique, Sea Java using fabric discharge/ propulsion technique and also Pinisi screens using human labour-push and pull.

In the "Cat the Musical" contents of technical special effect namely as Magical Transformation of Mr. Mistoffelees which involved the use of harness and also Magical rounds of floating tires which applied a perfect hydraulic motor system or cylinder.

Several visual of special effects in the musical theatre performances are shown as follow.



Fig. 2 Special effects that are applied in “Aladdin the Musical (2007)”(top left) Genie and the Magic Lamp; (top right) Flying Mat; (bottom left) Wizard’s Cave; and (bottom right) Wizard’s Crescent Moon. Photos by Irwan Ismadi, Artsitic Director, 2007



Fig. 3 Special Effects that are applied in “Puteri Gunung Ledang the Musical (2006)” (top left) Gunung Ledang; (top right) Java Seas; (bottom left) Java Pinisi Ships; and (bottom right) Gunung Ledang Waterfall. Photos by Raja Malek, Set Designer, 2006



Fig. 4 Special Effects That Are Applied in the “Cats the Musical (2002)” (left) Magical Transformation of Mr. Mistoffelees; and (right) Magical Floating Tires. Photos by Nik Rahimi Nik Mansur, Technical Director, 2002

Based on technical ideas derived from all the technical designs of special effects production, it is clear that to realize a set of innovative features in theatre performances is something that is not impossible. All technical designs used in the performance of selected musical theatres are among the best examples to be guided by any future technical de-

sign creation products. But such a kind of mechanical application should have the appropriate suitability and purpose with the wishes of an action to be disclosed.

The creation of technical designs is subjective but each one has their own uniqueness in translating a creative and innovative idea. Likewise, all the technical designs are embodied in the selection of musical theatre of choice for this research. All ideas and also the technical effects of the special effects have unique distinctions both in terms of impact, design ideas, techniques, usage concepts, material usage, size and physical build, specification and functionality as well as their ability to contribute to the amazement of the stage. Each of them; the technical design of the roller coaster, the technical design of the display / holographic, the technical design of the locked hangar structure, the technical design of the chain, the technical design of the wheeled / push structure, the technical design of the human system - push / pull, design disassembly technical fabric / fabric strips, fabric overflow technical design, hydraulic cylinder system technical designs and even harness / harness technical system designs has clear distinctions in which each expresses different visuals in the use of techniques or approaches different.

But, there are also manual methods or approaches that are implemented in the creation of technical designs of special effects. It means that there is a technical design creation that does not apply technology in its operation. Some technical designs are intended to be manual in order to provide a sense of aesthetic of traditional presentation concepts. Technical designs are manual operations driven by human resources and processed according to creative choreography ideas. For example, technical designs that use manual operation (human resources) are as in the technical impact of Gunung Ledang in the performance of "Puteri Gunung Ledang the Musical".

The technical design of manual operations is intended for the purpose of fulfilling the background of the manuscript which is the historical story of the previous history. The changes made by the stupa design that can change and collide form the background of places like Mount Ledang, Waterfall, Javanese Palace and Kraton complex in Java become unique in terms of processed and choreography of a structured and wheeled stupa set. The design of the stupa creates a disparity in the operation and techniques that are manual but still show admirable visuals in the stage.

The analysis result of this study found three energy resources or controls system, equipment and technique that support in handling the set and props, in order to support the visual of technical effect in performances. The three energy resources are electric and electronic systems, human capabilities and technology. Electric and electronics are two combination elements to produce a complete mechanism of either the machine or the motor vehicle. Human capabilities refer to the mobile system, concept or materials that utilizes manpower or human-resources in all its operations. Technology refers to an advanced technical product creation, a new idea, innovation and convenience for consumers.

In the context of technical creation of special effects in the performance of selected musical theatres, a technical design that applies all three components is shown below.

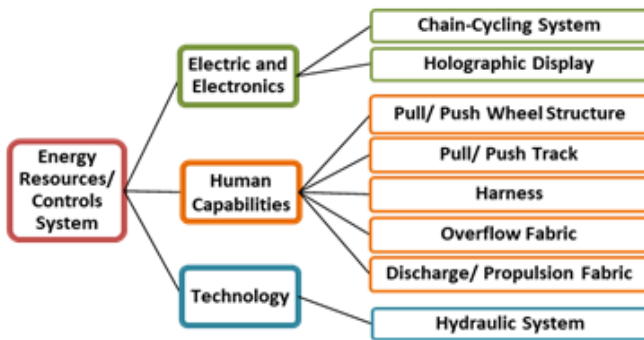


Fig. 5 Types of Energy Resources in Controlling an Handling the Technical of Special Effects

Table. 1 List of Building Materials, Technique and Energy Resources for All Special Effects of Technical Designs

	Technical Special Effects	Production Performance /	Energy Resources / Controls	Building Materials / Manufacturing
1	Genie and the Magic Lamp	Aladdin the Musical	- Electric and Electronic - Human Capabilities	Film, iron and iron wire.
2	Flying Mat		Human Capabilities	Iron, plywood, polyfoam and wood.
3	Wizard's Cave		Human Capabilities	Iron, plywood, polyfoam, iron rod, iron wire and wood.
4	Wizard's Crescent Moon		Human Capabilities	Iron, plywood, polyfoam, rubber wheels, iron chains and wood.
5	Gunung Ledang	Puteri Gunung Ledang the Musical	Human Capabilities	Iron, plywood, polyfoam, rubber wheels, iron rods and wood.
6	Java Seas		Human Capabilities	Fabrics (ponji)
7	Java Pinisi Ships		Human Capabilities	Iron, plywood, polyfoam, rubber wheels, iron bars, wood and fabrics (ponji).
8	Gunung Ledang Waterfall		Human Capabilities	Iron, plywood, polyfoam, rubber wheels, iron bars, wood and fabrics (ponji).
9	Magical Transformation of Mr. Mistoffelees	Cats the Musical	- Electric and Electronic - Human Capabilities	Iron, rope and strap (harness).
10	Magical Floating Tyres		- Electric and Electronic - Technology	Iron, board, plywood, wood, rubber, carbon dioxide gas and hydraulic machine.

The special design features of the special effects become an important thing in ensuring whether an action can be visualized effectively and affects the presentation. Overall, all the detected technical traits have the same design features. Designers (Fairuz, Raja Malek, and Napier) have created technical special effects with features such as flexible, control-friendly, portable or lightweight, structured, generating creation functions, new, impact and safe to be use. Flexible features mean an invention that can easily be controlled by both performance and actors and provide the operating system in the technical creation of special effects that can be used multiple times.

According to the analysis findings of these three performances, there are ten technical special effects in the productions namely as Genie and the Magic Lamp, Flying Mat, Wizard's Cave, Wizard's Crescent Moon, Java Seas, Gunung Ledang, Java Pinisi Ships, Gunung Ledang Waterfall, Magical transformation of Mr. Mistoffelees and Magical Floating Tyres. The energy resources and building material used in technical special effects of "Aladdin the Musical", "Puteri Gunung Ledang the Musical" and "Cats the Musical" are showed as follow.

Furthermore, the safety features in the inventions also lead to the designer to reveal a complete design with the quality of the exterior decoration. The technical design features that are capable of impact are meant to be a technical creation of a special quality effect and contribute to the admiration or a result of the technical creation of special effects that are attentive and meaningful to an action showcased in the show. Characteristics of inventions capable of contributing to the impact are among the most important in the formation of special effects of musical theatre performances.

The ten technical distinctive effects used in all three productions make good impacts either from the point of view of the audience or the performance. Every production wants its products to be produced well without any hassle. In fact, the satisfaction of stage designers in every production wants a satisfactory practical job creation.

Raja Malek (personal interview, November 29, 2015) also believes that "as a production designer, I am responsible to fulfill the interests of the director himself. But, actually I prefer to produce something fresh and new, something never explores by others, nevertheless the results can be displayed on the eyes of the audience itself directly on stage". However, the technical effects of special effects applied in a production are closely related to the applied design technical approach. The functionality and purpose of a special effect that determines the suitability of the choice of technical designs to be used.

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The special features of technical special effects help support the performance of the action in the musical theatre that was formed to give admiration, surprises and variations in musical theatre performances.

III. CONCLUSION

This article is set out to examine the materials and techniques of the technical production of special effects utilized in the musical theatre performances at Istana Budaya. It is also to develop the theatre design community to find gaps from the previous literature by identifying some guidelines in choosing the right materials and proficiency throughout the theatre designing process in the context of technical special effects. From the results of the study, all three components of energy resources/control system (electric and electronic systems, human capabilities and technology), play very important roles to give suggestions of potential materials to be used in creating special effects in the performances. The types of special effects created in the chosen musical theatres are not simply directed at providing comfort to the audience or formed a batch of surprises or amazement along the performance alone. Or else, it demands the creation of a technical inventory that seeks to uniqueness, originality, and innovation that can be explored to design a performance not only at Istana Budaya, but likewise in other places or situations. Essentially, the idea and technique in theatre practice will get the knowledge and experience for other interdisciplinary field to research and experiment with.

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