



University of the  
West of England

**A REVIEW OF THE MALAYSIAN FILM INDUSTRY: TOWARDS  
BETTER FILM WORKFLOW**

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## ABSTRACT

This thesis investigates the existing film workflow processes in Malaysia and aims to explore, review and reflect on the expectations, experiences, preferences and problems experienced by practitioners. In-depth examination of real practices of colour film workflow, investigating the common myth among Malaysian filmmakers that environmental colour temperature affects the image quality of Malaysian films. Analysis of this myth may help to establish why many Malaysian films have been processed through foreign laboratory.

Evidences from film industry were recorded through qualitative video documentation, alongside quantitative data from filmstrip test. This mixed action research method forms the main approach collectively with participatory action research as a tool to narrate the development of the research. In justifying the data, an explanatory mixed method design has been applied. The cooperation with expert witnesses in finding a solution to the research problem brought to the circle of practice-based research processes that validated the research. This validation becoming a central of investigation about the Malaysian film workflow complication. The initial technique (pursing the myth of colour temperature variation) proved inadequate, and, consequently, a broader action research methodology was adopted. As such, the filmstrip test data were used more as a tool to enhance the contributions of the expert witnesses, thereby shifting the direction and strengthening the research findings.

This research also proves that the method applied has created new evidence of knowledge transfer in historical and film development context and hoped it could transfer to solve other film industry problem. This development of new knowledge could provide a significant opportunity for future potential research, which will strengthen the colour workflow processes and lead to the development of film practices in Malaysia and the surrounding areas. Furthermore this research to suggest solutions to the current complications of workflow practices among educators, government agencies and filmmakers in the Malaysian film industry.

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Abdul Riezal Dim

## **1.0 Introduction**

### **1.1 Research Background**

As an academic and cinematographer specializing in the area of film production, this research initially aims to review, reflect on and observe Malaysian film workflow processes. My first preliminary observation is that there is some inconsistency in terms of film workflow within the Malaysian film industry. In order to test this hypothesis, I will explore and investigate the common myth amongst Malaysian filmmakers that environmental colour temperature affects the image quality of Malaysian films. This may help to establish why many Malaysian films have been processed using foreign facilities and expertise.

Having experienced the deterioration of the Malaysian film industry while I was working at Malaysia National Film Development (FINAS) since 1993, and currently as a Malaysian film academician, the problems that may inhibit the creative and technical potential of Malaysian film have been perceived at first hand. In order to contribute to and develop the Malaysian industry in the future, I wish to conduct research that may assist in identifying and improving aspects of film workflow management that are particular to the Malaysian film industry.

Part of this research involves video interviews with film practitioners, and, equally important, is an examination of actual film workflow practices in the Malaysian film industry. At the beginning of the research, I intend to explore systematically how colour temperature affects light and how the depiction of light works in colour reproduction in film workflow. The result from the experimentation would become one of the data examples of colour differences, this data becoming the relevant factor to prove there were colour differences had we been using foreign expertise and facilities. These results from this experiment would be one of the factors to enhance an understanding of workflow practices.

I have adopted a participatory action research methodology incorporating into the discussion of workflow issues the participation of the expert witnesses from the film industry who I have interviewed. Key moments from these interviews are included in the appendixes.

### 1.1.1 Problem Statement

Selecting the Malaysian film industry as a case study, this research will examine and reflect on the theory and practice that has been applied in the Malaysian film workflow. With regard to existing film technology and industrial film expertise in Malaysia, how much do the Malaysian filmmakers optimise and get benefit through it? Many technical applications have been developed but most practitioners in the Malaysian film industry consider that foreign technology and expertise are better than the local. The question is how does it influence image production in colour film workflow in the Malaysian film industry? How does the local expertise compare to foreign expertise? Can the Malaysian filmmaker be justified in simply saying that shooting in temperate countries enables better colour temperature than tropical ones? This particular subject will be discussed in chapter 4, with reference to the discussion and reflection with Malaysian filmmakers.

This research is also related to an anthropological approach because it focuses a good deal of attention on what various people do with visual material (Gillian, 2007). Based on evidence gathered through video interviews conducted with selected Malaysian filmmakers, the visual material, which is the film medium, has often been exploited wrongly in the application of film workflow. For example, one of the directors of photography said:

Even to decide on colour filters the Producer or Executive Producer will raise a lot of questions. I haven't seen in Malaysia somebody presenting a colour palette, it is very rare (Maharam, Appendix 3, p. 237).

This is one example of how filmmakers in Malaysia relate to their visual material. It seems inappropriate to procedures of standard colour film workflow and this will engage with the research problem of the knowledge transfer in the Malaysian Film Industry.

In relation to the Malaysian film workflow processes, we still need a lot of research and references in this area. In my experience, trying to find references concerning the subject of Malaysian film production was very difficult. What we have in some written catalogues are facts relating to filmmakers' biography, lists

of classic films, marketing and management in film or former filmmakers' personal experience of the Malaysian film industry. However, Herwina Rosnan notes:

However, despite the potential economic contributions of the film industry, little attention has been given by scholars other than those from culture and media studies. Furthermore, studies on film industry focus only on major global film industry like Hollywood in the USA and Bollywood in India (Rosnan, 2012, p. 325).

The little or no concentration on the Malaysian film industry in scholarly writings referred to by Rosnan above is one of the factors why I want to explore film workflow production processes. I would like to open up this research, not only by seeking to review the colour film workflow processes, but also in trying to clarify the history of colour film workflow processes in the context of the Malaysian film industry. This research problem of the limited of attention towards research and development in the Malaysian film industry would be one of the important factors complicating the Malaysian film workflow. Whereas in this research the expert witnesses are the ones who contribute to the historical context of film workflow processes history. And the film medium is the proven data to justify the statements from the expert witnesses and this would be a practice-based research documentation.

From the preliminary research that have been done throughout this research, the myth among Malaysian filmmakers, which says that shooting in temperate countries is better because they have better lighting colour temperatures. Most filmmakers that have been interviewed for this study say that they agree with the myth. Some of them have experienced that shooting in temperate countries produces better colour temperature:

They thought the videos are shot in film because they had never seen DV quality that was shot somewhere else beside Malaysia, Singapore or any Asian region. We were surprised and thought it might be the climate. My partner went to the US and did the same thing and he also discovered that is a different colour temperature. So we came to the conclusion that

probably the climate of the location where we shot affected our footages (Isazaly, Appendix 3,p. 236)

As is evidence in the above extract from an interview with Isazaly, the perspective of the standard of film workflow processes was related to film workflow in production and postproduction stages. In film workflow, colours change in several stages either in the capturing, scanning, postproduction or printing stage. Kris Malkiewicz illustrates in the quotation below that a cinematographer must imagine and create light:

One of the most important abilities of a cinematographer is to see light and to remember it (Malkiewicz, 1986, p.1).

This related to colour temperature characteristics in visible light has important applications in lighting techniques for cinematography, photography, videography, publishing, and other fields. The exploration of the myth among the Malaysian filmmakers would be one of the factors to justify in systematic method to dispel this myth through the participatory action research and the filmstrip experiment.

To establish a clear basis for examination and justification, there will be a need to create and use a detailed analysis of current assumptions and practices to inform and illustrate theories and practical processes of film workflow in the Malaysian film industry. Employing the universal standard of the film workflow approach, I will reflect upon the practical and theoretical aspects of the actions and settings of strategies to develop Malaysian film workflow. This will be supported through critical enquiry from video interviews and through the practical application of the process of film production. The dialogue between this critical investigation with the expert witnesses and my studio experimentation is crucial to the parallel exposition of my argument in this research.

Through this detailed analysis of film workflow through the anthropological and technical factors from selected filmmakers, I shall determine current assumptions and problems within the Malaysian film industry as a means of gaining insight into better film management workflow in Malaysia. Further details of this subject will be explained in chapter 5 where I present the Malaysian filmmakers' reflection on technical data and the analysis.

## 1.2 Research Aims and Objectives

The aims of this research are:

- To review, identify and examine the development of the film workflow process, in the current context of the Malaysian film industry, practitioners in the field and original interview material from the expert witnesses in the industry, and clarify why Malaysian film directors go out of the country and utilize foreign expertise.
- To test and analyse particular elements in the film workflow processes for justification of the standard universal film workflow from the perspective of Malaysian cinema. These justifications reflect the views of the practitioners in the industry and are used to analyse the shortcomings of the Malaysian film industry and for making recommendations.
- To get involved in a participatory process concerning the development of the Malaysian film workflow by bringing together action, reflection, theory and practice, in participation with Malaysian film practitioners. This will be realised throughout by, first, interviewing Malaysian filmmakers; second, finding evidence on filmstrip tests, reflecting and discussing the data from the experimentation with expert witnesses; and, finally, documenting and making recommendations about the film workflow processes. All the processes and evidence from the Malaysian film industry have been recorded through written argument and video documentation.

The objectives of this research are:

- To examine and analyse, in both a textual and industrial context, the Malaysian film workflow. This will be defined by using an action research approach, the researcher has been involved in the industry by interviewing Malaysian filmmakers and letting them express what they think and feel about industry film workflow.
- To observe and comprehend the technologies and equipment employed in Malaysian film workflow. Through this, the researcher will justify the equality of Malaysian film workflow technology through the current of the latest standard film workflow.
- To study the filmstrip test application in Malaysia's film industry through expert witness as a platform to the discussion, reflections and

contextualization of my practice. In order to do this a test strip of the same environment/lighting condition, medium and application was made and processed by the different laboratories that have been utilized by the practitioners in the Malaysian film industry.

- To experiment and produce a filmstrip test as an evidences of justifying film workflow processes that has been applied in the Malaysian film industry and compare it to Thai film workflow. The researcher has undertaken participatory action research and shot several filmstrips in various applications with an expert witness according to common shooting environments in Malaysian film practice.
- To enhance the participatory approach, the researcher became involved with several filmmakers in his data sampling experimentation. Malaysian filmmakers participated in demonstrating their expertise in particular sections throughout the film workflow processes in the filmstrips experimentation and reflection from the experiment results.
- To gain greater understanding and knowledge about film workflow management and the shooting approach of Malaysian film based on researcher interaction with Malaysian filmmakers.
- To explore, plan and reflect on the responses of Malaysian filmmakers regarding film workflow difficulties and challenges in Malaysia, and use the findings to establish a benchmark to develop, modify and improve film workflow practice and standard policies in Malaysia.

### **1.3 Context of the Research**

Through focusing on current Malaysian film practice, this research examines the theory and practical application of film workflow in the Malaysian film industry. As Swartz states:

film workflow includes several film-processing steps in production and post-production filmmaking (Swartz, 2005).

A workflow consists of a sequence of connected steps. It is a depiction of a sequence of operations, declared as the work of a person, a group of persons, an organization of staff, or one or more simple or complex mechanisms. Workflow may be seen as any abstraction of real work, segregated in workshare, work split

or other types of ordering. For control purposes, workflow may be a view on real work under a chosen procedure of working condition, thus serving as a virtual representation of actual work. The flow being described often refers to a workflow in production and postproduction, whereas in this research it refers to the utilization of foreign facilities (laboratory and post house). These processes would affect the monitoring, quality control and creativity because it is being transferred from one step to another. More widely it has been transferred from local production to foreign facilities.

The traditional film process can be described as an optical workflow –the process that existed before digital technology. Piccione describes this as an optical process:

Film was replicated and special effects were created optically (Piccione, 2011, p.159).

As described above, in a traditional film process the workflow will begin from field production shoot, one-light dailies, timed or graded dailies, contact printing, optical printing, rotary or continuous printing, editing, optical duplicate negative, negative assembly, cut negative, inter-positive, duplicate negative and at the end check print or release print.

Currently with digital technology, dailies are more typically viewed electronically. Faster scanning technology has allowed film-to-digital transfer much earlier in the process; film workflow nowadays is also called digital workflow. According to the American Society of Cinematographers:

It is the new emerging production workflow that integrates digital technology into the traditional film workflow, a system that mixes traditional silver-halide technologies with digital imaging technologies (ASC, 2009).<sup>1</sup>

The film images will definitely be changed through film workflow processes according to what type of approach is applied in the workflow. These workflow processes will require various types of expertise according to the different

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<sup>1</sup> The American Society of Cinematographers (ASC)

technologies employed. The film workflow processes and image re-production in film workflow will be the important factors on which I need to concentrate.

This research will focus on optical film processes in production stage and digital medium in the post-production processes. This implementation is still relevant in the digital migration processes in the Malaysian film industry. The focus is mainly on the process of transferred film materials to foreign facilities and at the same time the uses of foreign expertise. Material gathered from researcher discussion with Malaysian filmmakers suggests there might be a lack of understanding in the Malaysian film industry about film workflow (Specific interviews will be seen on the transcribes version) as an appendix. This research hopes to develop better workflow practice and it will inform the industry practice concerning the current situation of the Malaysian film workflow.

#### **1.4 Purpose of the Research**

Initially, this research began with a process of literature study, past experience with film practice, and gathering feedback from discussion at conferences. Interviews were carried out in preliminary research processes with several Malaysian filmmakers about colour temperature differences in Malaysia compared to temperate countries and film workflow processes application in Malaysia.

Through interviews, specific reading, observations and discussions with the research supervisor, a decision was made for the study to focus on the film workflow in the Malaysian film industry. Employing an action research method will identify, reflect on and solve some problems in film workflow processes in the Malaysian film industry. Qualitative and quantitative research approaches will also be applied in this research to enhance and clarify data analysis. Those interviews in the preliminary research provided evidence about the understanding of technical knowledge among the filmmakers in Malaysia. The conclusions from the interview would be gathered and become the basis for the filmstrip experiment for the technical justification for the second stages of interview throughout the action research circle. Both methodologies and the details of the quantitative technical method are explained later in chapter 2.

### **1.4.1 Exploring Malaysian Film Workflow Development**

Formal education in filmmaking was only introduced in Malaysia in 1981 when the Malaysian Film Academy was established. In relation to that establishment, National Film Development was the main government agency that was responsible for the development of the Malaysian film industry. Since 1981, there have been many strategies applied to develop Malaysian film, but the Malaysian film industry still struggles locally and internationally. In practical application, locally, Malaysian filmmakers still prefer to employ foreign expertise to rent foreign facilities and use foreign laboratories for their film workflow processes. Millions of Malaysian Ringgit have been spent on developing the Malaysian film industry, but according to preliminary research and interviews with Malaysian filmmakers, it is hard for them to recognise local expertise and the technology behind it. In response to this situation, I want to explore the underlying current issues affecting the Malaysian film industry.

The focus of the study has also been refined towards the argument and responses from Malaysian filmmakers on existing film facilities, film practice, film expertise and environmental effects throughout the film workflow process. These filmmakers were chosen because they have played an important part in the Malaysian film industry and have valuable opinions to contribute to my research. Their expertise and the technical understanding of Malaysian filmmaking that they bring to their work have served as an example and reference for their contemporaries and succeeding filmmakers in Malaysia.

### **1.4.2 Research Questions**

Based on the review of the existing Malaysian film workflow development and literature, which I elaborate later in this chapter, I have underlined the issues and questions that I intend to explore in this research. Studies exploring the colour film technology and history have inspired me to explore the same issue, but in a different setting. The significant matters revolving around the complications of film workflow in Malaysia provide motivation for further exploration, which is complemented by my experience of filmmaking practice as a cinematographer. The applied colour science approach that I have developed since enrolment as a PhD student at UWE gives a new specialist area to explore.

This is expected to provide beneficial outcomes in relation to film colour workflow development in Malaysia.

Generally, this research involves applied colour science, technology and arts by practice in the filmstrips experiment stage, so I have decided to use a mixed method in multiple stages. This approach is designed to clarify and collect quantitative data from the filmstrips experimentation. From these quantitative data collected in filmstrips test, it has been analyzed and justified there are colour differences from the results of the filmstrip test. Based on these quantitative data research questionnaires have been designed to explore the reflection stage of the action research.

From the reflections and discussions with expert witnesses in the Malaysian film industry the results has been extend to the qualitative data that comprehends to the overall research (Video interview of discussion with expert witnesses attached in appendix). This quest has involved finding the answers to my research endeavour, which is guided by the five research questions listed:

- What are the main adverse factors affecting the Malaysian film workflow?
- Why are most Malaysian filmmakers (producers and directors) still sending their films abroad for their workflow process?
- Why do most Malaysian filmmakers put more trust in foreign expertise rather than local?
- What kind of development and improvement should the Malaysian film industry focus on to develop the industry?
- How can Malaysian films be given their own distinctive look or identity through better film workflow?

### **1.4.3 Research Scope**

Every research, no matter how well it is conducted, needs to have some scope for a guide, and to have some limitations drawn. That is why it seems difficult for me to use the words "prove" and "disprove" with respect to my research findings. In these circumstances it is always possible that future research may cast doubt on the validity of any hypothesis or the conclusions from this study. For that reason the following scope has been drawn to apply to this research.

Within the scope of this research, the film workflow means the stages in the process that the film goes through, or what we can call the 'pipeline' of the processes involved. The research data in this study have been gathered from all departments involved, from the production to post-production processes.

#### **1.4.4 Research Case Study**

This research has been proposed on a case study basis. In the research limitation aspect, case studies may be viewed as having the most limitations. Setting limitations on this research drove me to the specific objectives that led to the research findings. In terms of this film workflow process research, I have drawn from the Malaysian film industry and limited the research to the case studies of Malaysian filmmakers through selection of expert witnesses.

In case study research it seems difficult to make causal conclusions from overall research. This is true because we cannot rule out alternative explanations. The generality of the findings of a case study is always unclear. A case study involves the behaviour of one person, which, in this research, is the testimony of the Malaysian filmmaker. The behaviour of one filmmaker may not reflect the behaviour of most Malaysian filmmakers.

Thus, in this research I tried to gather the views of many relevant Malaysian filmmakers who could generally acknowledge my findings throughout the research. The qualitative data from these video interviews would extend to the factual situation of the Malaysian film industry. To make this data relevant, selected pertinent filmmakers were chosen for the research. This qualitative data needs support from quantitative data to justify all circumstances. To make the data more factual and concrete I also included a random factual experiment. The result of this experiment was the benchmark to justify the Malaysian filmmakers' preferences and satisfaction through film workflow laboratories in Malaysia and Thailand from the filmstrips experiment that has been done.

#### **1.5 Research Methodologies**

This research has produced an evaluative case study that examines film workflow in the Malaysian film industry. Its main remit is to develop a better understanding and better film workflow processes among Malaysian filmmakers

throughout their existing practice. A high proportion of the work in Malaysian film has been processed using foreign facilities and expertise. It is envisaged that this research will raise awareness among Malaysian filmmakers and help them develop Malaysian film technologies and expertise locally. In order to do this the identification of a suitable methodology was required. One such research technique appeared particularly promising in relation to the needs of the project.

### **1.5.1 Action Research Approach**

Action research is used in real situations, rather than in contrived, experimental studies, since its primary focus is on solving real problems. The implementation of action research methodology was to drawn the specific and frame a precise approach towards the overall application.

Action research is research by practitioners to solve their own problems and improve their professional practice. It is a form of professional development for the reflective practitioner. As a social practice and activity it is collaborative, involving a host of participants (Kernan, 1991, p.vi).

In accordance with the quotation above by Kernan and my experience in the Malaysian film industry, since I worked at FINAS in 1994, I felt there was a responsibility for me to participate in the development of the industry. This area needs to be developed by practitioners to solve their problems, and, at the same time, improve their practice as filmmakers. As a film academician as well as cinematographer, I felt that this research needed to be an in-depth study of the Malaysian film industry. To carry forward this aspiration, I believed that sharing experience, information and knowledge between Malaysian filmmakers and myself would be valuable for this research. These interactions with Malaysian filmmakers are related to the action research method that I have tried to emphasize.

### **1.5.2 Social Approach**

In order to do this the identification of a suitable methodology was required. One research technique appeared particularly promising in relation to the needs of the project. In view of the present focus on the formal practice in the Malaysian

film industry, it can be stated that one of the new areas of my research can be defined as the development of a systematic research method that will lead to enhancement of understanding and networking among Malaysian filmmakers to improve the Malaysian film workflow.

In accordance with these ideas, I tried to develop practical knowledge by observing Malaysian film workflow. Throughout these action processes I gathered reflections from Malaysian filmmakers on film workflow processes. Furthermore, a few filmmakers were involved in the researcher's data sampling processes to comprehend the participatory action research. Acting on these reflections, participation, and knowledge transfer, I hoped to pursue practical solutions. Further discussion on qualitative data is explained in chapters 5 to justify this social approach in this research.

Even though the Malaysian film industry has sufficient film technologies, a significant number of Malaysian filmmakers continue to use foreign facilities and expertise. It is envisaged that this research will raise awareness among Malaysian filmmakers and help them develop Malaysian film technologies and expertise locally. I also participated and worked together with Malaysian filmmakers in order to fully identify how the action research was to be applied through participatory problem solving, my own experience and the performance of shooting practice in the Malaysian film industry.

### **1.5.3 Technical Approach**

The initial aim of the technical approach of this research is to investigate the colour management in the Malaysian film workflow. The reflections data from the expert witnesses collected from this research shows the problematic of the Malaysian film workflow are more critical rather than the colour management issues. The main reason of these factors was the utilization of the foreign expertise and facilities. Thus the research data collected are concentrated to qualitative data and the quantitative data from the technical experimentation would be the turning point to gather reflection and discussion with the expert witnesses in the Malaysian film industry.

With regard to the action research approach focusing on existing film technology and industrial film expertise in Malaysia, the researcher developed a test filmstrip and analysed it. Throughout these processes, I applied practice-based analysis on my own approaches to justify the technicality and value of colour reproduction based on a comparison of the output of two laboratories.

On the technical filmstrip experimentation, this research also involves engagement with certain elements of technical data and their relationship to physical studies of nature of light and production film workflow processes, more specifically, in physical natural lighting. From the point of view of this physicist perspective in research, I have explored and examined physical differences of light colour temperature through film workflow processes.

In relation to that fact, I have tried to dispel the myth among Malaysian filmmakers that shooting in temperate countries is better because they have better lighting colour temperature. This was the action research method used to enhanced the communication and reflection process with the film practitioners in the Malaysian film industry.

I started with the first phase of data collection in the form of a video interview commentary with Malaysian filmmakers. I chose Malaysian filmmakers that have played an important part in the Malaysian film industry and those who are active in the industry. Most of the questions are based on Malaysian filmmakers' practice and film production workflow processes. I have chosen colourists, directors of photography, directors and editors. My proposed questionnaire for collecting this interview data from my respondents was first submitted to the faculty research ethics sub-committee for formal approval.

According to Graeme Garrard:

The pattern and practice that emerged during the Enlightenment saw the scientist and the artist share a common goal where ideas informed actions (Garrard, 2005, p.5).

As described by Garrard, scientist and artist share the common objectives and I hope to achieve the direction of finding the objective in this scientific/technical and creative research approach. To realise these objectives I preferred to apply a

range of methodologies for this research. Film was born out of the combination of science and art form, which is a rationale for combining both quantitative and qualitative methods for this research.

#### **1.5.4 Filmstrip Experimentation.**

Several film strips were shot in the same conditions of light colour temperature in Malaysia and processed at two different laboratories (Thailand and Malaysia). The researcher examined and measured data sampling based on a colour measurement approach. This clarified whether laboratories in Malaysia and Thailand have differences in colour or image quality.

Finding evidence on filmstrip tests was a technical comparison of Malaysian and foreign (Thai) laboratories. This technical justification was necessary to build up Malaysian filmmakers' confidence in local technologies and expertise. This attempted to differentiate strategies and related techniques, which may have relevance to the industry. This has led to an understanding of the differences of using local film laboratories compared to a foreign film laboratory. It helped inform the best process and strategies for film workflow in the Malaysian film industry. The outcomes from the filmstrip experiments are striking film practitioners and further explanation would be in chapter 2.

#### **1.5.5 Limitations of Randomized Filmstrip Experiment**

The experiment involved the filmstrip test of the Malaysian lighting environment and has gone through the film workflow processes in two different laboratories (Malaysia and Thailand). The approach of using filmstrip test experimentation involving film industry participation, using a professional standard of 35mm film format, may allow us to make causal conclusions if the variables that are manipulated are not confounded by other variables. The relevance of this filmstrip test format is founded on my observation that in Malaysia most of the films produced employ 35mm film as their shooting and projection medium during the period this research has been done.

The analysis of this experiment on film workflow was limited to the shooting and laboratory processing stages of film on celluloid. This was to emulate the extent of the regular processes of film workflow in the context of Malaysian film

industry. Through this research time frame the industry have not move on to digital acquisition in film workflow processes. The other relevant fact is because the workflow process in the post-production stage would involve a lot of colour correction manipulation at the post-production stage that mostly deals with digital medium, which is very subjective to the view of the film director and to the findings of this research. This was the main factor to highlight because generally Malaysian filmmakers are using foreign facilities and expertise without controlling the post-production manipulation stage.

The negative (film celluloid) result from the experiment was analysed to clarify the colour measurement and colour technical data. This data was explained to the Malaysian filmmakers (expert witnesses) in a short survey questionnaire, in discussion and direct reflection. The reflection responses have been outlined in chapter 5 of this dissertation.

However, there may still be limitations with respect to the generality of the findings in this research. The filmstrip experiment involved a specific group of filmmakers in the Malaysian film industry to enhance the action research method which is typically designed and conducted by practitioners who analyze the data to improve their own practice. For this filmstrip experiment I mainly brought in prominent cinematographers and I am also a practitioner in cinematography. In relation to this practice relationship, I would implements the practice-based research approach in this research.

Thus, in this mode of research, we may not know whether the findings can be generalized to other filmmakers, situations, or conceptualizations of the variables. For that reason I implemented a short online survey based on technical justification from the filmstrip experiment to justify the overall filmmakers' perception regarding existing Malaysian film workflow. This mixed method of quantitative data was intended to complement the qualitative data to make the research findings more relevant and valuable to the Malaysian film industry. Further detail on this experimentation is explained in chapter 2.

### **1.5.6 Practice-based and Practice-led**

In relation to this research that is based in the creative arts and humanities and also the relation of the practical implementation in the action research methodology, there are relevancies of practice-based and practice-led research towards this study of the Malaysian film workflow. According to Candy:

In practice-based research is an original investigation undertaken in order to gain new knowledge partly by means of practice and the outcomes of that practice. In a doctoral thesis, claims of originality and contribution to knowledge may be demonstrated through creative outcomes in the form of designs, music, digital media, performances and exhibitions. Whilst the significance and context of the claims are described in words, a full understanding can only be obtained with direct reference to the outcomes (Candy, 2006, p.5).

Candy makes clear that practice-based research that was applied in this research inventively undertakes to investigate objectively in order to increase new knowledge to a degree about practice in the Malaysian film industry. The outcomes of this film practice-based research would lead primarily to new understandings about film workflow practice. This therefore pertains to a certain group of Malaysian filmmakers, certain situations, and some of the possible conceptualizations of collectable data. This data was analysed, interpreted and reflected on in the context of the Malaysian film industry.

According to Hazel Smith:

In the discourse of practice-led research, the idea of the artwork as research, and the artwork plus surrounding documentation as research, occur with different degrees of emphasis in the work of different commentators (Smith, 2009,p.6).

Smith argues that the idea and the documentation of an artwork has relevance to the discourse of practice-led research. Therefore, this research also involved practice-led research, which includes the filmmaker's artwork and their practice on current workflow. Those filmmakers are concurrently related with their work environment and this research also explores their work in relation to the effect of current workflow.

## 1.6 Research Process

A practical study was conducted at the beginning of the research, an installation artwork entitled 'Tungsten vs. Daylight' (figure 1) was produced based on my ideas and early understanding about people's awareness of colour temperature. This installation work was exhibited in the *Hybrid+ism Exhibition*, National Arts Gallery, Kota Kinabalu Sabah, Borneo Malaysia in 2007.



Figure 1: Dim R. Abdul, *Tungsten vs Daylight*, Mixed Media Installation, Hybridism Exhibition 2007, Sabah National Art Gallery, Kota Kinabalu, Sabah, Malaysia (Dim, AR, 2007)

Based on viewer feedback and direct verbal communication received during the exhibition, most people who viewed and experienced the installation had never thought about or been aware of colour temperature in the environment and how it reflected surrounding objects. These viewers' perceptions were gathered from my conversations and interaction with viewers in the exhibition. Parallel with this perception, the challenge was to discover how people, as viewers, and filmmakers, as producers, could be alerted to the uniqueness of colour in the environment. This awareness of colour needs to be described and is very important to preserve as an archive. This can be achieved by doing the appropriate colour re-production processes.

Subsequent to that exhibition, the researcher has been trying to compare colour temperatures in tropical countries and colour temperatures in temperate countries. Towards that end, I thought of developing Malaysian film through observing this specific technical aspect in film production workflow.

Next, I aimed to explore the topic in the research paper entitled “Colour Temperature Comparison between Temperate and Tropical Climates: Towards the Enhancement of Colour Schemes in Film/HD Video” that was accepted at the “Communicating Colour Conference” Vezprem, Hungary, 19-23 May 2009.

In this research paper, I aimed to understand how environments in tropical countries and temperate countries affect the images of film celluloid. Furthermore, I aimed to produce a manual/guide/device on the best shooting approach to get a better understanding of images that we plan to create. It became clear that these aims were unattainable. Based on critique and feedback from the conference, including keynote speakers, colour temperature in the lighting of an environment will constantly change in intensity. Wherever you are, lighting colour temperatures will frequently change as a result of the passage of the sun and weather conditions. Other responses at the conference were that lighting colour temperature differences between tropical and temperate countries are very few; the major difference is in the colour of the environment in the background setting of the place. The conference changed the focus of the original research aim.

A second research paper entitled “Colour Temperature in Tropical Climates: Towards Better Colour Management and Colour Schemes in Malaysian Film” was accepted for the Colour Heritage and Conservation Conference, Università Degli Studi Di Milano, Italy, 19 - 24 October 2009. Having spent many years preoccupied with the recording and interpretation of light in celluloid films and video pixels, I was interested in the extent to which colour temperatures in tropical climates (Malaysia) and colour schemes can influence the visual in relation to moving images. It is hoped that understanding will be gained of how these colour temperatures relate to the environment. It should answer the question why it critically affects the colour scheme in creating the visual from the perspective of a tropical/Malaysian environment.

In this second revised approach to practice, I planned to focus on a systematic study and a sample production of filmstrip tests. This explores the ways in which film colour management in Malaysia and colour temperature in Malaysian film has been used to date as a bench mark to develop, modify and upgrade a better

approach to shooting in a tropical country, such as Malaysia. Through written argument, visual comparison and visual examination I intend to produce a short film that examines colour temperature and colour management in the Malaysian film industry.

My third research paper entitled “A Review of Malaysian Film Workflow: Towards Better Colour Management” was presented at the Gjøvik Colour Conference 8-11 June 2010: Colour in Art, science, design, conservation, research, printmaking, digital technologies and textiles in Gjøvik University College, Gjøvik, Norway. This conference paper was based on my latest PhD progression examination paper that I had submitted to the committee. Throughout this four-day conference, I had many responses regarding this paper. Most responses were more towards the development of this research and how efficient research strategies could be applied.

Based on those responses, it became clear that this research needed to be concentrated on reviewing, reflecting and observing Malaysian film workflow processes. My preliminary observation was that there is some inconsistency in terms of film workflow within the film industry. In particular, I wished to explore the reason why many Malaysian films have been processed using foreign expertise, and, furthermore, why, today, the Malaysian film industry is still struggling to set up a one-stop centre for film workflow.

## **1.7 Existing Literature about Film Workflow**

### **1.7.1 Introduction**

The importance of the literature review as a body of knowledge to support this research is the main agenda of this chapter. Because there is very little literature related to the Malaysian film industry, this research reviews the literature on general film workflow process in the film industry. It also covers knowledge transfer, research and development in film, government policy concerning the development of film workflow and colour temperatures, the measurement of colour temperatures and standardization of film and video. That general literature review would be related to the Malaysian film industry and specifically to the film workflow process.

### 1.7.2 Video, Film and Digital Influence

Nowadays filmmakers can make a movie in any recording format either film or video or digital and still be taken seriously, assuming that the filmmaker has a great story and reasonably good production values in their film. It is known in the global film industry that *The Blair Witch Project* (1999) was shot on a non-digital consumer video camera, yet it is one of the most successful independent features ever made. Prior to the digital revolution in the 1990s, if the film was shot on a format other than 35mm, it was hard to get the chance of being distributed. At the same time the 16mm format was not taken seriously and neither was video in the motion picture industry. Now, affordable, high-quality digital cameras have democratized the film industry. Among all formats, 35mm film is still the standard that the filmmaker prefers, and by which all video formats are judged. Has video reached the same quality level as 35mm?

Ian Goodyear notes that:

If you want to put this issue into historical perspective, a 1956 headline on page one of the daily trade papers published in Hollywood announced, 'Film Is Dead!' The story predicted that the introduction of the first videotape system would make film obsolete within a year. More than 50 years later, it's that videotape system that is dead. Film lives on (Goodyear, 2010).

From the reflections from the Malaysian filmmakers expert witnesses, supported by the observation above, 35mm film is still the preferable format for the motion picture in the context of Malaysian film industry, even though it is still based on a balance between aesthetic and budgetary considerations. Because of these consequences, the Malaysian film industry was still using celluloid at the point when this research was being done. The understanding of the above quote that film lives on indicates that the 35mm format is still being used in film production, and has remained the most preferred format especially in the Malaysia film industry. However, the rapid introduction of digital cinematography and the evolution of digital production workflows, has affected the use of film celluloid technology, which is becoming nearly out-dated, and it

has affected the investment people have made in cameras and related equipment.

While this research was undertaken in 2008-2012, film is still the preferable format for Malaysian filmmakers. Even when films are shot on film, nowadays, postproduction colour grading is largely done digitally. Based on these criteria, in this research, I chose to use the 35mm format for the filmstrip test, quantitative data justification and as the practice-based film format. This quantification is to magnify the colour differences in the Malaysian and Thai laboratories film workflow.

### **1.7.3 The Standardization of Film and Video**

To internationalize a product the technical specification must have its own standardization for general usage all over the world. In the broadcasting industry there are various formats used. The UK, Western Europe, Australia, New Zealand, China and ASEAN countries use the PAL video system, while the United States, North and South America, Japan, Taiwan and Korea use NTSC. In addition, some European countries like Germany, Russia, France, Monaco and Luxembourg use the SECAM system. In contrast to these different systems, in 35mm film, the workflow process of production is the same all over the world. As Leo Enticknap notes:

Just as W.K.L. Dickson realized in 1889 that cinema film technology had to be standardized along a 'one size fits all' philosophy in order to make it commercially viable, Kalmus realized that colour had to fit that economic model, too. Furthermore he realized that exhibition was the sector of the industry where standardization was most important and where introducing any standard which violated that technology would seriously jeopardize its chance of success. This meant that whatever happened in the studio or laboratory, his colour film had to be showable via the hundreds of thousands of 35mm projectors operating worldwide (Enticknap, 2005,p.86).

As well as the issues of projection standard, the standard of the quality in colour film workflow is an important criterion for the film industry. This standard of

signification has become a major procedure for each country's film workflow processes:

Another issue was the need for quality control across the mass print runs which, given the qualities involved, had never been a significant issue with any previous system. The use of chemical analysis to maintain, or 'replenish' the developer solutions used in film processing to a consistent strength became routine in 1960s (it was desirable to do this with black-and-white developers too, but many labs did not) (Enticknap, 2005:93).

Enticknap makes clear that the colour film process in film workflow started seriously in 1950 when Eastman colour introduced negative stock, the standard of image and colour calibration would become the most important in colour film workflow processes. Here Enticknap refers to the development of film celluloid:

The most significant development in this period was the launch of Eastman color in 1950. In this stock the Kodak Company introduced a number of refinements, most notably the use of coloured couplers<sup>2</sup>. The couplers are coloured in two of the layers to provide masking, which improves the colour reproduction of duplicate elements by correcting for dye deficiencies in the negative stock. The coloured couplers are what give modern colour pre-print elements (including 35mm negatives) their characteristic orange tint, even though this is not visible on the finished print (Enticknap, 2005, p.92).

Enticknap's words underline that the standard of calibration was one of the important standards of every film laboratory all over the world. Furthermore, the calibration and image quality of projection at the Cineplex has become one of the issues to be discussed and standardized. Until now, for most countries still using the 35mm projector for their Cineplex, this standard has been used for over a hundred years. In this digital era, we have been introducing digital cinema. It started in approximately 2005, when digital technology was first used to distribute and project motion pictures. A film can be distributed to the

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<sup>2</sup> A colourless substance contained in colour film emulsions that, when exposed to chemical developing baths forms the colour dyes that make up part of the layers of processed colour films

projector through media from hard drives, optical disks, such as DVDs and Blu-ray Discs or satellite, and projected using a digital projector instead of a conventional film projector. This projection format has also been standardized according to the standard of film all over the world as DeBoer stated:

DCI<sup>3</sup> member studios and industry leaders hailed this long-awaited development, which will be applicable to both 2K and 4K resolutions (DeBoer, 2005).

This reveals that digital cinema is distinct from high-definition video, which has been agreed by the major movie studios (DCI) concerning the standard of high-definition video standards, aspect ratios, or frame rates. With the capability of projectors of 2K and 4k resolution which began to be deployed in 2005, since 2006 the pace has accelerated. This 2K resolution refers to images with 2,048 horizontal pixels.

#### **1.7.4 Early Colour Film Workflow**

Colour is one of the important elements in film workflow. Colour portrays thousands of different meanings. Colour film has been around almost as long as the moving picture industry. The principles of colour in photography are demonstrated in this quote:

The principles on which color photography is based were first proposed by Scottish physicist James Clerk Maxwell in 1855 and presented at the Royal Society in London in 1861. By that time, it was known that light comprises a spectrum of different wavelengths that are perceived as different colors as they are absorbed and reflected by natural objects. Maxwell discovered that all natural colors in this spectrum may be reproduced with additive combinations of three primary colors – red, green, and blue – which, when equally mixed together, produce white light (Clerk, 1865, p.459).

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<sup>3</sup> DCI refer to- Digital Cinema Initiatives, LLC (DCI) is a limited liability company whose members include Disney, Fox, MGM, Paramount, Sony Pictures Entertainment, Universal and Warner Bros. Studios. The venture was formed in March 2002. The purpose of DCI is to establish and document specifications for an open architecture for Digital Cinema components that ensures a uniform and high level of technical performance, reliability and quality control.

Motion-picture photography, or to be more specific, the act of making a film, started in 1895 when the Frenchman Louis Lumiere is credited as inventing the first motion picture camera. In his invention, called *Cinematographe* in French, what was interesting was its portability, which, together with a film-processing unit, could be transformed into a film projector. This fascinating invention dominated other inventions in film technology, such as the Edison Company's.

Kinetoscope in 1891 and in 1896 the improved commercial version of the *Vitascope* projector, were developed in the United States. However, in this research I would like to stress that the development of colour film workflow happened earlier than the invention of motion picture photography.

The earliest motion picture stocks were orthochromatic and recorded blue and green light, but not red light. Recording all three spectral regions required making film stock panchromatic to some degree. Since orthochromatic film stock hindered colour photography in the beginning, the first films with colour in them utilized aniline dyes in order to create artificial colour. Hand-coloured films began in 1895 with Thomas Edison's hand-painted *Anabelle's Dance* made for his Kinetoscope viewers. According to Petrie:

Experiments with colour had been taking place since the earliest days of cinema. Brian Coa notes that R.W Paul's programme at the Alhambra on 8 April 1896 includes a hand-coloured film of an "*Eastern Dance*" (Petrie, 1996, p.37).

Here Petrie states that the use of colour in film started as early as the late 1800s. Meanwhile in Malaya, black and white films were popular in the 1950s and the late 1960s; in Europe and Hollywood they were already involved in colour film workflow. It shows the Malaysian film industry was further behind in film technology. As shown in the quote below by Street, in 1896 in London, filmmakers had already started their experiments, yet, in Malaya, we had not even started our film industry. Malaysian film history starts in the early 1930s and will be discussed in chapter 3. The evolution of Technicolor in Hollywood and British cinema had little effect on the Malayan film industry in the same period. The beginning of the Malayan film industry started from the screening of

film and not the producing or the production being carried out in Malaya. We will discuss further about this later in this chapter.

Sarah Street writes that:

The 'three-strip' technology overcame many of the technical problems that had bedevilled previous colour systems and became dominant in the USA and Britain for the next twenty years or so. Although the majority of British films were made in black-and-white, once Technicolor was introduced in the mid 1930s it became by far the most widely used colour process until the mid 1950s. Filming in Technicolor was expensive, but it was used in Britain for key films (Street, 2009, p.192).

The rapid technological development of colour film workflow processes in British cinema, as described above by Street, contrasts with the situation in Malaya where we had just started exploring how to make film with Black and White celluloid. Most of the knowledge transfer took place hand in hand with foreign expertise from India and Hong Kong in the initial stages of the Malaysian film industry. This hand in hand knowledge transfer happened because earlier Malaysian film practitioners came from India and Hong Kong and we will explore this in chapter 3. Because the cost of producing colour film was so expensive in those days, Malaya could not afford to produce even a single colour film during the 1930s. Most of the films previewed in Malaya were produced in foreign countries.

### **1.7.5 Colour Film Workflow Production in Malaysian Film**

If we look briefly at the historical aspect, especially at the beginning of the Malaysian film era, the country was still under British colonization. At that time, the film industry started at Jalan Ampas, Singapore. During the early period of the Malaysian film industry, it started with the projection of propaganda films by the British. At the same time, many Chinese traders began to project Chinese films and then produced Malay films to make profits.

According to Duncan Petrie:

The first uses of tinting in British films noted by Barry Salt includes the first and the last shots of James Williamson's *Fire* (1901) which are tinted red, and the blue-tinted sky and night scenes in R.W. Paul's *The Motorist* (1906) (Petrie, 1996, p.37).

The technique of tinting and toning that started in the 1900s was popular in the early British cinema. This underlines the limited nature of techniques in the Malaysian film industry in the early days. The influence might lie in certain aspects of film appearance or the styles of film that were shot. I have not explored further on this aspect of research. The relation of western film history towards this research concerns how western film workflow development affected the starting point of the Malaysian film industry. Furthermore the main research is focused on reviewing colour film workflow in the Malaysian film industry, thus all these film workflow processes in the west will be related to the development of film workflow in the Malaysian film industry. This is proved by Hoehn's quote below:

In these newly preserved tests, made in 1922 at the Paragon Studios in Fort Lee, New Jersey, actress Mae Murray appears almost translucent, her flesh a pale white that is reminiscent of perfectly sculpted marble, enhanced with touches of color to her lips, eyes, and hair. She is joined by actress Hope Hampton modeling costumes from *The Light in the Dark* (1922), which contained the first commercial use of Two-Color Kodachrome in a feature film. Ziegfeld Follies actress Mary Eaton and an unidentified woman and child also appear (Hoehn, 2010).

Hoehn makes clear that apart from the above application of Two-Colour Kodachrome, George Eastman's attempts towards this medium actually started as early as 1914. In this test, the visuals were shot with a dual-lens camera, this process filtered images on black/white separation positives. Then the final print was produced by bleaching and tanning a double-coated duplicate negative that was made from the positive separation. The green/blue emulsion was dyed on one side and there was red emulsion on the other, as a result this combination created a rather ethereal palette of hues. These applications are explained further below:

Eastman Kodak introduced its first 35 mm color negative film in 1950. Earned another Academy Award for Eastman color negative and color print films (introduced in 1950), which helped popularize color movies for theaters and television (Kodak, 2010).

Thus full colour negative film in motion pictures was introduced by Eastman Kodak in 1950, before that, films were coloured by several techniques, so the colour was not great. The process of colouring film was also very difficult and it cost quite a lot. In Malaysia, attempts at colour film production were started in the 1950s, thus, I could say that the Malaysian colour film workflow started in that period.

Based on the historical context, Hamzah Hussin mentions that in 1956 Malay Film Production had produced nine films, two of which were colour films (*Hang Tuah* and *Semerah Padi*). The most expensive film at that time was *Hang Tuah*, costing around half a million Malaysian ringgit. In the context of the Malaysian Cinema, *Hang Tuah* was the first Malay film to be fully shot in Eastman colour film. It was released to the public on 28 January 1956. *Hang Tuah* was produced by the Shaw Brothers and directed by Phani Majumdar, a director from India. We will explore this more in the next chapter when we focus on the Malaysian film history. In relating the development of colour film in Singapore, Alvin Chua cites evidence about the earlier production of colour film:

The studio also ventured into international co-productions, such as *Bajau Anak Laut (Bajau Children of the Sea)*, filmed in the Philippines with a Filipino cast and crew. The release of *Buloh Perindu (Magic Flute)* (1953), the first local movie to be produced in colour, was a milestone in the history of Singapore film-making (Chua, 2011).

Chua clearly states that *Buloh Perindu* is the first colour film that was produced in Singapore by Cathay Keris. This means that *Buloh Perindu* is the first Malay colour motion feature film in Malaya. This is because, in 1953, Singapore was also part of Malaya. There is no further information about the film production workflow in *Buloh Perindu*. It could be the first Malay film in colour but there is no evidence of the film workflow to discuss. Based on a review of previous literature concerning the Malaysian film industry, and as stated in the quote

earlier, *Hang Tuah* was the first film fully shot in Eastman colour and it is clear that this film was involved in the colour film workflow from the production through to the post-production processes.

However, if we think about this research perspective on colour film workflow processes, because *Buluh Perindu* was produced in 1953 it might be the first coloured motion picture film in Malaya. *Buluh Perindu* might not have been shot on colour film, but several techniques were used in their workflow to produce it in colour. Clearly, there are statements that *Buluh Perindu* is the first colour film in Singapore, and in the review of previous literature concerning *Hang Tuah* it was clearly stated that it was the first film that was fully shot on colour film. However, both films went through the colour film workflow processes, and for the purposes of this research, *Buluh Perindu* will be accepted as the first Malaysian colour film.

#### **1.7.6 Knowledge Transfer in Malaysian Film Workflow**

One of the objectives in this research is to gain a greater understanding and knowledge of film workflow and the shooting approach of Malaysian film, based on researcher interaction with Malaysian filmmakers. This knowledge sharing hopes to enhance the development of knowledge transfer in the Malaysian film industry. Knowledge transfer must be seen as an essential and integral part of research and development in any industry. In this research, I am particularly looking at the Malaysian film workflow generally, and how it is implemented. Technology transfer plays a fundamental element in the development in each industry, as Sahal remarks:

It is widely recognized that the transfer of technology plays a vital role in industrial innovation. It is a significant factor in national economic growth and international well-being (Sahal, 1982, p.15).

In the condition of the Malaysian film industry, most government agencies in Malaysia support the move towards enhancement of film production in the industry. However, with the rise in the quantity of film produced domestically, the transfer of technology that could play a vital role becomes less effective if there are still many filmmakers using foreign facilities and expertise. In this

context, Gaya talks in interview about how the utilization of technology transfer will end up with a dissatisfactory result.

If I had a huge budget, 20-30 million, going outside only for international release, and we knew we couldn't keep up to the standard. Then I have to go outside (Gaya, Appendix 4,p.238).

In the interview, Gaya describes how most Malaysian producers will employ foreign facilities and expertise for their film. That seems to be their priority if they can afford to hire them. Significantly, it reveals that among film producers and investors in the Malaysian film industry, there is an unjustified lack of confidence in the good reputation of Malaysian filmmakers. Clearly economic factors affect film production; every film producer is concerned with how to optimize their costs toward gaining better income from their film. This concern is explained by Sahal below:

One of the fundamental processes that influence the economic performance of nations and firms is technology transfer. Economists have long recognized that the transfer of technology is at the heart of the process of economic growth, and that the progress of both developed and developing countries depends on the extent and efficiency of such transfer (Sahal, 1982, p.15).

Malaysia as a developing country still needs overall attention concerning every aspect of the economic sector. Art and media might be one of the less important economic sectors in Malaysia, but, culturally, it is an important sector that could affect Malaysia's economy. Malaysia still needs to develop its film structure to gather the enhancement of archiving the Malaysian cultural and heritage:

In the case of the Malaysian film industry, its contribution to the economy is insignificant. However, under the current condition of globalization, the government has made considerable effort to uplift the standard of the indigenous film industry (Rosnan, 2010,p.326).

Rosnan's (2010) statement above about the Malaysian government's efforts to uplift the standard of the film industry in Malaysia would be the best

consideration for the development of the Malaysian film workflow in the future. This will be discussed further in Chapter 4. Rosnan argues that government involvement is very important in indigenous film industries:

For developing countries, the role of the government is instrumental in ensuring that the film industry not only survives but is also able to respond to the benefits brought about by globalization. Other studies confirm that the government is behind the success of the indigenous film industry in many countries (Rosnan, 2010, p.330).

While the support of governments is an important factor for the success of the film industry, especially in a developing country like Malaysia, the government support and the development of the film industry itself should be balanced. This is interrelated with the development of knowledge in the film industry. Because of this research was initially related to the technical aspect of film workflow production the balance of creativity and technical aspects would important elements for the development of film industry. These factors related to the expert witness response below regarding the development of film workflow in the Malaysian film industry. Khalid, in an interview said:

Malaysians do not even have our own film form, I don't think we need to emphasize colour film workflow. For me it is more about the content rather than the appearance (Khalid, Appendix 3, p.237).

With regards to the above quote from the video interview, it seems that we need to have a balance of art and technological research and development in the Malaysian film industry. According to Sahal in *The Transfer and Utilization of Technical Knowledge*:

Except in the most unusual circumstances the government should avoid getting involved in the latter stages of development work. In general, this is an area in which firms are far more adept than government agencies. Although there may be cases, in which development costs are so high that private industry cannot obtain the necessary resources, or in which it is so important to our national security or well-being that a particular technology be developed that government must step in, these cases are

rare. Instead, the available evidence seems to indicate that when governments become involved in what is essentially commercial development, they are not very successful (Sahal, 1982, p.29).

As mentioned earlier in this research, one of the objectives is to propose or give suggestions to the government agency that is responsible for the Malaysian film workflow and for the improvement of film workflow processes. The quote above clearly stated that the involvement of government agencies could affect the knowledge transformation. This is true, especially in the later stages of the development of knowledge transfer. The government body or agencies should monitor appropriate processes, but let the filmmaker or the film association have their right to handle such a project for the transformation processes. This could be supported by Foucault in his quote below:

an institutional field, a set of event, practices, and political decisions, a sequence of economic processes that also involved demographic fluctuations, techniques of public assistance, manpower needs, different levels of unemployment, etc (Foucault, 2008, p.174).

The policyholder decision (in this research the Malaysian government) affected a sequence of economic processes, which is in this situation is the workflow in the Malaysian film industry. Furthermore, according to Foucault, it also involved the flowing of demobilization that needs expertise in certain workflow processes. These factors contribute to the changes of government policy on the ground in the film industry in Malaysia and the effect of transformation also has limitations. Therefore some suggestions based on practice or industrial research approach needs to be made on approaching these policy changes and transformations of procedures. Political decisions need to be made to encourage the growth of knowledge and technology transformation. The current film policy in Malaysia highlights the importance of producing film in Malaysia instead of developing knowledge transfer film workflow processes. Further exploration of film policy in Malaysia appears in chapter 4. For this reason, I carried out this supporting research of observing and participating in industry film workflow. The results of this research will provide guidance to Malaysian filmmakers as well as offer suggestions and recommendations to government agencies, and

encourage them to work closely together for the benefit of the industry especially in the production film workflow.

The history of Malaysian film and previous film practitioners are initially relevant to set this new knowledge documentation in a historical context. Those blueprints or qualitative data evidence from the interviews with expert witnesses would be important data to clarify new knowledge. This is supported by Street:

While the initial enquiry might be suggested by a film or genre, of necessity the pursuit of 'a cinematic *histoire totale*' draws the researcher into areas which might, at first sight, not appear to be relevant to the study of film. The institutional boundaries which have separated the study of film from the study of history are therefore collapsed: film is a part of history and history is a part of film (Street, 2002, p.2).

The idea in this quote that indicates that film and history are intertwined is, I would argue, always right, because for me film narrates and is as much a drawn document as a manuscript, sculpture or painting. All the documentation we present can be read as an artefact of history. In her book entitled *British Cinema in Documents*, Street attempts to establish a methodology for the historian researcher who wants to broaden their study from the text and context by using the primary source as their starting point. This interrelates to my research method in relation to the expert witnesses, who, in this research, are the Malaysian filmmakers.

Whereas in this research, the expert witnesses are the ones who contribute about the historical context of film workflow processes history. And the film medium is the proven data to justify the statement from the expert witnesses and this would be a practice-based research documentation.

The development of technology in film workflow processes has undergone many changes in filmmaker application, and changes are likely to continue. Often these changes impose constraints on technical applications in film workflow and research, for example, into application methods or various options for digital filmmaking, can help them to adapt. There is also a new emphasis on voluntary

approaches to the sustainable use of film workflow production in Malaysia, and if this is to be effective, action or suggestions have to be promoted that can be demonstrated scientifically to reduce the usage of foreign expertise and foreign facilities and develop our own expertise in a community and film technology centre.

In the broader context of the Malaysian film industry, many technical applications have been developed but most practitioners in the Malaysian film industry consider that foreign expertise is better than the local. One of the main issues is that most Malaysian filmmakers do not take the opportunity to apply foreign expertise to their own industry. This is where technological knowledge exchange could help to foster an improved domestic Malaysian film workflow.

### 1.7.7 Research and Development in the Malaysian Film Industry

Generally, we have seen an increase in the level of every business investment for commercial research and development in the economic sector. This investment would be a good indicator of the continued competitiveness of the Malaysian film industry with other industries in the region.

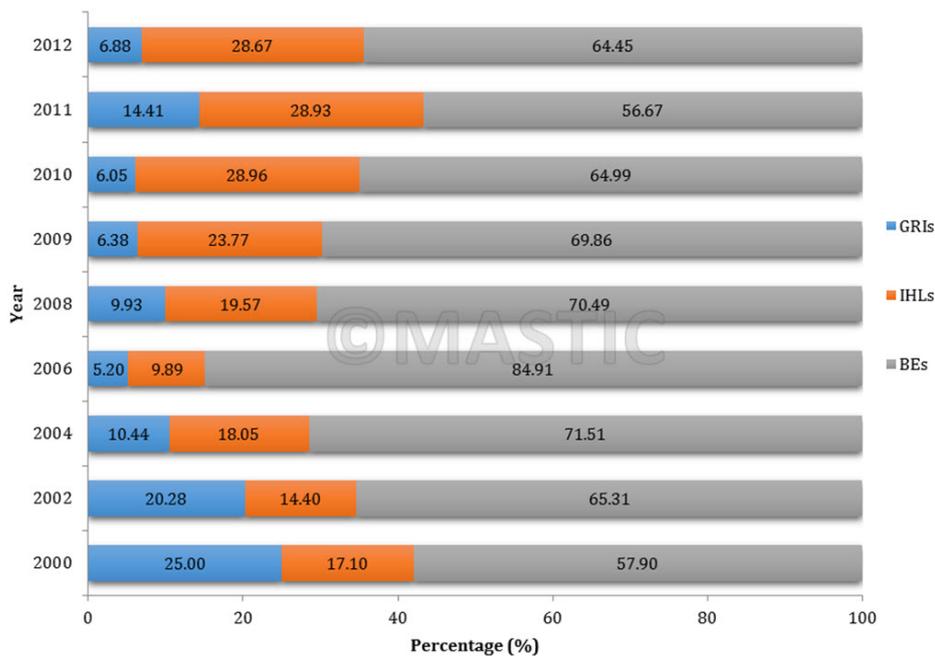


Figure 2 : Research and Development Activities in Malaysia From 2000 to 2012 – by MASTIC (Used with permission of MASTIC).

Based on data produced by the Malaysian Science and Technology Information Centre (MASTIC), the figures in the charts above show that business enterprises remained the largest contributor to spur R & D activities in Malaysia from 2000 to 2012. In 2012, the business sector contributed (RM6,840 million, 64.45%) of R&D expenditure in Malaysia, followed by institutions of higher learning (IHL) RM3,042 million (28.67%) and government agencies & research institutes (GRI) RM730 million (6.88%). More importantly, in every sector, research and development plays an important role in the innovation process, which is increasingly vital to current and future profits for every successful company in the world. This results in the technology that brings new products and services to the market place. Innovation results are not only in the business market place or the invention of a new product for the industry; film is an innovation of media that could also influence the art market. High quality successful films need more efficient workflow processes.

Rosnan argues that:

despite the potential economic contributions of the film industry, little attention has been given by scholars other than those from culture and media studies. Furthermore, studies on film industry focus only on major global film industry like Hollywood in the USA and Bollywood in India (Rosnan, 2010,p.325).

With regards to the above quote, the intention of research and development in film industry and more contributions from scholars would be beneficial to the development of the Malaysian film industry. For the reason of the research and development in this niche area this research also would contribute to the adding of new knowledge in film and media industry.

It had been proven that international research has consistently demonstrated the positive correlation between the research and development investment intensity and company performance measures, such as sales growth and share price in the sectors where the research and development are important. Even the birth of FINAS, as a government body, was due to this development of the Malaysian film industry. In this film or media area in Malaysia, FINAS is the agency that has a better position to achieve and maintain competitive advantage

among Malaysian films and in the increasingly global film market with a sustained research and development programme. Furthermore, companies that carry out research and development may benefit or be in a position to claim tax relief through research and development tax credit schemes offered by the Malaysian government.

Although FINAS offers many short training programmes, to date, there are no research programmes related to film development. FINAS must increasingly take account of the need to disseminate results, and, in some cases, potential researchers from local universities need to be involved in scoping the outputs and guiding the research. However, while the need for knowledge transfer is now routinely considered at the production level, only grants for making film are currently available, not grants for research.

As an academician and cinematographer in the Malaysian film industry, I have some responsibility for the development of the industry. The knowledge transfer process could be an important aspect for encouraging this development. As the above quote stated, we might be the agent factors to normalize and desalinize the film industry. This is because the power to improve the situation is everywhere and we need to take ownership of that empowerment.

Suggestions need to be made to present potential researchers or scholars from other education departments with a synthesis of findings from a wider area of research in the film field, so that Malaysian filmmakers can begin to apply the knowledge systematically. This needs to be addressed at the level of Malaysian governance or by the government agencies, or by the institute or funding body rather than the individual researcher or independent filmmaker. This needs to be initially discussed from the conference or the forum that is widely open to filmmakers, film critics, film philosophers, film educators and film producers, who collectively and individually need to give their support and encouragement for improving knowledge transfer in film workflow.

### **1.7.8 Government Policy concerning the Development of Film Workflow**

Film is a part of art, and, at the same time, it is related to commercial industry. Furthermore, film has always been associated with some creative communities and it engages with the policy for creative industry. This research relates to the mainstream of the relevant community and this film community is engaged with different government policies, which could affect the development of the industry itself as stated in the quote below:

From a policy perspective, ‘clustering’ of creative industries has become increasingly fashionable, with commentators claiming that local hotspots of creative activity, especially in cities, will produce a ripple of benign social and economic impacts on local economies and communities. From a managerial perspective, a systems view of creativity leads to an interest in organizational design and networks, and away from a preoccupation with individual talent (Bilton, 2007, pp.45-46).

Cultural production from the community (the Malaysian film industry in this research) is key to this study. As stated in the above quote, this can also encompass the inducement of management and policy in that creative industry. Furthermore, the policy is always directed towards what Bilton terms the ‘clustering’ of creative industry. Meanwhile from the management perspective, the system that has been introduced by the policy maker would be in the interest of economic or capital enhancement in the Malaysian film industry. This focus on profit could be exacerbated in the Malaysian film industry where the capital is controlled by the economists. The individual talent, who are the Malaysian filmmakers, would be secondary in this power structure of the policy and capital.

Usually the creative person or filmmaker is embedded in the informal networks of knowledge in their area (which in this research is film) by exploring and experiencing relevant collaboration, expertise and influence in their community (specifically, in this research, the Malaysian film industry). This is suggested in Bilton’s quote below:

Consequently, an important goal for cultural policy has been to subsidize the costs of cultural production. Applying this model of production subsidy to the creative industries is problematic. Cultural production is

only a small part of the overall creative system-indeed it has been argued that European cultural policy traditions have led to a crisis of over-production in the creative industries, especially in the film industry (Bilton, 2007, p.59)

Bilton states that the traditional arts sector always faces high production costs because of the failure of marketing strategies. The implementation of subsidy of the cultural production cost by the policy maker tends to raise a problematic agenda. These consequences frequently arise in cultural production in many countries. In this research, Malaysia is one of the examples of these implicit judgments on subsidy usage by the Malaysian filmmakers.

While the Europeans have faced the crisis of over-production, as a result of subsidies, in the Malaysian film industry we are facing the problem of filmmakers who gain a subsidy for their film always failing in the Cineplex. Like the problem in Europe, because of over-production when there is no market or systematic distribution system, in the Malaysian film industry, nobody has found a solution.

The Malaysian filmmaker who is subsidized may have an advantage to produce and promote their films, but, conversely, the commercial independent filmmakers are the ones who make money out of their films and attract a bigger audience. In terms of workflow film processes that are interrelated to this research, the commercial independent filmmakers are the ones who satisfy the foreign expertise and technical crew as they follow the correct or desired workflow that they want. This is reflected in the quote below:

Stereoscopic 3D is not only becoming the industry's standard format for exhibition internationally, it will also set a new benchmark for local films in enhancing viewers' cinematic experience. Having Technicolor as our technical partner will allow us to achieve the international standards of visual and audio quality at par with the world's best (Abdul, 2011).

Cooperation with foreign companies by the KRU Studio would be the best plan for the Malaysian film industry. Once again, how does the Malaysian government get into the action on this collaboration? Do they support by making a new policy or at least subsidize them or provide tax exemption? We still depend

on Technicolor Thailand, and have been waiting for when they cooperate and use Malaysia as a base station for their operation. The policy makers need to take this advantage, which is not only an advantage for the Malaysian film industry, but for the overall Malaysian economic system.

This factor will be explained further in chapter 4 when I clarify the current thinking about Malaysian film workflow regarding their problems and how they handle them. On this basis, the policy maker, which is the Malaysian government agency in this research, needs to intervene in the Malaysian film industry. By recognizing the principle of their rule, types of filmmaker and the influence of foreign elements, this deeper understanding could benefit the film community. As Foucault argues:

What rule could it be obeying, by both its existence and its disappearance? If it contains a principle of coherence within itself, where could come the foreign element capable of rebutting it? How can a thought melt away before anything other than itself? Generally speaking, what does it mean, no longer being able to think a certain thought? Or to introduce a new thought? (Foucault, 1974,p.50).

As stated in Foucault's quote above, we could follow some existing rules and some will disappear or be replaced by new rules. Policy makers in Malaysia should review or discover new strategies, whereas, in the current situation, it seems that the foreign element could rebut the direction of their policy. Malaysian government might not just concentrate on opening up new channels for investment by providing sources of capital. New idea or strategies from the research or any development program would be the answer for new rule. The fresh suggestions or thinking, as the adoption of foreign or local plan and techniques would be the best solution while new ideas must come from the local authority.

The film industry is very fragile and operates in unpredictable markets. Therefore, before attempting to intervene in a creative system, the policy makers need to start by identifying and understanding the activity that already exists. Research into the creative industry has been hampered by a lack of clear definitions, which is interrelated to the understanding in the industry itself.

Policy makers should think of new ideas for the policy that could be implemented in the industry. It seems to be the case that, especially in creative industries, the policy makers are not from the same background as the practitioners. In the scope of this research, in particular, the Malaysian film industry, the first observation about policy makers is that they clearly have no film background, which might account for some misinterpretation in terms of basic needs and knowledge. According to Bilton:

Building alliances across different policy streams including economic development, social development and cultural development requires that policy makers themselves become a ‘networked’ organization in order to make effective interventions in creative system. That old political mantra, ‘joined up thinking’, needs to extend horizontally across departments, not just downwards from strategy to implementation (Bilton, 2007,p.60).

As in the above suggestion by Bilton, to build alliances across different policy streams including economic development, social development and cultural development, it is required that the policymakers themselves become a ‘networked’ organization in order to make effective interventions in the creative systems. This needs a lot of clarification and understanding between the policymaker (government agency in this research) and the creative community (the Malaysian filmmakers). This factor integrates with one of the research questions stated in chapter one: What kind of development and improvement should the Malaysian film industry focus on to develop the industry?

### **1.8 Colour and Light in Film Workflow**

As with other art forms, colour is closely related to the medium of film; it is exploited as a result of an increasing desire to interpret directorial vision and presentation of meanings. Creating colour in films is one of the important stages of film workflow. Colour can express the director’s imagination and wish-fulfilment, and create artistic scenes and ambience. Most importantly, the use and arrangement of colour enables us to create beauty and harmony in the film and express the director’s vision and personal taste from the blue print to celluloid film. Exploring the workflow processes could only be accomplished by a

dedicated job in film workflow processes. This relates to my research objectives to examine and analyse, in both a textual and industrial context, the colour film workflow.

Within the scope of this research that mention earlier in this chapter, the film workflow means the stages in the process that the film goes through. The research data in this study have been gathered production to post-production processes. From the preliminary research interview, currently a high proportion of the work in Malaysian film has been processed using foreign facilities and expertise. Furthermore, there is a myth among Malaysian filmmakers, which says that shooting in temperate countries is better because they have better lighting colour temperatures. These workflow complications start from the cinematographer's or director's view of their vision throughout their film. As describes by Malkiewicz in this quote below:

The “light memory” for the lighting cameraman is similar to the musical memory necessary for a musician (Malkiewicz,1986, p.1)

This suggests for the aspect of a cinematographer's practice that the responsibility is to capture light and colour temperatures. The primary aim is to capture, to differentiate, to manipulate, to recognize and to understand how light relates to colour temperature and how it influences the images, either in grainy celluloid film or video pixels. In accordance with this statement, I have come to recognize that colour temperature is not as important as colour: both the colour of objects and the background of the place. I understand that this representation of colourful cultural richness could engender the critical viewer's appreciation of the cinematic images. In creating these alternative images, through detailed analysis of the selected approaches, I shall determine the characteristics of an intervention that will support my understanding and inform my own practice as a cinematographer. These film visions start with an understanding of how the images were produced, which includes an understanding of colour and light. This understanding would be the best solution to enhance all the data in this research, while, at the same time, the researcher could use this data and justification to prove the findings. As Roderick points out:

Color as we speak of it in photography is quite different from the pigments of the painter. Since it is a characteristic of light it is well to begin any study of color by examining the nature of light itself (Roderick, 1977,p.11).

In consequence of the nature of this research, here Roderick refers to the importance of understanding and examine light in my study. As a cinematographer and film academician this method could be the most important factor in the academic approach to this research. Light has its own characteristics; as Roderick describes, light travels in straight lines, it can also be bent and focused by means of a lens, and it can be dispersed by a prism. It is made of waves of radiant energy of varying wavelengths, and these wavelengths can be located in the electromagnetic spectrum and identified. Finally, and very importantly, light is the physical cause of the sensation of sight.

The nature of colour perception together with our understanding of it is very important throughout this research, and constitutes one of the benchmarks to understand the colour perception of the filmmaker, and how, as artist filmmakers, we understand the nature of colour before we manipulate it in our artwork. As mentioned in chapter one, the main concern of this research is to review the current Malaysian workflow processes; as filmmakers it is very important to understand the nature of colour before we manipulate it. As Varley describes it:

The purest, most brilliant light was, they said, white light. But if white light were mixed with a little shadow, it became red light, just as the red glow of sunrise at sunset came in between the brilliant whiteness of daylight and the blackness of night, or the red glow of a fire was caused by the fire's white light mixing with the darkness of the smoke. A greater proportion of shadow still would give rise to blue, the nearest colour to black; this, they correctly assumed, was not a colour, but resulted from a privation of light (Varley, 1980, p.12).

The theory above was not precise enough to indicate the full understanding of the colour spectrum and exact factual measurement of light. However, those understandings are still important to the context of filmmakers who want to

capture colour in their shot. For the exact understanding of the colour spectrum, we could reflect on Sir Isaac Newton who investigated something entirely different in terms of the spectrum of light. According to Varley, this led in turn to the explanation of how it is that colours are produced. Towards the end of the nineteenth-century, James Clerk Maxwell had identified them all as belonging to the same range of the electromagnetic spectrum (see figure below). Here we could see the visible light in the electromagnetic spectrum. This visible light is the important quality for filmmakers to capture as their artwork.

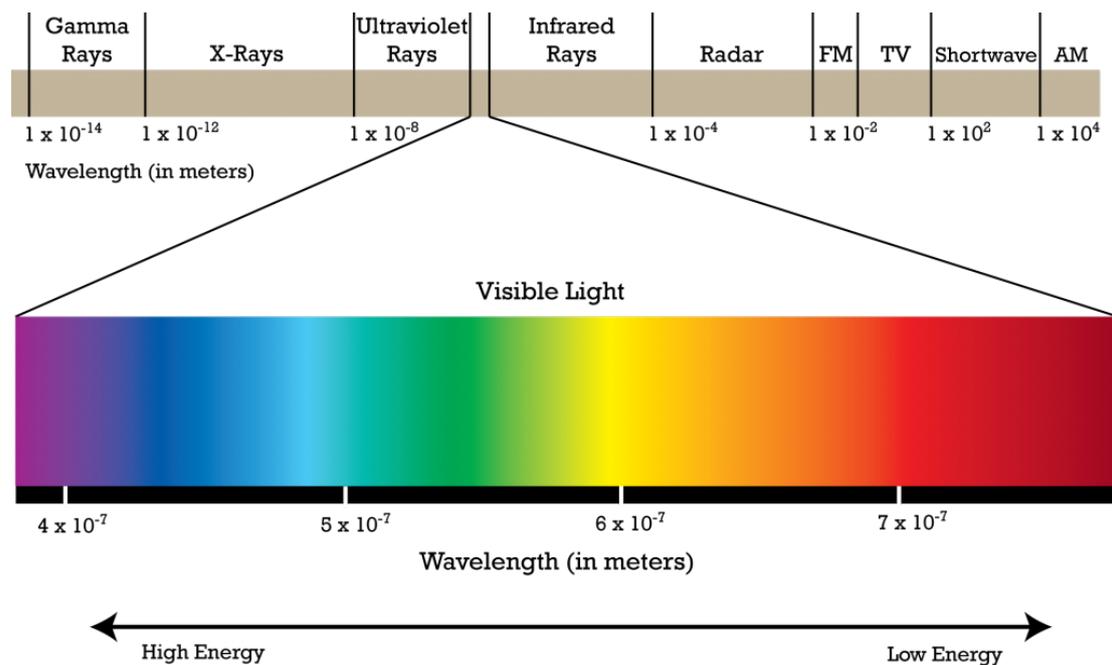


Figure 3: Visible light in the electromagnetic spectrum chart (Used with permission of McCombs, S, 2016).

Before we go further to the film workflow, we begin with a review and understanding of light and colour. It is because there is some justification of colour differences and colour perception that will be discussed in the filmstrips test later in chapter 2. In motion pictures, the concepts of light are presented in additive and subtractive colour and their respective primaries are often critically important for filmmaking. The human eye is sensitive to electromagnetic radiation with wavelengths between about 380 and 700 nanometres.

The color of light is the colored appearance of the radiation of light source. It is produced by the differential spectral composition of light (Kupper, 1992, p.15).

As the above quote states, this radiation is known as light. The visible spectrum is illustrated below (Figure 3). The eye has three classes of colour-sensitive light receptors called cones, which respond roughly to red, blue and green light. A range of colours can be reproduced by one of two complementary approaches:

**Additive colour:** Combined light sources, starting with darkness (black). The additive primary colours are red (R), green (G), and blue (B). Adding R and G light makes yellow (Y). Similarly, G + B = cyan (C) and R + B = magenta (M). Combining all three additive primaries makes white.

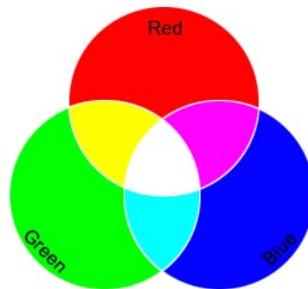


Figure 4 : Illustration of Additive Colour Diagram (Used with permission of McCombs, S, 2016)

Subtractive colour refers to illuminated objects that contain dyes or pigments that remove portions of the visible spectrum. The objects may either transmit light (transparencies) or reflect light (paper, for example). The subtractive primaries are C, M and Y. Cyan absorbs red; hence, C is sometimes called "minus red" (-R). Similarly, M is -G and Y is -B. The two approaches are illustrated and described in the figure below.

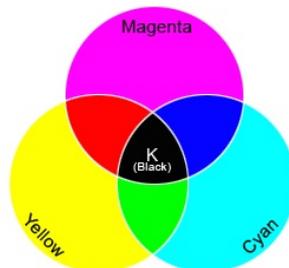


Figure 5: Illustration of Subtractive Colour Diagram (Used with permission of McCombs, S, 2016)

Unfortunately, ideal C, Y and M inks do not exist; the subtractive primaries do not entirely remove their complements (R, B and G). This is not a problem for film technology, because, in film, light is transmitted through three separate dye layers. Primarily the Red, Green and Blue are an important additive colour in the Film and Media area. Varley interprets this as:

Adding red, green and blue lights together does not only produce “white” light: by varying the intensities of the three primaries, almost any other colour can be obtained. On the chromaticity chart, [figure 6 below] the light primaries are marked by the vertices of the inner triangle; their intensity lessen in relation to their distance from the source. Using such a graph, the television engineer can define any colour in terms of the primaries needed to mix it: colour X is a mixture of 35% green, 45% red and 20% blue. The range of colours within the inner triangle, then, results from mixtures of the three primaries and represents all the colours reproducible on television (Varley, 1980, p.13).

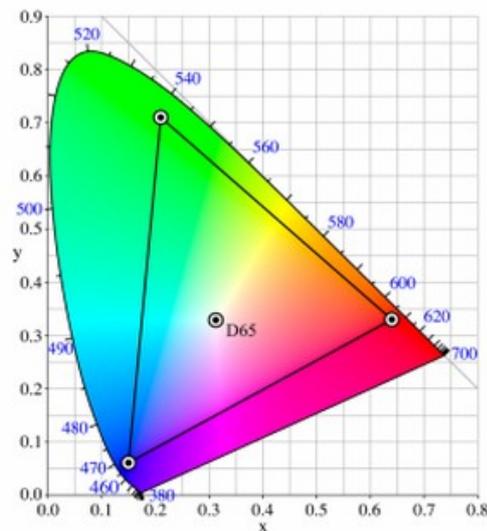


Figure 6; Primaries of Red, Green and Blue Film and Media. (Used with permission of Flemming, M, 2009)

The above chromaticity chart shows the method in television to justify the calibration adjustment in their system. Those primary colours are the benchmark for the practitioners to clarify their standard calibration. In this research, I comprehend the same method to justify the primary colour output of two different laboratories. As mentioned earlier in the chapter, the colour calibration in Malaysia or any tropical country could be different from a

temperate country. According to this literature review it is a standard calibration but in other way could the measurement have been done in temperate or tropical country? This justification is the main factor to differentiate the primary differences between the two laboratories in Malaysian and Thailand. This will be discussed and justified further in chapter 5.

### **1.8.1 Tungsten and Daylight Colour Temperature**

Tungsten and discharge light are the most common artificial light sources that are used by filmmakers all over the world. Most filmmakers understand the purpose of light in their own practice. Cinematographers understand the usage of tungsten and daylight colour temperature. Both lights produce a range of colour temperatures and this consistency between daylight and tungsten is the main factor for the cinematographer to create their colour tones. Fitt and Thornley make this clear:

Fortunately every lamp manufacturer provides the relevant information which is peculiar to his product so it is necessary first to determine the make and type of the lamp. A typical example would be type: CP-40 (ANSI code FKJ) 240V, 1000W, 3200K, 26 lumens per watt, thus giving a total of 26,000 lumens and life of 200hours (Fitt & Thornley, 1992,p.52).

In relation to this quote, tungsten artificial light is the same from all manufacturers. The standard 3200-Kelvin colour temperatures are the main factor producing lighting in low-key light. This is the standard technical device that has to be explored by filmmakers with only intensity being the main controller for the cinematographer to change the colour temperature's output. However, it might also be the environment, which will be an important factor affecting the quality output. According to Tregenza and Loa:

The colour appearance of a discharge lamp is specified by the correlated colour temperature (CCT): temperature in Kelvins of the black-body radiation that appears closest to the colour appearance of light from the lamp. A colour temperature below 3300k is often described as warm, between 3300 and 5300k as intermediate, and over 5300K as cold. (Tregenza & Loa, 1998, p.23)

In cinematographic terms, warm relates to low Kelvin temperature (below 3300 Kelvin) usually called low key lighting, and cold relates to high Kelvin temperature (over 5300 K), which is often called high key lighting. This is also indicated by the f-stop in a camera device. We use a low f-stop for low-key lighting and for the high key, we use a high f-stop. The low f-stop will create a shallow depth-of-field, which creates less space in the scene and the high f-stop will create a high depth-of-field which is a spacious scene. After all, this is a daily practice in the use of technical devices and shooting principles in cinematography.

In relation to that fact and as mentioned earlier in the chapter, there is a myth among Malaysian filmmakers which says that shooting in temperate countries is better because they have better lighting colour temperatures. For the film industry, this process is related to film workflow management. In film workflow, colours change in several stages either in the capturing, scanning, postproduction or printing stage.

The colour temperature of a light source is determined by comparing its chromaticity with that of an ideal black-body radiator. The temperature is usually measured in kelvin (K), which marks the degree to which the heated black-body radiator matches the colour of the light source, thus giving that source's colour temperature. In the sense of environment it will refer to the place but in the film workflow processes the application of colour re-production in production and post-production interrelated with the creativity and quality control of the workflow. This is based on the mathematical model standard that have been applied since 1931, the CIE model.

The CIE (Commission Internationale de l'Éclairage or International Commission on Illumination) diagram was an abstract, two-dimensional (missing luminance) mathematical chromaticity model as shown next.

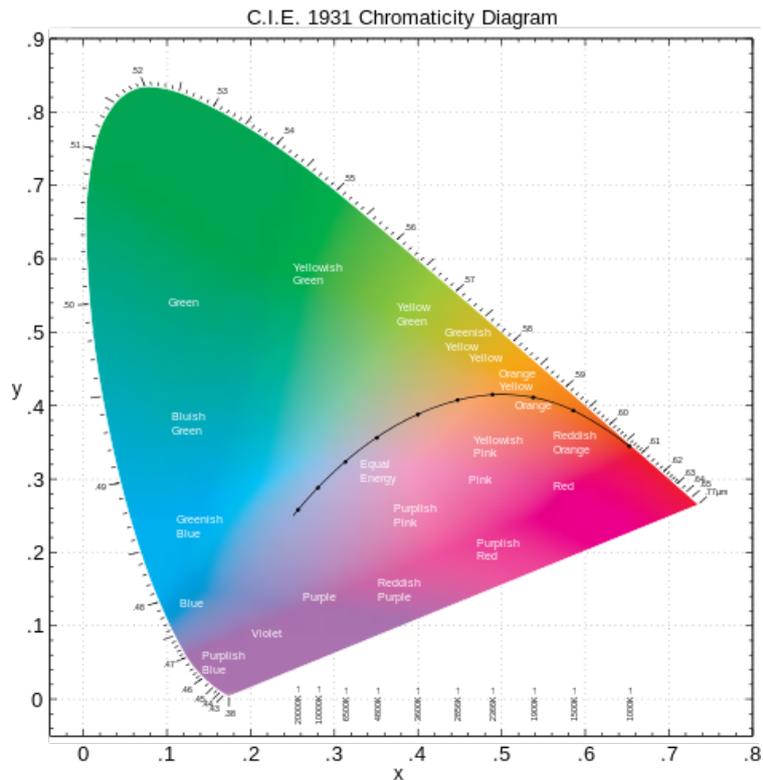


Figure 7: The CIE 1931 xy colour space chromaticity diagram (Used with permission of Flemming, M, 2009)

4

In respect of the above CIE x, y chromaticity space, in this research, I applied this plotting to my filmstrip experimentation concerning the colour difference comparisons between two different laboratories in Malaysia and Thailand to quantify the Malaysian filmmakers' preference for particular colour film workflow processes.

### 1.8.2 Lighting Colour Temperature

Colour temperature is a characteristic of visible light that has important applications in lighting, photography, videography, publishing, manufacturing, astrophysics, and other fields. The colour temperature of a light source is the temperature of an ideal black-body radiator that radiates light of comparable hue to that light source as Garry describes:

<sup>4</sup> The outer curved boundary is the spectral (or monochromatic) locus, with wavelengths shown in nanometres. Note that the image itself describes colours using sRGB, and colours outside the sRGB gamut cannot be displayed properly. Depending on the colour space and calibration of your display device, the sRGB colours may not be displayed properly either. This diagram displays the maximally saturated bright colours that can be produced by a computer monitor or television set.

Colour temperature is the colour-rendering qualities of a light source (Garry, 1999, p.3).

Through the above definitions and the evidence gathered from Malaysian filmmakers saying that the colour temperatures of the Malaysian environment affect their film workflow, I undertook to use a number of methods to dispel that myth, as mentioned earlier.

In this research, understanding light could be more important than knowing about types of light. As a cinematographer, I believe that most of the time when we work we do measure light, and, in addition, try to correct it based on our imagination of the director's need. As in the following quote from Ames, Newton's theory about light and colours could be the beginning point for this research:

Newton concluded that light is the source. He also identified seven basic colours in the light spectrum: red, orange, yellow, green, cyan, indigo and purple (Ames, 1996, p.12).

As a cinematographer, I believe that Newton's experimentation with light was the starting point for his understanding about lighting. In this experimentation, we are able to see that in white light we do have a lot of colours. The intensity of colour in light might be different in relation to another colour. The intensity of lighting might change according to how much light we perceive and what kind of light we receive. For example, lighting from the environment (Sun) changes from sunrise until sunset and involves variations in light intensity and colour changes.

Thomas Young the physicist carried out Newton's experiment and discovered that mixing three lights – red, green and blue – produces white light. Those three colours are considered to be the primary colours in the additive spectrum (Ames, 1996). Young tried to experiment with and explore colour characteristics in lighting. The clarification of three primary colours (red, blue, green) producing an additive colour is an example of the classification of colours in lighting. From my point of view, a scientist usually tries to understand, measure and value colours, which is quite different to an artist (cinematographer), as although we do read or measure the value of colour, we never understand the colour's

scientific value. The cinematographer simply measures light, and, based on the cinematographer's guide chart, just makes corrections with other technical devices. Overall, we could say that the scientist wants to understand, and the cinematographer wants to know whether they are producing the right cinematographer colour constancy or not.

As a cinematographer, I could explain that his or her routine job in film shots is measuring colour without knowing the correct value. From the measurement, the cinematographer will correct with camera accessories, such as filters or other devices. That is the regular film workflow in the production stages. As a result, the cinematographer knows about colour according to the instructions for the device and tries to apply it to the shooting environment. Therefore, in the end, the cinematographer is not really aware of the value of colour in light. In this case, I clarify that the cinematographer does understand colour's meaning in the creative area but does not particularly want to understand the value of light in detail. As long as cinematographers achieve the colours that they want, this tends to be enough for film production. This interrelates with the final objectives in this research whereby I want to explore, plan and reflect on the responses of Malaysian filmmakers regarding colour film workflow difficulties and challenges in Malaysia, and use the findings to establish a benchmark to develop, modify and improve film workflow practices in Malaysia.

### **1.8.3 Colour and Light Measurement in Early Film**

Light is a very important factor to capture objects or images. In filmic images some directors might say that a totally dark image could carry meaning, while light is a prime means of image enhancement in film. In my experience, the theory that colour doesn't exist without light is borne out. Furthermore, what we can explain in scientific terms is that light is the portion of electromagnetic radiation that is visible to the human eye, and is responsible for the sense of sight. At the beginning of film workflow, controlling light is one of the important factors. Controlling light means we have full control of our eyes, which determine colour in our images. Anything that needs to be controlled has to have data measurement. As described by Johnston below:

On a cool Ides of March in 1858, a handful of people across central England stood outdoors and watched the sunlight fade. One peered at a newspaper; another carefully positioned a lit candle as he squinted at the sun; a third held up a thermometer. Near Oxford an enthusiast tried to cast shadows with an oil lamp, while in Northamptonshire another uncovered his last slip of photographic paper (Johnston, 2011, p.1).

The experiments to measure light intensity were started in 1858 as mentioned in the quote by Sean Johnston from his book entitled *Making Light Count* (2001). Johnston stated that for the earliest astronomer observers the intensity of quantitative data was not relevant to the degree of quantification:

The records of the 1858 eclipse suggest the ambivalence of these astronomical observers towards quantitative intensity data. There was no consensus about what methods were relevant, nor on what degree of 'quantification' was useful ... Indeed, the quantitative measurement of light intensity was not commonplace until the 1930s. To modern observers, usually imbued with a strong faith in the merits of numbers, it may seem anomalous that scientists and engineers came routinely to measure such an ubiquitous attribute as the brightness of light so long after quantification had become central to other fields of science (Johnston, 2011, p.2).

Johnston also stresses that the measurement of visible light intensity was not practised until the 1930s. If we look through and link it with the history of film, the relevance of measuring light might not have existed in the early filmmaking. However, light intensity needs to be measured to ensure the correct amount of light on film celluloid. Thus, most of the early films were shot in black and white film, so cinematographers at that time must have been concerned about the amount of light that went through the lens, film gate and film plane. This consequence is related to what was the perception of light among artists compared to the perception of light among scientists.

In this research, colour film workflow refers to colour film in motion pictures. It is specifically relevant to both unexposed colour photographic film in a format that is suitable for use in a 35mm motion picture camera, and to finished motion

picture film, ready for use in a projector, which bears images in colour. According to Hart:

The quest to produce motion pictures in realistic colors began the instant that the first hand cranked cine camera turned. A variety of assorted methods achieved varying degrees of technical and commercial success prior to the introduction of three strip full color Technicolor® in 1934 (Hart, 2008).

The evolution from Technicolor was the beginning of realistic colour capture in the motion film industry. From that moment, colour film replaced the black and white format that existed before. In Malaysia, black and white film still existed until the 1960s. This was because the cost of colour film was very expensive and the involvement of colour film workflow only started in 1953 when *Buloh Perindu (Magic Flute)* was produced by Cathay Keris. The exploration of the historical context and its relation to film workflow processes will be discussed further in chapter 3 of this dissertation.

#### **1.8.4 Summary of Overall Formal Literature**

The compilation of literature in this chapter was essential in providing substance to my research. This helped me to develop my research questions as indicated earlier and identify the knowledge gaps that I have the potential to fill. Most of the literature listed and described above was chosen on the basis of reading and suggestions from my supervisors. This selection was also based on experience and knowledge related to the field of study. In relation to this, I wondered how far the global history of colour film workflow could equate with the issues relating to Malaysian film workflow. Through the understanding and analysis of these texts, I was influenced to shape my research approaches, build up connections for further discussion, and, most importantly, create appropriate research methods and clarify content.

Since there is limited research identifying the problematic processes of colour film workflow from the perspective of expert witnesses, I believe it was worth conducting a different enquiry in order to add to the body of knowledge in this specialist area. Furthermore, as a film academic in Malaysia, I am motivated to

develop and contribute to the technical knowledge in the field of film, adding to the very limited studies and literature reviews in Malaysia as I mentioned earlier in this chapter. For this reason, the next chapter is a presentation of the Malaysian film history, showing how it relates to colour film workflow history and technology.

At the end of this research, the work produced will be used in an intensive discussion (seminar or presentation of working paper) at a related colour conference or colour vision conference. It is hoped this discussion and reflection will pinpoint any relationship between technical issues that have been identified in existing Malaysian film industry workflow. It also aims to provide a platform for participants to understand the function and concept of common film workflow in the Malaysian national film industry. The input from such discussion may give impetus to developing an alternative approach, which will benefit the film industry.

Argument and analysis in this research based on the theoretical and video documentation evidence of Malaysian film workflow will be used for the benefit of the Malaysian film Industry. All processes and evidence from the Malaysian film industry were recorded through written submissions and video documentation. In addition, the Malaysian government to improve the Malaysian film workflow could also use the suggestions from this research. It also provides a guide for foreign filmmakers who get involved in film practice in Malaysia or surrounding areas. The researcher also hopes that the methods used can be transferred to solve other film industry problems or those in other specialist areas.

## **1.9 Organization of the Thesis**

I have decided to divide this dissertation into six chapters. This introduction has reviewed how the overall thesis is structured together with a literature review and the introduction of the methodologies applied. The literature review covers a description of previous literature about colour theory and lighting colour temperatures. This is followed by a brief description about the colour film workflow technology, together with knowledge transfer and literature about policymaking. Chapter 2 describes the choice of my research methodologies, the

approaches that have been applied in this research and an elaboration of my filmstrip test as a tool to enhance the research data. It also explores how the methods and approaches in this research can enhance new knowledge. Chapter 3 is a presentation of Malaysian film history and how it relates to film workflow development, and the current Malaysian film workflow practice. Subsequently, Chapter 4 focuses on the current situation of Malaysian film workflow, followed by Chapter 5, which is an analysis of reflections and discussion with regard to all data with existing Malaysian filmmakers. Finally, the presentation of my findings and conclusion of this study are compiled in Chapter 6.

## **2.0 Research Methodologies**

### **2.1 Methodologies for Selecting the Requirements of the Research**

In light of the classification of the literature, opportunities are identified for integration and cross-fertilization between various research disciplines, such as the investigation of the history and applications of colour film workflow between the different research methods used. To bring together this diverse body of knowledge into a coherent whole, some directions for this research (in terms of content and methodology) are then formulated and applied for triangulation rather than the reliance upon a single method. In order to describe the development of the requirements that are used to evaluate the purpose of the thesis was successfully achieved, I have selected several methodologies for this research.

#### **2.1.1 Action Research**

Currently a high proportion of the work in Malaysian film has been processed using foreign facilities and expertise. It is envisaged that this research will raise awareness among Malaysian filmmakers and help them develop Malaysian film technologies and expertise locally. In order to do this the identification of a suitable methodology was required. According to Reason and Bradbury:

Action research is a participatory process concerned with developing practical knowing in the pursuit of worthwhile human purposes. It seeks to bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and their communities (Reason & Bradbury, 2008, p.11).

Through the focus on film workflow as the research subject matter, I realised that I needed to explore several stages in film production. In addition to these different stages, I also had to deal with different people in different specialist areas in the Malaysian film industry. The involvement of all stages in Malaysian film workflow was really important to produce valuable data for this research.

Interviews, questions and answers, debate, suggestions, comments, ideas and experience from Malaysian filmmakers have been combined and analysed. It is hoped this will produce findings that will lead to better Malaysian workflow processes in the future.

In accordance with these ideas, I tried to develop practical knowledge by observing and practising Malaysian film workflow. Throughout these action processes, I gathered reflections from Malaysian filmmakers on film workflow processes. Furthermore, a few filmmakers were involved in data sampling processes to fulfil the aim of participatory action research. A filmstrip test has been conducted with Malaysian cinematographers to make sure the participation in current film development relevance to this research. Acting on these reflections, participation, and knowledge transfer, I hoped to pursue practical solutions.

### **2.1.2 Participatory Action Research**

My previous experience in the Malaysian film industry and my awareness as an academic led me to choose the participatory action research method. Having some experience and knowing some people in the Malaysian film industry built up my confidence to carry out this method through the overall research. Whyte defines it thus:

Participatory action research is applied research, but it also contrasts sharply with the most common type of applied research, in which researchers served as professional experts, designing the project, gathering the data, interpreting the finding, and recommending action to the client organization. Like the conventional model of pure research, this also is an elitist model of research relationships. In Participatory action research, some of the members of the organization we study are actively engaged in the quest for information and ideas to guide their future actions (Whyte, 1991, p.20).

I have tried to communicate with Malaysian filmmakers as well as some government agencies that are responsible for the Malaysian film industry. Some of them communicated actively, including the cinematographer involved directly in my filmstrip experiment, which helped it become a model of scientific

quantitative data that proves the comparative differences between two different laboratories in Malaysia and Thailand.

Whyte explains that:

Participatory action research can be organized in a variety of forms that are just being explored. It is clear, however, that the scientific demands and possibilities of participatory action research are considerable, an argument we will make in the abstract and then support with reference to the participatory case studies (Whyte, 1991, p.20-21).

Overall, this research indicates subjective interpretations of Malaysian film workflow processes, and does not find a particular reason why some Malaysian filmmakers still use foreign expertise. The quote above emphasizes the need for scientific data that would prove the objective approaches; accordingly, I have verified that scientific data should be included in this research. This scientific data should support the subjective and social data, which is qualitative.

To realise this approach I applied an action research method and became involved in the Malaysian film industry. I participated and worked together with Malaysian filmmakers in order to fully identify how the action research would be applied. Through participatory problem solving, I experienced and performed shooting practice in the Malaysian film industry and tried to suggest alternative film workflow by optimising the use of facilities and film expertise in Malaysia. Greenwood and Levin make clear that action research is :

a form of research that generates knowledge claims for the express purpose of taking action to promote social change and social analysis (Greenwood & Levin, 1998,p. 261).

I implemented a cycle of action research that plans, acts, observes and reflects. Working from preliminary research, Malaysian filmmakers' reflection on film workflow processes have been the basis of the researcher's plan, action and strategies to implement the next stage in the Malaysian film workflow, as explained in the next chart.

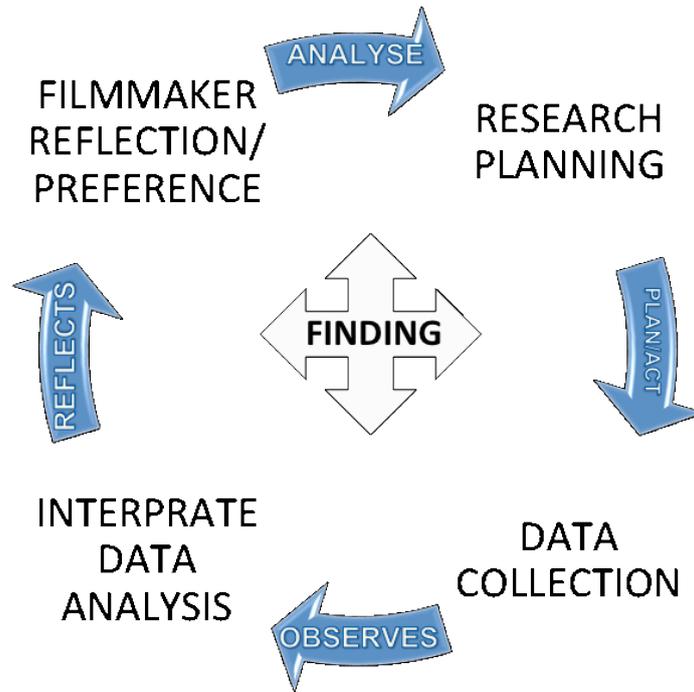


Figure 8: Action Research Cycle in this Research (Dim, AR, 2011)

### 2.1.3 Action Research Cycle Applied in this Research

The above action research cycle chart has been created in this research and applied since the beginning. This cycle chart has been created and adapted from the basic action research cycle form. The researcher has tried to coordinate and change the method of circulation in accordance with the research implementation and practicality. Following the action research cycle above, I have tried to gather as much relevant data from the industry. Those filmstrip test results were quantitative and would be justified as relevant data to enhance the qualitative data provided by discussion with expert witnesses. These interactions with, and the reflections of the Malaysian filmmakers and their relation with film workflow will be discussed in Chapter 5. Taking into account the limitations that have been drawn in this research, I would say that the cycle of action research that was applied could provide new evidence to enhance similar research areas, and, at the same time, resolve the research questions.

#### **2.1.4 The Combination of Two Different Methods**

In this research, combining two research methods is the best way to produce a more relevance methodology-based research results. According to Bryman:

Although the calls for the use of multiple methods in the framework of one study are maybe even older than the quantitative-qualitative debate, the area of 'how, when and why different methods might be combined' has got much less attention than the philosophical aspects of paradigmatic view (Bryman, 1988, p.155)

In this research, there was a concern with the aspect of combining divergent methodologies. In most of the literature, which is classified under the broad area of combining qualitative and quantitative approaches, there are arguments why this integration is possible and needed. For this research, there are some considerable reasons for the combining of quantitative and qualitative methodologies for the basic needs of the research.

I tried to combine quantitative and qualitative research methodologies in the study of the same phenomenon, broadly defined by Denzin (1978:291) as triangulation. The triangulation metaphor is from navigation and military strategy, which uses multiple reference points to locate an object's exact position:

Given basic principles of geometry, multiple viewpoints allow for greater accuracy. Similarly, organizational researchers can improve the accuracy of their judgements by collecting different kinds of data bearing on the same phenomenon (Jick, 1979, p.602).

The quote above brought me to the rationale of doing this research as a combined or mixed method between the quantitative and qualitative. Thus, on the qualitative side, a huge range of data was considered in this research and the quantitative data provided the strength to prove the differences in the technical data. The combination became the benchmark for the findings of the research. The research data processing is shown in the next chart:



### **2.1.5 The Process of the Filmstrips Test**

To comply with these methods of research, I shot a number of filmstrips for data sampling. The footage was shot in Malaysia and processed by two different laboratories, one in Thailand and one in Malaysia. I examined and measured these data samplings. This helped clarify and compare whether the laboratories in Malaysia and Thailand achieve industry standards, and helped quantify the colour differences.

For the next stage, I also asked the Malaysian filmmakers in the reflection stage about their preference concerning the filmstrip experimentation. In response to the idea above, I was able to design a systematic pattern for easy data analysing processes to help the Malaysian filmmakers to understand their colour preference based on the data collected.

In this research, there were two forms of implementation towards action research practice: interpretive and action. However, in this phase, action research was the main method, and scientific data were processed and analysed. Because of the technical and scientific nature of this part of the research, the data obtained in this filmstrip test were largely quantitative. This quantitative data was the only factual evidence to justify the comparison of colour data between two different laboratories. This quantitative data was predicted to be more subjective when I gathered data responses from Malaysian filmmakers in relation to the technical data that were collected from the filmstrip test.

In respect of this, I hoped it could bring about a positive correlation between the two laboratories and thus provide evidence that would promote social change within the Malaysian film industry.

Below is the data analysis pattern that I observed on the filmstrip test that was shot.

PARADIGM	TYPE OF DATA	METHODOLOGY	TECHNIQUE	UNIT OF ANALYSIS
Action (Inductive, qualitative)	Exploratory Qualitative data.	Exploratory Action research (action and theory-result of research aimed at change)	Participation Interviews	Colour measurement between laboratories in Malaysia and Thailand
Action and Reflections (Quantitative)	Exploratory and quantitative scientific data.	Participatory Action research (action and participation in Malaysian film industry)	Interviews, Reflections, Questionnaires	Malaysian filmmakers' responses to filmstrip test.
Reflection, Preference and Analysis	Descriptive	Reflection, preference, and comparison (Based on reflection and discussion from the Malaysian film industry).	Observation and Prediction	Relationship between comparative data collection result and Malaysian filmmakers' responses to the filmstrip test.

Table 1: Data Analysis Pattern Table for this Research.

This mixed method was intended to complement the two types of data; the qualitative data became the benchmark for discussion and prediction, which led to the enhancement of the qualitative data. This method was expected to clarify relevant research findings towards valuable suggestions to benefit the Malaysian film industry.

## 2.2 Methodology for Data Acquisition

In this research, several stages have been designed for data acquisition processes. The implementation of the action research circle that has been explained earlier in this chapter linked the process of data acquisition to enhanced research output. This methodology of data acquisition is important in order to make conclusion of this research. The Filmstrip Test and data sampling are important tools for this data acquisition.

### **2.2.1 Filmstrip Tests and Data Sampling**

The first stage of this research comprised the review of existing film workflow in the Malaysian film industry and the Malaysian filmmakers' responses towards Malaysian film workflow. In keeping with the focus of this research, and as mentioned in chapter 1, the relevance of this filmstrip test format is founded on my observation that in Malaysia most of the films produced employ 35mm film for their shooting and almost all of them use this format as their projection medium. Thus, a technical experimentation (35mm filmstrip test) using a Malaysian and Thai processing film workflow was applied. In this filmstrip test, I shot with the same camera and the same can of 35mm film stock. The film stock was divided into two and was sent to Malaysian and Thai laboratories. I realized that I needed to explore several stages of film production in the Malaysian film industry.

This experimentation focused on the production stage (in Malaysia) and comparative differences in the film processing stage between Malaysia and Thailand. This limitation was drawn because, in Malaysia, the post-production stage process is fairly hard to supervise. This uncontrollable process, which will be discussed later in chapter 5, is because we are using foreign expertise and facilities without our supervision. This complicated reproduction process of colour in each stage will clarify many aspects, which will be discussed, and, at the end, will be based on what the directors and producers need.

When it comes to colour manipulation, the colourist changes the outlook of the images. These processes affect the colour constancy and are based on the preferences of the colourist and director of the film. That is why in this filmstrip test I wanted to experiment up to the negative film processing stage and justify the differences between the differences in colour between the laboratories. I hope this factual data would justify the technical colour differences during the reflection and discussion stage with expert witnesses in the Malaysian film industry.

## 2.2.2 Colour Difference Measurements

The primary objective in this filmstrip test was the colour difference between two different laboratories. To ensure this measurement of colour difference the measurement needs to be precise. To achieve this precision there are some limitations to colour matching and measurement:

The colour matching functions of the C.I.E<sup>5</sup> standard observer specify the mixtures of the red, green and blue matching stimuli which produce perfect matches of the colours in the spectrum for that observer. In practice, however, there is a limit to the precision within which a real observer can make a match. With a visual colourimeter, for example, the instrument controls cannot be re-set to exactly the same reading in successive matches (Wright 1972, p.154).

As discussed in the quote above, there are some limitations to matching the colour measurement. However, this research indicates the comparative differences in data, and this limitation will not affect the processes of reaching the data comparison. These differences between two data could transform the tristimulus value<sup>4</sup> forming two sets of different curves to be shown in this research. These curves are shown later in this chapter in the section Processes of Filmstrip Analysis.

## 2.2.3 Qualitative Research Data

In selecting the best method for developing this research about colour film workflow, the preferred approach is related to the field of film production. In terms of the engagement of the real expert witnesses in the Malaysian film industry, the qualitative method is most appropriate because:

Qualitative inquiry means going into the field – into the real world of programs, organization, neighborhood, street corners – and getting close enough to the people and circumstance there to capture what is happening (Patton, 2002, p.48).

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<sup>5</sup> (CIE) - percentages of the components in a three-colour additive mixture necessary to match a color; in the CIE system, they are designated as X, Y and Z

Patton clearly states that the qualitative inquiry most closely matches the methods for this study. By becoming involved in the field of the Malaysian film industry, I could get close to the expert witnesses and maximize the chance to capture the truth of the circumstances. This was the main reason I choose to conduct the filmstrips test with the expert witnesses (selected Malaysian Cinematographers). This in-field and hands-on involvement in the Malaysian film industry exemplifies the participatory action research.

In this research, I collected qualitative data by interviewing chosen Malaysian filmmakers. It was hoped that these interviews would provide concrete qualitative data to support this research. With this method, it was possible to determine more accurately what happens in the Malaysian film industry. I had to explore and use this method because previous preliminary research showed that it was impossible to find literature related to Malaysian film workflow. The majority of books concerning the Malaysian film industry are related to history or the bibliography of filmmakers. Some of the references are (Malek & Jar, 2005) *Malaysian Film: The Beginning*, (Sulong, 1990) *Kaca Permata: Memori Seorang Pengarah or A Director's Memories* and Hussin H, (1997) *From Keris Film to Studio Merdeka*. Because of this research exploring film workflow production I used the in-depth interview method for the collection of data. I interviewed Malaysian filmmakers and recorded the interviews with a video camera. The raw data was in audio and video format that showed real interview interaction between the interviewer (researcher) and interviewee (Malaysian filmmakers). Conversation and speculation formed the interview, which was later interpreted and analysed. Clearly, communication with Malaysian filmmakers in the interviews was an important factor in successfully concluding this research. This dominant qualitative exercise involved analysing the contribution of the Malaysian film community in engaging in the quest for information and ideas.

The involvement in all stages in Malaysian film workflow was really important to produce valuable data for this research. Interviews, questions and answers, debate, suggestions, comments, ideas and experience from Malaysian filmmakers were combined and analysed. It is hoped this would produce findings that would lead to better Malaysian film workflow processes.

In accordance with these ideas, I tried to develop practical knowledge by observing and practising Malaysian film workflow. Throughout these action processes, I gathered reflections from Malaysian filmmakers on film workflow processes. Furthermore, the involvement of Raja Mukriz and his crew in data sampling processes was fundamental to the participatory action research. Acting on these reflections, participation, and knowledge transfer, I hoped to outline practical solutions. This is pointed out by Wright:

The measurement of colour may be undertaken for a variety of reasons, For some purposes a specification which has a national or international status may be required, as in the standardization of signal glasses; in some commercial transactions the description of sample in unambiguous terms is necessary to ensure that the product of an industry satisfy a customer's requirement (Wright, 1969, p.223).

One of the aims of this research is to suggest to the Malaysian Film Development Corporation (FINAS) certain enhancements that could be made to improve the Malaysian film workflow. These suggestions and recommendations need to be precise and meet the purpose of the Malaysian film industry. In respect of the quote above, all data and procedures need to be standardized in order to reach a national standard. For this purpose, an international status may be required to justify the level of national data. To ensure this data is compatible with the Malaysian film industry, I adopted some scientific colour measurement methods to ensure that the technical data analysis would be precise and accurate. This method was used to build up the Malaysian filmmakers' confidence towards the data, which enhanced their responses to my research.

#### **2.2.4 Quantitative Research Data**

Experimentation with filmstrip data sampling was expected to produce quantitative data. This quantitative technical data would hopefully justify and prove whether or not there were differences in the film workflow between two countries (Malaysia and Thailand). In the clarification of differences, there was an emphasis on colour and image quality. As a result of that quantitative experiment, I went on to analyse its interrelation with qualitative data from the reflection of the Malaysian filmmakers. These were implemented with the direct

interaction from the questionnaires that they answered from my website. These questions were based on colour preference, social, economic and other reasons affecting their film workflow processes. Furthermore, to get closer to the most accurate reflection, I performed the direct reflection from the selected Malaysian filmmakers, specifically, on the data collected from the filmstrip test, which was done through video interviews.

All film workflow processes involve the filmmaker's creativity in creating and manipulating the medium and developing final images. However, perhaps there are some differences in technical data that need to be clarified to ensure that all laboratories involved in the Malaysian film industry are satisfactory for the filmmakers. This clarification and the responses from the Malaysian filmmakers are intended to contribute to the development of imaging technology in the Malaysian film industry.

To strengthen this connection of participatory action research I have tried to experience and perform shooting practice with current and relevant practitioners in the Malaysian film industry. I cooperated with one production crew led by a top cinematographer in Malaysia, Raja Mukriz. It was hoped that this cooperation with Malaysian filmmakers would make them co-researchers who joined this research to enhance the participatory implementation. I utilized these action research methods in order to help develop better film workflow by optimizing the use of facilities and film expertise in Malaysia. As Sullivan describes below:

In relating the outcome of creative inquiry to relevant issues in the field, there is a degree of 'looking back' involved, as the research process first challenges the artist by the need to create and then uses this new awareness as the critical lens through which to examine existing phenomena (Sullivan, 2005, p.191).

In accordance with this quote, I have tried to examine the Malaysian film industry from the aspect of film workflow and how it applies in the current situation as well as how it is beneficial to the practitioners and future implementation. I hoped to raise the Malaysian filmmakers' awareness and suggest a new direction based on critical and practical analysis. Gray and

Malins point out:

With regard to epistemological issues, the practitioner is the researcher; from this informed perspective, the practitioner identifies researchable problems raised in practice, and respond through aspects of practice (Gray & Malins, 2004, p.20).

The ideas that emerged were interrelated with my own specialist area in cinematography and awareness as an academic in Malaysia, which strongly encouraged this exploration to develop the Malaysian film industry. This contribution has provided the application of better solutions in terms of shooting approach and film workflow development in Malaysia. All these methods and processes were documented on video.

### **2.2.5 Mixed Method Design**

Employing the qualitative and quantitative approach in this study also enables me to be reflexive throughout the analysis and thesis writing stages. I believe that the opportunity to share my practice and thoughts in cinematography on the matters that are highlighted in this study is valuable since it shaped the path of my PhD research endeavour.

As discussed in chapter one, my research focus and enquiry were influenced by my personal background as a cinematographer. This is interrelated with the nature of the research as a practice-based research. These reflections were relevant for inclusion in the writing of my findings chapter since they reinforced the notion of similarities and differences experienced by Malaysian filmmakers in the film industry. This could be supported by Malterud:

Reflexivity starts by identifying preconceptions brought into the project by the researcher, representing previous personal and professional experiences, pre-study beliefs about how things are and what is to be investigated, motivation and qualifications related to education and interest (Malterud, 2001, p.484).

After deciding to adopt the qualitative and quantitative approach for this research, my intention was to identify the most suitable method to execute the study. According to Creswell in his book entitled *Designing and Conducting Mixed Methods Research*:

This paradigm focuses on the experiences of individuals who suffer from discrimination or oppression and involves engaging in research that addresses power differentials (Mertens, 2003). It necessitates the understanding of multiple contexts, building trust between researchers and research participants, and developing meaningful ways of addressing the concerns of diverse groups (Creswell & Plano Clark, 2007, p.5)

In addition, because my experience as a cinematographer enabled me to access the Malaysian film industry, I could focus on practice related to film workflow processes to execute the research study. This research involved the individual filmmakers who work in the industry and the confusion and oppressive working conditions they face based on existing policy. Thus, this research addresses power differentials, which exist in the relationship between Malaysian filmmakers and the policy makers.

In accordance with the above clarification, it is necessary to understand the multiple contexts which this research approaches. I believe that these multiple contexts could enhance these relationships and build trust between Malaysian filmmakers and the Malaysian Government. I believe by choosing a mixed method I have clearly justify the context of my research and the execution. According to Creswell and Plano:

Mixed method research is a research design with philosophical assumptions as well as method of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative approaches in many phases in the research process. As a method, it focuses on collecting, analysing, and mixing both quantitative and qualitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination

provides a better understanding of research problems than either approach alone (Creswell & Plano Clark, 2007, p.5).

The video interviews in my preliminary research were done with a qualitative approach, but I thought there must be some additional approaches to better justify the research problem to the policymakers. As Creswell clearly stated above, in my series of studies I should focus on collecting, analysing and mixing both qualitative and quantitative approaches in combination to provide a better understanding of this research problem. Below are the workflow charts for the mixed method approach I adopted.

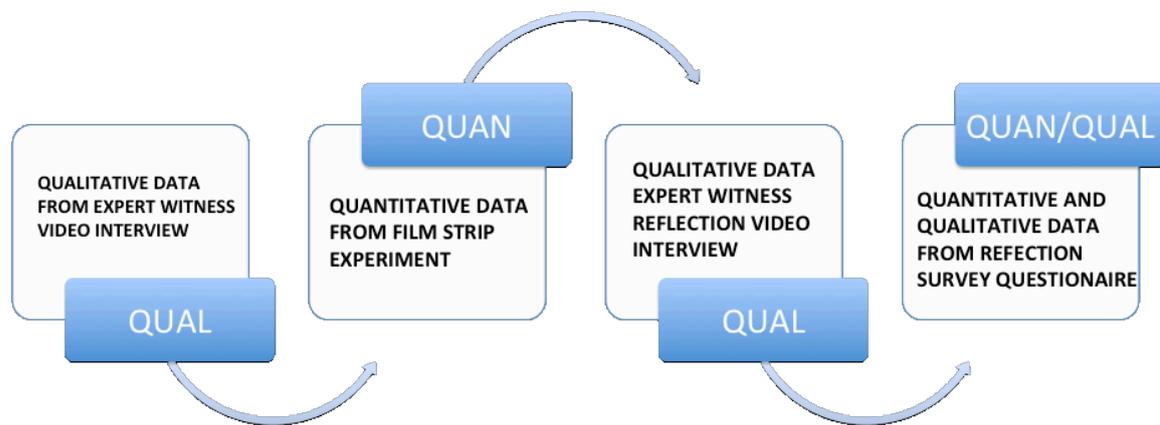


Figure 10: Research Processes Workflow Chart (Dim, AR, 2011)

Because the mixed method was chosen, the workflow chart above shows how the research used different methods for collecting and analysing different types of data. It was started in mid 2009 with the pilot study of collecting a number of Malaysian filmmakers' responses about the current problems in Malaysian film workflow processes. This action research approach showed how the Malaysian film industry has its own complications in film workflow processes.

After collecting this video evidence, I began to understand the real situation of the Malaysian film industry. This encouraged me to interrelate the process of this study with the research stages. As shown in the above charts, it starts with the qualitative approach of collecting video interviews from the Malaysian

filmmakers, which, in this research, is known as “expert review”. This review was done through video interviews and also includes the government officers, who are policyholders in the industry. I began to think that I needed quantitative data to validate the analysis of the qualitative result.

The second stage was the filmstrip experimentation, which applied the participatory action research method, and produced the quantitative data. Furthermore, these data were factual and showed the numeric differences of colour and images between two different laboratories (Malaysia and Thailand). This filmstrip test experimentation of film industry participation using a professional standard film approach, allowed a causal and factual interpretation towards the conclusions and findings for this research.

The third stage of this research involved the mixture of quantitative and qualitative approaches, whereby I framed ten questions, which included multiple-choice questions and some open-ended questions. Even though the expert witnesses involved in the video interview are the major filmmakers in the Malaysian film industry, it was still quite limited in terms of the number of participants. Therefore, I believed that I needed this further reflection survey. This survey stage was initiated in order to capture more general reflections from the film industry.

The fourth stage of my research was the observation and reflection of the current data. This qualitative data involved the earlier participants (Malaysian filmmakers) and others in the current data of the primary colour differences between laboratories in Malaysia and Thailand together with the complications concerning the Malaysian film workflow. This last stage of action research approach was designed to convey the conclusion and suggest solutions to the research problem stated in this research.

### **2.2.6 The Rationale for the Mixed Research Method**

In conjunction with the medium in my practice, I usually think that film is one form of universal art medium. Film involves different kinds of art form. After it started, just over 100 years ago, film became an art medium that related to other forms, such as fine arts, graphics, animation, illustration, fashion, performing arts, sound and the latest medium would be three-dimensional moving images.

Besides this art-based relation, film is also related to and needs support from other technology niche areas, such as engineering, science, and even marketing. This so-called new art medium has a unique approach of collaboration in its development. Thus, its qualities are particularly suited to a mixed method approach, in parallel with the ideas below:

Mixed method encourage researcher to collaborate across the sometimes-adversarial relationship between quantitative and qualitative researcher. We are social, behavioural, and human sciences researchers first, and dividing between quantitative and qualitative only serves to narrow the approaches and collaboration to inquiry (Creswell & Plano Clark 2007:9).

In conjunction with Creswell's statement, the collaboration of different media and technology in film reinforced my choice of different research method approaches to clarify the research questions and their execution. For these reasons, I concluded that the mixed method would be the best research approach to develop this research. To be specific, the mixed method that I applied falls under the explanatory design category.

### **2.2.7 Explanatory Design**

In this research, I have intended to initiate a two-phase form of explanatory design. In relation to this, according to Creswell, this design application can be used for a number of reasons. The first might be that:

Measures or instruments are not available, the variables are unknown, or there is no guiding framework or theory. Because this design begins qualitatively, it is best suited for exploring a phenomenon (Creswell & Plano Clark, 2003, p.73).

In accordance with this, as shown in the research workflow chart, I mainly designed this research in order to find a test instrument to justify the expert witnesses responses towards the further development in the industry and film practice. This encouraged me to explore and collaborate with other specialist areas of expertise to enhance the action research approach in relation to practice-based research application. Thus, the following reasons are particularly relevant to this research:

This design is particularly useful when a researcher needs to develop and test an instrument because one is not available (Creswell, Plano Clarks, 2004) or identify important variables to study quantitatively when variables are unknown. It is also appropriate when a researcher wants to generalize results to different groups (Morse, 1991), to test aspects of an emergent theory or classification (Morgan, 1998) or to explore a phenomenon in depth and then measure its prevalence (Creswell & Plano Clark, 2007, p.75).

The above quotes show how important it is to choose related variables to study quantitatively and reflect the result to a more general group, as I have applied in this research. In relation to this explanatory design mixed method that I have applied in this research, I needed to co-operate with other niche areas to find solutions to the research problem. These practice-based research processes would validate the research.

### **2.2.8 Circle of Practice Based Research**

In relation to this study, practice-based research was an integral part of the research process. This starts from the original proposal in combination with researcher practice, to the action research application, then the explanatory design mixed method leading to the production of written thesis. These interlinked processes are naturally of great interest to practice. It is hoped that this method would bear out the requirements of both the research and the taught degree practice-based route. Kemmis interprets this as:

Action research aims at changing three things: practitioners' practices, their understandings of their practices, and the conditions in which they practise. These three things – practices, how we understand them, and the conditions that shape them – are inevitably and incessantly bound together with each other (Kemmis, 2009, p.463).

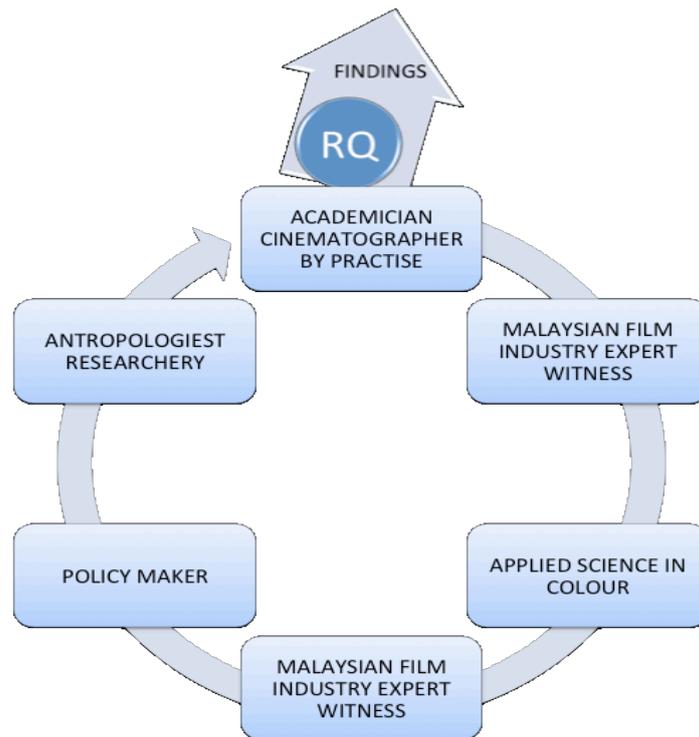


Figure 11: Circle of Practice-Base Research Chart (Dim, AR, 2011)

The above quote shows how action research aims could change three main elements in the processes of research: the practitioners' practices, the researcher's understandings of their practices, and the conditions of practice. In relation to this justification, I could state that in my research these elements existed in the processes prior to the end of the research. My knowledge and experience in Cinematography helps me to justify and understand the situation of current Malaysian film workflow. Thus, through the circle of observation and participation in the areas of participatory involvement with Malaysian film expert witnesses; involvement in applied science colour conferences and research support collaboration; and also discussion with the policy makers and discussion with social science, anthropology and education researchers.

Based on the factual data from the reflection from the expert witnesses are aimed at discovering the truth. At the same time I created questionnaires to connect quantitative data from the filmstrip test as a tool to interrogate the feelings and preferences of the expert witnesses. The above questionnaires were mainly to focus on the problem identified in preliminary research video interview. These survey reflection questionnaires were created to clarify general reflections from the industry. I distributed this questionnaire to the Malaysian

filmmakers personally during the video interview and by email. In addition, the Malaysian Colour Film Workflow Research Group in Facebook was established to enhance the reflections and discussion between the Malaysian filmmakers and the researcher. This was done to keep the pertinent people informed of the exploratory acts and was motivated to discover the truth.

The understanding that all these elements are interrelated to my practice as a film researcher helped me to fulfil my main role as film academician, scholar, and responsible cinematographer in the film industry. This guided me to interpret and justify the results in order to make suggestions for further development in relation to the industry practice.

### **2.2.9 Quantitative Data in Filmstrip Experimentation**

The filmstrip experimentation that supports participatory action research was applied, and it produced the quantitative data. Furthermore, these data were factual and shown in numeric differences of colour and images between two different laboratories (Malaysia and Thailand). This filmstrip test experimentation of film industry participation using a professional standard film approach may allow us to make causal and factual interpretation towards the conclusions and findings for this research. These variables were emphasized in several data plotting operations for the standard justification as Koppers describes below:

A system recommended by the Commission Internationale d'Eclairage in 1931 has attained great importance in science. It is known as 'Standard Valency System' or CIE system (Koppers, 1972, p.106).

In this research, I have adopted the CIE system for clarifying my colour data comparisons between two different laboratories in Malaysia and Thailand. This system complies with the standard of mathematical precision and permits the mathematical definition of all manifestations of colour. This factual data would satisfy the Malaysian filmmakers' perception of the results of the laboratories. According to Nave:

The CIE system characterizes colors by a luminance parameter Y and two color coordinates x and y which specify the point on the chromaticity diagram. This system offers more precision in color measurement than do the Munsell and Ostwald systems because the parameters are based on the spectral power distribution (SPD) of the light emitted from a colored object and are factored by sensitivity curves which have been measured for the human eye (Nave, 2001).

It is hoped that this CIE system and other colour plotting approaches could justify the differences in terms of luminance parameter between two different images from the previously selected laboratories. It is shown in the C.I.E. chromaticity and other plotting diagrams. This was analysed in terms of comparative differences between the two laboratories. This experimentation resulted from the filmstrip test that I shot, which was compared according to various approaches.

According to this CIE colour space, the human eye has three types of colour sensor that respond to different ranges of wavelength; a full plot of all visible colours is a three-dimensional figure. Furthermore, in CIE colour space, the concept of colour can be divided into two parts: brightness and chromaticity. For example, the colour white is a bright colour, while the grey colour is considered to be a less bright version of that same white. In other words, the chromaticity of white and grey are the same while their brightness differs. The CIE XYZ colour space was deliberately designed so that the Y parameter is a measure of the brightness or luminance of a colour. The chromaticity of a colour is then specified by the two derived parameters x and y, two of the three normalized values, which are functions of all three tristimulus values X, Y, and Z that are shown in the formula below:

$$x = \frac{X}{X + Y + Z}$$

$$y = \frac{Y}{X + Y + Z}$$

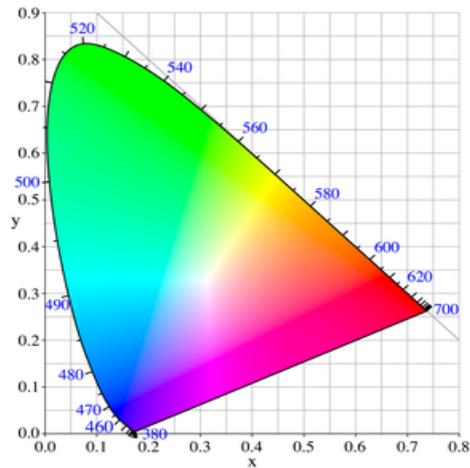


Figure 12: The CIE 1931 Colour Space Chromaticity Diagram Empty Model for plotting xy value for this Research Filmstrip Experiment. (Used with permission of Flemming, M, 2009)

The above figure of CIE colour space shows the related chromaticity diagram. The outer curved boundary is the spectral locus, with wavelengths shown in nanometres. Note that the chromaticity diagram is a tool to specify how the human eye will experience light with a given spectrum. It cannot specify colours of objects (or printing inks), since the chromaticity observed while looking at an object depends on the light source as well. Thus, in this research, it will comply with the perception of the Malaysian filmmakers' eyes that would evaluate and give their preference towards the colour space differences. Mathematically, x and y are projective coordinates and the colours of the chromaticity diagram occupy a region of the real projective plane. All this data will be presented and explained further in chapter 6, which is the practice section. Gillian interprets this below as:

If you are writing a discourse analysis, then, the argument about discourse, power and truth/knowledge are just as pertinent to your work as to the materials you are analyzing. Doing a discourse analysis demands some sort of critical reflection on your own research practice, then (Gillian, 2001, p.160).

In respect of the above quote, I would extend this research to how critical reflection in this practice research will benefit the Malaysian film industry. This was established through the practice-based research that was designed to show the technical differences between two sources of data. This result would help resolve the argument among Malaysian filmmakers concerning the film

workflow processes in which they are involved. Tonkis argues that the discourse analyst seeks to open statement:

the discourse analyst seeks to open up statement to challenge, interrogate taken-for-granted meaning, and disturb easy claims to objectivity in the texts they are reading. It would therefore be inconsistent to contend that the analysis own discourse was itself wholly objective, factual or generally true. (Tonkiss, 1998, p.245).

This reveals serious discussions about these film workflow processes with the Malaysian filmmakers are supported with the factual evidence from the practice research result. These conversations with existing Malaysian filmmakers could be used as evidence for the factual information about the Malaysian film industry. This discussion, together with conversation from video documentation and their interpretation with reference to previous literature are framed to link to the desired objectives in this research.

With regard to the above methods that have been applied in this research, it could be argued that the participatory aspect of the action research could enhance the evidence exploration of the review of the Malaysian film workflow. The search for evidence and information from the qualitative data, which is in audio-visual form, is supported by quantitative data from the filmstrip test. This quantitative data from the colour science approach provides evidence for the interpretation during the discussion and reflection from the Malaysian filmmakers. The interpretation, predictions, discussion and analysis develop a synthesis in this research and build the perspectives for new interventions towards resolving the research question of Malaysian film workflow conflicts.

### **2.3 The Setting of the Filmstrip Test**

The first stage of this research comprised the review of existing film workflow in the Malaysian film industry and the Malaysian filmmakers' responses towards Malaysian film workflow. In keeping with the focus of this research, and as mentioned in chapter 1, the relevancy of this filmstrip test format is founded on my observation and preliminary research that in Malaysia most of the films produced employ 35mm film for their shooting, and almost all use this format as

their projection medium. Thus, a technical experimentation (35mm filmstrip test) using a Malaysian and Thai processing film workflow was applied and it is relevant even though the digital format already exists in the Malaysian film industry. Furthermore, this 35mm filmstrip test aimed to determine the differences in the colour and film workflow between the local and foreign facilities. These differences would provide the data to justify to the Malaysian filmmakers in the reflection stages of this research.

In this filmstrip test, I shot with the same camera and same film stock. The film stock was divided into two and was sent to Malaysian and Thai laboratories. I realized that I needed to explore several stages of film production in the Malaysian film industry.

This experimentation focused on the production stage (in Malaysia) and comparative differences in the film processing stage between Malaysia and Thailand. This limitation was drawn because, in Malaysia, the post-production stage process is fairly hard to supervise. This uncontrollable process, as discussed in chapter 5, is because we are using foreign expertise and facilities without our supervision. This complicated reproduction process of colour in each stage will clarify many aspects, which will be discussed, and, at the end, will be based on what the directors and producers need.

When it comes to colour manipulation, the colourist changes the outlook of the images. These processes affect the colour constancy and are based on the preferences of the colourist and director. That is why in this filmstrip test I wanted to experiment up to the negative film processing stage and justify the differences between the differences in colour between the laboratories.

### **2.3.1 Colour Difference Measurements**

The primary objective in this research was the colour difference between two different laboratories. To ensure this measurement of colour difference the measurement needs to be precise. To achieve this precision there are some limitations to colour matching and measurement:

The colour matching functions of the C.I.E<sup>6</sup> standard observer specify the mixtures of the red, green and blue matching stimuli which produce perfect matches of the colours in the spectrum for that observer. In practice, however, there is a limit to the precision within which a real observer can make a match. With a visual colourimeter, for example, the instrument controls cannot be re-set to exactly the same reading in successive matches (Wright 1972,p.154).

As seen in the quote above, there are some limitations to matching the colour measurement. However, this research indicates the comparative differences in data, and this limitation will not affect the processes of reaching the data comparison. These differences between two data could transform the tristimulus value<sup>5</sup> forming two sets of different curves to be shown in this research. These curves are shown later in this chapter under section Processes of Filmstrip Analysis.

### **2.3.2 Colour Perception**

The colour consistency is always related to unexpected hue, saturation or brightness shift. It is disappointing to the cinematographer when they shoot images to get a particular colour effect to then find it distorted in their print. These problems are related to the colour consistency. As mentioned in chapter 4, even though the latest technologies are available, the main factors that affect the inconsistency of the Malaysian filmmakers colour appearance may be because of their dependence on foreign expertise and foreign facilities for their films.

In relation to this colour consistency, I particularly wanted to observe the differences between the two different laboratories, as this would ensure the quality of the remaining colours in the filmstrip test. Initially, I made a decision to only measure the standard procedure of film shooting of colour negative footage using a bench top spectrometer. In discussion with Dr. Carinna Parraman a slide scanner was suggested and it was agreed to use a negative scanner. This method was chosen as it enabled a direct process of comparison of the positive images by using software, such as Adobe. By using that method, the

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<sup>6</sup> (CIE) - percentages of the components in a three-colour additive mixture necessary to match a colorcolour; in the CIE system, they are designated as X, Y and Z

clarification of the Red, Green, Blue (RGB) model that I chose for this filmstrip is more accurate. It also uses readily available hardware and software and the procedure could be undertaken by Malaysian filmmakers as a way of comparing the colour consistency in their films.

I used the Nikon negative scanner from the Department of Photography, School of Creative Arts, UWE. This negative scanner scans true optical resolution, thereby enabling the best result out of my negative filmstrip test. Colour negative data sampling from the Malaysian and Thai laboratories were scanned. With respect to the results of the positive scanned images, I measured the negative data using the Adobe software, which is explained in section 4.5.6 in this chapter. All measurements were compared and analysed to convert them to data plotting. This graph plot would be a part of the data result that is discussed in the data reflection session in chapter 5.

It will ensure the quality of the remaining colours in the filmstrip test. Colour constancy is an example of how the human eyes colour perception system perceives the colour of objects in a subjective constant. This perception about colour constancy inspired me to explore further on the colour constancy perception from the Malaysian filmmakers.

The involvement in all stages in the Malaysian film workflow has been really important to produce valuable data for this research. Interviews, questions and answers, debate, suggestions, comments, ideas and experience from Malaysian filmmakers have been combined and analysed. It is hoped this will produce findings that will lead to better Malaysian film workflow processes. There are three important possible outcomes arising from this idea: enhancements for a new potential approach, a set of guidelines and a new management structure for film workflow processes.

### **2.3.3 Malaysian Filmmakers' Perception of Colour**

Colour perception can be understood in the way the human visual system processes and differentiates colour. The illumination in the environment might differ at different times of the day, but our visual system will assimilate colours relative to these changes. According to Forsyth:

People experience color as a surface property that is largely unaffected by the color of the illuminating light. This phenomenon is known as color constancy". (Forsyth, 1990, p.5).

This colour constancy also has relevance to the Malaysian filmmakers' belief or decision on colour perception. In addition, colour perception is also dependent on cultural values and colour terms. Wright argues that:

The processes of visual adaptation could largely compensate for changes in level and colour of the illumination and hence produce a considerable measure of colour constancy in the appearance of the ordinary object (Wright, 1996, p.152).

According to Wright, everyone has their own colour vision and has a clear idea of what is meant by redness, greenness or blueness. Although he described the method of designating colour in which the solid colour is subdivided into separate components, this cannot be pressed too far. As the colour differences are made finer in this separation, it becomes necessary to specify colour appearance by actual colour chips; which in this research is termed as the colour palette. In relation to this explanation, the colour appearance in the filmstrip test could be the starting point for subdividing into different colour chips in the future research of colour palettes.

It was shown that how colours appear to different people is an important consideration to produce and choose the film in workflow management. Could this be a good starting point for considering better colour workflow processes in Malaysian film or would it raise other points for potential development in colour film workflow in the Malaysian film industry? Measuring and modelling how colours appear under different lighting has significant implications for assisting in colour consistency. As Hendry Kang explains:

A color appearance model is any color model that includes predictors of at least the relative color appearance attributes of lightness, chroma, and hue. To have reasonable predictors of these attributes, the model must include at least some form of chromatic adaptation transform (Kang, 2006, p.69).

As this quote indicates, it is possible to measure the colour appearance in my test strip experimentation by using colour appearance attributes, such as a colour checker. Even though in my experimentation I concentrated more on primary Red, Green and Blue colours, which are the subtractive colours, I could explore these colour appearances in terms of output differences between the two different laboratories in Malaysia and Thailand. In this particular experimentation the colour checker chart was the benchmark of measurement differences; it would indicate the differences in colour appearance between the two laboratories. The difference between these subtractive primary colours provided an indication to demonstrate the differences between the two laboratories. These differences would be the main point of discussion during the reflection session with the Malaysian filmmakers.

Furthermore, I have tried to develop practical knowledge by observing and practising the Malaysian film workflow process. As part of the action research, I have gathered reflections from Malaysian filmmakers on film workflow processes; these are explained and discussed further in chapter 6 later. The involvement of Raja Mukriz and his crew in data sampling processes was fundamental to the participatory action research. Acting on these reflections, participation, and knowledge transfer, I was able to outline practical solutions. These will be among the factors that will enhance the practical knowledge transfer and problematic government policy perception among the Malaysian filmmakers. Throughout these reflection processes, I could predict there would be misperceptions between both sides (those in the industry and the government agencies). As Wright points out:

The measurement of colour may be undertaken for a variety of reasons. For some purposes a specification which has a national or international status may be required, as in the standardization of signal glasses; in some commercial transactions the description of the sample in unambiguous terms is necessary to ensure that the products of an industry satisfy a customer's requirement (Wright, 1969, p.223).

One of the aims of this research is to suggest to the Malaysian Film Development Corporation (FINAS) certain enhancements for the Malaysian film workflow.

These suggestions and recommendations need to be precise and meet the purpose of the Malaysian film industry.

These measurements are useful for the development of the Malaysian film workflow process. This is because colour perception also depends on cultural values and colour terms. In terms of colour appearance it is related to the meaning of the Malaysian culture identity through the images portrayed. It has been proven in this research that this measurement would be the benchmark to associate with the colour perception and colour appearance among the Malaysian filmmakers and their films. These justifications would be the basis for suggestions and recommendations to the Malaysian government.

Based on personal experience and observation, most film laboratories will adjust colour based on their lab colour calibration. Other effects are because of the differences in the print film stock and developer chemicals that have been used. All these factors are related to colour film workflow management processes. In addition, if the Malaysian filmmakers still rely on foreign expertise and technologies, Malaysian films will not achieve their consistency in colour perception and colour appearance.

#### **2.3.4 Researcher Technical Experimentation**

Towards this clarification of the technical differences in film colour images between Malaysian and Thai laboratories in this research, and, in order to clarify technical differences in film colour images between Malaysian and Thai laboratories, the principles of photometry and colourmetry were used. As Wright describes below:

Photometry has to take an account of the effectiveness of the radiation in stimulating the eye and producing a visual sensation. The apparent simplicity of photometry, as suggested by the elementary experiments of our schooldays, is deceptive, and indeed the orthodox interpretation of much of photometry is now being challenged except where the sources being compared are of very nearly to same colour and are viewed under closely similar conditions of observation (Wright, 1969, p.63).

Based on Wright's statement, why is this photometry experiment not seriously challenged? This is because this filmstrip experiment used the same lighting

condition radiation. The true challenge of this further observation is to clarify the colour differences between the workflow processes of two different laboratories.

With this observation in mind, I shot a roll of 35mm colour negative under the same lighting conditions. To achieve that objective, I shot using the same camera and from the same film stock. The film stock was divided into two and was sent to Malaysian and Thai laboratories. Because the measurement was in negative colour print, the source of light that comes through the positive print was the major observation in colourmetric measurement. I hoped that these measurements would clarify the technical differences between laboratories. With help from the Centre of Fine Print Research, University of the West of England, I was able to clarify and justify technical differences in data between the laboratories.

### **2.3.5 Camera Set-up for Filmstrips Test**

In this test strip experimentation, I was using the 35mm film format to conform with the standard of the Malaysian film industry. The original plan was to shoot the filmstrip test with a grant from FINAS, and I planned to shoot the filmstrip in July or August 2010. After the grant application processes and interview with FINAS, it became clear that FINAS was running out of funding at that time. Failing to receive funding from FINAS made me realize I would have to self-fund the shoot or cooperate with other cinematographers. I tried to make contact with a few Malaysian cinematographers and Mukriz was one of the Malaysian Cinematographers who showed an interest. It was the most relevant factor towards this research because he is the best Malaysian cinematographer in Malaysia. I was impressed as he considered that this test has the potential to determine the difference between the two laboratories.

I approached Mukriz, who was awarded Best Cinematographer at the Malaysian Film Festival 2010, as he would be one of the best expert witness to engage with the experiment. I was delighted to find that he could see the importance of testing the difference between the two laboratories. He agreed that I could conduct the camera test based on my filmstrip test and requirements of the film industry. With his crew fully cooperating on the set on 11 December 2010, this

took place at Salon Film: a rental company that has rights to use Panavision equipment in Malaysia. Mukriz, in an interview said:

The camera test in Malaysia is not comprehensive and incomplete. It should involve skin tone, set, look. There are only a handful of films that do the camera test a bit more detailed like *Embun*, besides more than 80% did not go through a camera test (Mukriz, Appendix 5, p.241).

The above quote shows how Mukriz expresses his frustration concerning the colour film workflow process on camera tests in Malaysia, which are not sufficient compared to foreign countries. Mukriz also said that he was feeling excited about shooting this movie because it was a collaboration with Thai filmmakers, and he could see there could be a potential for more cooperation that would be of benefit for the Malaysian film industry. At the same time, this film was shot with a Panavision camera, which is rarely used for shooting domestic film because it is expensive.

#### **i) Film Stock**

Initially, Mukriz planned to shoot using Fuji film and I agreed, as there was no particular film for this film requirement strip test. A few days before the filmstrip test, Mukriz called me and said that we would use Kodak 200T. That is one of the problematic factors in the Malaysian film industry whereby the cinematographer does not always have an opportunity to explore the medium for their film. Mukriz added in an interview:

The selection of Kodak for *8 hours* film, honestly I will say this is not my choice. This is producer's requirement, producers have a business package with Kodak (Mukriz, Appendix 5, p.241).

The above quote clearly illustrates that most cinematographers in Malaysia do not have any choice in the selection of shooting stock based on their needs, as they are restricted by budget. In this case, we were pleased to have Kodak 200T Vision 3<sup>7</sup> as per the instruction from the producer. Even though according to some cinematographers it is more reliable for shooting in different situations, in

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<sup>7</sup> According to their advertising copy: The KODAK VISION3 Film family has raised the bar for high definition capture with unrivaled highlight latitude, reduced grain in shadows, flexibility in post, and, of course, proven archival stability.

film production the cinematographer's preference should be one of the important factors considered. Kodak Vision 3 has a characteristic of unrivalled highlight latitude, so in my opinion it is suitable for lighting conditions in a country like Malaysia that has a lot of sunshine.

These variable capabilities of Kodak Vision 3 200T in controlling interiors and high-contrast exteriors make it very reliable for shooting in both tungsten and daylight lighting conditions. Because of the film's versatility in terms of film speed and light sensitivity, this film will provide more choices for the cinematographer's creativity in creating their images. These options make shooting processes more reliable and give the cinematographer flexibility in camera and exterior lighting control. In this lighting test we rated the film stock at 160 ISO which was the base rate to be used by Mukriz in his next film entitled *8 Hours*.

## ii) Camera Test Lighting Conditions

In this camera test, we agreed to shoot using ARRILITE 2K lighting with soft bank (chimera) as front filter. Next page is the lighting configuration decided by Raja Mukriz.

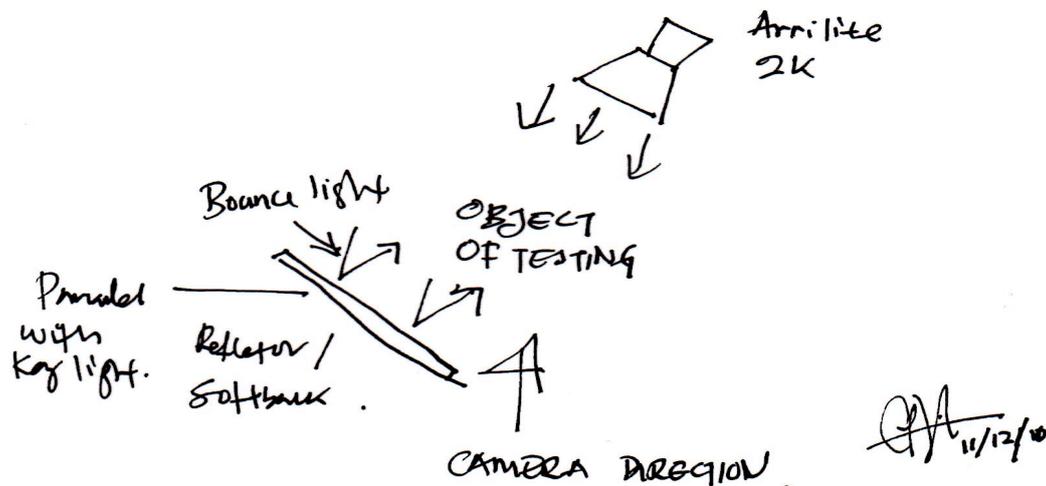


Figure 13: Lighting Diagram for this Filmstrip Test (Dim, AR, 2010)

Taking into account the standard soft lighting effect that we needed to achieve in this shoot, we used Arrilite 2K lighting because it is reliable for studio and

exterior shooting. With a full blast of 2K lighting, which we could call the best well lit lighting condition that we could achieve; it also reached further than other reflectors. As Arrilite 2K has capability in reflector balance controllability and efficiency while providing an exceptionally even field of illumination, it was worth using the bounce light approach in this camera test. To obtain more even and well-lit lighting conditions, soft banks are the perfect answer for controlled soft lighting on small sets, as in this camera test.

### **iii) Film Camera**

As discussed with Mukriz, in this camera test we used Moviecam Compact MK2 by Moviecam, which is handled by their authorized agent in Malaysia, Salon Film. The specifications for this camera were developed from the Moviecam Compact:

Moviecam camera selection somehow is because in this *8 hours* film we have many handheld shots. Moviecam is a pattern of Panavision and it is very good for handheld shots (Mukriz, Appendix 5, p.241).

I agree with Mukriz's choice of camera for this filmstrip test. According to Mukriz, this camera was the main camera used throughout the shooting of the film entitled *8 hours*. Mukriz also used an Arri 535B camera as his second camera because this action film needed more angles and a variety of shots. Mukriz added that the Moviecam Compact MK2 and Arri 535B are the most reliable compact cameras used for movement and steadicam shoots. In relation to the action film *8 hours*, Mukriz felt that he needed a compatible and reliable camera for fast action scenes. The equipment explained above is appropriate to standard international film and also the Malaysian film industry. To standardize the shot in this filmstrip test we used a 50mm standard prime lens. To fulfil the action research method and achieve coherence with the practice research approach, I worked closely with Mukriz as the relevant expert witness to the Malaysian film industry and used existing equipment. As it was the main camera for this film, I preferred to use Moviecam Compact MK2 for the filmstrip test experimentation.

### **iv) Measurement Equipment and Material**

Currently in Malaysia, 35mm is the preferred format for shooting and previewing for feature films. This film stock is compatible with the industry and

relevant to the traditional film workflow in postproduction. To fulfil my research aims I worked closely with Dr Carrina Parraman from the Centre for Fine Print Research Centre, University of the West of England. Throughout the discussion with Dr. Parraman before the filmstrip test phase, we decided to measure both colour in lighting conditions and colour in colour negatives. Wright says that:

The measurement of the colour can be used to control industrial processes; in colour photography and television the assessment of the performance of a system requires the measurement of the colours of the original and of the reproduction; in the lighting industry, colorimetry and spectrophotometry have figured prominently in the development of the fluorescent lamp and the study of its colour-rendering properties (Wright, 1969, p.223).

Measurement of colour and light is one of the important factors in this research. In order to review Malaysian film workflow and to justify the research to the Malaysian film industry I needed technical data to analyse and demonstrate the current colour management processes, and compare the differences between the two laboratories. Through analysis, it could be possible to suggest solutions to the problems in the film industry.

In my effort to find a portable colour spectrophotometer in Malaysia, I contacted the Malaysian Science Academy, Meteorology Department of Malaysia, Ministry of Science and University Science Malaysia, but they did not keep spectrophotometers. In respect of colour changes in the environment it is hard to justify the consistency without this equipment, and as even the Meteorology Department of Kuching, Malaysia only made measurement of daylight up until 1999, it shows that the measurement of colour in light is very rare in Malaysia, and is possibly considered as unimportant.

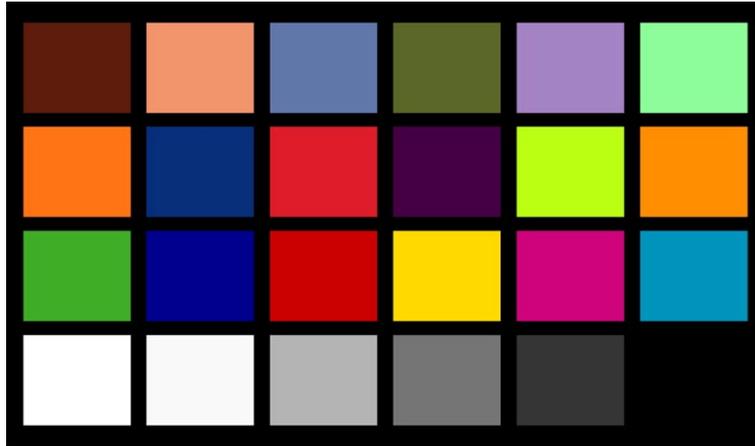


Figure 14: X-rite Colour Checker Chart colour rendition chart produced by Munsell colour (Dim, AR, 2010)

This X-Rite colour checker chart (Figure 14) is a useful tool for cinematographers and film developers. It is also used for precise colour balance when shooting colour film. It provides a set of known reference colours, which can be used as a setup and adjustment standard in film and video production. It includes 24 patches, six of the patches form a uniform grey lightness scale, and another six – red, green, blue, cyan, magenta, and yellow – are primary colours typical of chemical photographic processes. Other colours are of medium light and medium dark human skin, blue sky, the front of a typical leaf, and a blue chicory flower. The rest were chosen arbitrarily to represent a gamut of general interest and utility for test purposes.

In standard filming workflow, we used this colour checker to have consistent colour appearance under a variety of lighting conditions. These 24 patches can be captured by camera and the output can be compared to the original chart, or to reference measurements and to test the degree of image acquisition reproduction systems. Because of its consistency, the colour checker and the combination of spectrophotometric measurements have also been used in academic research in topics, such as spectral imaging.<sup>8</sup> For this research, the colour checker chart is used as an output colour reference from the developing processes of laboratories in Thailand and Malaysia. Robinson says:

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<sup>8</sup> Spectral imaging is a branch of spectroscopy and of photography in which a complete spectrum or some spectral information is collected at every location in an image plane.

Instruments designed for direct visual observation are called spectrosopes, while those that use photography or other means of recording data are known as spectrographs (Robinson, 2007, p.76).

The quote above explains how in this research the colour checker output can be measured and compared to the original chart, to test the degree to which image acquisition reproduction systems and processes approximate the human visual systems. However, in this camera test we only used the spectrographs (Color Meter III).<sup>9</sup>

Even though we only used spectrographs, it was still possible to measure average values and illumination. As I mentioned in chapter 2, cinematographers just correct colours during the shooting processes, so this meter was measuring intermittent or reflectance colour from ambient light. Consequently, in this filmstrip experimentation we used tungsten light balance (Arrilite 2k) and tungsten film balance (Kodak Vision 3 200T), which are both in tungsten balance. In these circumstances, we did not need any filter to correct the colour balance in the shooting test.

Both Raja Mukriz and I used the Sekonic L-758Cine<sup>10</sup> light meter for the filmstrip test. As suggested by (Robinson: 2007), most cinematographers are really familiar with this light meter. In this camera test the measurement with the mid grey 18 card<sup>11</sup> was F4.5 and Raja Mukriz wanted to shoot at F5.6, which meant that we had to shoot one stop higher/over that average reading.

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<sup>9</sup> The Colour Meter III F is a compact colour meter, which measures both ambient and flash illumination

<sup>10</sup> The Sekonic L-758Cine DIGITALMASTER is the light-measuring tool for cinematographers, videographers as well as digital still shooters.

<sup>11</sup> A grey card is a middle grey reference, typically used together with a reflective light meter, as a way to produce consistent image exposure and/or colour in film and photography. The meaning of grey 18 is 18% grey reflective.



Figure 15: Still Photo on the Filmstrip Test(Dim, AR, 2010)

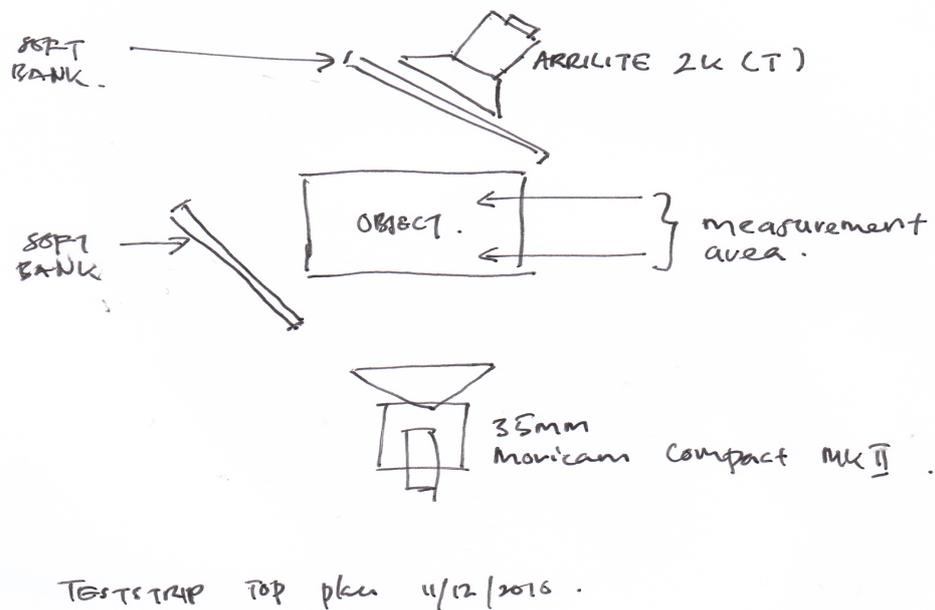


Figure 16: Sketches of Top Plan of the Filmstrip Test(Dim, AR, 2010)

Above (Figure 20) is the top plan view of the filmstrip test that was shot on 11 December 2010 at Salon Film studio, Malaysia. As well as using the colour checker chart as a benchmark for measurement references, we also shot a basket of fruit in various colours. These various colours were used as an indication to consider the colour appearance of natural colour constancy and the Malaysian filmmakers' subjective perception towards colours.

## **2.4 Methodologies for Evaluating the Results**

After filmstrip experimentation, classification of colour sources and measurement have been done using few methods. This measurement was based on comparative laboratory results between Gaya Lab (Malaysia) and Siam Lab (Thailand). Sampling procedures were according to the standard lighting, same film stock and same camera configurations.

### **2.4.1 Comparative Measurements**

The main objective of this filmstrip test was to justify the differences between two laboratories (Gaya Lab in Malaysia and Siam Lab in Thailand). Those laboratories are the common places where Malaysian filmmakers get their film developed and printed and where other film workflow processes are carried out. At the same time I would like to observe the comparative differences of Red (R) Green (G) Blue (B), which are the primary colours in the filmic method. These data demonstrate the potential for developing the colour palate for the Malaysian film industry. However, as this comparative study was undertaken to justify the use of Malaysian laboratories in film workflow processing, the main measurements and analysis are towards colour appearance and colour constancy comparisons between two laboratories. Kupperts states that:

Coloured lights as well as coloured substances appear identical in certain condition, although their emission or reflectance curves may differ very widely. Such colours of identical appearance but of different spectral composition are called metameric color (Kupperts, 1972, p.46).

In relation to the quote above, there must be a few differences that relate to both laboratories' footage results, as both laboratories have different specifications. This different spectral colour composition is called metameric colour, this because of the difference in certain laboratories colour calibration. In fieldwork the filmstrip experimentation test set-up was organized in the same way and the film stock was separated into two cans, one for each laboratory. These differences were the technical and scientific justification to indicate the Malaysian filmmakers' understanding and knowledge about colour management in their film workflow.

There are some procedures relevant to this filmstrip test. As well as doing this filmstrip test I was also involved in the camera test for the *8 hours* film. All these procedures are included in film workflow. Some of the relevant camera tests needed to be done not only for the visual effect that we wanted, but also for the optimum procedure of camera operation. These involved testing for lens focus using the width focus, grey and colour chart test for the rendition, registration test, ground glass test, checking each and every filter, and testing the special lenses like shift and tilt lens. This physical camera test of the equipment was required to check whether they are in good condition. If you are using short-ends or re-canned film it is necessary to have a scratch test for the magazines, which involves running dummy film through the camera and then looking closely for scratches. In our case, I did not worry about that because we were using brand new film stock.

In this filmstrip test the most important task is to clarify the colour appearance in the footage. This clarification will identify the technical difference between two different laboratories: the Malaysian Gaya Lab, and the Thai SFD Lab (Siam Film Development laboratory). Below are the clapper boards showing details of each filmstrip for the guidance of the two laboratories.

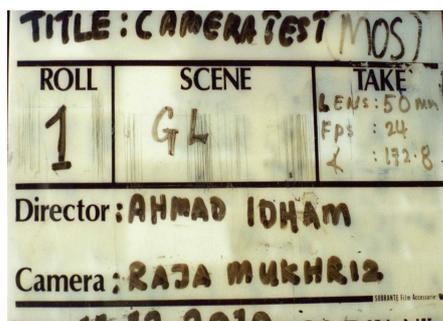


Figure 17: Gaya Laboratory Clapperboard  
(Dim, AR, 2010)



Figure 18: SFD Laboratory Clapperboard  
(Dim, AR, 2010)

## 2.4.2 Colour Model

There are several colour models, and, usually, the most important are Hue, Saturation and Brightness (HSB), Red, Green, Blue (RGB), Cyan, Yellow, Magenta and Black (CYMK) and Luminance or lightness LAB. A LAB colour space is a colour-opponent space with dimension L for lightness and A and B for the colour-opponent dimensions, based on nonlinearly compressed CIE XYZ

colour space coordinates. In this filmstrip test, I tried to clarify the RGB differences. Usually, in colour science there are several colour measurements and clarifications that need to be analysed. The LAB and CYMK measurements were important for the pigmentation test, although in the film industry we generally concentrate on RGB and HSB measurement.

### 2.4.3 Filmstrip Test Colour Appearance Measurement

There are several different kinds of measurement that we could do for justifying RGB colour value.

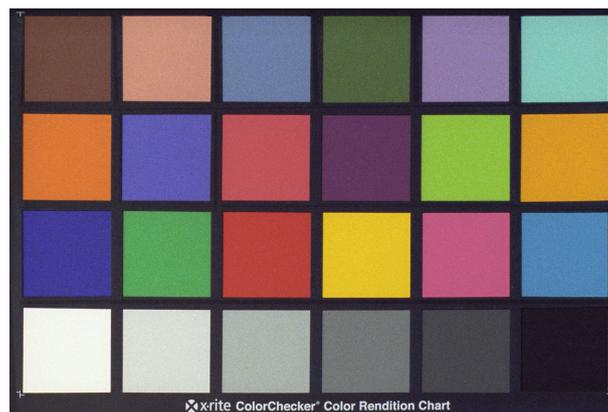


Figure 19: Colour chart from Malaysian laboratory (Dim, AR, 2010)

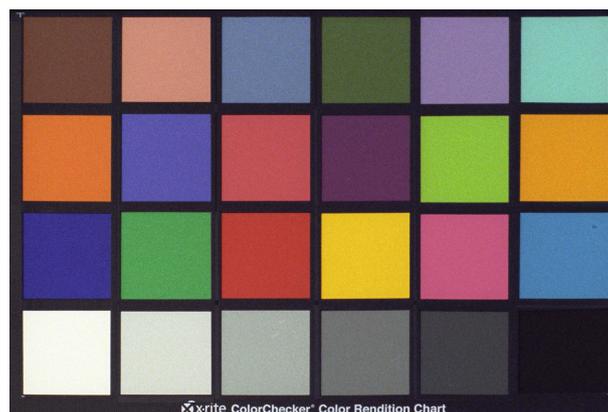


Figure 20: Colour Chart from Thailand Laboratory (Dim, AR, 2010)

Above are the colour charts from the Malaysian (Figure 19) and Thai (Figure 20) laboratories that were scanned for the measurement and evaluation. In the beginning I made a measurement comparison on LAB values on each of the 24 patches of the colour checker to get the Delta E <sup>12</sup>(  $\Delta E$  or dE) differences between the Thai and Malaysian colour chart output. The chart below was the result from

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<sup>12</sup> Delta-E (dE) is a single number that represents the 'distance' between two colours.

the filmstrip data that was measured by Adobe Photoshop software. Below are the differences.

Dark Skin CC1	Light Skin CC2	Blue Sky CC3	Foliage CC4	Blue Flower CC5	Bluish Green CC6
Orange CC7	Purplish Blue CC8	Moderate Red CC9	Purple CC10	Yellow Green CC11	Orange Yellow CC12
Blue CC13	Green CC14	Red CC15	Yellow CC16	Magenta CC17	Cyan CC18
White (.05)* CC19	Neutral 8 (.23)* CC20	Neutral 6.5 (.44)* CC21	Neutral 5 (.70)* CC22	Neutral 3.5 (1.05)* CC23	Black (1.50)* CC24

\*Optical Density

Table 2: Diagram of Chart for Colour Checker

	Thailand	Lab-Differences	Malaysia															
	T		M	T		M	T		M	T		M	T		M	T		M
L	35	1	36	64	1	65	49	9	58	37	3	40	52	3	55	74	2	76
a	17	2	15	24	3	21	-2	4	2	-12	1	-13	13	3	16	-25	1	-24
b	7	5	13	22	1	23	-20	4	-24	20	5	15	-18	7	-25	2	5	-3
<b>dE*</b>		<b>8</b>			<b>5</b>			<b>17</b>			<b>9</b>			<b>13</b>			<b>8</b>	
L	59	4	63	38	11	49	50	1	51	28	6	34	75	2	79	67	3	70
a	39	2	37	20	2	22	45	1	44	25	6	19	-33	2	-35	21	2	19
b	52	0	52	-44	7	-51	22	1	21	-13	0	-13	57	1	56	66	1	65
<b>dE*</b>		<b>6</b>			<b>20</b>			<b>3</b>			<b>12</b>			<b>5</b>			<b>6</b>	
L	30	4	34	61	3	64	45	1	44	82	1	83	54	1	53	52	3	55
a	25	4	29	-38	1	-39	49	0	49	2	2	0	47	0	47	-11	3	-8
b	-51	8	-59	35	2	37	37	4	32	75	2	77	0	8	-8	-24	6	-30
<b>dE*</b>		<b>16</b>			<b>6</b>			<b>5</b>			<b>5</b>			<b>9</b>			<b>12</b>	
L	97	1	96	88	4	92	73	3	70	47	4	51	26	10	34	7	3	10
a	-1	1	-2	-4	1	-3	-3	2	-5	1	2	-1	0	3	3	4	1	5
b	4	3	1	6	2	4	-2	5	3	-3	2	-1	-1	7	-8	-4	1	-5
<b>dE*</b>		<b>5</b>			<b>7</b>			<b>10</b>			<b>8</b>			<b>20</b>			<b>5</b>	

\*dE- Delta E value

Table 3: Approx. dE Difference between Thai and Malaysia Colour Charts.

Table 3 above shows the (dE Value) differences. If I matched it with the diagram of chart (table 3) above, the highest (dE Value) purplish blue CC8 and neutral colour 3.5 CC23 patches, both of them are 20 dE value. The lowest dE value different was the Moderate Red CC8 patch colour. The Delta E differences for

RGB primary colour patches for this filmstrip test are R (5) G (6) and B (16). Those dE value differences were due to the difference in colour calibration of the two laboratories. Josephine, in an interview said:

Different labs have different colour calibration, this is definitely because of colour calibration (Josephine, Appendix 6,p.245).

These dE differences would affect LAB colour space on the lightness and colour-opponent dimensions. The laboratories' different colour calibrations would not affect the film output, but only in terms of the Malaysian filmmakers' perception and preference. We could see the result of this action research observation in the reflection in the Malaysian filmmakers sessions, which are explained in chapter 7.

#### 2.4.4 Processes of Filmstrip Analysis

In this chart, I measured the primary RGB<sup>13</sup> value and converted to Nanometer wavelength (nm)<sup>14</sup> to make it compatible for plotting into the CIE diagram. This CIE observation diagram model will differentiate the RGB value between the two laboratories. The chart below was the result from the filmstrip data that was measured by Adobe Photoshop software.

##### Minimum

Malaysian Laboratory				Thai Laboratory			
Adobe 1998 Model				Adobe 1998 Model			
Red	159R	39G	41B	Red	145R	47G	38B
Green	58R	124G	50B	Green	73R	143G	71B
Blue	39R	34G	118B	Blue	51R	43G	120B

Table 4 : The Minimum Data from Malaysian and Thai laboratories.

##### Maximum

Malaysia Laboratory				Thai Laboratory			
Adobe 1998 Model				Adobe 1998 Model			
Red	176R	57G	61B	Red	193R	71G	63B
Green	90R	167G	85B	Green	93R	170G	90B
Blue	56R	51G	145B	Blue	64R	49G	154B

Table 5: Maximum Data from Malaysian and Thai laboratories.

<sup>13</sup> Red, Green, Blue

<sup>14</sup> nm – spectral wavelength – is a demonstration of the spectral distribution of short (B), medium (R) + long wavelength

Because of the varying measurements, I decided to measure the maximum and minimum data on each primary RGB for both the Thai and Malaysian laboratories. From the above maximum and minimum RGB data, I used the formula below to convert to Nanometer wavelength value (nm):

$$x = \frac{X}{X + Y + Z} \qquad y = \frac{Y}{X + Y + Z}$$

To find the value of XYZ we needed to convert the RGB Decimal that we measured with Adobe Photoshop to RGB Hexadecimal. I used the RGB Decimal to RGB hexadecimal online converter<sup>15</sup>. For converting the RGB Hexadecimal to XYZ value, I used the RGB Chart & Multi Tool<sup>16</sup>. The table below shows the conversion value of RGB Decimal to RGB Hexadecimal and to the xyz value of this filmstrip test. From the XYZ values, I used the above formula to get the x and y, then used the x and y values obtained to create the triangle in CIE colour space graph.

Colour	RGB Decimal	RGB Hexadecimal	XYZ	x	y
<b>Minimum</b>					
Red	159R 39G 41B	9F2729	15.4, 9, 3	<b>0.562</b>	<b>0.329</b>
Green	58R 124G 50B	3A7C32	9.5, 15.5, 5.5	<b>0.312</b>	<b>0.508</b>
Blue	39R 34G 118B	272276	4.7, 2.9, 17.4	<b>0.188</b>	<b>0.116</b>
<b>Maximum</b>					
Red	176R 57G 61B	B0393D	20.2, 12.5, 5.8	<b>0.525</b>	<b>0.325</b>
Green	90R 167G 85B	5AA755	19.7, 30.5, 13.4	<b>0.310</b>	<b>0.480</b>
Blue	56R 51G 145B	383391	7.9, 5.3, 27.4	<b>0.195</b>	<b>0.131</b>

Table 6: Decimal, Hexadecimal and xy data from Malaysia Laboratory

Colour	RGB Decimal	RGB Hexadecimal	XYZ	x	y
<b>Minimum</b>					
Red	145R 47G 38B	912F26	<b>13, 8.2, 2.7</b>	<b>0.544</b>	<b>0.343</b>
Green	73R 143G 71B	498F47	<b>13.7, 21.5, 9.4</b>	<b>0.307</b>	<b>0.482</b>
Blue	51R 43G 120B	332B78	<b>5.6, 3.8, 18.2</b>	<b>0.203</b>	<b>0.138</b>
<b>Maximum</b>					
Red	193R 71G 63B	C1473F	<b>25.1, 16.2, 6.5</b>	<b>0.525</b>	<b>0.339</b>
Green	93R 170G 90B	5DAA5A	<b>20.7, 31.8, 14.7</b>	<b>0.308</b>	<b>0.473</b>
Blue	64R 49G 154B	40319A	<b>9, 5.6, 31.2</b>	<b>0.197</b>	<b>0.122</b>

Table 7: Decimal, Hexadecimal and xy data from Thailand Laboratory

<sup>15</sup> source from <http://www.psyclops.com/tools/rgb/>

<sup>16</sup> source from <http://www.perbang.dk/rgb/9F2729/>

We could see the differences of RGB value between the Malaysian and the Thailand laboratories. Are these value differences important to the Malaysian film workflow? In film practice, this may not be as important compared to the film aesthetics that are being sought. However, in this research I would be able to use these differences to interact and communicate with Malaysian filmmakers and prove that there are some differences in colour appearance between the two laboratories. These technical differences are just the values that might shift their perception about foreign laboratories.

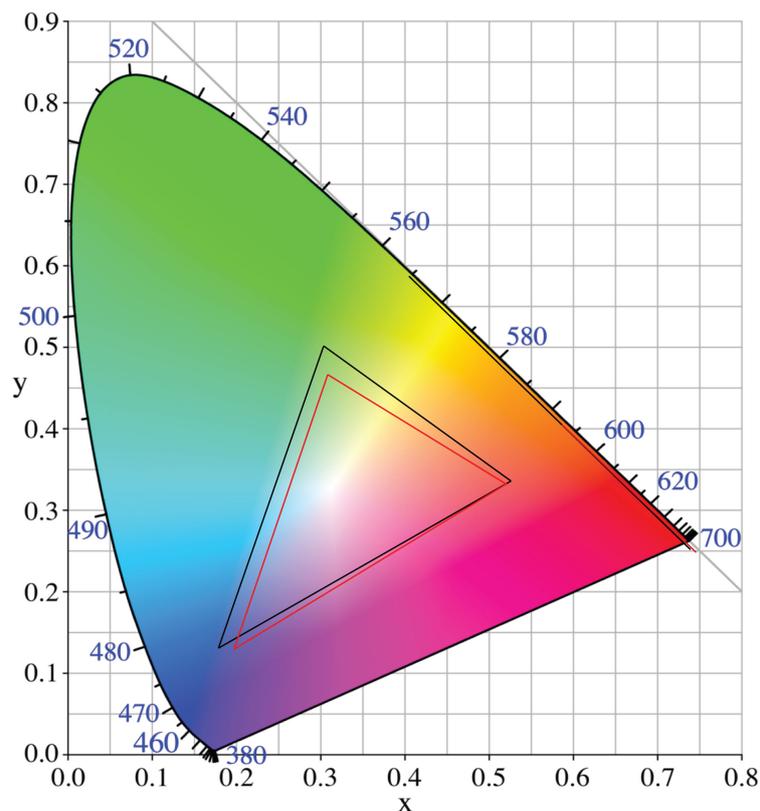


Figure 21 ; Malaysian (Black line) and Thai (Red Line) Laboratories RGB Value Differences Shown in CIE Observation Diagram Model 1931(Dim, AR, 2011)

The above CIE colour diagram model shows minor shift value differences of RGB value of colour appearance between the output results of the Malaysian and Thai laboratories. This chart was shown to the Malaysian filmmakers in my reflection and validation data towards the Malaysian film industry in November 2011. These data differences might shift by only a few wavelength values, but they might stimulate different reactions from the Malaysian filmmakers about the different values of Malaysian and Thai laboratories. These results outline the differences in the technical data and I have reflected these data in the

questionnaires for the expert witnesses in the Malaysian film industry. The reflections from the Malaysian film industry will be discussed further in chapter 5. These technical colour data differences would be the starting point of the discussion and I hope it could enhance future research about a Malaysian colour palette.

#### **2.4.5 Filmstrip Test Complication**

The fact that there was difficulty with the process of getting a research grant from the government agency and the inefficiency of the laboratory in losing my film is indicative factors of some of the things that are wrong with the Malaysian colour film processing in the industry. At the same time, there might be some misperceptions or misinterpretation among the government agencies towards the industry, or there are some missing links between them. This would interlink with the action research method applied in this research, which is a reflective process of progressive problem-solving led by my own experience with the Malaysian filmmakers as part of a community, to improve the way they address issues and solve problems in film workflow practice.

#### **2.4.6 Thematic Mapping and Coding of the Qualitative Data**

In analysing qualitative data from the survey reflections, the axial coding, where categories are refined, developed and related, or interconnect, have been applied in this research. Gibbs interprets this as:

One of the most commonly used approaches to coding is grounded theory. This approach has been used extensively across a variety of social science disciplines and it lies behind the design of much CAQDAS. Its central focus is on inductively generating novel theoretical ideas or hypotheses from the data as opposed to testing theories specified beforehand. Insofar as these new theories 'arise' out of the data and are supported by the data, they are said to be grounded. It is only at a later stage of the analysis that these new ideas need to be related to existing theory (Gibbs, 2007,p. 49-50).

As Gibbs says, the central focus is on inductively generating hypotheses from the data, for example in this research the filmstrips test data, as opposed to testing theories specified beforehand. In this research, I will argue that it offers an accessible and flexible approach to analysing qualitative data. I also outline or map what thematic analysis is, locating it in relation to other qualitative analytical methods that search for various themes, and in relation to different perspectives from the qualitative data collected. This approach provides clear guidelines to those wanting to start thematic analysis, or conduct it in a more deliberate way.

An adoption of the MAQDA thematic mapping in the qualitative data has once again been described in terms of different coding. To summarize the qualitative data from the reflections survey questionnaires, the thematic coding approach was applied to describe the result. At the later stage of this research, analysis in the reflections chapter those new ideas from the discussion with expert witnesses need to be related to existing theory and the Malaysian film industry practices. This thematic mapping analysis is a useful and flexible method for qualitative data in this research.

## **2.5 Conclusion**

This chapter presents the “heart” of my research, since it describes and explains all the approaches and methods used in my study. The data have been interpreted according to my research paradigm, shifting towards a qualitative research approach. To justify interpretive analysis there is support from quantitative data, which are used as the main tool to construct and validate reflections from the expert witnesses.

The implementation of action research supported by participatory action research and complementary explanatory action research constitutes the central methodology of this research. This has resulted in a mixed action research methodology, which combines participatory, and complementary explanatory research methods. I have described how the case study data collection was designed and highlighted the three methods of data collection. The first initial intentions to explore about colour management were irrelevant, thus I then shifted to a new research paradigm towards the enhancement and the

development of film workflow rather than colour management workflow processes.

With regard to the action research approach focusing on existing film technology and industrial film expertise in Malaysia, the researcher developed a test filmstrip and analysed it. Throughout these processes, I applied practice-based analysis on my own approaches to justify the technicality and value of colour reproduction based on a comparison of the output of two laboratories. From this filmstrip test, I have examined physical quantitative data about differences of light colour temperature through film workflow processes. These intentions were not realized and the quantitative data were used as the basis for qualitative discussion, validation and reflection with film experts in Malaysia. Through this knowledge exchange in a participatory action research approach and the communication (qualitative data) with the expert witnesses, I have tried to dispel the myth among Malaysian filmmakers that shooting in temperate countries is better because they have better lighting colour temperature. Through these reflections and justifications, which will be explained further in chapter 6, it is hoped that this research will provide the Malaysian film industry with a few recommendations to improve the technical implementation.

The shift to a new research paradigm from the colour management processes to the new direction of exploring and developing the Malaysian film workflow was a positive shift and it is relevant to the action research approach, as stated in this chapter. This shift in the method was a positive movement towards the enhancement of the PhD research. Finally, the circle of practice-based research enhances my research processes and leads to new knowledge. These research findings and recommendations would be the new knowledge created from the methods that have been applied in this chapter. To provide a context through an overall overview of the history of the Malaysian film industry, the next chapter will elaborate further on the historical and current nature of Malaysian film workflow.

### **3.0 Brief History of Malaysian Cinema and the Current Situation of Malaysian Film**

#### **3.1 An Introduction**

This chapter centres on the understanding of the Malaysian film history and specifically tries to explore the historical stages of colour film workflow involvement in the Malaysian film industry. The first section deals with early Malaysian film history and the history of Malaysian film production. At the same time, I have tried to interrelate this with the global history of colour film workflow. This relation will justify a few things that we miss in the history of colour film workflow. In fact, one of my intentions is to define and develop contemporary Malaysian film practices. The other intention is to try and redefine the history of Malaysian film production that has not been explored.

#### **3.2 Malaysian Cinema History**

A film made in the Malay language, telling Malay stories, is currently termed as a Malaysian film. The cinema of Malaysia circles around a small film industry that started back in the early 1930s. According to Ciecko:

Malaysia's cinematic history intertwines and overlaps with that of Singapore. Malaysia as we know it today is comprised of states of Peninsular Malaysia and on the island of Borneo across the South China Sea. Given the country's tangled genealogy as it emerged as a modern postcolonial nation-state, it is marked by multiplicity – of ethnic groups, religions and languages (Ciecko, 2006, p.83).

As the quotation makes clear, in geographical terms, it can be said that Malaysian cinema started in Singapore in 1933, since it was a part of Malaysia before 1965. The film activities in Sabah and Sarawak are included in Malaysian Cinema History after 1963. Overall, Malaysian film history covers Singaporean and Malaysian film history. We could view Malaysian film production as having been developed through five separate generations of filmmakers.

Malaysia's first generation of filmmakers was active from 1955-1962, and, in this period, a number of Malaysians, especially Malays, were involved in the industry. The second generation of Malaysian filmmakers was prominent from

1963-1970; most of them had moved from Singapore and started working at their new place in Kuala Lumpur. The third generation of Malaysian filmmakers was active from 1980-1990, while the fourth generation came to the fore in the 1990s. The contemporary fifth generation, from the start of the new millennium, comes from the digital era and was educated in film schools in Malaysia and overseas.

### **3.2.1 Malaysia: An Introduction**

Malaysia's multi-racial society contains many ethnic groups, Malays, Chinese, Indians and other natives from various indigenous ethnic groups. Malays comprise the majority of the population in Malaysia and most Malays are Muslim. About a quarter of the population is ethnic Chinese. These groups of Chinese have historically played an important role in trade and business in Malaysia. Malaysians of Indian descent comprise about 7% of the population and include Hindus, Muslims, Buddhists, and Christians. Non-Malay indigenous groups combine to make up approximately 11% of the Malaysian population.

The population density is highest in peninsular Malaysia, where the capital city, Kuala Lumpur, is situated. Peninsular Malaysia was called Malaya before Sabah, Sarawak and Singapore combined with Malaya to establish Malaysia in 1963; however, two years later, Singapore withdrew from the confederation. Singapore became an independent republic on 9 August 1965 and joined the British Commonwealth of Nations. Before we start further on the development of the Malaysian film industry, especially Malaysian film workflow, we need to explore and understand how the Malaysian film history began.

### **3.3 The Beginning of the Malaysian Film History (1920-50s)**

Malaysia, known previously as Tanah Melayu or in English as Malaya, originally consisted of Peninsular Malaysia and Singapore. In 1963, Malaya became Malaysia when two states in Borneo Island (Sabah and Sarawak) joined the constitution. Therefore, in this section we will be exploring the history of film in Peninsular Malaya and Singapore. A subsequent section will explore the Malaysian film history in Borneo where Sabah Film Inc was to become an attraction during the 1980s. Malaya had been colonized by three countries; the Portuguese in 1511, then the Dutch, who were replaced by the British in the

early nineteenth-century. Later, the Japanese took over between 1947 -1949; after this, the British ruled over Malaya until the independence of Malaya or Malaysia on 31 August 1957.

In Malaysian film history, film was usually related to other cultural forms. It started with *Bangsawan*, which is known as opera. Even though *Bangsawan* is Malay opera, the word *wayang* is always associated with the *Bangsawan* world. As in *Malaysian Film: The Beginning* written by Abdul Malek and Aimi Jarr, *wayang* is the word for a name attached to *Bangsawan*, whether an actor or anybody involved in the *Bangsawan* stage performance. Malek and Jarr explain this further:

Hence, the birth of terms such as Wayang Parsi, Wayang Mama Kassim, Wayang Tijah, and Wayang Aman Belon actually refer to the *Bangsawan*, while each actor or star was known as anak wayang or orang wayang. The *Bangsawan* continued to be popular until it was supplanted by movies which then dominated the Malay entertainment world (A. Malek & Jarr, 2005, p.6).

*Wayang* is an Indonesian word for theatre. In the Malay world, we also use *wayang* as a word for theatre, and, nowadays, *wayang gambar* (picture theatre in English) is the phrase for Cineplex in Malaysia. Thus, in our historical background we do have traditional theatre, such as *Bangsawan* and *Wayang Kulit*. With the influence of British colonialism and technology transfer we accepted film that is projected in cinemas as *wayang gambar*. In this context, Malek and Jarr remark:

Film technology from the west was first brought into this country at the beginning of the 20<sup>th</sup> century. Since the concept of wayang had long existed in the Malay society, film shows were referred to as wayang gambar (movie), wayang gambar bisu (silent movie) wayang gambar hidup or wayang gambar gelap (A. Malek & Jarr, 2005, p.8).

Although, the arrival of cinema in Malaysia started in the late 1890s, Malaysia only produced its own films after World War II. Sulong (1990) gives evidence of the nature of early film screenings:

A source states that a film screened on the Diamond Jubilee Celebrations of Queen Victoria in London on June 20<sup>th</sup> 1897 was actually screened in Kuala Lumpur in 1898. The *Malay Mail* on November 23<sup>rd</sup> 1900 carried an advertisement for the screening of a film titled *Japanese Troupe* at the Kuala Lumpur Club. The same newspaper on July 6<sup>th</sup> 1905 reported the screening of Japanese propaganda specially for members of the Selangor Club when news broke out about the Russian-Japanese War in 1905 (Sulong, 1990, p.1).

Most of the early projections of film in Tanah Melayu during the British era, now called Malaysia, were propaganda films. From the quote above, we can see that most people who watched the films were British officers who worked in Tanah Melayu or the Malaysian royal family. The development of film occurred on much the same timeline as it did elsewhere in the world, but in early Malaysian cinema, only those who were wealthy and had a high position in government had an opportunity to watch film. The purpose of film was more towards dissemination of British propaganda.

According to Malek and Jarr (2005) the entry of films into this country – Singapore, in particular – began in 1907. A cinema known as the Alhambra was built by the British entrepreneur named Willis. The first news from an Alhambra previewing was published in the *Utusan Melayu* dated 5 August 1908:

Films alive with amusing, rib-tickling pictures which are the best and clearest in the world. There will be two screenings every night (Wan, 1988, p.44)

Malek also states that by the 1920s most of the temporary venues for watching film had been set up by Malays, whereas the permanent cinemas for the burgeoning industry were controlled by the Chinese. At this time, a company called Shaw Brothers was the main film distributor, and Chinese films were imported from their headquarters in Shanghai, China. In 1930, Malek states that at least 30-40 permanent cinemas were built by Chinese distributors. It can be seen that the increased number of cinemas meant that films were also shown in small towns and that almost the whole Malaysian population could access films and most of them could afford to buy tickets. The Western, Chinese, Indian

and local traders had better seats compared to the Indian and Malay youth, who could only afford the cheapest seats, which were as little as 5 cents at that time. Here we can see the seating position in cinemas reflected social class and status.

With the introduction of audio in film, cinema, or what local Malays call *wayang gambar*, became one of the main attractions in Malaya at that time. Big cities such as Singapore, Kuala Lumpur and Penang were the main targets driving the cinema industry to expand:

In Kuala Lumpur, two cinemas were opened with a seating capacity of 1200. In Penang, with a population of 300,000, three big cinemas were built to meet the demands of 2000 European residents (Malek & Jarr, 2005, p.35).

The growth of the Western ex-patriot community at that time, especially the British, who were employed as administration officers, soldiers and traders, was one of the important factors driving the demand for western films. As Malek shows, we can see the huge increase of film viewers in Malaya at that time, and, once again, foreigners had exclusive rights. In fact, many Hollywood films were previewed in Malaya before being shown in London or other European cities. Malek also states that the major entrepreneurs in Hollywood were targeting the colonies of the British Empire as their main market for commercial profit. The Malays, who were the majority, preferred more culturally relevant entertainment, such as Hindustani, Arabic and Asian films.

This brief survey of Malayan film history in the early twentieth-century shows that, although the Malays might be just viewers in the cheapest seats, they were still under one roof with the rest of society. In respect of the development of film technology and technology transfer it is clear that the Chinese had a monopoly in the film business in Malaya, nevertheless, there was major involvement from Malays as actors, actresses and crew. In the next stage of the Malaysian film history, we can see the increasing Malay involvement in the film industry.

### **3.4 Brief history of Malaysian Film Production**

At the time the Malaysian film industry started in the 1920s, most of the filmmakers were from India and the producers were from China. Views on the

origins of the Malay film industry differ, as, according to Sulong:

The Malay film industry began around 1933/34 when a group of film producers from India came to Singapore (Sulong, 1973,p.231).

In contrast, Hamzah Hussin in his book, *From Keris Film to Studio Merdeka*, states that the film industry began in 1938/39 (Hussin, 1997:12), however, evidence can be found for the earlier date. Malek and Jarr cite a review of the screening of *Laila Majnun* from *Bumiputera Magazine*, dated 20 April 1934. Malek stated that the response was beyond expectations and that the cinema was packed at every screening. After a week's showing in Singapore, the film was shown in Penang for two weeks (Malek & Jar, 2005:74). This suggests that *Laila Majnun* was the first Malay film produced in Malaya around 1933/34. At the same time, according to Hamzah Hussin and Malek, another film entitled *Nelayan* was produced. Unfortunately, *Nelayan* has been lost and nobody has found any evidence about that documentary film. According to Malek, *Laila Majnun* is an adaptation from Malay *Bangsawan* that was really famous during the 1920s. Because of its popularity among Malays in Tanah Melayu, producers from India took the initiative to produce and adapt it to the film medium. Van accepts *Laila Majnun* as the first film:

Laila Majnun, 1933, the first Malay film, was made in Singapore, directed by B.S. Rajhans, a Punjabi from India and produced by K.R.S. Christy the owner of Motilal Company of Bombay (Van, 2002, p.124).

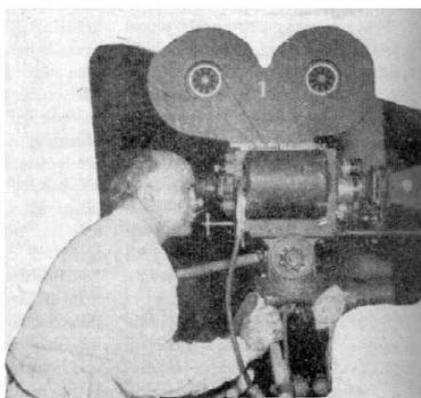


Figure 22: B.S. Rajhan in Action (Used with permission of FINAS Gallery)

Clearly, the Malaysian film industry was started by a producer and director from India. Van Der Heide concludes in his book, *Malaysian Cinema: Malaysian*

*Cinema Asian Film*, that there is no evidence and no research as to why a producer and director from India started the film industry in Malaya at that time. From the researcher's reading and observation on both Malek and Hussin's accounts of Malay cinema, it seems clear that Indian producers and directors started the film industry in Malaya because they saw the opportunity for economic profit, as Malek and Jarr point out:

India began its film industry in 1917 with *Raja Harishchandra* as its first film. Based on their experience in this film, they saw the potential of producing a Malay film for the Archipelago market (Malek & Jarr, 2005, p.76-77)

On top of that, in terms of culture, Malays were always influenced by India. Before the arrival of Islam in Malaya, most Malays believed in Hinduism, and even in language a lot of Malay words come from Indian languages. *Laila Majnun* became very successful and Indian producers made substantial profit from that film. As Van Der Heide says:

the re-emergence of local film production in Singapore after the war signalled the beginning of the studio system in Malayan filmmaking, which was to last for over twenty years (Van, 2002, p.125).

Van Der Heide also states that the Malaysian film industry in the first stage was based on Chinese money, Indian creativity and Malay labour. Later, the mid-1950s witnessed the emergence of Malay film directors. This was also the beginning of colour film management in the Malaysian Film Industry. Before we explore the colour film workflow history in the Malaysian film industry it is useful to look back to the worldwide history of colour film workflow.

### **3.5 The Global History of Colour Film Workflow**

Colour film workflow is closely related to film processing workflow in the laboratory. The colour cinematography processes, which I define in this research as colour film workflow, started from the Tinting and Toning Processes, Additive Processes and Subtractive Processes.

### **3.5.1 Tinting and Toning Processes**

The tinting and toning technique that started in 1900 involved the picture being toned in single colour. The film workflow industry developed very rapidly from that point. As Roderick describes:

A study was made of the dyes available for the production of tinted support and in 1929 Eastman Kodak introduced its series of Sonochrome colored support for motion picture positive (Roderick, 1977.p.17).

The tinted supports, which became available after the introduction of sound and sonochrome tints, meant that colour in film could be produced either by tinting or toning or by a combination of those techniques.

### **3.5.2 Additive Processes**

The pioneer commercial development in colour cinematography technique was perhaps the “Kinemacolor” system that was invented in England:

The Kinemacolor process originally invented by Edward R. Turner was a three-color additive process in which successive frames were photographed and projected through red, green and blue-violet filters mounted in a rotating disk (Roderick, 1977, p.27).

According to Roderick, the Kinemacolor process, as used commercially, was a two colour additive system whereby the camera had a shutter containing a red-orange gelatine filter in one opening and a blue-green one in the other. The film was exposed at 32 frames per second with 16 frames on each filter and the two exposures being alternated. In this system, the picture was projected in the same manner as it was photographed, with persistence of vision merging the two images into a colour motion picture. In terms of film processing, the negative was developed in a conventional black and white developer and printed in black and white print film as well. There are some disadvantages to this system, particularly the problem of fringe or trimming of the visual which happened when fast moving objects were photographed. Roderick notes that, to simplify the projection of Kinemacolor prints, W.H. Fox from the Kinemacolor Company of America developed a system for colouring the alternate frame prints, thus eliminating the need for the rotating filters on the projector.

This additive process of colour cinematography technology was further developed with the invention of a number of systems, such as panchromotion by W. Van Doren Kelly in 1913 (Cronwell:1951) This involved a four-colour additive system, which employed a segmented rotating frame containing a colour exposure and white light exposure. Cronwell added, "A demonstration of the Douglas Color System was presented in New York City, February 14, 1918. Subjects included bathing beauties and scenic views of Yosemite and Yellowstone National Parks. The reviewer for the *New York Times* was impressed by the "apparently unlimited" range of colors obtainable with the process."

The Douglas colour system appears to have been the most complete for colour cinematography at that time, as it consisted of the method of exposing a pair of negatives, a printing method and a projection system. In the Douglas colour beam splitter camera, alternate frames were exposed on two separate films, one through a red filter and another through a green filter. Each film was advanced by the double frame pull down mechanism to split those different exposures. The negatives were developed, fixed, washed and dried in normal black and white film technique. This red and green separation technique produced clear separation of green and red negatives. These green and red clear negatives were printed onto normal black and white films on a printer with a double frame pulldown mechanism, producing an alternate frame of red and green images. This print was projected additively through a rotating shutter that combined a red filter in one opening and green filter in the other. The success of the projection depended on the projectionist and the projector.

The other two colour additive processes for colour cinematography workflow are *Gilmore Color* and *Kesda Color*. Both processes had a relatively short life in colour film workflow processes. The colour film workflow experimentation with two additive colour systems and three additive colour systems continued with *Warner-Powrie Color Process*, *Magnachrome Film*, *Rotocolor*, *Morgana Color Process*, *Cinema Color*, *Telco Color*, *Thomas Color* and *Colorvision*. As Roderick says:

In May 1950, Colorvision, Inc was formed for the purpose of developing a three-color additive system of color cinematography for the newly emerging field of color television (Roderick, 1977, p.47).

This invention brought greater economy to photographing and colour rendition, and maximised the scope for colour control and development of facilities for the processing of film. This system also improved the speed of film processing.

### **3.5.3 Lenticular Additive Processes.**

Aside from the developments mentioned above, early colour film workflow also involved the lenticular method, or embossed film process. Friedman interpret this in below quote:

The principle of lenticular film was first suggested by Gabriel Lippmann in 1908 (Friedman, 1944:222).

Basically, this process was a screen process that utilized optical means to form its screen. This system functioned through the use of a special film that had lenticular elements or microscopic cylindrical lenses moulded into its support. Other lenticular additive process systems included *Kislyn Color*, *Keller-Dorian Color* and *Kodacolor*.

### **3.5.4 Subtractive Processes.**

In additive processes and lenticular additive processes, the final colour image on the screen is the result of superimposing or adding the light of two or three primary colours. In nature, sight perception of colours is different. We view colour by absorbing or subtracting certain components of the visible spectrum from white light, and reflect these to our brain, which our eyes see as colour.

During the period when the additive technology system was developed in colour film workflow or colour cinematography, a group of inventors including A.Hernandez-Mejia was also experimenting with several interventions towards the subtractive system. This group's invention led to the introduction of practical multi-layered integral tripack films of primary colours. They retained the additive method for photography and applied the subtractive method for the final print.

Some advantages were gained from this subtractive system in colour film workflow compared to the additive system. The colours in the images were a part of the film before they left the laboratory. This eliminated some difficulties during the projection processes. The film medium could be projected by any black and white projector and less light would be used to project the subtractive prints. Cornwell states:

The Colorgraph Process, also called Cinecolorgraph, was a two-color subtractive process invented by A. Hernandez-Mejia in 1912 (Cornwell, 1951, p.17).

Although there is evidence that a company was formed to promote this process, there does not appear to be any record of its successful use in motion pictures. (Roderick, 1977: 66). The Kodachrome process invented by J.G. Capstaff in 1913 was a two-colour subtractive process designed for still photography. The principle which made this process possible was discovered accidentally by Capstaff in 1910. He found that when a negative is treated with tanning bleach, the negative image is removed and the area where it existed is differentially tanned. Subsequent treatment of the film with dyes capable of dyeing soft gelatine produced a positive dye image.

The two-colour additive process of Technicolor was introduced in 1916 and it employed the combination of two projectors that superimposed the image on screen. Two filters were used, red and green:

Technicolor changed the method in 1919 when they employed the two colour subtractive process that used two prints cemented base to base. After that in 1932, Technicolor began producing prints by the imbibition method, through which they added the third colour (Friedman, 1944, p.340).

After struggling with two and three additive colour projection methods, colour film workflow was introduced to multi-layered subtractive processes. The construction of the Monopack or Tripack consists of a base coated with three light sensitive emulsions, one on top of the other. The first specific disclosure of the use of a monopack for the purpose of colour reproduction came from K. Schinzel. Unfortunately, neither the photographic nor the dye industry was

sufficiently advanced to allow his proposal to be put to practical use (Roderick, 1977). After the development of monopack colour film Kodachrome was given the name Eastman Kodak and was introduced first in 1935. Initially, Kodachrome film had been used in 16mm format for industrial, educational and religious motion pictures.

In addition to its use in 16mm, Kodachrome was enlarged to 35mm for theatrical release in production of varying scope from World War II combat films like *The Fighting Lady* to Walt Disney's Real Life adventure films such *Beaver Valley* (Roderick, 1977). Kodachrome developed Duplicating Safety Color Film, Type 5265 in 1944 and in 1955 it was replaced by Eastman Reversal Colour Print film. Since that point the development of colour film workflow in the motion picture industry rapidly increased. It also affected the development of the Malaysian film industry in that period, since the first colour film was being produced.

### **3.6 Chinese Capitalism and the History of Colour film Workflow in Malaysia.**

Throughout Malaysia's history, the Chinese have always dominated the economy. It is the same in the film industry. This process started when the British brought in many Chinese traders during the colonization period. Most Chinese were known to excel in handling business and trade. This fitted the colonial British vision where Malays had to stay in the villages, Indians had to work as soldiers or labourers, while the Chinese would be traders. So that is why Malays were less developed compared to the Chinese in the economy. This applied equally to the film industry, wherein the Chinese were the pioneer filmmakers as well as cinema and studio owners.

In the beginning of film production in Malaysia, Runne and Run Shaw were the pioneers, owning Shaw Brothers Studio and building up an empire under Malay Film Production at Ampas Road, Singapore. According to Seniman:

The Shaw Brothers Company pioneered by Runne and Run Run Shaw was originally based in a former Chinese School building in Jalan Ampas, Singapore (Seniman, March, 1969).



Figure 23: Studio Jalan Ampas in the 1950s (Used with permission of FINAS Gallery)

Ampas Road Studio in Singapore was the main studio for most Malaysian film at that time. Ampas Road Studio represented the highest peak of Malaysian film history. Hussin stated that Jalan Ampas Studio was fully facilitated with equipment for film production whereas other studios were only temporary structures made from wood and asbestos:

Studios in the early time were made of wood and asbestos, Shaw brothers built up a studio in 1937 at No 8 Ampas Road, Singapore. This studio was fully equipped with a lab for black and white film processing and that studio had been a warehouse before (Hussin, 1997, p.24).

From the equipment leftover from the production of *Laila Majnun*, the Shaw Brothers started their business in film and succeeded. According to Hussin, in 1947, Shaw Brothers built a new studio in the same place with better infrastructure for the demands of the film industry at that time. Shaw Brothers also built a housing area for the film community at Boon Teck Road, just near their new studio.

Later, during the Japanese invasion of Malaya in 1941, film production was shut down. Only Japanese films and Hindustani films were allowed to be screened as these films were said to be harmless by the Japanese, who banned all Chinese

films due to the conflict between China and Japan. Hussin also highlights other companies that were very active in producing Malay films: Cathay Keris owned by Loke Wan Tho, and Keris Film owned by Ho Ah Loke. Nusantara Studio also produced some Malay films at Bukit Timah, Singapore. Ong Keng Huat owned Nusantara Studio. Hussin states that:

Ho Ah Loke is one of the pioneers in producing colour film in Malaya. His first trial in 1951 was the film entitled "*Pewira Lautan Teduh*". This film was shot in colour film stock but unfortunately all the film was lost while it was posted from Singapore to London by flight (Hussin, 1997, p.22).

Hussin's comment clearly states that the trial to produce a colour film started in 1951. This was the beginning of colour film workflow production in Malaya at that time. Even though the production was not completed, it was a brave attempt by Ho Ah Loke and other Malayan filmmakers. This showed that they had already made a few steps in colour film workflow. At this point, I surmise that they would have shot the film with 16mm because that was the only colour film format available in 1951. It is not an easy job to shoot in Malaya and have the film processed in London. Ho Ah Loke was definitely spending a lot of money and time because the courier costs and Eastman color negatives were very expensive.



Figure 24: Phani Majumdar (Used with permission of FINAS Gallery)

Hamzah Hussin mentions that, in 1956, Malay Film Production had produced nine films, two of which were colour films (*Hang Tuah* and *Semerah Padi*). The most expensive film at that time was *Hang Tuah*, costing around half a million Malaysian ringgit. Clearly, in 1956, the Malaysian film industry had already succeeded in an involvement in colour film workflow management. Even though at that time Malaya was already producing colour films, because the cost of producing colour film was very high, most Malaysian filmmakers preferred using black and white film for their needs. If the benchmark of colour film began in 1956 in Malaysia with *Hang Tuah* as the pioneer, it can be seen that Malaysia had missed some of the earlier colour film technology. Techniques such as Kinemacolor<sup>17</sup>, hand-colouring and Technicolor were not applied at all in the Malaysian film industry (Duncan, 1996, p.37-38).



Figure 25: Hang Tuah's Film Poster(Used with permission of FINAS Gallery)

The amalgamation of Keris Film and Cathay Organization in 1953 to become Cathay Keris led to its domination of the Malay film Industry. At the same time, Malay film production was more active and producing more films. Later, according to Malek and Jarr, Ho Ah Loke formed United Production with

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<sup>17</sup> Kinemacolour photography required a specially modified camera in which red and green filters were alternately rotated in front of the film during exposure at a speed of 32fps. This produced a film comprising alternate red and green frames, which combined during projection by persistence of vision, giving an acceptable colour image

Nusantara Film. Ho Ah Loke did this just to compete with the Shaw Brothers but the company failed. Other film companies at that time included Maria Menado Production and Shah Film Production. Both were owned by Malays – Maria Menado and H. M. Shah – but they were not really active in producing film.

The golden era of Malay films was from the 1950s to the end of the 1960s. During this period, Malaya was not only producing films but they also had many talented filmmakers and actors. Khan describes how:

those were the years when Shaw's Malay Film Production and Cathay Keris Studio were at their peak, producing a large number of movies which were not only box office hits but also critically acclaimed. Records show that within 17 years (1950-1967) MFP produced 155 films. Cathay Keris produced 97 films in the period from 1953-1967 (Khan, 1997, p.90).

Overall, between 1950-1967 Malay Film Production and Cathay Keris produced 252 Malay films. It was a great achievement in 17 years. This does not include the output of United Film Production, Shah Film Production, Nusantara Film Production and Maria Menado Film Production films. On average, Malaya produced more than 20 films a year at that time, which is more than the current output of the Malaysian film industry.

### **3.7 Decline of the Studio System (1960s)**

The termination of the studio system in Jalan Ampas was due to several factors, such as Malaysian Independence in 1957, the filmmaker migration to Kuala Lumpur and the interest among film entrepreneurs in the Malay film market in Peninsular Malaysia, Sabah, Sarawak and Brunei. According to Van Der Heide, most filmmakers decided to leave Singapore and live in Kuala Lumpur. In addition, there was the introduction of television, which decreased the audience for the cinema. Imported colour film from Hollywood and Hindi film from India became a strong competitor to the local film, which was still predominantly black and white at that time. Malek and Jarr give the date for the termination of the studio system in Jalan Ampas:

The Malay Film Production Complex at Jalan Ampas, Singapore, closed in 1967, now carries wonderful memories of Malay film making (Malek & Jarr, 2005, p.213).



Figure 26: The abandoned Studio of Jalan Ampas 1974 (Used with permission of FINAS Gallery)

According to Hussin, Shaw Brothers moved P. Ramlee to Studio Merdeka in 1964, and, at the same time, there was a major dispute created by the Singapore Amalgamated Trade Union (Hussin, 1997:98). These two factors contributed to the closing down of Studio Jalan Ampas. The end of the studio era at Jalan Ampas became a legend among Malay filmmakers and Malay viewers. Hussin also stated that all this migration started when Ho Ah Loke moved his attention to Malaya, Sabah, Sarawak and Brunei as his new target for the Malay films market. For these purposes Ho Ah Loke convinced H.M. Shah to move to Kuala Lumpur to produce films. In respect of the economic benefit to the Malaysian film industry in Malaya and Borneo in 1961, H. M. Shah bought a piece of prime land on the border of the capital city Kuala Lumpur, and turned it into Merdeka Studio. It had a moderate beginning, but once the top stars like P. Ramlee and Saloma started their migration from the two Singapore studios, its growth surged dramatically.

This migration process started when the Shaw Brothers dispatched some of their Singapore film directors, among them L. Krishnan, P. Ramlee and Salleh Ghani, Jamil Sulong, Omer Rojik, S. Kadarisman, Sudarmaji, Naz Achnas, M. Amin and Datuk Jins Shamsudin, to make films at Merdeka Studio. Since that time the Malaysian film industry has been centred in Studio Merdeka, Hulu Kelang

Selangor, just nearby Kuala Lumpur. Today, it is the headquarters of the National Film Development Corporation, Malaysia (FINAS), one of the government agencies that has had an important role in Malaysian film development. Husin states:

The first Merdeka Film Production film was *Tun Teja* (1961) produced by H.M Shah. When it was under Ho Ah Loke, Merdeka Film Production produced fourteen films, most of them directed by L. Krishnan and Salleh Ghani. It happened in two consecutive years 1961-62 (Hussin, 1997,p.97).

It was a very productive period, partly due to good strategic marketing of Malay film to Malay viewers in Peninsular Malaysia, Sabah, Sarawak and Brunei. Ho Ah Loke produced many films in those two years, and appointed several new directors for his films. Husin remarks that this was not a success:

But in terms of revenue, none of Ho Ah Loke films are in the box-office category, even ten of his films made a loss. Ho Ah Loke attributed this problem to Shaw Brothers as cinema distributor. Ho Ah Loke was upset and blamed Shaw Brothers because all of his films were shown in the middle of every month. In the end Ho Ah Loke sold his share in Merdeka Studio to Shaw Brothers. In 1964 Shaw Brothers moved P. Ramlee to Studio Merdeka (Hussin, 1997, p.97-98).

This suggests that most Chinese entrepreneurs were very interested in capital investment rather than film development itself. When Shaw Brothers took over, P. Ramlee was active in Malay film production in Kuala Lumpur rather than Singapore. This migration was also the starting point of the wane of P. Ramlee's popularity. As Husin points out :

There are a few factors why P. Ramlee's films did not attract many audiences after the mid-sixties, first, because his previous themes (comedy and light entertainment) were better when he was in Singapore, second, the impact of television, and, third, P. Ramlee's popularity was diminishing (Hussin, 1997, p.98).



Figure 27 : P. Ramlee

(Used with permission of FINAS Gallery)

P. Ramlee was one of the film legends in the Malaysian film industry, but from this point on most of his films were hardly accepted by Malaysian audiences. Parallel to that, the Malaysian film industry also faced a setback. This continued towards the end of the 1960s, and, on 29 May 1973, P. Ramlee died.

### **3.7.1 The Renaissance of Malay Film (1970-80s)**

The Malaysian film industry had come a long way since the first Malay film 'Laila Majnun' produced some 80 years ago. In 1970-80s the evidence of the beginning of a renaissance in Malay film is compelling, according to Van:

In 1972, the bumiputera ( Malay) companies were starting to appear, often set up by the filmmakers themselves. "Perfima" and "Sari Actor" are examples of bumiputera productions. This era marked a different environment and types of film compared to the studio era (Van, 2002, p.146).

After the loss of Malaysian film legend P. Ramlee, the Malaysian film industry struggled. Most of those who were still in the industry were Malays. Malay filmmakers tried to make a comeback in their own country. Starting from this era, wherein the Malaysian film industry was based in Studio Merdeka, Ulu Kelang, most film practitioners were Malays, but they often struggled in the film industry. Apart from a comparative lack of business expertise, they had to compete with the audience's increasing interest in Indonesian, Indian and Hong Kong films.

By 1975, the rebirth of Malaysian film encouraged a growth of the Malaysian film industry when Sabah Films grossed huge profits. As a newcomer, Sabah film made a magnificent breakthrough in their first film *Keluarga Comat* (*Comat's Family*). Soon, other companies mushroomed, such as Perfima, Syed Kechik Productions, Indra film Productions, Jins Shamsudin Production and others. As Van illustrates below:

*Keluarga Si Comat* by Sabah Film, directed by Aziz Sattar was the breakthrough in the Malaysian film industry after the decline of the studio system. This light comedy, shot in colour, resulted in the return of audiences to the cinema (Van, 2002, p.147).

I conducted a brief interview with Mr Deddy M Borhan the owner of Sabah film during this research. According to him, in *Keluarga Si Comat*, he and his crew made a big effort. It was his first film and most of the job was done using minimal budget, equipment and crew. Borhan was also surprised at the success of the film. He also stated that Sabah film produced 23 films between 1975 and the late 1980s.

The 1980s saw numerous changes in the Malaysian film industry. A vital one was the setting up of the National Film Development Corporation of Malaysia in 1981 to develop and stimulate the growth and maintain the standards of the film industry by various means, including the provision of research and advisory services. FINAS has since set up numerous facilities to promote the industry, including a credit facility scheme, which enables young and energetic filmmakers to test their potential. The revival in the industry also made changes to certain formats of the local film productions. Nearly all the films were made in colour, some using the scope format and some the standard format. There were no fixed salaries for artists attached to a certain company or studio.

A company can only perform two out of three functions: production, distribution or exhibition in order to avoid a monopoly by a certain party. The producers also might be able to recover part of their investment by the return of the entertainment tax as a way of incentive. A further incentive to local filmmakers is that they are invited to make television programmes either in film format or

video format. As a result, there are now more than 300 film companies registered with FINAS. In 1989 and 1990, over 20 feature films were produced, but this later decreased to some extent, as only 15 feature films were made in 1995, with only one film not being shown in cinemas. This compares to only five feature films being made in 1985.

### **3.8 Current Situation of the Malaysian Film Industry (1990s - Present day)**

In the mid-2000s, the Malaysian film industry saw an increase in the number of domestic film productions, from only seven films in 1999, to 26 films in 2009. The increase in domestic film production is due to the opening of new cinemas and the limitations on the screening of foreign films in local cinemas. Currently, as it has failed to come up with quality content films, the Malaysian film industry faces competition from surrounding regional cinemas, such as Indonesian Cinema, Siamese Cinema, Philippines' Cinema and Indian Cinema.

Film has often been associated with the society that it represents and sometimes includes a section of society that the maker is not necessarily a part of, inasmuch as the filmmaker could represent anybody or any society or any subject matter to make such a film according to the direction of the filmmaker. Nowadays, film production has become very competitive, and, in an open situation, film becomes an important asset and tool for communication. It is not only a selective medium of documentation, it also disseminates and portrays a piece of life, from a certain perspective, which will later become a film that contributes to the preservation and history of humankind. In Malaysia, nearly all communities in their different societies use film to communicate and strengthen themselves.

With a multicultural background, Malaysia has its own strength for film development yet this strength could also be one of the obstacles to finding the identity of Malaysian film. It could be complicated having a multicultural background with different races and ethnicities. Alternatively, these elements could be utilized as our strength for development. In this research, the observation of colour film workflow in the Malaysian film industry provides a unique review to explore our multicultural identity.

### **3.8.1 Malaysian Film Development**

In most popular films around the world, screens are usually dominated by Hollywood and popular 'domestic' cinema. Malaysia is a striking exception in that although Hollywood films are present, and, overall, take the largest proportion of the nation's box office takings, it nevertheless has to share the pot with films from the three different film cultures (Malay, Chinese and Indian) representing Malaysia's principal ethnic groups, plus a significant minority of films from elsewhere in Asia.

Since Malay Film Production moved to Kuala Lumpur and the renaissance of Malay film in the 1970s-80s, the Malaysian government has acknowledged the importance of this sector, and, in 1975, the government began to take the film industry seriously. They realized that film could contribute towards national unity and nation building, and, as a result, the National Film Development Corporation (FINAS) was set up in 1981 in response to the film community's appeal for government assistance to improve and develop the industry. Mutalib states:

FINAS' first step was to stipulate that film companies could undertake only one of the following activities: producing and distributing; or producing and screening; or screening and distributing. Taxes on film stock were lifted (much later, the 25% entertainment tax imposed on ticket sales was returned to the producers to enable them to continue making films) (Mutalib, 2005).

Overall, Malaysian film has its own unique development. With multicultural and multi-language representation in Malaysian film, it could be assumed that there will be interesting conflicts and stories that need to be represented in Malaysian film. Based on the history and government involvement in the making of every film in Malaysia, this industry could be the best industry to observe and make a new change.

### **3.8.2 Problems and Current Situation of Malaysian filmmakers' perspective.**

There are some circumstances where Malaysian filmmakers do still send their film abroad for postproduction workflow. Despite the almost 80 year history of

the Malaysian film industry, filmmakers still use foreign facilities and struggle to find the best film workflow for their own practice. Some filmmakers have been interviewed and they highlighted the interrelated problem of the film workflow situation.

I conducted an in-depth video interview with Ahmad Idham, one of the former directors who currently works with Metrowealth Film. Metrowealth film is one of the production houses that usually send their films to Siam Lab for post-production workflow. During my second phase of data collection in Malaysia, I had a chance to meet Ahmad Idham personally on the location of Metrowealth's 50th film entitled *8 Hours* (2012). Ahmad Idham stated in the video interview:

After our frustration with a local lab then we went to Thailand. At that time, we sent our film to Thailand because of Dolby Digital, when Thai labs do give us a good package, we use it (Idham, Appendix4, p.238).

As Ahmad Idham is also a member of the FINAS external board of directors, I took this opportunity to ask him about government involvement in developing Malaysian film workflow. He replied that currently FINAS also has film facilities, which are not fully equipped to comply with the film industry, and as a one-stop centre for postproduction film workflow it needs to be developed and improved. He added that he is just an external director of the board, he could make suggestions and give an opinion, but the final decision is still under the executive management of FINAS. To clarify his responses I would think that there is some lack of understanding between government agencies and Malaysian filmmakers. Looking at this perception and statement of the problem, it is quite a sensitive issue. This is because most government agency officers that have been interviewed are quite reserved in their statements regarding this issue.

When I look back on my video interview with Hassan Hasbor, FINAS director of the engineering department, FINAS seems to be very supportive of the Malaysian film industry, yet most filmmakers' responses do not seem to concur with this view. Hassan stated in his responses:

We try to provide every solution in film area in the basis of every aspect. It doesn't mean everything under one roof. We never think about profit, not like a private company, our responsibility is to facilitate the industry. What they couldn't afford we will have the service here (Muzamin, Appendix 7, p.246).

It is hard to clarify the hidden factors around this sensitive problem. In actual fact, they (Malaysian filmmakers and government agencies) might realise the current problems, but everybody has their own opinion that has to be respected. Malaysian filmmakers really want government agencies to help them in providing a good one-stop centre for postproduction workflow because private lab owners are so complacent with regard to the current technological advances. Film laboratories such as Gaya Color Lab have been operating a long time and they rely on postproduction technologies in Malaysia that are backward compared to other foreign countries. While Gaya labs try their best to encourage and attract Malaysian filmmakers, Malaysian filmmakers still prefer to send their films abroad.

As discussed earlier, after the termination of the Jalan Ampas Studio and when Malaysian filmmakers moved to Studio Merdeka in Hulu Kelang, Selangor, most of the laboratory stages had been sent to other countries, especially colour film. In the early stages of the Studio Merdeka era, they sent their film to Japan and Hong Kong. Since the early 1970s and 1980s, most of the black and white films have been processed at National Film Development. According to Dato' L Krisnan, Malaysian filmmakers sent their film (colour film) to Hong Kong, then Australia and now Thailand. He, as a lab owner, also agrees that film technology in Thailand is better than Malaysia. Currently, Malaysian filmmakers are interested in sending their film to India, or to the so called Bollywood film industry in Mumbai. This statement was supported by Mr Deddy M. Borhan, the owner of Sabah Film:

Previously we used Japan and Hong Kong for colour processing and lab work, but now Thailand came out very good. It is much nearer to us and the Thai government is really supportive toward this industry (Borhan, Appendix 4, p.240).

At the beginning of my research, I wanted to shoot my test strip in Malaysia and planned to compare the processing of that footage in Malaysia, Thailand, and Hong Kong or Australia. The plan changed based on the responses in my interview with Dato L Krisnan, who said that, nowadays, Malaysian filmmakers only process their film in Malaysia and Thailand (Krisnan, Appendix 4:232). The competition between Malaysian and Thai laboratories is quite strong now. Mr Makoto Tsukada, Director of the Engineering Solutions Division at Imagica in Thailand, says:

We're pleased that Siam Film Development has purchased the IMAGER XE(R) ADVANCED. Siam Film Development is viewed as one of the top facilities in Southeast Asia, and we know our scanner will add greatly to the services it offers its customers (Imagica, 2005).

In terms of film technology in the South East Asia region, Thailand appears to be the centre of film workflow. With more advanced equipment and possibly better film expertise, Siam laboratory has become very attractive to Malaysian filmmakers, however, concerning the aspect of cost, why do Malaysian filmmakers still prefer Siam Laboratory? Are they cheaper than Malaysian laboratories? In fact, in terms of geographical location, they are far away from Malaysia.

Dato' L Krisnan also said that, previously, in the 1980s until the late 1990s, Malaysian filmmakers sent their film either to Hong Kong or Australia. Because of the distance and technology transfer now most Malaysian filmmakers prefer Thailand as the destination for their film to be processed. It depends on the filmmaker's individual choices as to where they want to send their film. Until now, Dato L. Krishnan stated that his lab (Gaya Lab) still receives many clients, especially local filmmakers. These statements provided the impetus to making a comparison between Malaysian and Thai film workflow. He added that in his opinion Malaysia has enough film laboratories to service the number of films produced in Malaysia every year (Dato, L Krisnan Appendix 4). Key to this is the fact that Gaya Lab and APV have a monopoly in Malaysia over post-production for film format.

This may be one of the factors why Malaysian filmmakers prefer to send their film abroad (Thailand). In keeping with the implementation of the participatory action research method, I began to develop several hypotheses to resolve these complications. Most small film industries like those in Malaysia always depend on the cost factor to produce their films, which is interrelated with the technology, expertise, output quality or social factors. One of the responses from a colourist in an interview was:

They go to a foreign country for work and at the same time they are having a vacation (Abadi, Appendix 3, p.237).

It appears that Thai film businesses are more attractive to Malaysian filmmakers. Social factors like this might be one of the reasons for Malaysian filmmakers preferring to send their films to Thailand. This will affect film workflow procedures as well as film quality and film creativity. How far is this statement relevant to the industry? To answer this question, I carried out a filmstrip test to get the technical justification on the differences between two labs (in Thailand and Malaysia), as previously discussed in the research methodology. However, this only quantifies the comparison of film image quality between the two countries, while the exploration concerning other social and economic factors had to be done by the researcher to fully assess the situation affecting the development of film workflow in Malaysia.

### **3.8.3 Malay Film Identity**

Malaysian Cinema started as early as the first Malay film *Laila Majnun*, 1933, based on a classical Persian story of two ill-fated lovers. It was directed by B.S. Rajhans and produced by the Singapore-based Motilal Chemical Company of Bombay. Because it is a multiracial country with so many indigenous ethnic groups, in terms of language the Malaysian cinema is influenced by many different languages and dialects. In this research, most of the Malaysian films produced have been Malay films, which use the Malay language even though the first Malay films were directed by Indians.

On the other side, in terms of the criteria for FINAS film, there must be 70% of Malay language used for it to be considered a Malaysian film. Malaysian filmmakers still struggle to meet these criteria. Should it be based on language, the origin, where the film is made, or who is the owner/producer of the film? In this multiracial and multicultural country, it seems to be difficult to define exactly what is Malaysian film. In this research, I tried to justify that films produced in Malaysia and by Malaysians should be considered as Malaysian films. However, I am facing difficulties with this definition of Malaysian film. With the main objective of my research being Malaysian film workflow, part of the problem is that Malaysian films do their workflow in other countries. Since my main objective is to review Malaysian film workflow and to suggest ways to improve it, I could say that a film that is produced by a Malaysian company can be considered a Malaysian film.

#### **3.8.4 The Production of Malaysian Films**

In terms of the volume of films produced, the Malaysian film industry has been progressing quite well in recent years. In 2008, Malaysia produced 28 films, 27 films in 2009, 39 films in 2010, 49 films in 2011 and 100 films up to December 2012 (FINAS:2012). This growth is a positive trend in the Malaysian film industry; definitely, this positive reaction should benefit local technical support for filmmaking. This film development needs to be co-ordinated with the development of other technical support in the Malaysian film industry. This is why it is necessary to review the Malaysian film workflow, with the aim of providing competent, up-to-date production and postproduction support for the development of the Malaysian film industry. Ahmad Idham, in one of my interviews, posed the question:

FINAS has seen growth in previous years, but how does it affect the growth in the Malaysian film Industry? (Idham, Appendix 4, p.238).

I suggest that the contribution of support by FINAS should not only be based on giving out grants and funding, but should provide other technical knowledge and economic support that could enhance the Malaysian economy. This could have a big impact on film community progression in the Malaysian film industry. As an

additional benefit this filmmaking growth will also positively affect the wider film industry in South East Asia.

### **3.9 Conclusion**

The initial agenda in this chapter is to compare the Malaysian film history with global film history development. I hope the exploration and observation and of these two different dimensions would discover some new elements in the historical body of knowledge concerning the Malaysian film industry. While Malaysian filmmakers struggled to develop their film industry and technique, global filmmakers were advancing colour film workflow processes. Observing the global historical dimension in film workflow truly would exploit what current technologies that been applied in the Malaysian film industry. These new elements will be explained further in Chapter 5, where I discuss in more detail the Malaysian film workflow processes in the Malaysian film industry.

## **4.0 Malaysian Film Workflow**

### **4.1 Introduction**

This chapter initially aims to review, reflect on and observe Malaysian film workflow processes. I will examine and reflect on the theory and practice of Malaysian film workflow including the existing film technology and industrial film expertise in Malaysia. How much do the Malaysian filmmakers optimise and get benefit through the development of film technology? From the preliminary observation, most practitioners in the Malaysian film industry consider that foreign technology and expertise are better than what is available locally. Adnan makes this clear:

In foreign laboratories, everything's well set-up and that's made their job easy (Adnan, Appendix 4, p. 240).

This inconsistency in terms of film workflow needs to be explored in order to work towards recommendations for better film workflow practices in the Malaysian film industry and move towards better film workflow applications in the Malaysian film industry. As an academic who wants to contribute to knowledge and develop the Malaysian industry in the future, I aspire to conduct research that may assist in identifying and improving aspects of the Malaysian film workflow.

#### **4.1.1 Introduction to the Malaysian Film Workflow**

The current standard film workflow consists of the Shooting, Capturing, Processing, Scanning, Post-Production, Digital Mastering and Printing stages with, finally, the Archiving stage. As I stated earlier, in the Malaysian film industry most filmmakers are capable of working efficiently until the postproduction stage. However, before the post-production stages, some Malaysian filmmakers will send their films to foreign laboratories for the processing, digital mastering and printing stages (usually Thailand, Hong Kong, Australia, etc.). Some filmmakers will even put their trust in foreign expertise to be responsible for their production and post-production stages if they have the budget to hire them.

Previously, in the Malayan golden era from the 1950s to the end of the 1960s, all film workflow processes for black and white (from the pre-production, production, capture, processing, post-production, optical effect, sound mix and release print) had been done in a one-stop centre (Jalan Ampas Studio). The Malaysian film industry, which was in Singapore at that time, was proud to become one of the central attractions for filmmaking in the Asian region. Even in the Asia Pacific region, Studio Jalan Ampas had been recognized and used by foreign filmmakers. According to my previous interview with Mariani, one of the pioneer actresses in early Malaysian Cinema:

They did everything in Singapore, the studio had a black and white laboratory. Because Shaws were all Hong Kong based, they knew the film industry quite well (Krisnan, Appendix6, p.245).

The above quote underlines the fact that the Malayan golden era was recognized among foreign filmmakers throughout the region as an established film industry during that period. Nowadays, while other countries are trying to enhance their technology capability in film workflow processing, Malaysian filmmakers are still searching for their method and finding the best place to get their film processed and go through the post-production stages. Since the technology has been developing very fast Malaysian filmmakers still have to decide where they want to complete their film workflow and establish what is the best film workflow for them. As competitive filmmakers, we as Malaysians have to clarify the best way to have a one-stop centre for colour film workflow. Towards this aim, I have tried to clarify and review weaknesses in order to enhance the industry in the future and make some suggestions towards better film workflow processes.

#### **4.2 Standard Film Workflow Process**

The current standard film workflow consists of the Capturing Stage, Processing Stage, Scanning Stage, Post Production Stage, Digital Mastering Stage, Printing Stage, and, finally, the Archiving Stage.

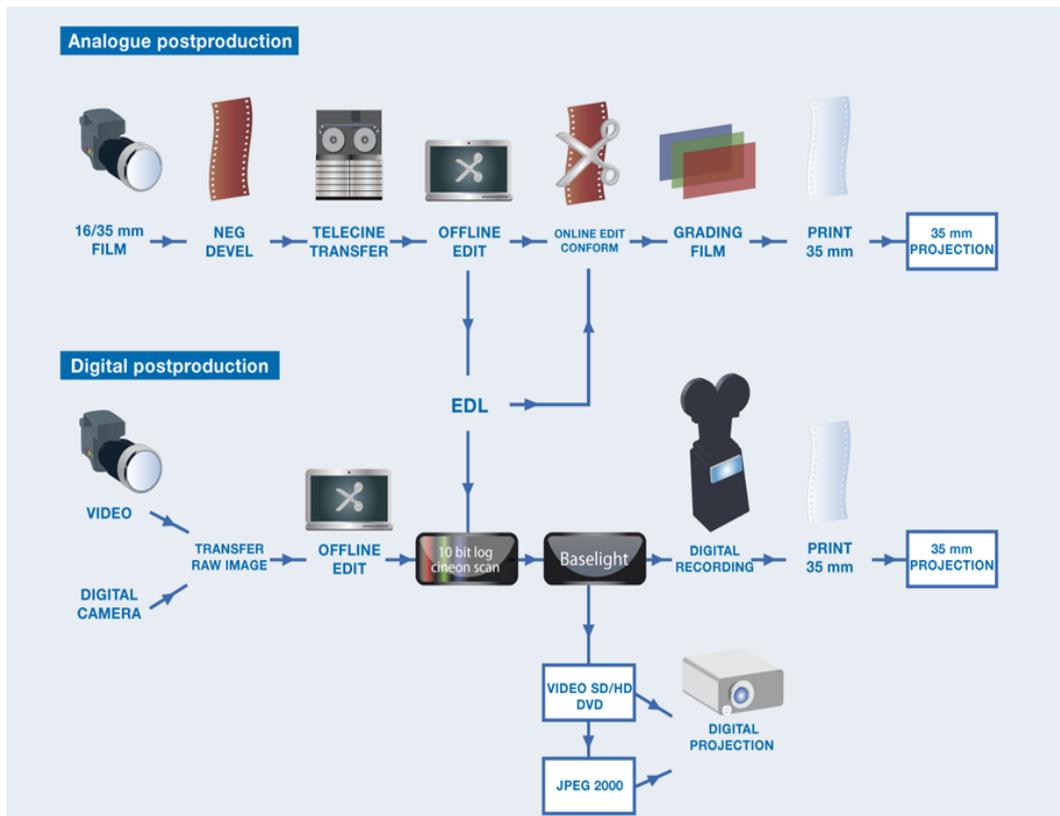


Figure 28: Example of Film Workflow (Used with permission of DeJonghe, D, 2016)

As I stated earlier, in the Malaysian film industry, most filmmakers are capable of working easily within the country until the postproduction stage. When it comes to the digital mastering and printing stages most Malaysian filmmakers will send their film to a foreign country (usually Thailand). This is what I called the utilization of the foreign facilities in chapter one.

Previously in the Malayan golden era in the 1950s to the end of the 1960s, all film workflow processes for black and white (from capture, processing, post-production, optical effect, sound mix and release print) had been done in a one-stop centre (Jalan Ampas Studio). The Malaysian film industry, which was in Singapore at that time, was proud to become one of the central attractions for filmmaking in the Asian region. Since the technology has been developing very fast, Malaysian filmmakers still have to decide where they want to complete their film workflow. As competitive filmmakers, we as Malaysians have to clarify the best way to have a one-stop centre for colour film workflow. Towards this aim, I tried to clarify and review weaknesses in order to enhance the industry in the future and make some suggestions towards better film workflow processes.

After the termination of the Jalan Ampas Studio and Malaysian filmmakers moved to Studio Merdeka in Hulu Kelang, Selangor, most of the laboratory stages had been sent to other countries, especially colour film. Since the early 1970s and 1980s most of the black and white films have been processed at National Film Development. Based on the quotation below from Dato' L Krisnan, most of big budget colour films filmmakers would send their film to Japan, Hong Kong, Australia or Thailand for their film processing and other film workflow processes:

Malaysian filmmakers used to send their film (colour film) to Hong Kong, then Australia and now Thailand. As a lab owner I also agree that film technology in Thailand is better than Malaysia (Krisnan, Appendix 4, p.238).

The superior technologies and equipment in the neighbouring country could bring a better enhancement to local film production. Overall, it could benefit Malaysian filmmakers to produce more films with greater technology and skilful expertise.

In addition, the Malaysian film industry should bring their own expertise and technology up to the standard for local filmmakers' needs. These are some factors that need to be clarified in order to review the Malaysian film workflow.

#### **4.3 Environmental Factors: Relationship with Nearby Tropical Countries.**

Malaysia is a tropical country that has characteristic features of the climate, which are consistent temperature, high humidity, and plenty of rainfall. Malaysia's climate is categorised as equatorial, being hot and humid throughout the year.

Situated in the equatorial doldrums area, it is extremely rare to have a full day with completely clear sky even during periods of severe drought. On the other hand, it is also rare to have a stretch of a few days with completely no sunshine except during the northeast monsoon seasons. (MOSTI, 2009, p.24)

Malaysian filmmakers were asked in my interviews about environmental factors that affected production workflow, and most filmmakers agreed that these affected Malaysian colour workflow management. It is quite difficult to justify colour temperature in such an environment because it keeps changing every few seconds. Of course, in any other country, colours in light frequently change based on how much solar radiation is received and from the reflectance effect towards the environment. However, in Malaysia, like other equatorial regions, we receive very strong direct sunlight. These colour perceptions are very subjective, but they are an important component of creativity in creating images.

It also depends on the director or cinematographer's imagination to portray and convey the final images on screen. Therefore, by understanding climate and its relation to film production workflow, it might help the cinematographer to enhance some modification in workflow processes towards their objectives during shooting processes. Some examples will be given in section 4.5 in this chapter, where it is seen that some Malaysian cinematographers changed some methods in standard film workflow because of small differences in technical justification. The following quotation explains the effect of Malaysia's climate in more detail:

On average, Malaysia receives about 6 hours of sunshine per day. There are, however, seasonal and spatial variations in the amount of sunshine received. Alor Setar and Kota Bharu receive about 7 hours per day of sunshine while Kuching receives only 5 hours on average. On the extreme, Kuching receives only an average of 3.7 hours per day in the month of January. On the other end of the scale, Alor Setar receives a maximum of 8.7 hours per day on average in the same month. Solar radiation is closely related to the sunshine duration. Its seasonal and spatial variations are thus very much the same as in the case of sunshine (MOSTI, 2010, p.3).

Since I am a researcher and cinematographer who lives in Kuching, which is located on Borneo Island, it is important for me to understand the environmental factors posed by my surroundings. Compared to other cities in Malaysia, Kuching receives the lowest sunshine – an average of 3.7 hours per day in the month of January. Certainly, in every shooting condition, especially in day scenes, we do need a lot of sunshine to light our subject. In addition, to sunshine

and solar radiation, evaporation is also considered to affect colour temperature in natural light. As describes below by MOSTI:

Among all the factors affecting the rate of evaporation, cloudiness and temperature are two of the most important ones in this country. These two factors are however interrelated. A cloudy day will mean less sunshine and thus less solar radiation resulting in a lower temperature. (MOSTI, 2010, p.3).

The effect of evaporation on light in the environment while shooting is an important factor that needs to be considered. It is impossible to expose colour film celluloid without existing light. To shoot throughout a scene without consistent light is also impossible. If evaporation occurs in existing natural surrounding light, it is the responsibility of the cinematographer and gaffer to enhance the consistency of light.

#### **4.4 Structure of National Policy in Malaysian Film Industry**

The overall cost of the film is one of the biggest issues that needs to be settled before going into production. The film workflow also needs to be decided before the filmmaker confirms their budget or it will happen the other way round; from the film budget they will calculate the nature of their film workflow management. In Malaysia, from the FINAS research unit statistic in 2012, the average cost to produce a film is 1.148 million Malaysian Ringgit (FINAS, 2012). This is equal to £300,000 or \$400,000 American Dollars. Even though we might be one of the lowest in terms of cost in the Asian region, most Malaysian filmmakers still need government funding for producing films. However, we can still see the failure of Malaysian films in their ticket returns. A lot of funding or government procedures have been applied for the benefit of the film community in Malaysia.

##### **4.4.1 Licensing in the Malaysian Film Industry.**

In the Malaysian film industry, there are three activities that fall under film licensing criteria according to Malaysian film policy. Every company that wants to produce must have a licence from FINAS. Those three activities are *film producing*, *film distribution* and *film previewing* (FINAS: 2011). Each production

company that has registered with FINAS is only eligible to choose two out of those three activities.

#### **4.4.2 Made in Malaysia Certificate (MIM)**

Under the Licensing department, there is a procedure to protect the productions of the advertising industry in Malaysia. The MIM certificate has been introduced to make sure that 70% of the elements of any advertisement that will be previewed in Malaysia needs to have local content. This scheme aims to enhance the advertising industry in Malaysia and generate work for the Malaysian film industry.

According to Mr Zainudin, the Director of Licensing at FINAS, in 2001, when the Minister of Multimedia introduced this MIM scheme, it did not function as planned (FINAS, 2011). Under this new ministry, the Malaysian Government introduced a new policy that relates to broadcasting procedure in Malaysia. Consequently, FINAS lost their full authority for policy management. Many TV advertisements were simply imported from foreign countries and there is currently no control over the advertisement production activities in Malaysia. The unforeseen result is that the production of advertisements from local companies is gradually declining.

#### **4.4.3 Production Certificates**

FINAS also introduced the *production certificate* scheme to protect the industry. In this scheme, every film production needs to apply for a *production certificate* for permission to shoot their film. This scheme also applies to working permits for foreign filmmakers that want to work in Malaysia. To work in the industry, foreign filmmakers must also have a *support-working certificate* that has been approved by FINAS. This certificate has to be obtained from FINAS, and only local production houses that have registered with FINAS are eligible to bring in foreign filmmaker/ expertise. In addition, local filmmakers who are listed in the application also need to register with a film society. This scheme clearly wants to protect the local filmmakers and control the production, for either films or broadcasting in Malaysia.

#### **4.4.4 Compulsory Screening Scheme**

Another regulation in the FINAS scheme is *Skim Wajib Tayang* or Compulsory Screening Scheme. According to information from the FINAS website, the scheme was formed to accept and consider any local or joint venture films for compulsory screening at cinemas by exhibitors. In this scheme, the exhibitor or the Cineplex owner must screen local films (approved by FINAS under the Compulsory Screening Scheme) for fourteen consecutive days in the biggest hall of the cinema (FINAS, 2011).

Clearly, under this scheme, local filmmakers have an opportunity to screen their films in a major Cineplex, even though they are competing with films from Hollywood or others. In this compulsory screening scheme, FINAS also gives exemption to import duty tax for cinema equipment for those Cineplexes that participate in this scheme. This would benefit both producers and Cineplex owners.

#### **4.4.5 Entertainment Duty**

FINAS has been applying the entertainment duty procedure since 1987. This Assistance Scheme was established after the approval from every state government that local feature film producers are eligible to receive entertainment duty from the sales of tickets at local cinemas (FINAS, 2011).

Clearly, Malaysia's filmmakers will get many benefits from this scheme. Even though they might be a failure in the cinema market, they will at least get some return of the cost that they spent on their film from this scheme. According to the scheme, FINAS only imposes a service charge fee of 1% on the claim amount obtained from the producers.

To enhance the policy from the government, FINAS also introduced several funds for the benefit of the Malaysian film industry. In reality, although funding might be the best resort to support the industry, it might not be the only solution identified to the problems in this study.

#### **4.4.6 Film Art and Multimedia Fund**

FINAS created the Film Art and Multimedia Development Fund in order to generate a high quality standard film, which will be recognized at the international level. Meanwhile, hopefully, this fund could promote young filmmakers to improve their talent and professionalism to an international level of achievement. This fund includes cover for a short film or documentary, incentive assistance for international film festival/seminars, student's film project and general "film help" for film societies (FINAS, 2011). We can conclude that this funding is specifically for the young filmmaker or the beginner who wants to get involved in the industry. It is a good scheme and an incentive for the growth of the Malaysian film industry.

#### **4.4.7 Feature Film Grant and Loan Fund**

The objective of this fund is to improve the local film industry, as most producers in Malaysia struggle to get a grant or loan to produce their film. It is even harder to get individual funding for Malaysian film. The Ministry of Information and Communication Heritage and FINAS created this fund. This loan is handled by SME Bank, and, according to the FINAS website, the government allocated 200 million Malaysian ringgit for this loan scheme and another 200 million Malaysian ringgit for the film grant scheme. The maximum loan is 1.5 million for each film or 90% of the film cost. The SME Bank will charge 4% interest from the balance every year. This loan is just for local production houses that are registered with FINAS and not for individual filmmakers (FINAS: 2012). For the grant scheme the filmmaker can apply to FINAS and does not have to re-fund the loan.

Independent commercial filmmakers are the ones who produce more films compared to filmmakers who receive feature film funding. This will be discussed later in this chapter. These self-funder independent commercial filmmakers are also the ones who most enhance the film industry, attracting a greater audience and succeeding at the box-office or in the market. These are some of the issues that the government has to look at in their policy of giving grants to Malaysian filmmakers. For me the most important thing is the knowledge transfer between filmmakers who receive funding. It is true that the film market is high risk, but they should improve and learn from the mistakes that they made before. They

should not continue depending on funds, when, at the end of the day, they could not get their revenue back.

#### **4.4.8 Film Production Fund Nationhood And Heritage Fund**

This programme is to enhance the production of film that relates to nationhood and heritage. It also encourages Malaysian filmmakers to archive national heritage and culture, so the film that will be selected must be culturally oriented and show the richness of Malaysian culture. According to FINAS websites, the cost of cultural film production will be covered 100% by FINAS and any profit will be returned to them. However, if the producers want to fund a part of the production cost, the percentage of this will become the profit percentage (FINAS, 2011).

For me it is an advantage to have this scheme because most cultural and heritage films will hardly make any profit from their screening in the cinema. This is a new scheme that FINAS introduced in 2009. However, to whom should FINAS be giving this fund? Production companies might not be interested in this scheme because all profit should be returned to FINAS. In the same way it would demotivate experienced filmmakers to apply for and produce films from this scheme.

#### **4.4.9 Self-Funding**

The last form of funding is from the individual or production house owner. Most of them produce commercial films, the main target of which is the younger generation, as their main objective is to get box office success. Although the cost to produce such a film is still over one million Malaysian ringgit, most of them succeed in getting their money back, especially from the entertainment duty scheme. As the film industry grows, no matter how much money they spend on their film, the producer has to decide their film workflow processes. This will be one of the main decisions that they have to consider. The best film workflows will be the preferred workflow for most filmmakers, this decision will relate to the main costs in film production.

This section has shown that in Malaysia we can see many opportunities for producing a film. Filmmakers can access many forms of funding or loans, which

will enhance the development of the film industry. The growth and demand of the industry will be rapidly increased. Even though most local laboratories and film post houses are not competitive compared to other foreign post houses, they still make a profit.

Based on my preliminary research and observation, self-funding filmmakers would be those who contribute most in the Malaysian industry. Even though the Malaysian Government has been providing funds to all Malaysian filmmakers, more than half of the total films produced are by self-funders. Why did these circumstances occur in Malaysia? It might be that the procedure for applying for government funding is difficult, or that most filmmakers are much more comfortable with their own funding. As stated in Ahmad Idham's interview quoted below, he also agrees that self-funding filmmakers have made many changes to the growth of the Malaysian film industry:

I can say that the success of the film industry today mostly is because of the independent producer's hard work. FINAS is only just riding on top of the success of independent producer (Idham, Appendix 4, p.238).

The Malaysian film workflow develops from good knowledge transfer and communication between the film practitioners. At the same time, from an economic perspective, audience magnetism and profit could become one of the benchmarks of the success of a film. A bigger audience watching the film means more success, which could be interpreted as an economic factor to improve the industry. In addition, the consistency of technical factors in film workflow will contribute to better production values in the film. This important factor may perhaps support the film itself and enrich the film's prominence. It is the filmmaker's responsibility to be aware of the best workflow to be chosen to get the best result on the final print. This awareness could be an important factor to enhance film quality, and, at the same time, save money from the film budget as well as generate profit.

#### **4.5 Technical Factors**

In film workflow, we never fail to discuss or think about technical factors. Standards of film workflow are well established, but application on site might introduce its own problems for the camera department. Following the standard

technical workflow is good, but it varies according to particular field practice and the conditions of the production. Every production team will have their head and it will be the Cinematographer or Director of Photography (as it is usually called in the United States). The cinematographer will probably be shooting based on their own experience in film production, nevertheless, the standard film workflow would be the priority guide for every technical production group. If the resulting images did not satisfy the cinematographer, the idea of following the standard film workflow would not even be a consideration. In the end, standard film workflow needs to be the best guide for every Cinematographer. Other technical factors might disturb the film workflow processes, and these will need the cinematographer's creativity to produce better visuals based on the director's needs.

The cinematographer may have a totally different opinion concerning his authorization of the film workflow processes as has happened in many situations. In Malaysia, some cinematographers would look for a different shooting approach. Standard film workflow would be the best guidance for them, but technical factors still arise while they do their work. These consequences will only arise when they experience difficulties in their workflow process. Here are some of the comments and examples I have received in my online research group:

Malaysia is on the equator ...the 85 family filter is not workable to correct back colour temperature on tungsten film stock when filming daytime ... No correction at all to be made and only a little 'mired shift value' when at the lab. So the workflow must be different rather than filming in 4 season countries. How true is this? (Mukriz, Appendix 2, p.230).

I must agree with the above comments, theoretically lights are reflected, dispersed, absorbed and diffused. But, by what means? Anything on its way to reach something and the journey modify the temperature. Our humidity is unique to our climate, which means that it give different quality of light compared to the other parts of the globe. A little 'mired shift value' are actually huge to our vision. This is a good reason for us to fully utilize an emulsion test session or fully utilize the use of a Color

Temperature Meter in order to get exact measurement and using the right CC filters. How about this theory? (Maharam, Appendix 2, p.230).

The term 'blackbody' was introduced by Gustav Kirchhoff in 1860. The colour (chromaticity) of blackbody radiation depends on the temperature of the black body; the locus of such colours, shown here in CIE 1931 x, y space, is known as the Planckian locus. On the basis of the technical problem faced by the above Malaysian cinematographer, we need to look at the theory and practice of colour temperature, Kelvin degree of daylight and tungsten.

Daylight in the motion picture film world is 5600/5500 degrees kelvin. In tropical countries, especially in the equatorial axis of rotation, we may receive more light so we may use 5600 Kelvin as a standard because some earlier filmmakers at some point in history determined that is what the average daylight colour temperature is. Although that number is not accurate most of the time, the standardization is important as it allows all daylight lighting in film to be close to 5600, so our lights match other lights and daylight balanced film stock, and the other way around.

Based on colour science discussions which took place at the 2009 conference in Gjøvik Norway, in the real world, the light outside can vary tremendously based on weather, time of day, geological location, and can change maybe every single second. That is why the daylight standardization may not match what actual daylight is in other parts of the world or in different weather conditions. Most of the researchers who were involved in that conference may face the same problem to justify the exact measurement of colour temperature in the environment in their research.

Daylight or tungsten light in the environment varies by thousands of degrees Kelvin over hours or the day and night cycle. Thus, lighting manufacturers who manufacture or incorporate film bulbs into their products, which are not specifically made for film, can pick whichever colour temperature in the appropriate daylight spectrum they determine as daylight. Theoretically, light is reflected, dispersed, absorbed, diffused and it is possible that geographical factors might play a part in these processes. Malaysia is directly on the

equatorial line, therefore, we are in the closest and most direct line with the sun. That is why lighting colour temperature is reflected, dispersed, absorbed and diffused more in term of lighting intensity compared with in other parts of the world.

According to the quote by Raja Mukriz about the 85 family conversion filter, from a Malaysian cinematographer based on his experience, there are no corrections at all to be made and only a little 'mired shift value' when identified by the laboratory:

Since 2003 I have stopped using 85 family or any colour correction filter to correct back any tungsten film that I have shot for daytime (Mukriz, Appendix 2,p.231).

He also added that he has stopped using the 85 filters for the colour conversion for the colour correction on shooting production stages. This goes completely against the standard or basic film workflow processes, but it works in the Malaysian film workflow situation.

Below is the list of conversion filters for colour films. According to this chart, these filters balance the spectral composition of the photographic light source to the temperature balance of photographic films.

<b>Filter Colour</b>	<b>Filter Number</b>	<b>Exposure Increase In Stops</b>	<b>Conversion In Kelvin</b>	<b>Mired Shift Value</b>
Blue	80A	2	3200 to 5500	-131
	80B	1 2/3	3400 to 5500	-112
	80C	1	3800 to 5500	-81
	80D	1/3	4200 to 5500	-56
Amber	85C	1/3	5500 to 3800	81
	85	2/3	5500 to 3400	112
	85N3	1 2/3	5500 to 3400	112
	85N6	2 2/3	5500 to 3400	112
	85N9	3 2/3	5500 to 3400	112
	85B	2/3	5500 to 3200	131
	85BN3	1 2/3	5500 to 3200	131
	85BN6	2 2/3	5500 to 3200	131

Table 8: Conversion filters for Colour Film Chart-Source from <http://www.plumeltd.com/artzone/filterzone/conversion.htm>

If we look at the above chart, the numbers for the standard mired shift values are listed if we are using 80 or 85 family conversion filters in the shooting stages.

On the basis of the Malaysian cinematographer's experience of filter application, their practice goes against the standard film workflow processes.

As a researcher, film academic and cinematographer, the above practice needs to be analysed, and their daily practice needs to be discussed with the film practitioner. This is interrelated with the factual data and provides some evidence towards standard film workflow execution. This discussion will lead to a new technical approach or guide in film workflow, or an alternative shooting approach. It is designed to supplement the creativity of the cinematographer towards their filmmaking processes.

Based on the chart above, according to the cinematographer's practice, a little 'mired shift value' difference might be because of reflection. The characteristics of the film emulsion make our task more difficult. The optimum latitude in film characteristics might not be achieved, so that is why most of our final prints are less saturated unless they are colour corrected or colour graded. This might be because the specification for celluloid film does not match or reflect a tropical environment.

#### **4.5.1 Researcher Technical Experimentation**

The Centre for Fine Print Research of the University of the West of England supported the researcher's analysis towards clarifying technical differences on film images between Malaysian and Thai laboratories. This was based on the principles of photometry and colourmetry:

Photometry has to take an account of the effectiveness of the radiation in stimulating the eye and producing a visual sensation. The apparent simplicity of photometry, as suggested by the elementary experiments of our schooldays, is deceptive, and indeed the orthodox interpretation of much of photometry is now being challenged except where the source being are nearly to same colour and are viewed under closely similar condition of observation (Wright, 1969, p.228).

With this observation in mind, I shot a roll of 35mm colour negative in the same lighting conditions. To achieve that objective, I shot with the same camera and same film stock. The film stock was divided in two and sent to Malaysian and Thai laboratories. Because the measurement was in negative colour print, the

source of light that comes through the print was the major observation in colourmetric measurement. I hoped that these measurements would clarify the technical differences between laboratories. With help from the Centre for Fine Print Research, I was able to clarify and justify technical differences in data between those laboratories. The results of these experiments are given and discussed in chapter 5.

#### **4.6 Social Attitude and Film Workflow Executions.**

From an analysis of the early reflections from the Malaysian filmmakers and film practitioners, there are so many communication, networking and misperception problems that relate to the Malaysian Film Workflow. I felt that I needed to communicate effectively with the Malaysian industry and I created the Malaysian Film Workflow Research group on Facebook. I hoped this social network would build on and enhance the preliminary reflections brought out by this research. Most of the members were invited because they are involved in the Malaysian Film Industry. Below are some of their perceptions about existing Malaysian Film Workflow problems:

It's easier to talk than to practice, most of the industry people that I know will bypass certain processes or not really understand what they're saying because they just know how to shoot and will give orders during post to get what they want regardless of the constraints of budget and the complexity of the process (Azhar, Appendix 2, p.232).

The above verbatim translation illustrates what I have said about Malaysian filmmakers' attitude towards the standard film workflow that they are supposed to be following. Some filmmakers just ignore the guidelines for shooting workflow procedures. This we can attribute to the cinematographer or director not coordinating their workflow processes. These problems at the shooting stage will affect the post-production workflow processes. Most of this problem occurs because they have never fully understood the real film workflow that they will experience. It is worse when they do not have enough budget towards the end of the post-production process. This complexity will definitely need a lot of sacrifice of time, money and, speaking honestly, a lot of repression of creativity to solve every stage of film workflow. The execution needs to be thorough in order to benefit the producers in successful realization of their film.

As described by Mulriz below:

and also the producers who bypass the “content” of the workflow by ignoring all these great practitioners who know how to execute (Mukriz, Appendix 2 ,p.232)

This is another verbatim translation from the practitioners that talks about producers that always try to bypass the workflow processes without knowing they will disturb the content of the film. Some of the producers in Malaysia do not know about the execution processes in film workflow, although during the pre-production all processes have been discussed and agreed between the management and the technical and creative members in the production. This bypassing process of the workflow that has been agreed at the beginning by the production team was due to the lack of production knowledge among producers about film workflow. This would affect the production quality and budget limitation.

#### **4.7 Interview with Malaysian Filmmakers regarding Malaysian Film Workflow.**

From my observation as a film academic in Malaysia, formal education in film was only introduced in 1981 when the Malaysian Film Academy was established. In relation to that establishment, the National Film Development Cooperation was the main government body that was responsible for the development of the Malaysian film Industry. Since 1981, there have been many strategies to develop Malaysian film, but the Malaysian film industry still struggles locally and internationally. In practical application, locally, Malaysian filmmakers still prefer to employ foreign expertise and rent foreign facilities for their films. The Malaysian government has spent millions trying to develop film facilities, and, according to interviews with Malaysian filmmakers, it is hard for them to recognize local expertise and the technology behind them. In respect of this situation, there must be reasons underlying these issues. I need to go in depth into this factor to resolve these complications. According to Haagan:

Draftsmen may be made, but colourists are born. The secret of colour theory? Why call those principles secrets, which all artists must know and all should have been taught (Haagan, 2002, p.15)

In relation to the above quote, the principles of colour theory are stated in art education; however, some artists still think that a colourist's ability might be from innate talent not through the educational process. In my interviews with a few colourists in Malaysia, most of them said that they did not have any film or art education background in the specialist area of film colourist. Most of them had achieved their colourist position by experience working in the lab. Isazaly, in an interview said:

We would not practise, the workflow is supposed to be practice (Isazaly, Appendix 3, p.237).

I was quite surprised when one of the editors said that in the interview. At the same time, the editor said that, in the long run, the Malaysian film industry also lacks the means of knowledge transfer. Most knowledge transfer that happens in Malaysia is by word of mouth among practitioners.

This conventional practice relates to the quote, "Draftsmen maybe made, but colourists are born". In addition, it is known from the interviews with Malaysian filmmakers that there is no such research and development team for the film industry in Malaysia. In the interview, Krisnan argues that:

Government should not give cash, just to go and do it, but bring in technician and facilities (Krisnan, Appendix 4, p.238).

The above quotation shows Krisnan's frustration with the system of the Malaysian Government. The government is not thinking about research and development and is more likely to give a grant rather than develop the Malaysian film industry. Most filmmakers have their own goals, especially the cinematographer, who is responsible for capturing light and colour temperatures. The primary aim is to capture, to differentiate, to manipulate, to recognize, to understand how light relates to colour temperatures and how it influence the images, either in grainy celluloid film or video pixel. This is illustrated by Alton :

Painting with light remains one of the few truly canonical statements on the art of motion picture photography (Alton, 1995, p.45).

This statement relates to the cinematographer's responsibility to create, control, initiate, decorate, explore and to understand light and film workflow. According

to Malaysian filmmakers, cinematographers have their own view and visualization goals in their work. The discovery of the relationship, mediated by eye and brain, between colour agents and colour effects in man, is a major concern of the artist. Haagan states:

Visual, mental and spiritual phenomena are multiply interrelated in the realm of colour and the colour arts (Haagan, 2002, p.17).

Cinematographers and directors in Malaysia have their own approaches to managing their film workflow. Some film projects need to have their own execution of their particular film workflow. I am very concerned about this in the perception of the Malaysian filmmakers towards film workflow processes. This concurs with what Raja Mukriz said in his interview:

They went to Bangkok because they do not have enough knowledge. Few Malaysian directors went to Bangkok, and other were just followers. We do have good equipment but we do not have expertise (Mukriz, Appendix 3, p.237).

These perceptions are based on their practice and experience as cinematographers, but they could still benefit from a systematic analysis of film colour workflow. This factor will be discussed further in chapter seven when the researcher interacts with the film practitioners in the Malaysian film industry.

#### **4.8 Malaysian Film Workflow Practice and Comparison to other Countries Nearby.**

In this research, I had many discussions with Malaysian filmmakers about the complex situation regarding existing Malaysian film workflow. There is a lot of comment about this topic in the interviews I carried out. Most of the comments are recorded on video as evidence and application of my practice-based research. Gayatri in his interview said:

The other issue was optical, optical here in Malaysia is not the same as Hollywood because we don't have the same machines and it's not cost effective, it's very expensive. We do have inter-neg and inter-post systems no matter what generation it will drop. So if you watch the film and you

are a filmmaker you tend to know before the optical comes if you see it slightly soft, the colour will change, back to the same visual, the same thing will happen. It was frustrating so we worked on that part with Gaya Lab. Then we came to the idea that we could go overseas, because of cost actually. Cost wise in Thailand because of the share volume that they get, they can give competitive prices. The only thing is we can't be there all the time. You should limit your cost going over and see what they are doing. (Gayatri, Appendix 4, p.238).

The comments of the producer above, comparing foreign and local laboratories, clearly state that the technologies in the Malaysian local laboratories are quite backward compared to other countries. Because of this lack of technology, Malaysian filmmakers tend to use an alternative site to execute the workflow processes. Based on this feedback we can see that most Malaysian producers would be upset about what happens in the Malaysian film workflow in Malaysia. In terms of cost, which is one of the important criteria for all producers, we can see that foreign laboratories, especially those in Thailand in this comparison, would offer a much better service at a competitive price compared to the local Malaysian laboratories. The only factor that shows local laboratories as being better is in terms of distance and its effect on travel costs. This is supported by the colourist's statement below:

They choose foreign laboratories maybe because of the cost, whether it is cheaper or more expensive. Some filmmakers go to a foreign country because of both benefits of doing their work and at the same time having a vacation. Some producers use foreign laboratories because they want to use better technology and raise the status of their film. They will feel proud if they do it in Hong Kong, Korea or others. There are a lot of factors why they choose foreign laboratories, somehow it becomes a marketing strategy (Abadi, Appendix 4, p.240).

As the above statement suggests, this could be one of the attractions for Malaysian filmmakers. In terms of local audience perception, in these video interview observations, it tends to be seen as a marketing strategy for local films. If we analyse this perception, it is an indication that the Malaysian filmmakers and the film audience still respect or find greater value in foreign

expertise rather than local. This is because if the film is produced using foreign expertise or using foreign technologies this will become one of the marketing strategies to bring the film success in the market. What about the future of our local expertise and the development of our technologies? This might be one of the challenges that the Malaysian filmmaker needs to take seriously. Gayatri argues:

So the services now in Malaysia, we do have most that are enough for local film, we do have colourists, we do have the resolve, we have the spec, and we have those entire machines here. We have the labs, we have the kine-transfer at Gaya Lab, we have the kine-transfer at FINAS. So the facilities are here, it is whether you think, according to your own perception, that they are good enough for what you want. The second resolution is the cost, Thailand for example, Technicolor, Time Lab, Cantana, they all do packages, so you can do colour correction right up to the end. The advantage of that is obviously their colour machine is hooked up to their kine machine for their output. Here it is not, here you do grading somewhere else: taking it in, making sure that the log file, linear file, matches up, getting to the kine. Then you have other issues ... the colourist will say this is not what I coloured, this is what you gave me, I just printed it for you, these are annoying issues. So if you want to avoid the issues, you go to the place that has everything. So for Technicolor from start to finish, colouring to the output they can do everything. Is not to say that the facilities are not here, it is whether they are compatible or whether they are easy (Gayatri, Appendix 4, p.239).

In respect of the above producers' comments about the technologies and services in the Malaysian film workflow, it shows that in Malaysia we do have facilities that are adequate for the film industry. If we compare the Thai film workflow they are much better. In relation to this, how could we utilize our local facilities? Based on these video interviews and my analysis, it is clear that the workflow services are not in the correct order. All of these machines are there but not in the correct workflow pipeline. Local filmmakers will struggle with the workflow because it is not centralized and not systematically ordered. In contrast, the Thai film workflow is centralized with complete packages, and filmmakers can do all their workflow from the beginning to the end in the same place. While in the

Malaysian film workflow, filmmakers have to face a lot of inconvenience to go through different processes in different places and co-ordinate different expertise. These disorganised colour film workflow processes can and does lead to miscommunication throughout the workflow. This could and does give rise to annoying issues that will affect the quality of the film output. All these are perceptions from the producers; however, local colourists also have their own opinion about this complex issue:

If they do it locally, they will down grade everything (Abadi, Appendix 3, p.237).

Abadi's video interview makes the point forcibly that they are not being respected by the local filmmakers and producers. Every job that they do will be downgraded because it is done locally. In this correlation it seems that most local producers have low perceptions of colourists and local laboratories. It seems clear that they are thinking that foreign laboratories are better than local ones, despite the quality of the service they get from local ones:

Some filmmakers are not satisfied with the result. Actually they get what they want, but they are still not satisfied with what they have and tend to have a lot of comments. In foreign laboratories, everything's well set-up and that's made their job easy (Adnan, Appendix 4, p.240).

Local filmmakers are always saying that they are not satisfied with the job that the local laboratories have done. According to the colourist, these labs have acted in accordance with what was requested, but they are still not satisfied. These issues seem to point to a double standard among local filmmakers concerning local expertise. In terms of local facilities, it has been confirmed by colourists that foreign laboratories have more advanced equipment and are well set up for the standard film workflow.

In conclusion to these comments, we can see that in terms of facilities the Malaysian film workflow is quite behind compared to foreign facilities. However, in terms of expertise, we might be quite competitive compared to the foreign facilities. This is because the local laboratories, such as Gaya Lab are still one of

the attractions for local and foreign filmmakers if they shoot in Malaysia. Just because local equipment is not as advanced, it does not mean it is not capable of performance. The complex issues here are the perceptions of local filmmakers and local audiences towards the use of foreign expertise. It is used as a marketing strategy because producers believe that if a film is advertised as foreign-made or involving foreign expertise, it will increase box-office sales. This negative perception will affect knowledge development and the local film industry in the future.

#### **4.8.1 Existing Practice in the Malaysian film Industry and Malaysian Producers and Directors' Perception of Malaysian Film Workflow and their Challenges.**

As one of the pioneer Malaysian film directors and lab owners since the beginning of the existence of colour film workflow in Malaysia, Dato L. Krisnan agreed that there has been development in the Malaysian film industry, but it is not as developed compared to other countries nearby. He added that the Malaysian filmmakers used to send their colour film to Hong Kong, then Australia and now Thailand. He, as a lab owner, also agreed that film technology in Thailand is better than in Malaysia.

This underlines the attraction of Thailand as it is geographically nearer to Malaysia than Japan or Hong Kong. Furthermore, the Thai Government is really supportive of this industry. As I explained in earlier chapters, the focus of this study is to review the main reason why the Malaysian filmmaker does not have their own proper domestic film workflow. Neighbouring film industries, such as that in Thailand, grew rapidly in parallel with the development of film technology:

Film locations were not the only strength Thailand offered. From animation to post-production, Thailand's film industry has slowly but steadily grown as Hollywood grew. But in a changing landscape, with cost pressures mounting, the government is making sure Thailand stays in the race as an international film partner (Scott, 2011).

While the Malaysian film industry is struggling in trying to gain trust and attraction from local filmmakers, Thailand has moved ahead and is trying to lead the film industry in this region. At this moment, we are still finding problems with our own workflow, and, definitely, we need the support of the Malaysian Government to enhance the industry. The Thai government has clearly made an effort to make sure they monopolise the industry. Meanwhile, in Malaysia, all that happens is that practitioners and government try to blame each other. Idham makes that clear in his video interview:

For me I try my best to use local expertise in my film, but if we couldn't find any local expertise in a certain area, I will use foreign one. That happened in this film, because I want to go to the international market (Idham, Appendix 4, p.238).

Clearly, Ahmad Idham's shows a willingness to utilize local expertise, but, at the same time, to bring a local film to the international market, the utilization of foreign expertise is still common practice. This links with the colourist's statement before that most Malaysian filmmakers that use foreign expertise and technologies are doing so as a marketing strategy. Maybe it is a good strategy at this early stage, but we should emphasize the originality of our local film made by local expertise and local technologies to move forward into the international market.

The comments below show how processing in Thailand is approached in a different and more manageable way than in Malaysia:

In film grading our directors of photography are completely involved. In Gaya laboratory there is a small room for film grading, whereas in Thailand the directors of photography have to go (leave the room). It is just the processes of the lab that are different. At Gaya lab the colourist Abadi will grade first and we will go through it. In Thailand the director of photography will give the look that he wants and they will correct. We can't even go to the room. They colour by themselves and they do a print, we watch the print and DP will comment scene by scene with the colourist. Then they go to a different colour machine to do the point first and up, four points below and four points up I don't know how to explain

that. After the first rating there is a limited second print, they will print you another print and you will check what you want (Gayatri, Appendix 4, p.239).

However, the Malaysian laboratory, after the processes, provides the advantage to the director of photography of working together in the grading room with the colourist. In the Thai laboratory, they would not allow the Director of Photography to enter the grading room. There are some pros and cons to this situation: the workflow process in Malaysia might be good in terms of DP and colourist interaction, but it will take a longer time because there will be some conflict of thought in the colour grading processes. While, in the Thai laboratory, they will colour correct based on the needs of the Director of Photography and agreement before and after film printing.

As shown in the quotes above, in terms of film technology in the South East Asia region, Thailand appears to be the centre of film workflow. With more advanced equipment, and perhaps better film expertise, Thailand laboratories have become one of the attractions for Malaysian filmmakers. However, concerning the aspect of cost, why do Malaysian filmmakers still prefer these laboratories? Are they cheaper than a Malaysian laboratory? In fact, in terms of geographical location, they are far away from Malaysia. Social and economic factors might affect the situation, as stated in previous chapters.

#### **4.9 Conclusion**

This chapter covered insights into the current Malaysia film workflow, which, in turn, helped build the research questions. The range of video discussions included the topic of the Malaysian film industry in general, Malaysian film workflow complications, Malaysian film policy, and the Malaysian filmmakers' preference concerning Malaysian colour film. The data evidence and literature cited in the chapter contributed towards shaping the design of my research questions. This understanding of the current situation, together with the input from the Malaysian filmmakers' responses, provided the basis for creating the filmstrip test that was explained further in Chapter Two, which was designed to observe the expert witnesses preferences in respect of the colour film workflow processes when making a comparison between local and foreign laboratories. The

next chapter explains how I used the filmstrip test result and presents the quantitative data findings. This approach shows how I gain reflection on and validation of data from the expert witnesses. These results are enhanced by producing standard survey questions.

## **5.0 Reflection and Data Validation**

### **5.1 Introduction**

As I explained in chapter 2, this research has employed an action research method. Action research is a process by which practitioners (myself in this research) investigate their own actions and the consequences thereof, and, through making changes to the practices and evaluating those changes, improve the environment in their practice work. As part of this, I made a few trips to Kuala Lumpur, which is the centre of the Malaysian film industry, to have several reflection sessions with practitioners/filmmakers who are involved professionally in the Malaysian film industry.

Fundamentally, the Action Research method involves self-reflection, and, at the same time, the researcher is committed to improving certain aspects of practice. In preparation for this, it was necessary to comprehend more of the historical background and film workflow knowledge that led to the development of the Malaysian film industry, which is my case study. As a doctoral student, film academic and experienced cinematographer, I could base this reflection session on living educational theory. I also hoped these reflection sessions could open up practice to scrutiny and provide the means to make an improvement in practice. The results of this process is shown in the qualitative and quantitative data in this chapter. The data from the video interview documentation and set of questionnaires is interpreted and analysed later in this chapter.

As well as exploring the data from the reflection session, I also include the results from the filmstrip test that I made purposely for this research. As I explained in chapter 2, this experimentation focused on the production stage (in Malaysia) and comparative differences in the film processing stage in Malaysia and Thailand. As in the post-production stage the reproduction of colour and images is a fairly uncontrollable process, this reproduction will clarify many aspects for discussion, and, at the end, the conclusion is based on what Malaysian filmmakers need. That is why in this filmstrip test I wanted to experiment up to the processing stages and justify the differences between the two different laboratories. It is hoped this filmstrip test could justify the Malaysian filmmakers' level of satisfaction, preferences and their opinion in relation to this research and future development in the Malaysian film industry.

This validation data is also intended to be the base point to establish overall filmmakers' perceptions about the existing Malaysian film workflow and their potential for further new knowledge development. This reflection survey needs to be clarified in this research because it is important to review Malaysian filmmakers' general perceptions about the development of changes and clarification. This helps to justify the value of the action research process for improvement to practice. This is highly relevant to the main exploration of this research, which is to reflect on the theory, context and value of the Malaysian film workflow practice.

This reflection content is presented in the context of the study of the historical background, existing practice and film workflow knowledge in the Malaysian film industry. In accordance with the action research method and participatory action research to support the practice involvement of the researcher in this research, this reflection session could initiate a cyclical process of change and enquiry. It was expected that the application of this method would reveal the context and values of the existing Malaysian film workflow. This has significance for extending industry practice and is a demonstration of how this research develops knowledge, which is applicable for potential future research. It is intended as an example of how new knowledge can be generated for the benefit of the film industry.

As I explained in chapter 2, this survey gathered qualitative data as the main reference data, and the quantitative data acted as support to review the general reflections from the Malaysian film industry. Both the qualitative and quantitative were based on the "expert review" approach in this research. This is in accordance with the research aim to explore the real environment of the Malaysian film industry through case study. From the overview of these review reflections of current professional practitioners in the Malaysian film industry, I will analyse the filmmakers' perceptions of the policyholders and the Malaysian government FINAS in this case study.

This “expert review” reflection has been conducted by means of three methods: direct video interview with Malaysian film practitioners, general reflection from quantitative data, and open-ended survey questions. This chapter will further explain the expert review of the qualitative data from the video interviews, which is supported by the general reflections from current Malaysian filmmakers on the quantitative data, together with their open-ended answers.

Both types of data have been analysed with SPSS and MAXQDA software. SPSS Statistics is a software package used for statistical analysis and MAXQDA is a software program designed for computer-assisted qualitative and mixed methods data, text and multimedia analysis in academic, scientific, and business institutions. Because the mixed method was chosen for this research, the research used different methods for collecting and analysing different types of data. The application of explanatory design and mixed method approach interrelated with both quantitative and qualitative data in different stages. The uses of SPSS and MAXQDA software would be comprehensive and matched with the research proposed and objectives.

## **5.2 Reflection on the History of Malaysian Film Workflow**

Before we explore the reflections on Malaysian film workflow, I want to raise a few issues arising from the history review. In my third phase of data collection, I was surprised to find new evidence that the Malaysian film industry was involved in colour film workflow earlier than 1953. This was revealed when the pioneer actress from the Studio Jalan Ampas era, Mariani, stated that she acted in a colour film using Geva colour film. The Gevacolor process is:

a three-color subtractive negative/positive process introduced in 1947 by Gevaert Photo-Producten N.V., mortsel, Belgium (Roderick, 1977, p.190).

Mariani recalled in my video interview with her:

Yes I even acted in colour film, and at that time they used Geva colour. I still remember a film entitled *Ribut*, but it was not for the whole movie, it was just in one scene of dancing. Another film entitled *Raja Sehari* also had one scene in colour where I danced with D. Haris (Mariani, Appendix 6, p.242).

This new evidence seems to show that the Malaysian colour film workflow started earlier than I suggested in the literature review. According to Mariani, she does not really remember what type of colour technique they used at that time. What she could recall was “Geva” and only one dancing scene in that film. This reflection session with Mariani is strongly suggestive that the Malaysian film colour workflow started earlier than *Buluh Perindu* or *Hang Tuah*, filmed in 1953 and 1956, respectively. We are just not clear on the technique that they used, but in my opinion it must have been by the “Geva colour” process in a three-colour subtractive negative or positive. Because the colour film processes were very expensive at that time, this must have been why the Malay Film Production only used the three-colour subtractive film process in one scene, described by Mariani as the “*dancing scene*”.

According to Johari Sharif, in his book entitled *Nostalgia Filem Melayu Klasik*, both *Ribut* and *Raja Sehari* were previewed in 1953 (Johari, 2009:11). Even though they were stated to be in the same year of production as *Raja Sehari*, *Ribut* and *Buluh Perindu*, I believe that both *Raja Sehari* and *Ribut* would have started earlier because they used three-subtractive film processes that would have taken more time than Kodachrome colour film. This inspired me to investigate more and prove that colour film workflow history started earlier in Malaysian films. *Raja Sehari* and *Ribut* were produced by the Malay Film Production under Shaw Brothers, which was the biggest film production during that time. *Buluh Perindu* was produced by Cathay Keris, which was a competitor of Shaw Brothers. It is the case that Cathay Keris wanted to compete with Shaw Brothers in colour film production. In conclusion, Shaw Brothers might have started the colour film workflow, and in this research it was proven that in the Malaysian colour film history *Raja Sehari* and *Ribut* were the earliest films involved in colour film workflow, albeit for only one scene.

In addition, I would like to raise another point about film professionalism and government support in the Malaysian film history, which arose from the interview with Mariani:

P. Ramlee died in frustration, he had an offer from Shaw Brothers to work at Warner Brothers Hong Kong, but he refused that offer because he wanted to develop the Malaysian future film in Malaysia. Ho Ah Loke

under Studio Merdeka promised him a lot of things, including shooting colour film. For that reason P. Ramlee move to Kuala Lumpur in 1962 and signed a contract with Studio Merdeka, but he struggled shooting film without any funding. When P. Ramlee met former Malaysian prime minister Tun Razak at that time, he felt upset and cried on my shoulder and said “*The Prime Minister said I was already old and asked me to stop filming*” – at that time he was 44 years old. Nobody supported him at that time and Shaw Brothers closed down in Singapore in 1967. All great actors, directors and cameramen were jobless, some of them worked as taxi drivers, selling satay, tourist guides and other jobs just to live (Mariani, Appendix 6, p.242).

The above quote gives a different and possibly more accurate picture of how the Malaysian film industry declined in Singapore and struggled to develop in Kuala Lumpur, Malaysia, without any support even from the Malaysian Government. According to Mariani, the closure of Shaw Brothers in Singapore was because of demonstrations by Malay film workers. As a result, Shaw Brothers did not have any funding to support their workers and closed their studio at Jalan Ampas. She added that the main problem was that of local film expertise and that even until now we do not have sufficient professionalism:

When I was working with Shaw Brothers at Jalan Ampas Studio, we worked 9 to 5; yesterday I was shooting 24 hours non-stops because they just wanted to finish shooting. Come on, filmmakers nowadays do not appreciate veteran actresses, I am 78 years old. We have been involved in so many films, the copyright of Shaw Brothers’ film is now under Astro Shaw’s, they have never given us royalties, that’s why veteran filmmakers are suffering (Mariani, Appendix 6, p. 242).

In relation to the above quotes, even though we had good human resources for film in the Jalan Ampas era in the 40s, 50s and 60s, we can see that there has been no systematic system in the Malaysian film industry since the start of Studio Merdeka in the early 1960s. This problematic situation should be addressed by the policy holder or government. To explore further on the current situation we move to the next section of the survey reflection questionnaire with the Malaysian filmmakers.

The case study and the expert witnesses, such as the above pioneer artist, were chosen to reflect my own particular research interest in colour film workflow history in the context of film history. Street reminds us:

It should be stressed that what constitutes the 'archive' need not consist solely of written documentation; it might also include posters, stills, oral histories and memorabilia (Street, 2002, p.2).

As I mentioned earlier in chapter 1, there is a strong relation between film and history. The above oral documentation from the video interview has proven that the history of colour film workflow in the Malaysian film industry needs to be explored further. The fact is that we still need to develop this knowledge transfer and document it as a catalogue. This potential for knowledge transfer development encourages me to propose and to be active in this kind of research involvement.

As explained earlier in chapter 3, there was no parallel in Malaysia with British or Hollywood cinema technology in colour film workflow during the evolution of Technicolor in the early 1930s. Given that colour was considered too costly, this led to disappointment with the system in those days:

When P. Ramlee moved to Studio Merdeka he had been promised to get whatever he wanted. He wanted to shoot in colour and cinemascope. But he didn't get it and he was frustrated (Mariani, Appendix 6, p. 242).

The above quote from the interview with Mariani shows how the system of colour film workflow was not applicable in the Malaysian film industry even in 1962 when P. Ramlee moved to Kuala Lumpur. Even after the closure of Studio Jalan Ampas in Singapore, to this present day, we still do not have a one-stop-centre for colour film workflow in Malaysia. This demonstrates that we are unable to successfully manage our colour film workflow fifty years after the closure of Studio Jalan Ampas. Furthermore, we are reliant on foreign technology and expertise for our colour films. This is one of the important factors to be developed in the Malaysian film industry.

This research mainly explores and reviews the existing film workflow processes in Malaysia. Through the application of the action research methodology and the interaction with the expert witnesses, this research finely exploits the new findings of the history of the Malaysian film production. The above new information about the first involvement for the colour workflow processes in Malaysia offers a good example of preliminary results. Even though the filmstrip experimentation in this research was not the initial objective, it became a tool to enhance the interaction between the researcher and the expert witnesses.

This original data contributes to new knowledge, by providing some accurate data concerning workflow practices. The filmstrip experimentation involves the depiction technique of workflow processes and data generation and through analyzing that data together with responses from the expert witnesses creates information that adds to existing knowledge.

### **5.3 Malaysian Filmmakers' Survey Questionnaires Reflections Concerning Malaysian film Workflow**

From the survey and direct interviews with the Malaysian filmmakers about the general perception of the Malaysian film workflow, it shows that most of the filmmakers who were interviewed are not very confident with the Malaysian film workflow processes. This may be one of the reasons why most of the Malaysian filmmakers are sending their film abroad and tending to follow foreign film workflow rather than the Malaysian film workflow. This research question will be answered towards the end of this chapter. It was predicted earlier that these reflections and data validation sessions would be the best input to clarify the needs and preferences of the Malaysian filmmakers in the industry.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1-5 Years	7	22.6	22.6	22.6
6-10 years	6	19.4	19.4	41.9
more than 10 years	18	58.1	58.1	100.0
Total	31	100.0	100.0	

Table 9: Years Involved in the Malaysian Film Industry

The table above contains cross tabulation of respondents in this qualitative survey for this research. According to this table, most (58%) of the Malaysian filmmakers involved in this survey had more than 10 years experience in the film industry. The majority of filmmakers with more than 10 years experience hoped that this reflection could validate all qualitative data collected.

In this survey, the respondents are from different occupational backgrounds and I have divided them into two main criteria: creative and technical background. Below is the table showing the Malaysian filmmakers who were involved in this survey, it shows that 61.3 per cent have a technical background and the other 38.7 per cent have a creative background.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid creative	12	38.7	38.7	38.7
technical	19	61.3	61.3	100.0
Total	31	100.0	100.0	

Table 10: List of Director, Producer, Actor, Art Director, Production Designer, Cinematographer, Editor, Creative Director, Colourist, Laboratory Staff, Technical Coordinator and Sound Designer involved in this Survey Reflections.

Above is the table showing the creative and technical background comparison of the respondents in this survey. Out of these responses, those who have a technical background are the filmmakers who have been involved in many of the film workflow processes. In line with that, those with a creative background are the main people (producer and director) who make decisions on which workflow they should follow in each film. In relation to this research, which is related to the technical aspects concerning the Malaysian film workflow processes, the number of expert witnesses who are involved in the technical area is more relevant.

### 5.3.1 Malaysian Film Workflow Processes

For the survey question, *“In general, how would you describe film workflow processes from pre-production, production, post-production and final print in the Malaysian film industry?”* a total of 41.9% of the Malaysian filmmakers responses are *quite good*. The other 54.8% of responses indicate *neither good nor bad*. Nobody answered *good* or *quite bad*. Observing these survey reflection

answers, we can see there is some potential for Malaysian film workflow processes to be developed in the future. Table 11 below sets out these figures.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid neither good nor bad	17	54.8	54.8	54.8
quite good	13	41.9	41.9	96.8
very good	1	3.2	3.2	100.0
Total	31	100.0	100.0	

Table 11: General Reflections about Colour Film Workflow Processes in Malaysia

These responses are interrelated to film expertise. This is because producers choose a particular practitioner to work for them, and this person will decide on the workflow processes. It is clear that good film workflow must be based on good expertise. To explore the Malaysian filmmakers' reflections and preferences towards these film expertise issues, the question about Malaysian film expertise was framed, and the responses are discussed below.

### 5.3.2 Film Expertise

Film expertise is one of the important factors affecting the Malaysian film industry. In this brief reflection survey that I conducted, most of the Malaysian filmmakers put more trust in foreign film expertise than the local. They have given several reasons why they would choose foreign expertise over local expertise.

Based on the table below, in general, they described the efficiency of Malaysian film expertise as *quite good*, which covers 29%, *neither good nor bad* 67.7% and none of them answered *very good*. This factual data from this general survey reflection shows that there is not enough confidence among the Malaysian filmmakers towards their own film community. However, the good thing is only one person answered *quite bad* in this survey, which gives the positive perception that no local filmmaker is bad in terms of work efficiency.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid quite bad	1	3.2	3.2	3.2
neither good nor bad	21	67.7	67.7	71.0
quite good	9	29.0	29.0	100.0
Total	31	100.0	100.0	

Table 12: Reflections on Malaysian Film Expertise Efficiency

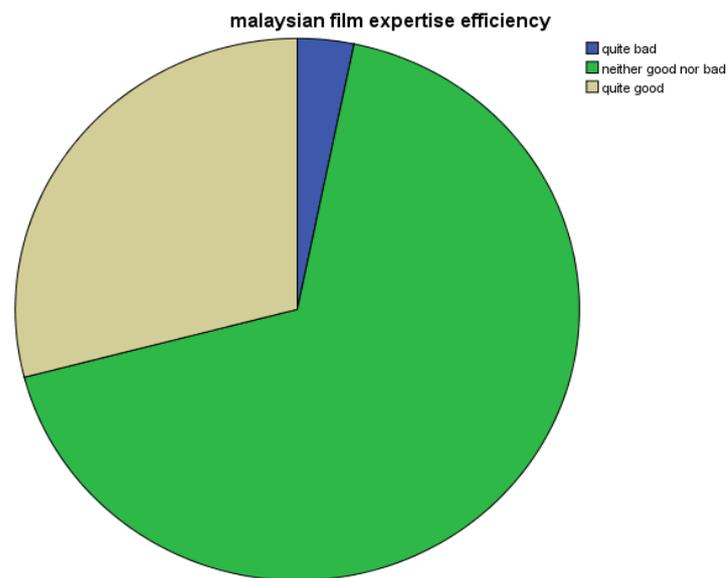


Figure 29: The efficiency of local film expertise compared to foreign (Dim, AR, 2011)

To counteract the perception of local inefficiency, a specific survey question was framed: *If you had sufficient budget for your film would you use Malaysian expertise/laboratory or foreign expertise/laboratory? And Why?* In answer to that question, the Malaysian filmmakers reflected that only 32.3% of them would utilize the local film expertise rather than foreign. Those who selected local filmmakers gave me a few reasons for their answer. Some said that they are comfortable working and prefer to work with local expertise. Some of them said that they are proud to work with other Malaysians, while other responses mention how the Malaysian film expertise is more suitable for local film and the industry. The remaining respondents said they would choose the local film expertise if they were good enough for the job.

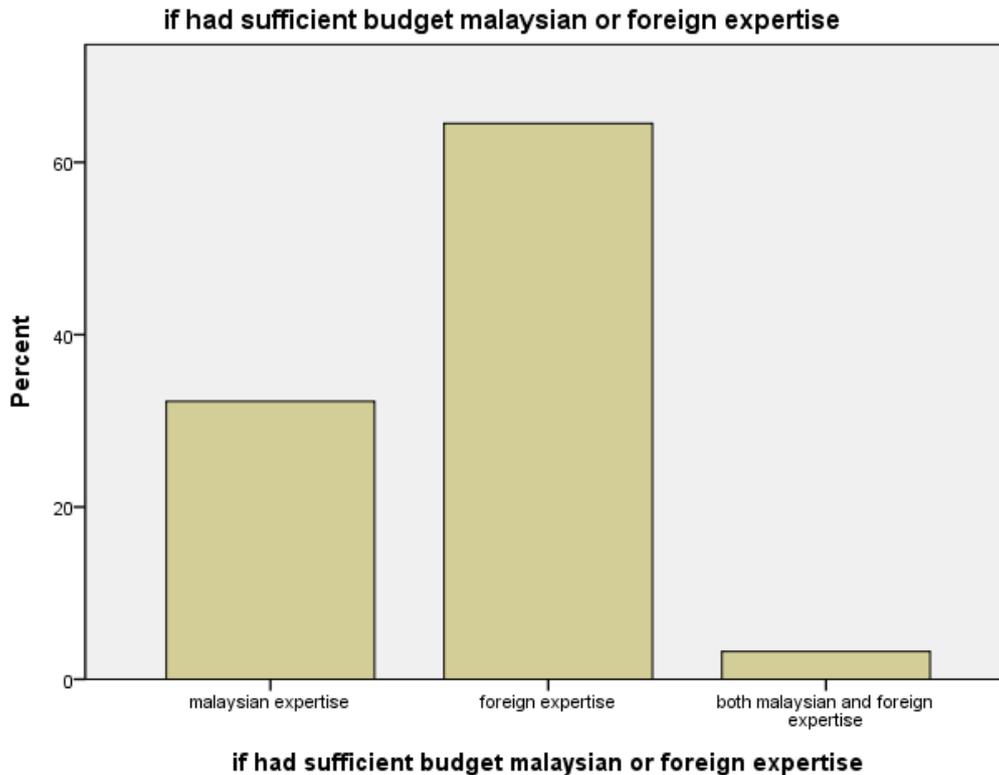


Figure 30: Choice of Malaysian or foreign expertise without budgetary constraints (Dim, AR, 2011)

In accordance with the answer above, 64.5% from the reflection responses answered that they would choose foreign expertise rather than local. A few reasons were stated in the survey reflection answer. Most of them said that the foreign film expertise is more efficient and did a more thorough job compared to the Malaysian film expertise. Other respondents said that they preferred to utilize foreign expertise because it is “*more manageable*” compared to local film expertise. Some said that if they use foreign expertise, despite the fact that they spend more money, it is worth it because they achieve higher quality than local. On the positive side, some Malaysian filmmakers who prefer foreign expertise were still saying that we could still improve our local film expertise and produce better film quality.

In connection with local film expertise, alongside perceptions of pioneer actress earlier are the opinions of the existing post-production supervisor from Astro Shaw on the professionalism in Malaysian film as regards salary:

Realistically in the Malaysian film industry, we don't have any standardization on salary and professional payment. Some productions will pay lower and some productions will pay higher, there is no standardization. How can we call it a "film industry"? I don't think there is an industry (Azhar, Appendix 6, p.242).

The above quote shows that we need further regularization in human resource management for filmmakers. If there is no standard payment guideline in the industry, how could Malaysian filmmakers survive? How indeed can we call it an industry?

Even though most of the responses from the survey reflections session underline that our Malaysian filmmakers still prefer foreign film expertise rather than local, the percentages are not that high in comparison. Even if we observe the reasons given in their reflections, some of the answers are still positive towards local film expertise. Furthermore, some of those who prefer foreign expertise would still consider the local if they have the capability to do it. In relation to those responses, I could predict that there is some room for development and improvement in the local film expertise, or there is some missing link in knowledge transfer in the Malaysian film industry.

### **5.3.3 Malaysian and Foreign Laboratories**

Availability and quality of the laboratories and post-production processes is one of the criteria in deciding which film workflow the film should follow. In relation to this, Malaysian filmmakers are always thinking about improvement and efficiency, therefore the most cost effective workflow would be the best choice for them.

The in-depth video interviews and interactions with Malaysian filmmakers revealed there are some reasons why they choose foreign laboratories rather than local. Cost might be one of the important criteria, and there is some evidence that most filmmakers have had good collaboration with foreign laboratories. Samad, in his interview said:

Big studios, like Metrowealth will go to Thailand, Tayangan Ungul actually moving toward India, India giving such a cutthroat price and throwing in everything. All because of finances, you will save a lot (Samad, Appendix 6, p.242).

According to the above, we can see that some major producers in Malaysia have already signed contracts with foreign laboratories. This will decrease their costs on post-production, by sending larger quantities of film to foreign laboratories.

To observe their general preference on choosing film workflow processes in post production and the laboratory, I asked this question for the survey reflection questionnaire: “Which of the criteria listed below will you consider when choosing between either Malaysian laboratories or foreign laboratories for the workflow for your film?” In this question they have a choice between A: Cost, B: Quality of work and final print, C: Efficiency and packages, and D: Laboratory hygiene. In the result, 38.7% reflected that they preferred *efficiency and a good package*. Another 19.4% considered the *cost* criteria in choosing between Malaysian or Thai laboratories, while the rest, 41.9%, preferred *quality of work and final print* as a basic criterion. None of them chose *laboratory hygiene*.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid cost	6	19.4	19.4	19.4
quality work and final print	13	41.9	41.9	61.3
efficiency and packages	12	38.7	38.7	100.0
Total	31	100.0	100.0	

Table 13: Reflections on Criteria Choosing Malaysia or Thai Laboratory

After looking at the results, I still consider that cost would be an important criterion, because the answers of A and C are definitely related to the cost. In relation to this factor, I conducted a number of video interviews and asked the Malaysian filmmakers more about this question.

Definitely their services, foreign filmmakers and laboratories have systematic services and they appreciate clients. In Malaysia, services are not that good and in terms of price, laboratories expertise at foreign country was also cheaper (Mukriz, Appendix 6, p.244).

This response shows how Malaysian filmmakers prefer to use foreign film laboratories because of the efficient job processes and cost effectiveness. Some filmmakers may think that they actually prefer to work with local laboratories because they are near and easier to communicate with, but they are deterred from doing so because they lack the efficiency of foreign laboratories. This is the main reason, and, in the film industry, the time factor could affect the overall cost of the film. But the interviews threw up some contradictions about film rates in local and government post houses in Malaysia.

Unfortunately I don't understand also why we made a huge business commitment by asking for a loan to buy our colour grading machine, the machine behind there alone is about half a million. But FINAS again using taxpayer money bought a grading system on their own and for some reason we have to compete with them (Samad, Appendix 6, p.243).

The quote above from a local posthouse owner clearly states that he does not agree with government policy to have postproduction services in-house. He dislikes the use of government money to buy expensive equipment, when, ultimately, they charge the local filmmaker more than they expected. According to the colourist, now nobody uses the government services and equipment because they do not have good film expertise to operate them. As a result, the FINAS post-house often contact the local post-houses trying to find work. This statement is contradicted in the responses from the government agency officer below:

We charge the industry people with a higher rate because we want to be their last choice. We do not want to compete with the industry. Every profit that we get from the industry we will give back to the film industry (Hamzah, Appendix 7, p.246).

The FINAS officer's words are revealing as we can see that FINAS have tried to help the local film industry; they initially charged the industry higher rates because they wanted to help local post houses. Thus, basically, they tried to protect local companies that have post house services, however, in general, this is quite unreasonable. FINAS should not have their own post house if they want

local filmmakers to choose local post houses. This will only create competition among post house in the industry.

In this case, FINAS as a government agency that is responsible for the film industry should give greater consideration to how they spend government money. If FINAS really want to develop and offer post house services to the Malaysian film industry, they should provide good and excellent services with cheaper rates. Furthermore, FINAS should let those who have post houses in the local film industry join the government post house and let them share knowledge, experience and expertise. By interacting with an improved FINAS post house, local practitioners could widen their network and gain skills from knowledge schemes or programme development handled by FINAS. My initial obligation in this research is a commitment to professional development in the Malaysian film industry. This is in keeping with the value of action research, which supports the practitioners in taking ownership of the experience of professional development.

#### **5.3.4 Malaysian Film Workflow Complication**

The growth of the Malaysian film industry has been very fast in the past few years. Malaysian Films have made vast developments in digital film technology. Currently, we have very active film production activities in the industry because the process of filmmaking is getting cheaper and simpler with digital technology. Four years ago, Malaysia had 68 cinemas and 287 screens and now Malaysia has 97 cinemas and 577 screens nationwide. Total box-office takings improved from RM380.72millions in 2008 to RM601.91millions in 2011 (FINAS, 2011). This growth of cinemas and the drive by the Government has led to an increase in the demand for films with domestic and localised content. As we enter into the next phase of demand for exciting content and applications, the global film market continues to grow, which could be a further challenge to the Malaysian film workflow processes.

At this time, when Malaysian national cinema comes to meet its audiences, the complications about the Malaysian film workflow still exist, and this is the main problem that we should address. To resolve the current gap we need to provide increased support for human resources development in film industry expertise. A

recent report describes the huge investment of Pinewood Studio in Iskandar Township Development in the South of Malaysia (Johor):

Pinewood Iskandar Malaysia Studios will be a state of the art Film and Television Studio production facility with easy access to the Asia Pacific region, scheduled for completion in May 2013. The Studios are located in the state of Johor, the southern gateway to Peninsular Malaysia in the flagship development project, Iskandar Malaysia (Pinewood, 2011).

According to the information from *Pinewood Studio* website, this studio will be integrated with the media production studio facility that is being developed, following a strategic agreement with the Government of Malaysia. In addition, the Malaysian Government will be making an investment and cooperating with *Khazanah Nasional Berhad*. *Khazanah Nasional Berhad* is the investment arm of the Government of Malaysia entrusted to hold and manage the commercial assets of the Malaysian Government and to undertake strategic investments.

This new studio development, Pinewood Iskandar Malaysia Studios, is expected to provide 100,000 sq ft of film stages (ranging from 15,000 sq ft to 30,000 sq ft) and 24,000 sq ft of TV studios (2 x 12,000 sq ft). Besides these fully equipped studios, they will also offer offices, workshops and the latest high end and post production facilities. The construction of this studio was started in February 2011 and is expected to launch and operate the first phase in 2013.

In accordance with this latest development of Pinewood Studios, are we ready to embrace those challenges? Meanwhile we still struggle with our own film workflow processes. In this development of Pinewood Iskandar Malaysia Studios, they estimate investing about 550 million Malaysian ringgit into the integrated media production studio facility. On reaching completion by the end of 2013, the Pinewood Iskandar Studios would be the largest independent integrated studio facility in South-East Asia at the current time.

#### **5.4 Knowledge Transfer Challenges**

In terms of education, human resources and talents for the studios, at the moment *Pinewood Iskandar Malaysia* will jointly develop formal training courses and educational programmes with UiTM (University Technology MARA

Malaysia) for qualified local and international students, as well as customized programmes at the proposed educational institution in Iskandar Malaysia. This collaboration, according to their website, is the first talent development collaboration programme entered into by Pinewood Iskandar Malaysia Studios:

Talent is a prerequisite for the development of Malaysia's creative industry and for the success of Pinewood Iskandar Malaysia Studios, especially in world-class television and film productions. The Studios will help to build depth and experience in the local industry and to showcase Malaysia as a destination for the international film and television community (Lake, 2011).

This is one of the good knowledge transfer strategies that have been made in Malaysian film industry development. To realize the aim of the CEO of Pinewood Studios, Michael Lake, in making Malaysia a destination for the international film and television community, is the responsibility of our film community. This is the huge challenge for us in the near future. Are we ready to provide them with our expertise or will they employ foreign expertise from other countries for this domestic film development opportunity? Rosnan states that:

With the relatively cheap cost of labour, Malaysia should attract global film clusters (like Hollywood) to outsource their production of animation work. Local public and private universities are offering more film and multimedia related courses for students. Each year, quite a number of students graduate from film related courses (Rosnan, 2010, p.330).

Rosnan makes clear that the cheap cost of labour means that the filmmakers of Malaysia should attract global film clusters to outsource their production of film and animation here. Local institutions also receive the benefit of this development and job opportunities. The development of Pinewood studio as explained above would be one of the examples of the domestic film opportunity.

In 2010, Malaysia produced more than 40 local films. With this rapid increase of local films in the market, we should think about the knowledgeable expertise that exists in the local film industry. Based on the responses of this research we seem to be struggling in respect of our own film workflow processes. In the context of national cinema, the courage to portray cinematic images with local

content is important. However, we need to have good film workflow processes with knowledgeable expertise to realize the colour management with great cinematic eloquence.

For that reason, whatever the challenges that we would face, a proper knowledge transfer is needed to overcome the conflict in film workflow processes. For that reason I have framed a question to reflect this complication: *In every production, there will be some conflict in the film workflow processes. Based on your experience, which criteria are most likely to be a cause of this conflict?* In this question I prepared four answers and they could choose more than one answer: *A= Communication conflict, B= Knowledge conflict, C = Budget constraint and D = Government policy.*

Below is the result of the survey on the Malaysian filmmakers' reflection on communication as a factor of film workflow conflicts.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid no	21	67.7	67.7	67.7
yes	10	32.3	32.3	100.0
Total	31	100.0	100.0	

Table 14: Reflections on Malaysian Colour Film Workflow Conflict on Communication

In this reflection, 32.3 % of the Malaysian filmmakers agree that *communication* was creating film workflow conflict. Daniel, in his interview said:

Yes I agree on this kind of research, it can standardize our own technique of filmmaking. And if we want to expend further our creativity that even better for filmmakers and film students (Daniel, Appendix 6, p.258).

The agreement of the Malaysian filmmakers to have the same understanding about standard film workflow in production is really important for the benefit of local filmmakers and students in the future. These expert witness responses are related to the problems of communication among filmmaker in the Malaysian film industry. The lack of standard technique in film workflow in the Malaysian film industry will affect the communication among filmmakers, even though the percentages of communication factor reflection are low compared to others. This

will hamper the development of workflow production in the Malaysian film industry. Because of the lack of knowledge on standard workflow processes among filmmakers it creates communication conflicts among filmmakers, this is due to the use of foreign facilities, the foreign expertise; local filmmakers may also not communicate well due to the cultural and language differences. These conflicts affect the workflow production and the appearance of the film visual.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid no	6	19.4	19.4	19.4
yes	25	80.6	80.6	100.0
Total	31	100.0	100.0	

Table 15: Reflections about Malaysian Film Workflow Conflict on Knowledge Transfer

As stated in the above table, 80.6% of the Malaysian filmmakers agree that *knowledge transfer* is a factor in film workflow complication in Malaysia’s film industry.

Based on those answers we could focus on the top three answers suggesting the need to develop further in the Malaysian film industry. *Budget constraint* would be the most typical problem regarding this conflict; generally, most small film industries would face this problem. The most crucial response towards the complication is *knowledge conflict*, from which we could see that most Malaysian filmmakers realize we still lack knowledge in the industry, especially in the film workflow processes:

In terms of the development of film, yes it’s a negative impact. First of all we have very little development on understanding lab processing. We are more concentrating on pre-production and production so much (Samad, Appendix 6, p. 242-243).

The statement from the colourist above clearly argues that there are some complications on knowledge in the Malaysian colour film workflow. We should not let the filmmakers work without guidance. The Government should think about the research and development in this area.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid no	5	16.1	16.1	16.1
yes	26	83.9	83.9	100.0
Total	31	100.0	100.0	

Table 16: Reflections about Malaysian Colour Film Workflow Conflict on Budget Constraint

Budget constraint would be the highest criterion based on the Malaysian filmmakers' reflection, with 83.9% agreeing it will cause complications in the Malaysian film workflow. In his interview, Yusri states:

I believed by improving the film budget we could improve our film workflow. 95% of our film doesn't have any storyboard; this should be taking in place in film workflow (Yusri, Appendix 6, p. 244).

The relevance of what been said by Yusri Abdul Halim was that most Malaysian filmmakers try to limit their workflow procedures because of budgetary constraints. The budget constraints on most film production in Malaysia are not allowing filmmakers to employ correct workflow. This would cause them to ignore or bypass some workflow stages in pre-production, production and postproduction.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid no	19	61.3	61.3	61.3
yes	12	38.7	38.7	100.0
Total	31	100.0	100.0	

Table 17: Reflections about Malaysian Colour Film Workflow Conflict on Government Policy

For the question about the effect of Government Policy, only 38.7% responses give it as the reason for complications in the Malaysian film workflow, while another 61.3% disagree with that reason. According to Isazaly:

Most people that change the film industry right now, I am not surprised it came from people outside of Malaysia. We have foreign DOP coming on board, we have foreign Art Directors coming on board, and I am not surprised when we look at the quality, but why we can't learn from them? But we despise them, we don't give the incentive in award ceremonies

and they have not been credited. For them Malaysia does not recognize their talent to help the industry (Isazaly, Appendix 6, p.243).

The Government should review the policy on foreign expertise. The quote above is just one of the examples concerning the waste of knowledge transfer in the film industry. We should utilize foreign expertise for the benefit of the local film expertise. In addition, to enhance the knowledge transfer in this specialist area, we need to explore further, and make some suggestions concerning government policy. In respect of government policy, it seems that the Malaysian filmmaker is not aware of the value of government procedure. Because of less research and development and the luxury of grants that are given by government Malaysian filmmakers generally did not think about how government policy will affect their film workflow. The spending of government money abroad will lessen the film workflow activity locally and it will affect the development of film industry. In the interview, Gayatri states that:

We are actually the least tax sensitive I guess. We do not have shooting tax breakdown in Malaysia. Singapore has, Korea has, Thailand has for those who spend money in the country but we don't. Then we have to pay entertainment tax, it is a frustrating industry to be in (Gayatri, Appendix 6, p.244).

The above response from the producer shows that Malaysian government has been less sensitive with their tax policy. This shows filmmakers' frustration about the tax breakdown and procedures compared to the other countries. This disappointment over the government policy might be one of the reason affecting the percentage of filmmakers who did recognise the impact of government policy in the film workflow. Furthermore some Malaysian filmmakers who utilize foreign expertise and laboratories have little involvement or knowledge of government policy. As I mention earlier in Chapter 4 they are purely dependent on a government grant to produce film.

### **5.5 Improvement and Development of Malaysian Film Workflow**

Most of the professional filmmakers' work is distinguished by their own workflow processes and behind those workflow processes there lies a lot of enthusiastic practice and aesthetic theories. Aesthetic theories are often difficult

and complicated to explain, and depend on the filmmaker's philosophy. Reflection about improvement as well as development in the Malaysian film workflow has been reviewed in this study. The precise role and perspective of local filmmakers concerning the colour film workflow in Malaysian films is considered in relation to the relevance of this research.

To identify the stages that need development, a question was framed for this relevant reflection: *Which stage in the film workflow processes needs to be improved?* For this question I prepared four answers and they could choose more than one answer: A= *Pre-production*, B= *Production*, C= *Post-production & laboratory*, and D= *Marketing and Cineplex*.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid no	18	58.1	58.1	58.1
yes	13	41.9	41.9	100.0
Total	31	100.0	100.0	

Table 18: Reflections about Malaysian Colour Film Workflow Improvement on Pre-production

This phase of prepping for filmmaking, which is usually called pre-production, is the first step of filmmaking and it is the most important planning stage. The pre-production stage is a very practical step in the filmmaking process. Whereas development is somewhat amorphous with every film having a different story of its development process, pre-production is straightforward in approach, if not execution. Different film projects deal with different problems, but the basic work that needs to be done can be clearly broken down with allowances for each project's unique characteristics. Because of this unique characteristic, we could understand that the surrounding environment and nature of life would affect the steps in pre-production. In relation to this factor, pre-production stages have their own way to be developed in the Malaysian environment, from the story development through to the costing and production development, every stage needs to develop naturally.

This natural factor might affect the responses to the reflection survey questions. The above chart shows that 58.1% of the respondents reflected that they disagreed that they need further development and improvement in the pre-production stages in the Malaysian film workflow processes.

As in production, the producer needs to hire their crew members in the production, and the most important one would be the director. Over the years, the role of the director has changed. In addition, depending on how the deal was set up, the director can have other titles and duties as well. In the simplest case, the director simply controls the performance of the actors and focuses the actors. Each director has his own shooting style. The second important role would be the cinematographer who is in charge of everything related to creating and capturing the image on film, the technical crew and everything, which affects the look of the movie. Basically, directors are in charge of the creative department and cinematographers are responsible for the technical aspects. Consequently, a local director or cinematographer would understand the needs of a domestic film.

Based on responses from the survey of professional Malaysian filmmakers who currently work in the industry, 41.9% considered there was a need for development in *pre-production*. This response would suggest that they have their own workflow processes to portray enthusiasm of practice and aesthetic theories in the earlier stages of film workflow. Furthermore the pre-production stage involves the management, planning and creativity, not so much on technical and technology.

	Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid no	21	67.7	67.7	67.7
yes	10	32.3	32.3	100.0
Total	31	100.0	100.0	

Table 19: Reflections about Malaysian Colour Film Workflow Improvement on Production

On those understandings, most Malaysian filmmakers know what their role is in developing the characteristics of local film in the production stage. Similar responses were obtained on production stages, as 67.7% of Malaysian filmmakers see no need for further improvement and development of Malaysian film workflow processes. In an in-depth interview with a post-house owner in Malaysia, it was stated by Samad:

for the post they just send to Siam lab or Technicolor let them do the work. We don't gain anything from there, that's a huge loss; there are a lot of very good cinematographers who can contribute to the lab processing side (Samad, Appendix 6, p.243).

To reflect on the quote above, we could see that the Malaysian filmmakers are working hard on developing the pre-production and production stages in film workflow. Every film project has its own unique workflow requirements, which also happens in the Malaysian film industry. Consideration must be given to factors such as the format chosen for the shoot, the amount of media that must be managed during editing, the quality of the media throughout the shooting to post-production and the quality requirements for the final print. These are important and they need to be handled carefully, with the details shaped for the film workflow processes.

The *post production and laboratory*, which has been extensively discussed in this research, needs further improvement because we only have one laboratory and limited post-houses to cater to the whole film industry. This is in keeping with the research question on why most Malaysian filmmakers utilized foreign film facilities and expertise.

Furthermore, most of the filmmakers who have worked in the industry have the necessary educational background and experience in both stages. Since the Malaysian film industry moved from Jalan Ampas, Singapore to Studio Merdeka, Kuala Lumpur, we have relied on foreign expertise and laboratories for our film. Even though Gaya Colour laboratories have existed since the late 80s, in terms of post-production development we still tend to depend on foreign technology. Here Fuller is referring to the film technology in Thailand:

DFT Digital Film Technology, provider of high-end film and digital post production solutions that preserve, manage, and deliver your pictures, announces that Spice Shop, Bangkok, Thailand, is the first commercial post facility in Southeast Asia to install a SCANITY film scanner (Fuller, 2011).

The quote shows another technological development by the Spice Shop, Bangkok, Thailand, laboratory. In this latest technology, the scanner above could scan

digital media to film at high-speed in either 4K or 2K resolution in real-time. This would complement Thailand's existing technology and upgrade their film infrastructure and support the overall non-linear system of solutions that allows filmmakers that work in this system to have smooth and efficient film workflow processes.

	Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid no	7	22.6	22.6	22.6
yes	24	77.4	77.4	100.0
Total	31	100.0	100.0	

Table 20: Reflection about Malaysian Colour Film Workflow Improvement on Post-production

The above table shows that 77.4% of the Malaysian filmmakers agree that we need to improve our post-production stages. In this scenario, we would at least overcome and generate our own revenue for local film, because, at the moment, most of our filmmakers use Thai facilities and expertise. According to Scribd:

Thailand is one of the most developed countries in South East Asia for audiovisual industry. It has great scenery, good equipment and qualified staff, and with very competitive prices (Scribd, 2010, p.1).

There might be many reasons international filmmakers like to shoot their films in Thailand. This may be because of the cost of the labour or because of the existing sound film infrastructure. In addition, there is a wide range of choice because of the many post-production houses and laboratories. Malaysia and Thailand both are developing countries that have the same capability. When we observe what Thailand did to their film industry, surely we need support from the Malaysian government to facilitate this film infrastructure and trusted/qualified expertise. Scribd explains this further:

To regain the trust of foreign companies, the government is now preparing tax exemptions for foreign filming in Thailand. According to the Thailand Film Office, there were 116 foreign movies which were filmed in January and February this year, generating a total income of 213 million THB. Out of this number, 40 were documentaries, 60 advertising movies, 5 feature films, 7 TV movies, and 4 music videos. A

majority of the production was from Japan, a total of 33, followed by India, 22, and Europe, 20 (Scribd, 2010, p.1).

The above quote shows how the Thailand government support their film industry through an enlightened film policy. In Malaysia we need the improvement and development of post-production stages, which will not only benefit the local film industry but the government could also benefit, through increased tourism and the promotion of local images or scenery to the international market. In addition, by cooperation and involvement in international film production, the skill and professionalism of local film expertise would increase.

The *post production and laboratory* processes are particularly important as we can see that this whole research is about post-production film workflow processes, from the digitizing or film processing through to the final print of the film. These processes involve the understanding of technology in post-production film workflow.

Another area that involves creativity in the marketplace and policy management belongs to *Marketing and Cineplex*. Each area needs a different approach of improvement and development. Marketing film is the practice of promotion, specifically for a specific film. Like any other business, it is an important part of any release because, generally, most films create high financial risk. The film production budget always takes account of expensive marketing campaigns to maximize studio revenue for every film that is produced. In the film business, the marketing budgets tend to be lower than or equal to the production budget. Marketing, distributors and exhibitors are the people who generally handle this publicity and marketing business.

In accordance with the important role of marketing in the film industry, the reflection survey also included the question about the needs for improvement and development of marketing and Cineplex. Every film studio takes many risks when creating new movies. Some film investors often spend many millions more to market the film compared to the production cost. This is because the film studios are businesses for them and they are motivated by profit. To ensure they

will get their revenue, the success of the film in the market needs support from intensive marketing campaigns.

Concerning other aspects of *Marketing*, there are some things that need to be improved in terms of knowledge transfer in this industry. The government should integrate this aspect with educational institutions, as well as encourage research and development in film marketing. In relation to this, I questioned marketing development in the video interview with the assistant director of the marketing department of FINAS:

Yes, we did a lot of short courses and went to a lot of international film festivals to promote local films as well as internationalize it in the international market. In terms of the educational aspect, currently we have introduced film clubs in a few schools. It is to introduce our local film at an earlier stage. (Shazli, Appendix 7, p.261).

The above outlines a good starting point in introducing local films to the international market and in schools. However, this should have happened 30 years ago when FINAS started to operate in 1981. Furthermore, there is some missing link with higher education institutions about this marketing and education concerning local films. In respect of the involvement of FINAS in the film industry, they should have some entry course requirements in every school or higher education institute, at least on local film appreciation.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid no	7	22.6	22.6	22.6
yes	24	77.4	77.4	100.0
Total	31	100.0	100.0	

Table 21: Reflection about Malaysian Colour Film Workflow Improvement on Marketing and Cineplex

The above table shows the percentages from the reflection survey on general observations concerning the Malaysian film industry, only 22.6% who think that there is no need of improvement in Marketing and Cineplex. These reflections come from the production designer, director of photography or line producer. The result from the survey shows 77.4% of the respondents agreeing that the marketing and Cineplex area needs to be developed and improved. Regarding

the *Cineplex* development and improvement aspect, the video interview further develops this point:

Instead of the film production policy, FINAS should check the Cineplex. We won't know whether they check their projection lenses or light? We shoot and try our best in producing film but on previewing side they had never enforcement policy (MohdNor, Appendix 6, p.244)

The policy of standard entry requirements should be applied to all Cineplex in Malaysia. For the moment, the government only enforces licensing and censorship. The *Compulsory Previewing Scheme* by FINAS was only enforced to make sure local film would be previewed in the Cineplex for at least two weeks even though they will not get any revenue. The quote above would be the best starting point for the government to enforce procedures designed to avoid the typical technical errors that could affect the quality of the film previewed. This could be beneficial to the filmmaker and help achieve the equivalent quality of the print of the film. At the same time, this would also address the complication of the *laboratory* and *Cineplex*, which is explained below:

We don't know how other Cineplex look after their projection. Sometimes the bulb is really dark. I had a problem when I did NorKasih, I was testing at CineLeisure and I don't know how many times that I test it. If my movie going to be like this, you know I shoot in ReDcam it is supposed to be better than 35mm and its look. When you transfer it is pretty good but what I am getting is dull visual (Khabir, Appendix 6, p.243-244).

The above quote throws light on problems with the technical aspects in both laboratory and Cineplex. In relation to the earlier explanation about this, it is relevant for government policy to review the procedures of every Cineplex in Malaysia. This will demonstrate the technical knowledge and ability in every Cineplex in Malaysia. It is unfair if the poor quality of the film previewed in the Cineplex is blamed on the filmmakers without knowing their difficulties and complications throughout their film workflow processes.

The Cineplex has its own procedures that it needs to follow. In the Malaysian film industry there is a need to review all aspects of management including policies and procedures in order to maximise the effectiveness of film previewing

in every Cineplex. In this context of research, we should also review the workflow procedure in the Cineplex, taking into account technical developments or any change in policy and legislation which affect the industry conditions. This governance policy should be reviewed and updated, as necessary, based on film industry needs. The Government should be the agency that is responsible for developing and implementing the Cineplex policy, monitoring the effectiveness of and compliance with the policy. The Government also needs to ensure that Cineplex and employees are educated with respect to issues in the film industry. This is a part of ensuring professional qualifications and standardization in Cineplexes throughout Malaysia. This new policy will ensure standards, give support in practice and guarantee quality outcomes for the benefit of the Malaysian audiences.

The Malaysian film workflow improvement is often regarded as the standard international workflow processes system. However, third party support would always be beneficial to a small film industry in a developing country like Malaysia. In this survey, we consistently have responses that underline the need for support throughout the growing film industry. In respect of this factor, a question was framed for the reflection survey session: *If you think that Malaysian film workflow needs improvement, which areas do you think the Government needs to develop?* In this question I prepared four answers and they could choose more than one answer: *A= Funding support, B= Knowledge transfer support, C= Technical support and D = Changing policy.*

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid no	14	45.2	45.2	45.2
yes	17	54.8	54.8	100.0
Total	31	100.0	100.0	

Table 22: Malaysian Colour Film Workflow Improvement in Funding Support Area

In the film industry, we do realize the importance of financial support from the Government from loans or funding. Without this, filmmakers would have to raise the funds from private investors as well as actively encouraging filmmaking and film activity in the local Malaysian film community. The above table shows that 54.8% of respondents disagree that we need to improve the funding support and 45.2% agree on the need for improvement. As the *funding support* responses are

lower than *Knowledge Transfer, Technical Support and Changing Policy*, it seems to justify the current need for the local filmmakers for more support on those criteria compared to funding *support*. As Gayatri notes:

We are actually the least tax sensitive I guess. We do not have shooting tax breaks in Malaysia. Singapore has, Korea has, Thailand has for those who spend money in the country but we don't. Then we have to pay entertainment tax. It is a frustrating industry to be in. People only know how to complain about our local film but shooting in Malaysia is very difficult for a Malaysian producer. We can't even shoot in KLCC (Gayatri, Appendix 6, p.244).

The above quote shows that the Government should be addressing the problems concerning the tax issues. Funding support might be less important to the filmmakers than how to reduce their costing and make the process of filmmaking easier in Malaysia.

As I explained further in chapter 4, in collaboration with local banks the government has already gone into partnership with the capital's local authorities. The participating boroughs run and fund the schemes, providing financial loan support, dedicated advice and resources for the Malaysian film industry. Another speculation, based on the equal responses from the reflection survey is that the existing funding support by the Government or private investor might be sufficient for the needs of the local film industry in Malaysia.

Knowledge transfer is one of the elements that are being questioned in the reflection survey. This element has always been a challenge for organizations, even in film production. Creativity is often the key part of knowledge transfer for all arts-based organizations; however, in this case it is knowledge about film workflow that needs to be expanded. The advances in information technology have also created a new means of knowledge transfer. Filmmakers can easily explore and discover new information from the Internet. However, technology alone cannot solve the problem of knowledge transfer in film workflow. Organizational structures and practices must facilitate and motivate the transfers of knowledge in film workflow. Therefore, it is important to capture

existing knowledge in order to create smooth transitions and not obstruct organizational work and film workflow standard processes.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid no	10	32.3	32.3	32.3
yes	21	67.7	67.7	100.0
Total	31	100.0	100.0	

Table 23: Reflections about Malaysian Colour Film Workflow Improvement in Knowledge Transfer Area

The above table shows the result from the reflection survey, in which 67.7% of respondents agreed that the Malaysian film industry needs improvement in knowledge transfer in film workflow. Every knowledge transfer involves strategic planning. Foucault says:

The producers of every form of power are suspected of being fascist, just as the masses are in their desires. There lies beneath the affirmation of the desire of the masses for fascism on historical problem which we have yet to secure the means of resolving (Foucault, 1980, p.139).

Foucault's theory clarifies the understanding of policy making, this theory allows us to avoid the 'rational crisis' and reveal how arguments could be used in policy making. Interrelated with the responses from the reflection survey, are the basic needs of the filmmakers to enhance their knowledge. Filmmakers in this case could be the minority on policy decisions but the intervention of knowledge transfer needs on both government and filmmakers should improve their cooperation and understanding in order to improve the policy in film workflow. Furthermore, this knowledge transfer could be the most important improvement that Malaysian filmmakers and the governance officers need in order to understand each other and develop new policy for the future benefit of the Malaysian film industry.

The development of knowledge transfer could enhance improvement through changes in policy. The table below shows the responses towards improving and changing policy in the film workflow processes.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid no	13	41.9	41.9	41.9
yes	18	58.1	58.1	100.0
Total	31	100.0	100.0	

Table 24: Reflections about Malaysian Colour Film Workflow Improvement in Changing Policy Area

As with the EU cultural policy, production subsidies in the audiovisual sector have resulted in over-supply and a surplus of product with no market or distribution system to support them – films which nobody wants to see (Bilton, 2007,p. 59).

As indicated in the above quote, the Europeans have faced the crisis of over-production as a result of subsidy. In the Malaysian film industry, as we take a look at the need for improvement in changing policy, it shows that 58.3% agree, which covers the majority of respondents. Malaysia, like Europe, may also suffer from over-production when there is no market or systematic distribution system. The quantity of films that are being produced has risen dramatically in the last few years. We need to find new solutions to enhance better film workflow towards better quality in local films. The existing subsidy schemes might be a good procedure, but the Government needs to think of a better policy to guard against over-production. All factors need to be considered in order to benefit filmmakers, audiences and the government. According to Zainudin Aman in my interview with him:

Previously this authority only responsible was the Ministry of Broadcasting but now it also involves the Malaysian Communications and Multimedia Commission (MCMC). It is proven that a lot of imported TV commercials have been viewed on the local TV station. The MCMC should take action on this complication (Zainudin, Appendix 7, p.262).

The above is a statement from the FINAS officer about the authority on policy making. There is some cross-authority between government agencies in

Malaysia. The Government should immediately solve this problem to encounter the debilitating effect on the industry.

When filmmakers go through the film workflow processes they want to be assured that the laboratory and post house is taking the utmost care of their invested time and money. In this stage, how could they tell if a film laboratory/posthouse is truly committed to the highest standards of quality in their film handling and processing through to final print? This would come back to the knowledge transfer on the critical quality standards demanded in all aspects of their film workflow operation.

In this research, the technical support is based on two criteria, technical knowledge support and the basic need for technical practicality on the procedures and processes in a work place for reliable and consistent film workflow processes. Below is the result from the reflection survey.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid no	13	41.9	41.9	41.9
yes	18	58.1	58.1	100.0
Total	31	100.0	100.0	

Table 25: Reflections about Malaysian Colour Film Workflow Improvement in Technical Support Area

From the reflection result in the above table, 58.1% agree that they need improvement in technical support. Currently, FINAS has limited technical support but do the filmmakers utilize it? Most of them decline to use it and utilize foreign film expertise and technology. In keeping with that, we need to review the facilities in FINAS and the requirements of the industry. Below is a quote from one of cinematographers that works actively in Malaysian film industry:

We never had expertise about colour coming to Malaysia for this kind of knowledge transfer. They even bring cinematographers but they just talk about their work not measurement or colour management (Mohd Nor, Appendix 6, p. 244).

The above quotations show how Malaysian filmmakers need specific technical support to improve their skill and at the same time improve film workflow processes in Malaysia. The survey result shows the average responses to this question. On the answer of *Technical support* and *changing policy*, an average of all filmmakers responded equally giving the same answer. This shows that they do understand what they really need in the industry. These factors are essential for development compared to the *funding support* system; this was also a good sign in their responses and shows that long-term changes are needed.

### **5.6 One Stop Service Centre for the Malaysian Film Workflow**

A One Stop Service Centre for film production is very important for every film industry. This is mainly to assist local filmmakers or foreign productions in shooting and post-production. To indicate this need, a question was framed for the survey reflection: *Do you agree that the Malaysian film industry needs a “One Stop Centre” for post production workflow processes?* These multiple-choice answers have been designed to support the question. A = Definitely agree, B= Agree, C= Neither agree nor disagree, and D = Disagree. Below is the result of this reflection question.

The Researcher acknowledges that the above question is quite flawed, it is unbalanced on the negative answer of “disagree” and the positive answer of definitely agree. The basis of this research involved the government agency that was responsible for the film industry, it was justified by the outcome of the positive responses of the data. As a matter fact the most important thing for the objectives of delivering this question is to reflect whether the filmmaker agreed or not on the need for a one-stop-centre for post-production in Malaysia.

The majority of the respondents agree with the need for a One Stop Service Centre for the film industry in Malaysia. It shows that 16.1% *agree*, and 64.5% definitely agree. As I explained in chapter 4, in Malaysia, we do not have a fully equipped One Stop Service Centre. The choice of four different answers is because not all expert witnesses that respond to this survey are directly involve in post-production stages. It occurred to the researcher that this group of filmmakers might not answer this question if the answers allowed were only agree or disagree, because in the Malaysian film industry the One Stop Service

Centre was needed and the “definitely agree” answer in the questionnaire was relevant to enhance the output of this research.

Generally, some laboratories do not have production equipment and some post-production houses do not have laboratory equipment. That is the main reason most Malaysian filmmakers utilize foreign facilities and expertise for their film. In the context of this research objective, the One Stop Service Centre for films should not only have facilities and knowledgeable expertise but it should be a centre of research and development. This could enhance the knowledge transfer in film workflow processes.

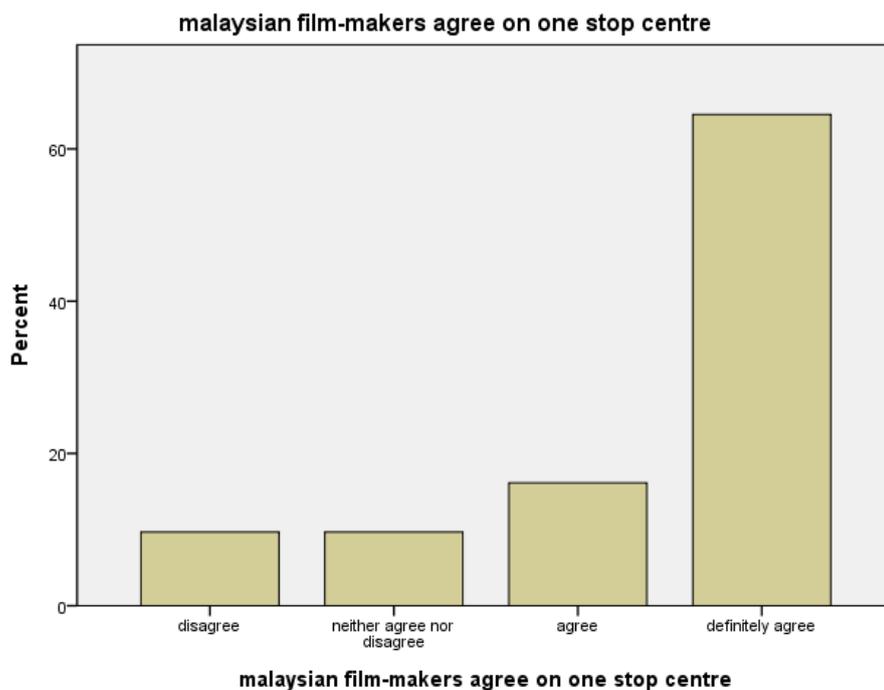


Figure 31: Bar chart showing Malaysian filmmakers’ agreement for a one-stop-service centre (Dim, AR, 2011)

This vision of a One Stop Service Centre for the film industry would not take place without government involvement in changing policy and procedure. Peak makes clear that government involvements are important:

The Cabinet has now approved the exemption of film shooting fees in areas owned by seven state offices including the Department of National Parks, Wildlife and Plant Conservation, the Department of Fine Arts, the State Railway of Thailand, the Treasury Department, the Royal Forest Department, the Royal Irrigation Department and Suvarnabhumi

Airport. In addition, companies that return to Bangkok to film can get VAT rebates of an extra 7%. In 2010 Thailand introduced an income tax exemption for foreign actors, which means they now only pay a 10% flat rate on income earned in the country (Peak, 2011).

The above quote is one example of how the One Stop Service Centre for film could be utilized and made manageable. The facilities, technical infrastructure and knowledgeable expertise would not be enough, however, without government policy support.

### **5.7 The Open-Ended Question in the Survey**

Before exploring further the reflections from the filmstrip test, there was an open-ended question concerning Malaysian and foreign expertise. The open ended question was framed as follows: *If you had sufficient budget for your film would you use Malaysian expertise/laboratory or foreign expertise/laboratory? And Why?* In relation to this, the MAXQDA software was applied to analyse the research data.

Even though the question above requires respondents to choose from *foreign or Malaysian expertise*, some responses made reference to the benefits of both. For that reason, in the MAXQDA analysis I have coded the structure to include three different themes: foreign expertise, Malaysian expertise and a mixture of foreign and Malaysian expertise.

Under the foreign expertise code, I have included three different sub-themes: dissatisfaction with Malaysian expertise, knowledge and efficiency, and experience and technology transfer.

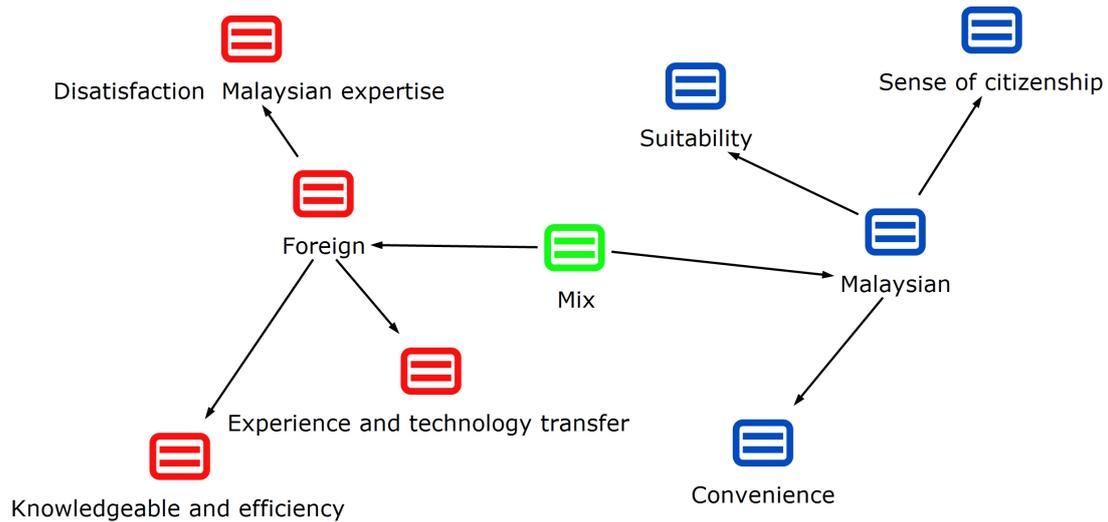


Figure 32: Illustration of MaxMap Coded Analysis on Malaysian Expertise Satisfaction (Dim, AR, 2011)

a) Dissatisfaction with Malaysian expertise

In this sub-theme, respondents responded negatively, showing their dissatisfaction with Malaysian film expertise. Most of them say that the post-production stage is the one that needs to be improved. Some of those responses even say that our Malaysian laboratories are not ready for digital imaging. Other filmmakers who are in this sub-theme show they are dissatisfied with the fact that foreign filmmakers never use Malaysian expertise. This shows how we are further behind in comparison to the level of foreign expertise.

b) Knowledge and efficiency

This sub-theme shows the positive responses towards foreign expertise. These positive responses are: foreign expertise is more efficient compared to the local; foreign expertise is more accurate and delivers better services; foreign expertise is more knowledgeable and builds up their confidence. Even though these responses are very positive, they also underline the fact that foreign expertise is much more expensive compared to the local expertise.

c) Experience and technology transfer

This sub-theme shows the positive responses towards the development of the Malaysian film industry in the future. The Malaysian filmmakers who responded under this sub-theme state that even though they are choosing foreign expertise, they could learn from them. Others said that most of the

foreign expertise they work with are experienced, and knowledge transfer could be generated from this co-operation.

### **Malaysian Expertise Code**

Under the theme of Malaysian expertise, I have established three different sub-themes: suitability, convenience and sense of citizenship.

#### a) Suitability

From the responses towards this sub-theme of suitability, most respondents stated that the Malaysian film expertise is suitable for Malaysian local film. I think this is largely due to the shared communication language and the understanding between them.

#### b) Convenience

Most of the respondents who prefer the Malaysian film expertise gave convenience as their reason. They feel that the Malaysian film expertise is easy to work with, especially as they are Malaysian, so communication is easier.

#### c) Sense of Citizenship

A few responses refer to this sub-theme, indicating that because they are Malaysian they would be proud to work with other Malaysian film expertise, and, consequently, these responses are also related to the sub-themes of convenience and suitability.

#### d) The Mixture of Foreign and Malaysian Expertise Code

Under this coding, a small number of respondents would prefer to choose both foreign and Malaysian film expertise in their production. Most of them are thinking of practicality for their current practice. Some say that it is better to use local expertise, but when it comes to the final laboratory stages, they would prefer foreign expertise.

Overall, I could summarise that respondents are thinking more towards the need for development and improvement of film expertise in these later stages. Thus, we can conclude that knowledge transfer is really needed in the long run for the future of the Malaysian film industry.

## **5.8 Feedback from Malaysian Filmmakers concerning the Film Test Strip**

To have broader reflection on this filmstrip test, I used two different methods in conducting this survey. To get deeper reflection from the Malaysian filmmakers, I interviewed them personally on the colour differences between the two laboratories and explored their preferences on Malaysian film workflow. In addition, to get a broader input, I conducted an online survey of Malaysian filmmakers. The survey was aimed at filmmakers who are active in the Malaysian film industry. This process was implemented to justify and analyse their opinion concerning the differences in the colour and image data in the footage. Throughout this process, the researcher did not tell respondents where the footage was processed. These two approaches were designed to reconcile qualitative and quantitative data.

I have explained in chapter 2 that the filmstrip test is for the justifying the differences of the colour output between Thai and Malaysian laboratories. These differences would enhance the expert witnesses in this reflection and discussion stage towards their perceptions about Malaysian and foreign facilities. Even though the direction of this research now not towards the colour management and colour re-production but the colour preference from the overview of the Malaysian filmmakers are important to knowledge and technology transfer in the Malaysian film industry.

In relation to how colour preference is related to colour appearance, I would like to refer to the quote below:

Even a person well versed in details of colormetry will prefer to choose his colours from a chart rather than from a chromaticity diagram (Wright, 1969: 173).

Consistent with the quote above, we can see that the chromaticity diagram in this research might be a tool for a researcher/scientist. It plays an important role for us in producing the Malaysian colour palette, acting as a bridge between the colour scientist and the colour user. Poh states:

Yes, we should do that; we should have our own colour palette. As far as our own experience, when it comes to skin tone we face few problems because our skin tone is different from others. I definitely agree with the invention of our own colour palette (Poh, Appendix 7, p.248).

My direct interviews with the expert witnesses reveal the Malaysian filmmakers' awareness about their colour perception. The justification of colour difference stimulated them to argue that the Malaysian film industry should have its own colour palette.

### **5.8.1 Colour Differences**

In the questionnaires that were distributed in this reflection survey, the second open-ended question, which resulted in the qualitative data, was designed to reveal the Malaysian filmmaker's perceptions about primary colour differences between Thai and Malaysian laboratories. MAXQDA software was applied to the responses of the Malaysian filmmakers towards the colour differences from the filmstrip test of laboratories in Thailand and Malaysia.

In relation to this, I have analysed the data using MAXQDA software for a better understanding of the visualization of qualitative data. Before the analysis of the data, the question was framed as indicated below.

*Next is the comparison of value RED, GREEN, BLUE analysis from the Malaysian and Thai laboratories shown in the CIE 1931 model diagram. In the preliminary research, there are some differences in colour value. This is an important factor for producing a Malaysian film colour palette.*

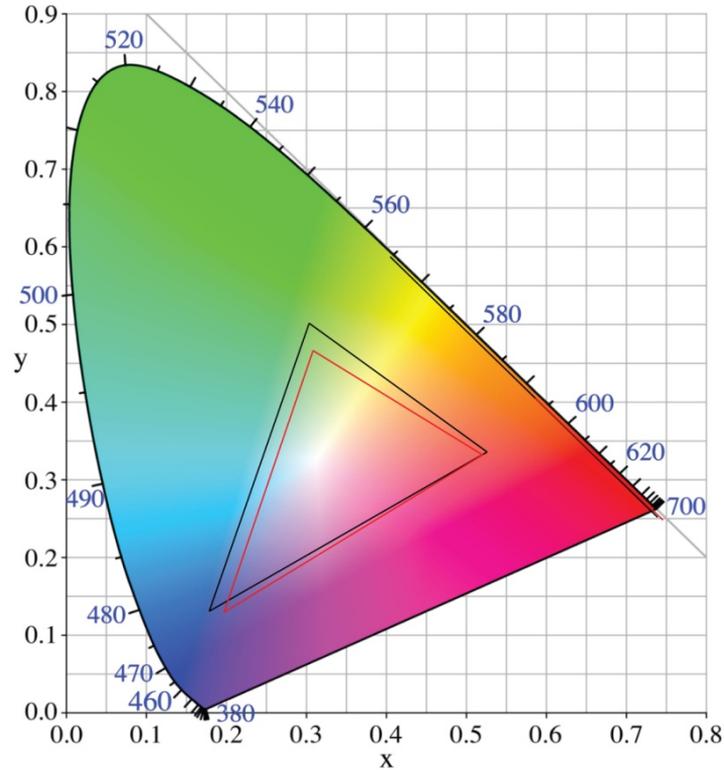


Figure 33: Colour Difference Output Chart between Malaysian and Thai Laboratories (Dim, AR, 2011)

*Is the colour difference output between Malaysian and Thai laboratories an important factor to be considered in your film workflow processes?* The respondents could choose *A= YES* or *B= NO*, and there was an open-ended question *Why?* They should agree with a *YES* or *NO* answer. Then they were asked to provide an open-ended answer on their choice of *YES* or *NO*. For that reason, in the MAXQDA analysis I have coded the structure to include three different themes: agree that the different outputs from Malaysian and Thai laboratories are important; do not agree that the colour difference outputs are an important consideration; and *BOTH* means the respondent chose both *YES* and *NO* in the answer.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	6	19.4	20.7	20.7
	yes	21	67.7	72.4	93.1
	both	2	6.5	6.9	100.0
	Total	29	93.5	100.0	
Missing	System	2	6.5		
Total		31	100.0		

Table 26: The Importance of Colour Difference Thai vs. Malaysia laboratory

In quantitative SPSS analysis, 67.7% agree, 19.4% disagree and another 6.5% chose both. In addition to the quantitative data above, below is the MaxMap for qualitative analysis.

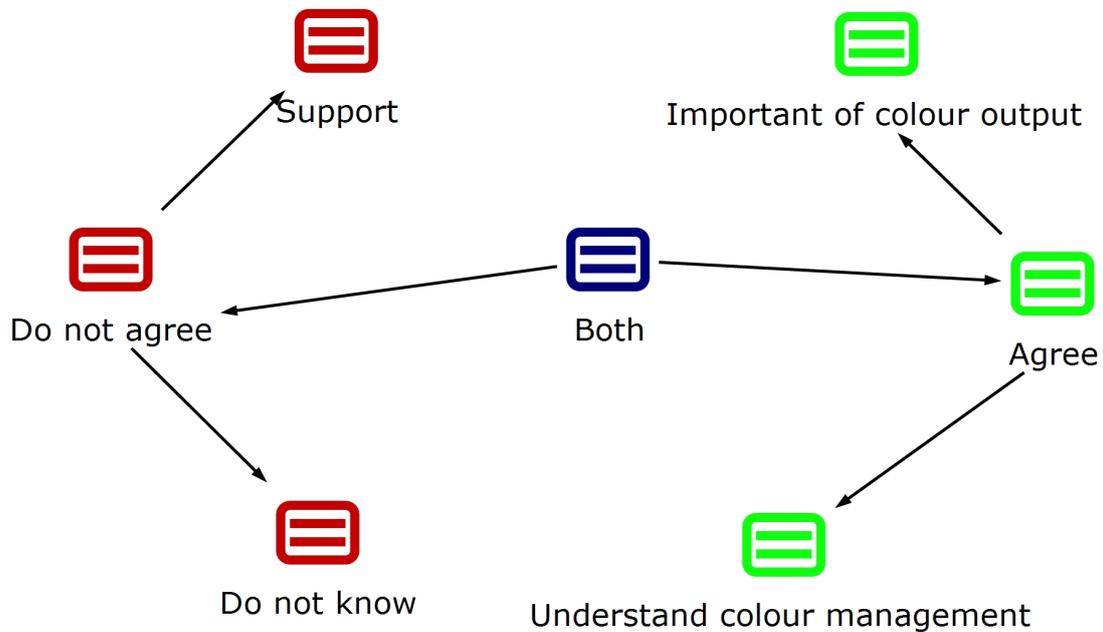


Figure 34: Illustration of Coded MaxMap Analysis on Colour Differences Between Thai and Malaysian Laboratories (Dim, AR, 2011)

Answer:

- a) Most of the expert witnesses in the Malaysian film industry agree the different outputs from Malaysian and Thai laboratories are an important consideration in the workflow processes.

Under this theme, there are a few different open-ended answers, and to differentiate the answers, they are categorized into different sub-themes.

- i) **Importance of colour output.**  
Some respondents agree that these differences are an important consideration in the workflow process, however, in their open-ended answer, they explain that they only know the importance of colour management, but do not understand why those colours are different. Their answers mostly explain *how it affects the overall look of the film* appearance and *their experience in the colour grading process and visual effects*. Nevertheless, some respondents explain that *it could affect the “film production value”*.

- ii) Understand colour in the film workflow.

Those who are from a technical background, such as colourists or editors, mostly understand about the differences and say *it depends on the laboratory's calibration. It is because every laboratory has its own colour calibration, and it also depends on the filmmaker's colour preference.* Other filmmakers' responses say *these colour differences would not even matter in the future because digital technology will make the colour laboratories obsolete.* However, when I raised the idea of a colour palette for Malaysian film, most of them *agreed that we should have our own colour palette.*

Answer:

- b) Do not agree that the colour difference outputs are an important consideration in the workflow processes. This theme, has been divided into two different sub-themes as below:

- i) Did not agree with the answer because they did not know.

Under this sub-theme, we could clarify that most of the respondents that chose the *NO* answer, stated *that they do not know the answer in the open-ended question.* Only two respondents said that *they do not agree, because by using local laboratories, they could save budget,* and in a real situation of Malaysian film workflow processes, by using foreign expertise, they could optimize the budget with good quality and service.

- ii) The second sub-theme is the respondents that chose the *NO* answer but in the open-ended question they *support the invention of a Malaysian film colour palette.*

Answer:

- c) *Both* Means the Respondents Chose Both *YES* and *NO* in the Answer.

One respondent chose both *YES* and *NO*, and in the open-ended question he stated *that he used both Malaysian and Thai laboratories.*

The above responses on colour difference from the general reflection with Malaysian filmmakers show that their choice is related to colour preference. The filmstrip experiment that I made is just for technical applied science justification to clarify the colour differences between two different laboratories. These

differences may not be the most important element in colour film workflow processes, but they justify the differences of the laboratories' colour calibration. These differences could raise the awareness in Malaysian filmmakers who had never thought of colour processes and colour preservation in our culture. We should have our own distinctive identity in our film and this relates to our colour film preference. In relation to that, colour preference is related to colour appearance, I would like to refer to the quote below:

Even a person well versed in details of colorimetry will prefer to choose his colours from a chart rather than from a chromaticity diagram (Wright, 1969, p.173).

Thus the chromaticity diagram in this research might be a tool for a researcher/scientist. It is an important task for us to produce the Malaysian colour palette to act as a bridge between the colour scientist and the colour user.

### **5.8.2 “*Filem Kita Wajah Kita*” (Our Film Our Faces)**

I would like to start this section with the above slogan, the watchword that is stated on the FINAS websites, the their catalogue, promotional prospectus, and even on the front of their building. It means “Our Film Our Faces”. Objectively, Malaysians need to represent our own images in our films and this relates to colour preference as the main characteristic in visualization. In the earlier reflection about colour differences between two different laboratories, we could see that most Malaysian filmmakers support the invention of a Malaysian film colour palette. Below is some qualitative evidence data about the Malaysian colour palette:

What is lacking in Malaysia is film colour in the first place. If you look at Hollywood or Europe, there is a distinctive feel about their films. If we look at the US, there is blue and black mainly as their colour scheme, for Malaysia we don't have any idea. Like India, they love Kodak ... the more primary colour the better it is. For a Malaysian colour scheme we switch all the time ... when we talk about colour scheme, actually we don't have one, how can we say that we are wrong? If one day we decide to choose to have one, okay, let's say green, because we have so much forest. If we follow that trend, one day we will have a look (Gaya, Appendix 4, p.239).

I am not sure whether it is important but definitely it will put some value to our identity. We always said about “*Filem Kita Wajah Kita*”. Even just like what you said, can we explore just specifically in colour? It could possibly be very important; yeah it’s a stepping-stone (Nasution, Appendix 6, p.243).

Since the establishment of FINAS in 1981, we have kept saying that we want to achieve the watchword of “*Filem Kita Wajah Kita*” but nobody shows real effort to achieve that objective. The Malaysian Government keeps promoting our local films and tries to market the local content. The justification for a distinctive Malaysian film might only be based on language differences. The justification about a distinctive look in the visual must be the main element in the internalization of local film. Below are some qualitative evidence data about the Malaysian colour palette from the perspective of government officers:

In terms of your research, FINAS tries to support your research and I think this research will improve our industry development (Hamzah, Appendix 7, p.246).

In terms of your research, we really need something like this to be proposed to FINAS and we can share this information. Indirectly, I think this research is good and we are glad there is a local person doing this kind of research. We need Malaysians who specialise in this kind of issue. (Muzaimin, Appendix 7, p.247).

I would love to see the impact on it. I mean what is the standard of our local producers compared to Thailand or Indonesia, because I cannot see the difference. In fact, local movies have diverse quality, I don’t know which one is good or not. Yes, I’d love to see the research impact on it. If you can suggest one, the Malaysian film industry needs to have this type of colour palette (Shazli, Appendix 7, p.247).

This interrelates with the research question of why the Malaysian filmmakers utilized foreign workflow processes. These processes at foreign laboratories and using foreign expertise will take us further away from that concept. It will

become impossible to achieve because foreign expertise would never understand our colour preference.

With the support given from Malaysian filmmakers and government agencies during this reflection survey session, my next step would be the development of a Malaysian film colour palette to realize the objective of finding a “distinctive” colour for Malaysian local films.

Sarah Street argues that:

there is the cultural conception of what we mean by British films: the extent to which they participate in establishing nationhood as a distinct, familiar sense of belonging which is shared by people from different social and regional backgrounds. We have inherited a dominant conception of what it is to be British, a collective consciousness about nationhood which has, in part, been constructed by cultural referents, including cinema (Street, 1997, p.1).

In relation to Sarah Street's statement, it is more difficult to clarify Malaysian cinema's characteristics. According to Sarah Street, British film production has been genre-related, operating in the mainstream market and in an unofficial tradition of filmmaking. It is more crucial to define Malaysian films in terms of the nation's multicultural background, made up of different races and many ethnicities. Reflecting this, it is again crucial to have the distinctive look that we are trying to achieve. In this research, I have maintained my belief in my original objective to enhance the potential for research into Malaysia's own colour palette. Towards this kind of research, we could be inventing, or at least preserving, our own distinctive look to be embodied in our films. It is hoped this future colour palette will be a guide for more systematic colour film workflow processes in the Malaysian film industry.

### **5.8.3 The Myth that Shooting in a Temperate Country is Better than a Tropical One**

Since the beginning of this research, and in the preliminary video interview with Malaysian filmmakers concerning the existence of the common myth among them that shooting in a temperate country is better compared to a tropical country has been a recurring issue. This common myth is based on their perceptions and own experience by looking at their own footage. To clarify this, I framed the survey question to reveal the general assumptions about this common myth among Malaysian filmmakers.

*Based on your own experience, what are the differences between shooting in a tropical environment compared to a temperate (4 seasons) country? Which one do you think is better and why?*

*A= Tropical country*

*Why is it better?*

*B= Temperate country*

*Why is it better?*

Below are the qualitative data from the video interview with one of the Malaysian producers about this myth:

There is no real training ground here, masscomm is not the same as film, now we are talking about people who study by themselves, they set up their crew and one day they become a DP, so they learn by their hard work. Have they bought or read the cinematographer's guide? So some people take shots that look nice and some look like crap. I don't think we can be blamed because our seasonal colour temperature looks bad, you know (Gayatry, Appendix4, p.253).

As I explained earlier in chapter 4, formal education in film in Malaysia only started in 1981 when the Malaysian Film Academy (AFM) started to offer a diploma course in film. Consequently, the University of Malaysia Sarawak, UNIMAS, which is the university from which I come, started their Bachelor of Applied Arts in Cinematography in 1994 and at that time were only teaching video format. It was only in 2006, that the UNIMAS cinematography programme used a compatible film format. After that, in 2007, AFM was closed by FINAS

and the course continued at the Malaysian Art Academy (ASWARA) offering a cinematography course, but without accreditation by the Ministry of Higher Education of Malaysia. Therefore, I would agree with the above producer's comment that *"there is no real training ground here"*, while we are waiting for the re-birth of AFM in ASWARA, the cinematography programme at UNIMAS has only just started and needs further development. At the same time, other universities in Malaysia are still teaching in video format, which combines with mass communication courses. Once more, the knowledge transfer within the higher education in Malaysia still needs further development.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	tropical	1	3.2	3.8	3.8
	temperate	18	58.1	69.2	73.1
	both tropical and temperate	7	22.6	26.9	100.0
	Total	26	83.9	100.0	
Missing	System	5	16.1		
Total		31	100.0		

Table 27: Reflections on Perception Among the Malaysian Filmmakers about Colour Temperature Between Tropical and Temperate Country

As we look at survey questions above on clarifying the general assumptions about the myth among Malaysian filmmakers that shooting in a temperate country is better compared to a tropical one. A total of 69.2% of responses agree that shooting in a temperate country is better, another 26.9% answer both tropical and temperate country, with the balance of 3.8% saying that a tropical country is better. For this reason, in the MAXQDA analysis, I have coded the structure to include three different themes:

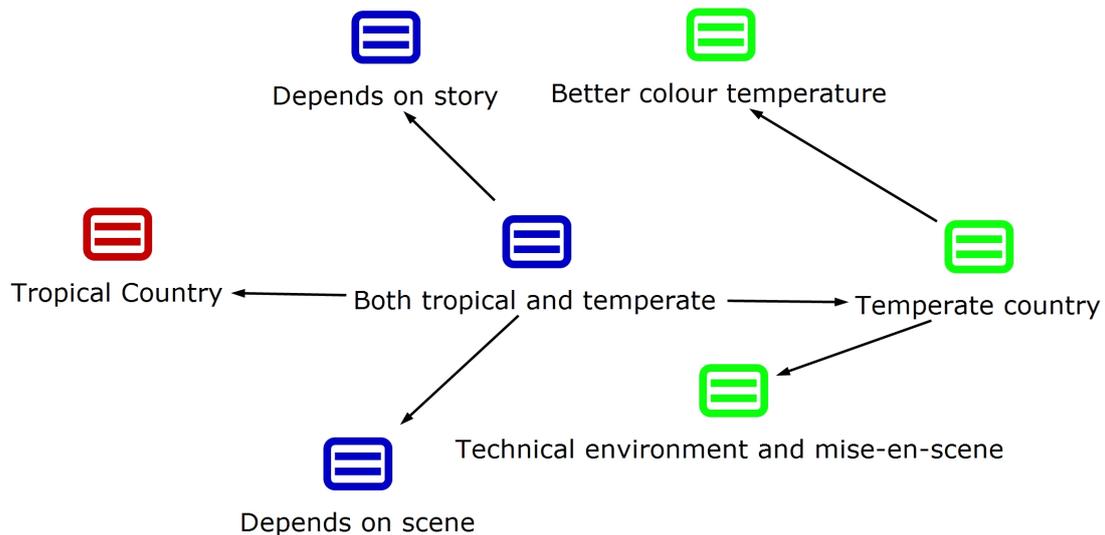


Figure 35: Illustration of Coded MaxMap Analysis on the Myth that Shooting in a Temperate Country is Better than a Tropical One (Dim, AR, 2011)

a) Temperate country.

For this theme, I have created to two sub-themes.

i) Better Colour Temperature.

Most of the respondents who chose this answer stated that in a temperate country the colour temperature is much better than the tropical. Most of their reasons given in open-ended answers is *better colour temperature, brilliant lighting and colour, and nicely lit.*

ii) Technical, Environment and Mise-en-scene.

This second sub-theme would be my best close clarification to justify this myth. Most of the respondents obviously understand about lighting colour temperature, because their responses are related to their technical practice and trying to relate to the environment and mise-en-scene. The reasons given for their answers include: *in a temperate country the scene is more evenly lit and it is easier to predict weather; in some seasons the sun path remains at a good angle for shooting; nice look; there are no dust particles in the air and light is diffused evenly.* Other factors mentioned included that they are more interested in *the place, the people and the things* and some of them responded that *there is no need to set up much.*

Clearly some of these reasons can be justified by practice as a cinematographer. In a temperate country, the scenery and environment have a “crisp look” or are “crystal clear” in our terms because in *some seasons the sun path remains at a good angle for shooting, and* this would affect the lighting, conditions, becoming *evenly lit and diffused*. This compares to a tropical country where the angle of the sunlight is more “direct” and it would cause hot temperatures and of course create more dust and haze. The direct sunlight could also create the “high contrast”, which would limit the capability of film “latitude” and “characteristic”; this would frustrate most cinematographers, colourists and even film manufacturers.

b) Tropical Country.

Only one respondent chose this theme, which is 3% out of 31 respondents. His open-ended answer is: *for Asian skin tone, it will be better to use the colour of a warm climate like Malaysia, nicer tone will be reproduced. Certain looks like warm (orange/sepia tone) and Asian colour skin tone would not be perfect in cold climate conditions, it will look pale*. There is nothing wrong with this answer, because the respondent gives their response based on the local film look, it should be one of the important factors to be considered for the right choice of shooting environment.

c) Both Tropical and Temperate Countries.

These responses I would consider as the more rational answers towards the objective of this research, and I have divided it into two different sub-themes:

i) Depends on the Story

The responses in this sub-theme are: *natural and exotic look of the tropical environment; the look is more familiar to audiences; there is no real preference of environment, only preference of story and suitability to its environment, depends on the scene and story (local story needs local background)*. For me, most of the above respondents are more likely to be interested in basing their preferred images on their real practice. This shows that most

filmmakers that respond to this survey are philosophically knowledgeable about their practice.

There is one answer that really attracts me, instead of preferring a tropical country he made a comment on temperate countries: *In terms of film looks it is much better, maybe the film facilities specifications are made based on the research from colour temperature of temperate countries.* This answer would be one of the research questions to be addressed in my future research on “Malaysian colour palette”.

ii) Depends on the Scene

Under this sub-theme, we could see that the respondents are more specific to their specialist area, and understand this through their daily practice. Their qualitative responses are: *subjective to the look you want; it depends on the scenes; looks warmer due to our climate and weather; our surrounding have a mixture of colours and the colours look richer and more vivid and perhaps the surrounding colours have a colder template.* These answers show that most of them understand what they want to achieve in their film, they would not simply choose their scene randomly on the criterion of environment.

To summarize the reflection on the open-ended answers, I could conclude that the colour temperature is not the only important factor to be considered in the Malaysian workflow processes. Nevertheless, an understanding of how to preserve and achieve the original colours from our mise-en-scene (scene environment) is the main factor to be considered in our colour film workflow. This important factor would not be achieved if we just let the whole workflow process go to foreign laboratories and expertise. We also need to elaborate upon and enhance the knowledge transfer among our filmmakers. From that development, we will improve our distinctive image through the use of our own colour palette.

In tandem with the above reflection and validation throughout the interaction with the expert witnesses, the filmstrip test proves the variation of data that would enhance the new findings. Even though the initial intention of the

filmstrip was to differentiate the technical data between two laboratories, again it has proven that the quantitative data revealed by the filmstrip tests enabled the expert witnesses to believe in the research. This feeling of belief in the research data enables the expert witnesses to contribute valuable findings to this research.

#### **5.8.4 From Case Study to Tacit Knowledge**

In this research setting, where case study is highly relevant, the next stage was to select appropriate participants, I believe that expert witness would best inform and reveal the “truth” of the problematic situation. As explained earlier, the expert witnesses include Malaysian filmmakers and the government agencies that are involved in policy making. The data from expert witness discussion and reflections from the video interview are related to tacit knowledge. As Mark Smith explains:

Central to Michael Polanyi's thinking was the belief that creative acts (especially acts of discovery) are shot-through or charged with strong personal feelings and commitments (hence the title of his most famous work *Personal Knowledge*). Arguing against the then dominant position that science was somehow value-free, Michael Polanyi sought to bring into creative tension a concern with reasoned and critical interrogation with other, more 'tacit', forms of knowing (Smith, 2003).

Polanyi underlines the tacit knowledge dimension, which suggests the observation should start from the fact that the expert witnesses in this research know more than they can tell. These personal feelings, comments and reflections would be the best tool to analyse and predict the best resolution for the evolution of changes. In this research, the video interview was approached in an informal way to encourage participants to be open and to reveal their tacit knowledge. Smith makes it clear that:

Polanyi's argument was that the informed guesses, hunches and imaginings that are part of exploratory acts are motivated by what he describes as 'passions'. They might well be aimed at discovering 'truth', but they are not necessarily in a form that can be stated in propositional or formal terms (Smith, 2003).

These factual data are aimed at discovering ‘the truth’. Accordingly, I created quantitative data from the filmstrip test (as explained earlier and further in chapter 4) as a tool to interrogate the feelings and preferences of the expert witnesses. A set of questionnaires was created to focus on the problem identified in preliminary research video interview. These survey reflection questionnaires were created to clarify general reflections from the industry. This questionnaire was distributed to the Malaysian filmmakers personally by me during the video interview and by email. In addition, the Malaysian Colour Film Workflow Research Group on Facebook was established to enhance the reflections and discussion between the Malaysian filmmakers and the researcher. This was done to keep the pertinent people informed of the exploratory acts and was motivated to discover ‘the truth’.

### **5.9 The Thematic Analysis Justifying the Conclusion**

In this chapter the data reflection and discussion from the survey questionnaires interrelated with the qualitative video interview were discussed. In the concluding chapter, the thematic analysis of the qualitative and quantitative data reveals that the explanations given by my expert witnesses in respect of the current complications in the film workflow processes are due to several reasons, which I categorized under two major themes: INDUSTRY and SELF.

The second stage of findings covering the responses on the themes of expert witnesses’ REFLECTION on their practice, and my PRACTICE experience as a cinematographer and film academician, and the involvement of the participatory action research in relation to the practice in the Malaysian film industry. The myth upheld by Malaysian filmmakers that shooting in a temperate country is better compared to shooting in a tropical country is also discussed and covered rationally in the next chapter. I categorized these results under the themes of AWARE and RATIONAL PRACTICE. Both themes are based on positive responses from the expert witnesses as well as the policymakers. These themes also make this research a platform for further research development towards developing a new knowledge transfer in Malaysian colour film workflow and the changes for better film policy to the benefit of the Malaysian film industry.

## **6.0 Conclusion, Future Plans and Recommendations**

### **6.1 Introduction**

As an introduction to this last chapter, I will summarise this study and its findings. In keeping with that, I will highlight the themes which emerged from each research question that I have tried to explore in this research inquiry. I offer contributions to existing academic knowledge in related areas to make this research meaningful. These points will be discussed in the next section, as any research has its own further development and recommendations for improvement; I share this experience and explain it under the heading of “Research process and limitations”. I also provide discussion, in relation to industry practice, with implications and suggestions to the policy-maker, which is the Malaysian Government, particularly, FINAS as their main agency, which is responsible for film development in Malaysia. To enhance my future dreams and future career as a scholar in film education, I would like to suggest further study, which could be developed from this research. This could be beneficial for the development of the film industry as well as my own practice.

### **6.2 Summary of the Study and its Finding**

As elaborated in chapter one, this research aimed to review the film workflow processes in the Malaysian film industry. Adopting the action research method as the main strategy, the research employed four stages of data collection, qualitative data from video interview reflecting on general Malaysian film workflow problems and the myth among Malaysian filmmakers that shooting in a temperate country is better than a tropical one. The second stage employed the participatory action research method on filmstrip experimentation. This stage was undertaken to clarify the primary colour differences between Malaysian and Thai laboratories. This second stage would be the experiment that enhanced the expert witnesses, which is in this research the Malaysian filmmakers, to reflect on and validate the research data. The third stage involved the video interview with Malaysian filmmakers concerning their reflections about complications with film workflow processes in Malaysia. Overall, this research employed an explanatory mixed method, and to clarify these quantitative and qualitative

data, the last stage involved general survey reflections based on multiple choice and open-ended questions.

In accordance with the application of the above action research method as a main strategy combined with the idea of the action research cycle approach that was explained in 2.3, I tried to develop practical knowledge by observing and practising Malaysian film workflow. As an academician, I have tried to be like a “bridge” to connect the education, government agencies and the filmmakers in the industry. Throughout these action processes, I gathered reflections from Malaysian filmmakers on film workflow processes.

Furthermore, a few filmmakers were involved in the data sampling processes to fulfil the aim of participatory action research. To react to these reflections, participation, and knowledge transfer, towards the end of this research I pursued practical solutions in data reflection stages. In this stage, the communications and interaction with expert witnesses improved the understanding of film practice on field of practical knowledge transfer. Subsequently, the quantitative data from this survey were analysed using SPSS and the open-ended qualitative data were analysed using MAXQDA software.

### **6.2.1 Main findings**

Every research has its own challenges. In this research, I believe the data collection process, both interaction with expert witnesses in reviewing in the context of film workflow in Malaysia, and complex analyses of mixed data were worth the effort considering the outcomes of this research. The triangulation of mixed data analysis in between qualitative and quantitative was used to explore the new evidence of the real practice in the Malaysian industry. Furthermore the “expert witnesses” involved are filmmakers, who usually do not have enough time to cooperate, so their input was extremely valuable.

My first analysis of findings covered the responses to research questions one, two and three, which included enquiry pertaining to the main complications of the current Malaysian film workflow. Thematic analysis of the qualitative and quantitative data revealed that the explanations of my expert witnesses concerning current complication in the film workflow processes are due to

several reasons, which I categorized under two major themes – SELF and INDUSTRY factors. Because this research draws on expert witnesses as the main source of data, it is very meaningful to state these findings on the two themes above.

With regard to the industry, in general, from the survey reflection, most Malaysian filmmakers' responses suggested that Malaysian film workflow is in quite a good situation or neither good nor bad. It seems to show they are not fully confident in the quality of work produced by local film expertise and facilities. These perceptions were based on the current Malaysian film industry and facilities.

At the same time, the second theme comprised thoughts pertaining to the individual participants in this research, and can be seen as “expert witness” personal SELF perceptions. The SELF factor interrelates with their perception, experience, beliefs and practice in the industry. Even though most of the responses from the survey reflections session prove that our Malaysian filmmakers still prefer foreign film expertise rather than local, the percentage is not that high. Even if we observe the reasons given in their reflections, some of the answers are still positive towards local film expertise. Furthermore, some of those who prefer foreign expertise would still consider the local if they have the capability to do it.

In relation to these responses, I could predict that there is some room for development and improvement in the local film expertise, or there is some missing link in knowledge transfer in the Malaysian film industry. This suggests a need for further development in the system of filmmaker human resource management. This interrelates with the lack of standard income scales for filmmakers in the industry.

Another SELF-factor concerns the data collected from this research on perceptions of local and foreign laboratories. It was discovered that FINAS, as the government agency that is responsible for the film industry, should consider developing the film laboratories and facilities wisely according to industry needs. If FINAS seriously wants to develop and offer post house services to the Malaysian film industry, they should provide good and excellent services with

cheaper rates. Furthermore, FINAS should let those who have post houses in the local film industry join the government post house and let them share knowledge, experience and expertise. By interacting with an improved FINAS post house, local practitioners could widen their network and gain skills from knowledge schemes or programme development handled by FINAS.

Generally, most of the film facilities services in Malaysia are not centralized and we do not have a complete one-stop-centre for film services. That is the main reason most Malaysian filmmakers utilize foreign facilities and expertise for their film. In the context of this research objective, the One Stop Service Centre for films should not only have facilities and knowledgeable expertise, but it should also be a centre of research and development. This could enhance the knowledge transfer in film workflow processes.

My initial obligation in this research is a commitment to professional development in the Malaysian film industry. This is in keeping with the value of action research, which supports the practitioners in taking ownership of the experience of professional development. The growth of the Malaysian film industry has been very rapid in the past few years. Malaysian films have made significant developments and accomplishments within the digital film technology. The Malaysian film industry should also take this opportunity to move forwards through this development. For example, the development of Pinewood Studios in Iskandar new township should be one of the important co-operations on local film education and expertise knowledge transfer. This is related to research question four, which concerns the development and improvement on which the Malaysian film industry should focus.

The findings from the second research stage covered responses on the themes of expert witnesses' REFLECTION on their practice, and my PRACTICE experience as a cinematographer and film academician, and the involvement of action research in relation with Malaysian film industry practice. The REFLECTION from expert witnesses practice shows that 91.7% of the Malaysian filmmakers agree that inadequate *knowledge transfer* is a factor in film workflow complications in Malaysia's film industry. The most crucial response towards the complication is *knowledge conflict*, from which we can see

that most Malaysian filmmakers realize we still lack knowledge in the industry, especially in the film workflow processes.

In relation to the knowledge of film appreciation, FINAS recently started to introduce local films to the international market and in schools. However, this should have happened 30 years ago when FINAS started to operate in 1981. Furthermore, there is some missing link with higher education institutions about this marketing and education concerning local film. In respect of the involvement of FINAS in the film industry, they should have some entry course requirements in every school or higher education institute, at least on local film appreciation. In relation with my PRACTICE as a cinematographer and film academician, and my observation throughout this research, if the film appreciation has only just started in schools in Malaysia, how can Malaysians appreciate local films?

Furthermore, the missing link between FINAS and higher education in Malaysia would be one of the important things to cover. Higher education film and media courses are accredited under the Ministry of Higher Education, and FINAS has never been involved with the development of courses. In addition, the higher educational institutions also need to link with film associations to clarify the needs and requirements of the Malaysian film industry. Towards this purpose, and to enhance the knowledge transfer in the Malaysian film workflow processes, we need to explore further, and make some suggestions concerning government policy.

Concerning government policy, based on the REFLECTION from the expert witness practice responses, we need improvement and development of post-production stages in Malaysia. This will not only benefit the local film industry but also the government could get revenue from tourism and the promotion of local images or scenery to the international market. Other than that, by cooperation and involvement in international film production, the skill and professionalism of local film expertise would increase. Furthermore, based on the PRACTICE and perspective of film academic knowledge transfer, FINAS should cooperate and undertake some research and development with higher education institutions for the benefit of film education and the Malaysian film industry.

The final stage of these research findings relates to the earlier initial research objective on colour preference and colour management in the Malaysian film industry. The expert witnesses were asked to observe the filmstrip test result to clarify their understanding on colour preference. At the same time, the myth upheld by Malaysian filmmakers that shooting in a temperate country is better compared to the tropical was also discussed and covered rationally. I covered this result on the themes of AWARE and RATIONAL PRACTICE. In this action research method, supported by the participatory action research approach, I tried to discover a technique to attract and approach the expert witnesses with quantitative colour data in the applied science test. This filmstrip shows the numeric results on different primary colour comparison between two different laboratories' output. Even though scientifically the differences are mainly because of different laboratory calibration, it justifies how colour would be different if we processed in different places or utilized different expertise.

This AWARE thematic approach justifies positive responses from the expert witnesses as well as the policy maker in this research. This would be based on applied colour science theory so that we could measure and utilize colours from our environment and from the medium of shooting. The colour difference output from the filmstrip comparison between two different laboratories made most expert witnesses more aware of colour sensitivity and ensured their support for the next development of Malaysian colour palette to realize the finding of "distinctive" colour for Malaysian local films. The earlier reflection with Malaysian filmmakers showed they would agree to cooperate with me on further research to invent and produce this film colour palette.

The findings on the myth among Malaysian filmmakers that shooting in temperate countries are better compared to tropical countries was related to their RATIONAL PRACTICE. This is linked with their understanding about colour temperature in lighting and colour in the surrounding scene. Practice has shown that it is extremely different to shoot in a temperate climate compared to the tropics. In the context of lighting colour temperature, it is just a mired-shift difference. However, in the context of mise-en-scène we could see a huge difference. The angle of sunlight would differentiate the lighting angle and lighting contrast. The pollution in the surrounding air would also affect the

clarity of the perspective. The colour background differences would also differentiate the stories that are being portrayed. Even though in terms of colour clarity and optimization of film or digital image specification the temperate environment was found to be preferred through RATIONAL PRACTICE in this research, Malaysian filmmakers should take responsibility for creating the best shooting guide for our tropical environment. The few pages guide on shooting in tropical country in *Cinematographer's Guide* is not enough, further research and development on this niche area is suggested in this research. This research also underlines that most of the film/media technology manufacturers base their specification measurements on temperate climates. Thus, we need further research and development on our film practice in a tropical environment.

### **6.3 Contribution to Knowledge**

As researcher and cinematographer by practice, I hope that the accomplishment of this research will be able to contribute to the body of knowledge in the particular area of the Malaysian film workflow practice in general, and postgraduate practice-based studies.

In addition, the research methods adopted in this study have the potential to contribute towards the development of research design in the area of film workflow development processes, especially in the Malaysian film industry context. The mixed data collection and analysis that have been implemented in this research enabled me to have an in-depth exploration of the issues raised in this study. While other film studies put more emphasis on film theory, philosophy, history and visual culture, the concentration on film practice and participation in the local film industry makes it different from other research. Nevertheless, as a cinematographer and film academic who believes in his originality and always has the patience to develop his own approach, the processes of doing this practice-based action research have offered me a valuable learning experience.

This research process has revealed the practitioners' practice perspectives, the researcher's understandings of their practices, and the researcher's awareness of surrounding conditions. This includes the circle of action process of research planning, acting, reflecting, observing and participating. During that process, I

have collaborated in the areas of applied science in colour, discussion with filmmakers policy maker (expert witnesses), and engaged with social science and education researchers. This circle of practice-based research processes would be another contribution towards the development of the industry practice.

The creation of qualitative and quantitative data from the filmstrip test was a useful tool to explore the feelings, preferences and enhance the expert witnesses' responses to the research. The action research that applied in this study solves the identified problems. It concerned on reforming the exploratory acts that applied and was motivates to discover the truth in terms of data collection. These personal feelings, comments and reflections would be the most useful tool to analyse and predict the best resolution for the evolution of changes in Malaysian film workflow. Through the end of this study, the qualitative and quantitative data collected from expert witnesses would be open to reveal this tacit knowledge. It because the effective transfer of tacit knowledge generally requires extensive personal contact, regular interaction and trust.

Unlike other film academics from Malaysia who have tried to explore the Malaysian film history, theory and identity, the findings of this research also offer a film practice perspective and applied colour science application, which has never been explored in Malaysia before. This technical justification and analysis of findings based on practice relationship indicates that the PhD route widens the debate beyond the theory or philosophical context. The contributions from the practitioners in the industry are the most valuable for further development in technology and knowledge transfer.

#### **6.4 Research Implications and Suggestions for Future Research**

Several commonly made assumptions about the focus of these research methodologies and approaches were reviewed in this thesis. Empirical evidence from this research involves the implications of the practice, recommendations for future research and reviewing government policies. Since these complicated issues have strong implications for the conduct of future understanding and research, suggestions towards positive action for the filmmakers and government agencies are suggested.

#### **6.4.1 Practice Implications**

Since the focus of this research was on the Malaysian film industry, some of the findings affect the practice implications towards better film workflow processes in the industry. Revisions should be made to the structure of the existing film policy in Malaysia. This new film policy should be beneficial to both filmmakers and policymakers. In relation to structuring the new film policy, would the Malaysian filmmakers cooperate with the policymaker, and how far could they negotiate?

The implementation of knowledge transfer in the Malaysian film industry needs to be structured and merged with the filmmaking time line. This would need a significant contribution in terms of time and attitude from the film practitioners. The Government also needs to change its practice on budget and costing towards the development and improvement of knowledge transfer and film facilities in Malaysia. The development of the One-Stop-Service-Centre for film should not only have facilities and knowledgeable expertise, but it should be a centre of research and development. This could enhance the knowledge transfer in film workflow processes.

In terms of colour management guidelines for colour management in film workflow, and shooting guidelines for tropical climate, these research and development stages need further cooperation from every stage of film workflow processes. Achieving a Malaysian film colour palette will need understanding and also colour preference negotiation among filmmakers.

#### **6.4.2 Recommendations for Future Research**

There are a few recommendations that can be made after conducting this research. I should start on research and development in film, as this is the area that most needs support and improvement. The Government should emphasize research and development in film, either in theory or practice development. Film production grants caused an over production of films, so a part government grants for film production or other related areas need to be given to researchers who want to develop or improve the film industry.

There is a need for professionalism in the system of human resource management in filmmaking. In particular, a guide or standardization of the practitioner salary or professional payment would provide a benchmark for the Malaysian film industry.

The local film expertise needs more knowledge transfer opportunities. Higher institutions that have related courses in film should create links with the industry in order to interrelate their courses with the needs of the industry. This would also facilitate further development and improvement in the local film expertise, and create the missing link in knowledge transfer in the Malaysian film industry.

A One Stop Service Centre for film in Malaysia would be one of the most important means to enhance the above recommendations. The complete One Stop Service Centre for film with respected expertise would fulfil one of the needs identified by expert witness responses in this research. The facilities, technical infrastructure and knowledgeable expertise would not be enough, however, without the support of government policy.

#### **6.4.3 Recommendations for Reviewing and Changing Government Policies**

A few government policies need to be reviewed. First, GST (Government Sale Tax) rebates and income tax exemption for local or foreign films that use Malaysian film workflow should be provided through government procedures. This includes filmmakers who are involved in the films that are wholly produced in Malaysia. This will attract foreign producers and filmmakers to use Malaysia as their shooting destination. At the same time, it could enhance the cooperation between foreign production and local production and also develop the transfer of skill and knowledge between the two.

There should also be exemption from film shooting fees in areas owned by the Government including the Department of National Parks, Wildlife and Plant Conservation, the Department of Fine Arts, and other state government property or buildings. This will promote Malaysia as background scenery and be beneficial for tourism promotion.

A requirement for foreign films to re-print their bulk prints in Malaysia needs to be enforced in the new policy. This means that every foreign or local film that is previewed in a local Cineplex must have been bulk printed in local laboratories or the Malaysian One Stop Centre of film owned by the Government. This will enhance the development of skills and the quality of film print in local laboratories, and, at the same time, would increase government income.

The Malaysian Government should be the agency that is responsible for developing and implementing the Cineplex policy, monitoring the effectiveness of and compliance with the policy. The Government also needs to ensure that Cineplex and employees are educated with respect to issues in the film industry. This is a part of ensuring the professional qualifications and standardization in Cineplexes throughout Malaysia. This new policy will ensure that the standards provided support in practice and guarantee quality outcomes for the benefit of Malaysian audiences.

#### **6.4.4 Suggestions for Future Research**

In the earlier reflection about colour differences between two different laboratories in chapter 5, we could see that most Malaysian filmmakers support the invention of a Malaysian film colour palette. The colour difference output from the filmstrip comparison between two different laboratories has made most expert witnesses aware of colour sensitivity and encouraged their support for the next development of a Malaysian colour palette to realize the finding of a “distinctive” colour for Malaysian local films. The earlier reflection with Malaysian filmmakers, showed their agreement to co-operate with me on further research to invent and produce Malaysia’s film colour palette.

It is hoped that this action research method with support of the participatory action research approach and explanatory mixed method of using a circle of practice-based research processes will be adopted in other specialist areas of problem solving research. Thus, it is relevant not only to one particular area of research, but it is also hoped it could be utilized to solve other problems from other industries.

## **6.5 Conclusion**

The above discussion has evaluated the review of the existing Malaysian workflow processes and the potential workflow management in the colour film industry in Malaysia. Throughout this analysis and reflection, which focuses on the Malaysian film industry as a case study, I have utilized some new approaches to theory, method and practice, which aim at making the Malaysian film workflow more competitive and enhancing knowledge transfer in film technology. This research also proves that the applied action research and participatory action research method has created new evidence of knowledge transfer, which benefits the film industry in Malaysia.

Since this research has some changes in the approaches, it acknowledges the main methodologies and findings. The reflection from the past history and discussion with current filmmakers and expert witness makes the data exploration and validation more valuable towards the findings of various subjective results. This development of new knowledge could provide a major opportunity for future potential research about the Malaysian colour palette. This colour palette could also be part of new knowledge theory, practice and product for the Malaysian film identity to conquer the world film marketplace if the strategy discussed above is used effectively and efficiently. Reaching the end of the PhD journey means the start of my role as a film scholar in the area of film practice. I hope the skills and knowledge gained throughout this research will guide me to be a dynamic scholar in my specialist area. Further research and knowledge exchange to influence Malaysian film policy would be the next act to enhance the development of the Malaysian film industry.

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## Appendix 1: Survey Question For Research Reflection

### SURVEY QUESTION FOR RESEARCH REFLECTION

Personal Information

Name: \_\_\_\_\_ Occupation: \_\_\_\_\_

Years involved in Malaysian Film industry: \_\_\_\_\_

1- In general, how would you describe film workflow processes from pre-production, production, post-production and final print in the Malaysian film industry?

A = Very good

B= Quite good

C = Neither good nor bad

D = Quite bad

2- In general, how would you describe the efficiency of Malaysian film expertise?

A = Very good

B = Quite good

C = Neither good nor bad

D = Quite bad

3- If you had sufficient budget for your film would you use Malaysian expertise/laboratory or foreign expertise/laboratory? And Why?

A= Malaysian expertise

B= Foreign expertise

Why : \_\_\_\_\_

4- Which of the criteria listed below will you consider when choosing between either Malaysian laboratories or foreign laboratories for the workflow for your film?

A: Cost

B: Quality of work and final print

C: Efficiency and packages

D: Laboratory hygiene

5- In every production there will be some conflict in the film workflow processes. Based on your experience which criteria are most likely to be a cause of this conflict?

\*You may answer more than one

A= Communication conflict

B= Knowledge conflict

C = Budget constraint

D = Government policy

6- Which stage in film workflow processes needs to be improved?

\* You may answer more than one

A= Pre-production

B= Production

C= Post-production & laboratory

D= Marketing and Cineplex

7- If you think that Malaysian film workflow needs improvement, which areas do you think government needs to develop?

\* You may answer more than one

A= Funding support

B= Knowledge transfer support

C= Technical support

D = Changing policy

## Appendix 1: Survey Question For Research Reflection

8- Do you agree that the Malaysian film industry needs a “One Stop Centre” for post production workflow processes?

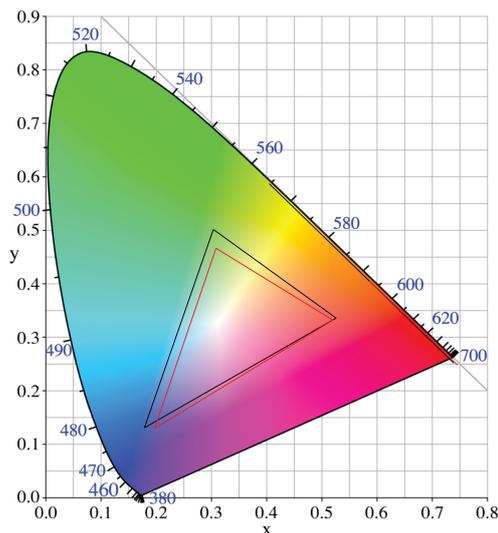
A = Definitely agree

B = Agree

C = Neither agree nor disagree

D = Disagree

9- Below is the comparison of value RED, GREEN, BLUE analysis from Malaysian and Thai laboratories shown in CIE 1931 model diagram. In preliminary research there are some differences in colour value. This is an important factor for producing a Malaysian film colour palette.



Black line - Malaysian laboratory output

Red line – Thailand laboratory output

Is this colour difference output between Malaysian and Thai labs an important factor to be considered in your film workflow processes?

A= YES

B= NO

Why: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

10- Based on your own experience, what are the differences between shooting in a tropical environment compared to a temperate (4 seasons) country? Which one do you think is better and why?

A= Tropical country

Why is it better? \_\_\_\_\_

B= Temperate country

Why is it better? \_\_\_\_\_

## Appendix 2 : The Malaysian Film Workflow Research Facebook Group Discussion

Malaysian Film Workflow Research

http://www.facebook.com/groups/142468065834330/

Google Facebook Apple Yahoo! Google Maps YouTube Wikipedia News (340) Popular

Malaysian Film Workflow Research

facebook Search for people, places and things Riezal Sophinna

 **Krizleneski Googi**  
Malaysia is on Garisan Khatulistiwa...the 85 family filter is not workable to correct back colour temperature on tungsten film stock when filming daytime,...No correction at all to be made and only a little 'mired shift value' when at the lab.So the workflow must be different rather than filming in 4 season countries..HOW TRUE IS THIS...?

Unlike · Comment · Unfollow Post · August 4, 2011 at 12:57pm

You, Azaini Manaf, Krizleneski Googi and ChongLee Yow like this.

 **Riezal Sophinna** Before we discuss further on this topic, may I know from where exactly we get this thought?  
August 4, 2011 at 5:29pm · Like

 **Riezal Sophinna** You have a good point there, but most manufacturer inventions are based on standard specification. The colour measurement may vary every time or any where or different situation that we measured. Because colour will changes.. thats why we might not use only 85 filter... other options are 85C, 85B, 85BN6 or etc base on exposure increase in stops.  
August 4, 2011 at 8:30pm · Like ·  1

 **Riezal Sophinna** I like your comment on our interview last year, "we have different approach of shooting in Malaysia" if this thought base on your practice thats good dude, we might shift the finding.  
August 4, 2011 at 8:47pm · Like

 **Erman Maharam** I must agree with Krizleneski Googi, theoretically lights are reflected, dispersed, absorbed & diffused. By what? Anything on its way to reach something and the journey modify the temperature. Our humidity is unique to our climate, thereore somehow it give different quality of lights compared to the other part of the globe. A little 'mired shift value' are actually huge to our vision. This is a good reason for us to fully utilize emulsion test session or fully utilize the use of Color Temperature Meter in order to get exact measurement and using the right CC filters. Riezal Sophinna, how about this theory?  
August 4, 2011 at 10:20pm · Like ·  2

 **Riezal Sophinna** The term black body was introduced by Gustav Kirchhoff in 1860, The colour (chromaticity) of blackbody radiation depends on the temperature of the black body, this is the basis of Kelvin degree measurement. Daylight or tungsten light in environment varies by thousands of degrees Kelvin in hours or the day and night cycle.  
August 6, 2011 at 12:42pm · Like

 **Riezal Sophinna** Malaysia is directly on the equatorial line. So we are in the closest and most direct line with the sun. That is why lighting colour temperature is reflected, dispersed, absorbed and diffused more than other part of the world.  
August 6, 2011 at 12:45pm · Like

 **Riezal Sophinna** Those direct reflections may affect varies by thousands of degrees Kelvin, a little 'mired shift value' might happened. Film emulsion characteristic makes our task more difficult. The optimum latitude in film characteristic might not achieve, so that is why most of our final prints are less saturate accept if they colour correct or colour graded.  
August 6, 2011 at 12:55pm · Like

 **Erman Maharam** Bro, how about Lord William Thompson Kelvin? Its his last name.. check it out..  
August 6, 2011 at 1:18pm via email · Like

 **Erman Maharam** Bro, how about Lord William Thompson Kelvin? Its his last name.. check it out..  
August 6, 2011 at 1:18pm via email · Like

Help

Malaysian Film Workflow Research

http://www.facebook.com/groups/142468065834330/

Google Facebook Apple Yahoo! Google Maps YouTube Wikipedia News (340) Popular

Malaysian Film Workflow Research

facebook Search for people, places and things Riezal Sophinna

**Krizlenski Googi** Hi guys,as both of u mr Erman and Riezal agree with this so since 2003 ive stop using 85 family or any colour correction filter to correct back any tungsten film that ive shot for daytime also there is some other secrets that i have discovered from my practice during my involvement since 2001 till 2010...ive told my student in ASWARA that a lot of things that we havent and must discover on filming with 35mm expecially playing with chemical in our LAB....and by the way guys im off for shoot...and bz'ing preparing things and hope we can discuss any type or method on filming both 35 and digital shoot...  
August 6, 2011 at 1:18pm · Like

**Riezal Sophinna** Krizlenski Googi basically this is my 1st proposal for my PhD, but I have been advised by supervisors that I needs a lots of colour science professor and Malaysian knowledgable filmmaker (like you guys) to support me. We have to make this 1st step as preliminary advanced research. Krizlenski Googi you should publish something out of your practice knowledge and I will help on theory :-). Erman Maharam you could thing this as your future PhD.  
August 6, 2011 at 7:07pm · Like

**Riezal Sophinna** Krizlenski Googi may I know how many little mired shift value differences if we did not use 85 family filters?  
August 10, 2011 at 2:16pm · Like

**Leonard Melepong** What's the perfect condition to use 85 filter (not the B one) with tungsten film? (Really bright summer light, dawn lite ...)?  
August 12, 2011 at 9:04am · Like

**Leonard Melepong** as i know that the 85 Series filter will produce natural colors when shooting with tungsten film outdoors.rite?  
August 12, 2011 at 9:06am · Like

**Krizlenski Googi** Leonard; yes but not anymore in our country,..cos ours is in range of 5600 k and above...  
September 20, 2011 at 8:55pm · Like

**Riezal Sophinna** Slm bro... wa dah kat bumi Malaysia... any job sekarang? yg wa bole shoot the making ?  
September 21, 2011 at 12:37am · Like

**Krizlenski Googi** alamak,..ive got one shot bro on 20th october 3D..sampai masanya gua roger...  
September 21, 2011 at 12:39am · Like

**Riezal Sophinna** I gonna be here until 27 November :-)... if possible I wanna meet you again for reflection data interview :-)  
September 21, 2011 at 12:41am · Like

**Krizlenski Googi** boleh je bro...tak ada hal for u my man...  
September 21, 2011 at 12:41am · Like

**Erman Maharam** Bro, should consider the narrative as well kot.. I suspect its influence the decision on the look...  
September 21, 2011 at 1:39am via mobile · Like

**Krizlenski Googi** u refer to what bro,...is it the 3d shoot?  
September 21, 2011 at 1:40am · Like

**Erman Maharam** Filterization - Color temp.  
September 21, 2011 at 3:26am via mobile · Like

**Krizlenski Googi** nope,...my shoot for all this while is the same...  
September 21, 2011 at 3:27am · Like

**Krizlenski Googi** ill change the looks with my lighting design,..and im so cmfort with doing it,...means my middle light should handle everything in terms of describe the genre,...  
September 21, 2011 at 3:30am · Like

**Erman Maharam** Emm.. Fair enough.  
September 21, 2011 at 3:40am via mobile · Like



**Riezal Sophinna**

Reflection among Malaysian Filmmakers about the myth of shooting colour temperature and Malaysian existing film workflow. — with Erman Maharam and 3 others.



Like · Comment · Unfollow Post · July 27, 2011 at 10:24pm

Muhammad Idham, Prankster Cool and Izwan Yunos like this.



**Zulkarnain Azhar** It's easier to talk than to practice, most of the industry people that i know will bypass certain process or doesn't really understand what their saying because they just know how to shoot and will give orders during post to get what their want regardless the constrain budget and the complexity of the process.

July 28, 2011 at 10:37am · Like · 2



**Krizleneski Googi** .....and also the Producers who bypass the CONTENT without knowing they had to pass tru all this great practisioner who knows how to execute....

July 31, 2011 at 9:48am · Like



**Riezal Sophinna** Are those problem have been discussed during pre-production?

August 1, 2011 at 9:24am · Like



**Zulkarnain Azhar** well, what has been discussed... usually will not execute during the production shoot. it is common that most our film makers give us false promises during the pre-pro.this is what lacking in our industry...honesty.

August 1, 2011 at 9:51am · Like



**Krizleneski Googi** is not 'lacking' i think....this is what we call process indeed...Some content did good on big screen expecially on collection as the making of that film 'sync' with what they or the filmmaker did and discuss during pre-prod.they spend more ofcos and they collect more during the show.

August 2, 2011 at 12:31pm · Like



**Zulkarnain Azhar** what i mean by lacking is honesty...meaning, if the film makers stay honest to their plan(what have been discussed during the pre pro) without add ins so many unnecessary additional meaningless demands and errors which will affect the post also the story, i think the workflow will be smooth sailing. i have encountered so many film makers who will shoot what ever they want regardless it will changes all the planning during the pre pro. budget will burst and it will also affect on the post, which need to repair(during editing) or amend(cgi,opticals,rotosco ping, etc) all the errors during the production shoot. Out of 40 films...only 3-4 films will do well on collection.is it worth it to do film nowadays? if you David Teo or Skop prod...maybe yes.

August 2, 2011 at 12:49pm · Like

Malaysian Film Workflow Research

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Malaysian Film Workflow Research

facebook Search for people, places and things Riezal Sophinna

 **Krizleneski Googi** 'And that was what i mean which the producers bypast the content'...U will never proceed any shoot if u dont grip things during Pre-Prod or before that say during u guys seal the Script from the scriptwriters or the directors.This happen to production that practice 'studio system method'....  
August 2, 2011 at 1:00pm · Like

 **Krizleneski Googi** ....ya i agree with this post prod headache costing,...but dont blame the filmmakers cos u guys hire da boss'the directors' its ur teammates....Now without hangky pangky hura hura post works Skop Prod gain nearly 13 mil...some things that we must learn from them ha...!!!  
August 2, 2011 at 1:08pm · Like

 **Zulkarnain Azhar** that's what i mentioned..if you david teo or skop...plis go ahead ..do more films...coz u guys make money..no matter hangky pangky or even destroy a film camera while shooting it...go ahead...you'll make money..but for those who want to shoot and got 50/50 chance to do break even...please do your pre pro properly and shoot as close as the pre planning...it will help...and for those who want to shoot what the hell that he/she wants, without looking into budget and time frame..please go ahead..if you have a producer can promise to the media that he will get 40 mil out of it. and by the way i don't blame the team...i pity the team( production team n post team) who has to the the extra work(waste time n energy) without getting extra pay...but maybe it is the Malaysian film workflow...rite?  
August 2, 2011 at 2:20pm · Like ·  1

 **Krizleneski Googi** Maybe and Maybe not...So this is the process...To be or Not To Be...by the way some policy is diffrent...for skop and MIG they doing business and to sustaine but to others (studio)ur breakeven or ur lost is just 'Giving Back To The Comunity' and if that happen u still get ur Revenue...isn't it...  
August 2, 2011 at 9:49pm · Unlike ·  1

 **Zulkarnain Azhar** I love the idea of giving back to the community...but wut if the comunity reject ur movie?only 10 people go n see ur movie(syok sendiri ka?)...n that's revenue u looking for?by making movie only u urself n some people would understand(to me that is a selfish filmmaker) ?no offense,but as a filmmaker myself..my revenue is my audiences.for me film is escapism n pure entertainment.the more people watch it , the better revenue I get.I am still giving sumthin to the comunity..which is a film dat they would love to watch.  
August 2, 2011 at 10:35pm via mobile · Unlike ·  1

 **Krizleneski Googi** ....there u are...ur answering machine do the job...tell this to studio ppl...and dont just do some crap movie that u think is good and giving back to the comunity but it did not...at lease MIG and SKOP done their workflow acordingly to the environment and its proven and not just 10 ppl or less who watch the movie instead...  
August 2, 2011 at 10:52pm · Like

 **Riezal Sophinna** Great comments both of you... for me both commercial and artistic producers have different contributions, what we so called communities would be "Malaysian Film Community" and "Malaysian Viewer Community". So what we needs is Knowledge Transfer among them. What about "policy holder community" I mean government...?  
August 2, 2011 at 11:15pm · Like

**Zulkarnain Azhar** i think i already gave my opinion about the government in the previous post but personally i think they(government,Finas & NGOs) got the wrong idea on how to help Malaysian film industry. What we need now is a good governance in which will help to motivates people to produce more film. I don't want to mention names or anything..e.g..some production doesn't even know how important insurance is during production? the basic salary rates(minimum rate) for our crew and the control the price/rates post lab for local producers.These are the basic things that they should look into.So the people who works in the so called "industry" will feel more like professionals rather than a "kerja buruh(even pekerja buruh ada insurance nowadays)".Also we got problems with the silver screen it self...we got so many theater but we don't have anyone to look into the quality control of the projection(the light measurement) and the sound level..and even how the projectionist handled the film print(e.g.scratches on print after only one show) . these cinema people make millions but they take it for granted.they doesn't care about the look or the sound...they just want their ticket collections. we as the consumer(also a film maker) have the rights to watch a film in the best condition there is. So where are these people who should look after these things? So next time if they want to buy machine that cost millions(by using tax payer money...then will charge same rate as the other lab) bare in mind... please do your job!...not do business!..be a good governance.

August 3, 2011 at 1:30pm · Like

**Krizleneski Googi** Hrrrrmm...another issue since i was born into this industries...get a blue print from Korean...They were in a rite track...

August 3, 2011 at 2:23pm · Like

Write a comment...



**Azaini Manaf**

Post production processes or Funding structure or Intellectual property? which is significant

Like · Comment · Unfollow Post · July 27, 2011 at 2:16pm

**Riezal Sophinna** In my research, most of the workflows are miserable. Malaysian filmmakers shoot at Msia, Process at Thailand,Hong Kong etc, then Post-Production at various post house in Msia, then make the final print at other labs. So this really affects the production print out come.

July 27, 2011 at 2:30pm · Like · 52

**Eman Haiman** Betul2... skang aku nak cari facilities..35m film scanning, 2k res DPX, Grade & Restore dump to LTOS... i might be going back n forth just to do this... msia..bangkok..jakarta..msia..

July 27, 2011 at 3:47pm · Like

**Zulkarnain Azhar** i do agree with en riezal on this..n not many people realize that our dear FINAS bought bunch of machine but not really know how operates them..they have bought film scanner recently...i really confused what is point?...buy(using tax payer money) all this equipments but give same rate as the other lab...so better i go to Bangkok..sambil wat keje leh shopping kat Chatochak..)

July 27, 2011 at 4:35pm · Like

**Azaini Manaf** Well doc, the main drawback is the financial resources? which film process is the most cheap and efficient. Thailand film has big domestic film industry, same goes to Indonesia, as well as India, China and Korea, this market has driven local film industry to develop their own print process centre. You can say our condition is similar as english speaking countries as Singapore and Pinoy films where the audience still prefer to watch Hollywood films compared their own, which no point to build center with high end film scanners.

August 1, 2011 at 2:19pm · Like

**Azaini Manaf** The Koreans makes the entertainment is the biggest contribution in their GDP

August 1, 2011 at 2:19pm · Like



**Eman Haiman**

Bro, just want to ask sumthing... your 'malaysian film workflow research' covers from where to where pipeline??

Like · Comment · Unfollow Post · August 11, 2011 at 1:56pm

Sidi Talib likes this.



**Riezal Sophinna** from pre-pro to restoration

August 11, 2011 at 5:56pm · Like



**Riezal Sophinna** general la bro...

August 11, 2011 at 5:57pm · Like



**Erman Maharam** Luas pemandangan ni....i

August 11, 2011 at 6:02pm · Like



**Riezal Sophinna** Main objective is to review Malaysian Film Workflow, Cari permasalahan, solve the problem, why knowlegde transfer x sampai, policy problem, foreign expertise involvement, film community communication etc...

August 11, 2011 at 6:08pm · Like · 1



**Azaini Manaf** bagus to bro..car masalah delivery system, mungkin policy baru ker

August 11, 2011 at 10:04pm · Like



Write a comment...



**Riezal Sophinna** added Khairul Annas Musa to the group.



Like · Comment · Unfollow Post · August 11, 2011 at 5:56pm



**Prankster Cool** added Datuk Carl to the group.



Like · Comment · Follow Post · August 11, 2011 at 12:57am



**ChongLee Yow**

Dear all,

Salam Ramadhan,  
Please "like" FreedomFilmFest (KOMAS) FB page.  
Rugi ohh, tak "like", hehehe....



**FreedomFilmFest**

Welcome to the Freedom Film Fest! When you 'like' us, we'll share the latest FFF news, screening updates, and ways in which you can make a difference.

Page: 1,738 like this

Like · Comment · Unfollow Post · August 10, 2011 at 5:21pm

**Appendix 3:** Transcribe DVD 1 – Malaysian Filmmakers video interviews highlight.

<b>Time Code</b>	<b>Transcribes</b>
00:00:00- 00:06:00	Myth of most Malaysian filmmakers who believe that shooting in temperate countries is much better because of the better colour temperature in their environment...
00:06:01- 00:40:13	<b>Isazaly-Film Editor</b> They thought the video are shoot in film because they never seen DV quality that shot somewhere else beside Malaysia, Singapore or any Asian region. We were surprise and it might be the climate. My partner went to US and did the same thing and he also discovered that is a different colour temperature. So we come to the conclusion where probably the climate of the location where we shot affect our footages.
00:40:14- 01:01:03	<b>Muhammad Khalid – Film Director</b> Yea is a myth I think. The footage that we shoot just like in Canada. He did mention about the Kelvin degree but I did not know about this technical aspect.
01:01:04- 01:01:48	<b>Khabir Bhatia- Film Director</b> I spend time in California, its start the magical hours from 4 pm and it last until 7 pm that was 3 hours of fantastic light. And over here if you are lucky you will get maybe half and hour or one hour. You study in England you can see film, which made there, they usually look grey, is very over cast.
01:01:48- 01:02:09	<b>Abadi- Film Colourist</b> I ever make film that has flashback footage shot in London. The tone was cold and I can't even change the colour.
01:02:10- 01:02:19	<b>Raja Mukriz-Cinematographer</b> Either in USA, Japan or Thailand, they have been uses same film, camera or lenses but why the images different?
01:02:20- 01:02:59	<b>Erman Maharam</b> Other people who shoot in Malaysia, what they did in Anna and the King and few other movies. The colour temperature and the images are Hollywood movie not like Malaysian movie. For Malaysian they believe the myth is because of our climate. In Malaysia people always blamed the tools or the budget, but they don't really point to themselves.
01:02:59- 01:03:18	<b>Imri Nasution-Director/Videographer</b> Some how the colour in Malaysia has more reddish and earth tone and the one that shot in the States has very clean... I think the myth is probably true.

What Malaysian filmmakers think about Malaysian film workflow?

- 01:03:25-  
01:04:35 **Isazaly-Film Editor**  
I wish Malaysian film will look like Hollywood film look like, but again we do not practice the workflow that supposed to be practice. In the long run we are lacking of knowledge transfer, that's mean the transfer of knowledge that was given from another practitioner. Its not comes from the technical person or from the research development team. There is no research development team in Malaysia for film. We also do not have a proper workflow that we can share. We have the technology but we do not have the people behind this technology. A lot of them who are in the industry have not gone through the real workflow they just experinces base on friends.
- 01:04:36-  
01:04:58 **Muhammad Khalid- Film Director**  
Malaysian not even have our own film form, I don't think we needs to emphasize on colour film workflow. For me it is more about the content rather then the appearance.
- 01:04:59-  
01:05:22 **Khabir Bhatiar- Film Director**  
Actually it really an effort from filmmakers, the production designers and DOP to achieve the look of the film. Yeah it's absolutely involved the film workflow but it is too technical for me. The right person who can answer it is a DOP.
- 01:05:23-  
01:05:46 **Abadi- Film Colourist**  
Foreign labs will do all scanning and grading process, we only make copies, and so we can't do anything. They go to foreign country for work and at the same time they having vacation. If they do it locally, they will down grade everything.
- 01:05:47-  
01:06:12 **Erman Maharam- Cinematographer**  
Even to decide colour filters Producer or Executive Producer will raise a lot of questions. I haven't see in Malaysia somebody presenting a colour palette, it is very rare.
- 01:06:13-  
01:06:40 **Raja Mukriz – Cinematographer**  
They went to Bangkok because they do not have enough knowledge. Few Malaysian directors went to Bangkok, and other were just follower. We do have good equipment but we do not have expertise. Maybe they do not have proper training especially in post-production. You want an A grade product you must have A grade people.

**Appendix 4:** Transcribe: DVD 1 – 2<sup>nd</sup> Phase video interview about Malaysian colour film workflow

<b>Time Code</b>	<b>Ahmad Idham – Film Director</b>
01:02:49- 01:03:11	After our frustration to local lab then we go to Thailand. At that time, we do send our film to Thailand because of Dolby Digital, when Thai labs do give us a good package, we use to it
01:01:22 01:01:43	I can say that the success of the film industry today, mostly is because of the independent producer hard work.
01:01:34 01:01:44	FINAS only just riding on top of the success of independent producer.
01:00:59 01:01:14	FINAS has been growth in previous years, but how does it affect the growth in the Malaysian film Industry
01:02:01 01:02:31	For me I try my best to use local expertise in my film, but if we couldn't find any local expertise in a certain area, I will use foreign one. That happened in this film, because I want to go to the international market
	<b>Dato L Krishnan – Laboratory Owner &amp; Film Pioneer</b>
01:03:55 01:04:20	He added that the Malaysian filmmakers used to send their colour film to Hong Kong, then Australia and now Thailand. He as a lab owner also agreed that film technology in Thailand is better than in Malaysia
01:04:25 01:04:50	Malaysian filmmakers used to send their film (colour film) to Hong Kong, then Australia and now Thailand. He as a lab owner also agrees that quality of work in Thailand is better than what us offered.
01:05:18 01:06:10	Government should not give cash... just to go and do it, but bring in technician and facilities
	<b>Gaya Tri – Film Producer</b>
01:14:35 01:14:44	If I had huge budget, 20-30millions, going outside only for international release, and we knew we couldn't keep up to the standard. Then I have to go outside.
01:05:55	The other issue was optical, optical here in Malaysia is not the same as Hollywood because we don't have same machine and its not cost effective, its very expensive. We do have inter neg inter post system no matter what generation it will drop. So if you watch the film and you are a filmmaker you tend to know before the optical comes you see it slightly soft, the colour will change, back to the same visual the same thing will happen. It was frustrating so we worked that part with Gaya Lab. Then we came to the idea that we could go overseas, because of cost actually. Cost wise in Thailand because of the share volume that they get, they can give competitive prices. The only thing is we can't be there all the time. You should limit your cost going over and see what they are doing.

01:08:17	<p>So the services now in Malaysia, we do have most that are enough for local film, we do have colourists, we do have the resolve, we have the spec, and we have those entire machines here. We have the labs, we have the kine-transfer at Gaya Lab, and we have the kine-transfer at FINAS. So the facilities are here, it is whether you think, according to your own perception, that they are good enough for what you want. The second resolution is the cost, Thailand for example, Technicolor, Time Lab, Cantana, they all do packages, so you can do colour correction right up to the end. The advantage of that is obviously their colour machine is hooked up to their kine machine for their output. Here it is not, here you do grading somewhere else: taking it in, making sure that the log file, linear file, matches up, getting to the kine. Then you have other issues.... the colourist will say this is not what I coloured, this is what you gave me, I just printed it for you, these are annoying issues. So if you want to avoid the issues, you go to the place that has everything. So for Technicolor from start to finish, colouring to the output they can do everything. Is not to say that the facilities are not here, it is whether they are compatible or whether they are easy.</p>
01:08:09	
01:09:23	<p>In film grading our directors of photography are completely involved. In Gaya laboratory there is a small room for film grading, where as in Thailand the directors of photography have to go (leave the room). It is just the processes of the lab that are different. At Gaya lab the colourist Abadi he will grade first and we will go through it. In Thailand the director of photography will give the look that he wants and they will correct. We can't even go to the room. They colour by themselves and they do a print, we watch the print and DP will comment scene by scene with the colourist. Then they go to a different colour machine to do the point first and up, four point below and four points up I don't know how to explain that. After the first rating there is a limited second print, they will print you another print and you will check what you want.</p>
01:09:24	
01:10:37	<p>What is lacking in Malaysia is film colour in the first place. If you look at Hollywood or Europe, there is a distinctive feel about their films. If we look at the US, there is blue and black mainly as their colour scheme, for Malaysia we don't have any idea. Like India, they love Kodak... the more primary colour the better it is. For a Malaysian colour scheme we switch all the time... when we talk about colour scheme, actually we don't have one, how can we say that we are wrong? If one day we decide to choose to have one, okay let's say green, because we have so much forest. If we follow that trend, one day we will have a look</p>
01:10:38	
01:11:35	<p>There is no real training ground here, masscomm is not the same as film, now we are talking about people who study by themselves, they set up their crew and one day they become a DP, so they learn by their hard work. Have they bought or read the</p>

	cinematographer's guide? So some people take shots that look nice and some look like crap. I don't think we can be blamed because our seasonal colour temperature looks bad, you know
	<b>Mamat Khalid – Film Director</b>
01:11:36 01:12:30	We do not even have our own form of film, how we want to develop our colour film technology
	<b>Deddy M Borhan – Film Producer/Pioneer</b>
01:12:30 01:13:01	We sent our film to Japan, Japan also Cater other such as Taiwan and Hong Kong.
01:13:02 01:13:16	Previously we used Japan and Hong Kong for colour processing and lab work, but now Thailand came out very good. It is much nearer to us and the Thai government is really supportive toward this industry
	<b>Abadi – Film Colourist</b>
01:13:17 01:13:51	They choose foreign laboratories maybe because of the cost, whether it is cheaper or more expensive. Some filmmakers go to a foreign country because of both benefits of doing their work and at the same time having a vacation. Some producers uses foreign lab because they want to use better technology and raise the status of their film. They will feel proud if they do it in Hong Kong, Korea or others. There are a lot of factors why they choose foreign laboratories, some how it becomes a marketing strategy
01:13:51 01:14:14	All scanning and grading process will be done by foreign lab, we only make copies, so we can't do anything. So how can we have our colour film identity? The filmmakers just obey the colour and we just makes copies out of it.
	<b>Mohamad Adnan-Film Colourist</b>
01:14:15 01:14:34	Some filmmakers are not satisfied with the result. Actually they get want they want, but they are still not satisfied with what they have and tend to have a lot of comments. In foreign laboratories, everything's well set-up and that's made their job easy.

**Appendix 5:** Transcribe DVD 1- Interview with Raja Mukriz about filmstrip test and Malaysian colour film workflow

<b>Time Code</b>	<b>Raja Mukriz - Cinematographer</b>
00:00:00 01:01:09	Camera test in Malaysia is not comprehensive and incomplete. It should involve skin tone, set, look. Only a handful of film that does the camera test a bit more detailed like <i>Embun</i> besides more than 80% did not go through camera test.
01:01:10 01:02:43	Camera test the best so far is in advertising production but in films we do not have the opportunity to do the camera test. From the mind of the producer and director, the image that they want is beautiful and clean only but in reality there is no such image, American or European also do not do that.
01:02:44 01:03:54	In comparison of filmstrip test that I did with you, I think there is not much difference. And if the two data are to be given to two different colour grader it will only being manipulated following how to colour the image. If the image from Thai lab is better may be because of intermediate digital process, which we have not done in Malaysia.
01:03:55 01:04:22	The selection of Kodak for <i>8 hours</i> film, honestly I will say this is not my choice. This is producer's requirement, producers have business package with Kodak.
01:04:22 01:04:55	Moviem camera selection somehow is because in this <i>8 hours</i> film we have many handheld shots. Moviem is a pattern of Panavision and it is very good for handheld shot.
01:04:55 01:05:33	I will give more effort for director who really wants to accomplish the best quality. For this film I will be working with Metrowealth I will not go to Thailand, they will control colour and visual, I might communicate with telephone and they will send visual.
01:05:34 01:06:48	In terms of facilities we are nearly to a good level, but we need more expertise. Education somehow we don't have a clear direction such as Poland or Indonesia. For example, we need to have a clear direction leading to either a technical or art? In terms of exposure to foreign production, we have a pretty good exposure.

**Appendix 6:** Transcribe DVD 1 - 3<sup>rd</sup> Phase interview with the Malaysian filmmakers about Malaysian colour film workflow.

<b>Time Code</b>	<b>Mariani- Veteran Actress</b>
00:00:00 01:00:52	Yes I even acted in colour film, and at that time they used Giva colour, that film was entitled <i>Ribut</i> , but it was not for the whole movie, it was just in one scene of dancing. Another film entitled <i>Raja Sehari</i> , also had one scene in colour where I danced with D Haris
01:00:53 01:01:10	When P. Ramlee move to Studio Merdeka he has been promise to get what ever he wanted. He wants to shoot in colour and cinema scope. But he didn't get until he died.
01:01:11 01:01:38	He had an offer from Shaw Brothers to work at Warner Brothers Hong Kong, but he refused that offer because he wanted to develop Malay future film in Malaysia. Ho Ah Loke under Studio Merdeka promised him a lot of things, including shooting colour film. P. Ramlee died in frustration
01:01:39 01:03:06	When P.Ramlee met former Malaysian prime minister Tun Razak at that time, he felt upset and cried on my shoulder and said " <i>Prime Minister said I already old and asked me to stop filming</i> " at that time he was 44years old. Nobody supported him at that time and Shaw Brothers closed down in Singapore in 1967. All great actors, directors and cameramen were jobless, some of them worked as taxi drivers, selling satay, tourist guides and other jobs just for living.
01:03:07 01:03:38	When I was working with Show Brothers at Jalan Ampas Studio, we worked 9 to 5, yesterday I was shooting from 8am-8am non-stop because they just wanted to finish shooting. Come on, filmmakers nowadays did not appreciates veteran actress, I am 78years old. We have been involved in so many films, the copyright of Shaw Brothers' film is now under Astro Shaw's, and they have never given us royalties, that's why veteran filmmakers are suffering.
	<b>Zulkarnain Azhar – Post –Production Executive</b>
01:03:39 01:04:11	Realistically in the Malaysian film industry, we don't have any standardization on salary and professional payment. Some productions will pay lower and some productions will pay higher, there is no standardization. How can we call it a "film industry"? Even some of them don't have insurance. I don't think there is an industry
	<b>Samad-Film Editor/Colourist</b>
01:04:12 01:04:33	Big studios, like Metrowealth will go to Thailand, Tayangan Unggul actually moving toward India. India giving such a cutthroat price and throw everything. All because of finances, you will save a lot.
01:04:34	In terms of the development of film, yes its negative impact. First

01:05:11	of all we have very little development on understanding lab processing. We are more concentrating on pre-production and production so much, for the post they just send to Siam lab or Technicolor let them do the work. We don't gain anything from there, that's a huge lost; there are a lot of very good cinematographer who can contributes also to the lab processing side
01:05:12 01:05:30	Unfortunately I don't understand also why me made a huge business commitment by asking for loan to buy our colour grading machine which is the machine behind there alone is about half a million. But FINAS again using taxpayer money bought a grading system on their own and for some reason we have to compete with them.
01:05:31 01:05:54	FINAS should not do production or post-production, instead they should do what is lacking in the film industry, which is script development, doing training and also giving up loans or grants. FINAS only have government workers they are not industry professional, and I just found out that who ever made decision to buy film equipments have been giving wrong advised.
	<b>Isazaly – Film Director/Producer</b>
01:05:54 01:06:34	Most people that change the film industry right now, I am not surprise it came from people outside of Malaysia. We have foreign DOP coming on board, we have foreign Art Director coming on board, and I am not surprise when we look at the quality, but why we can't learn from them? But we despise them, we don't give the prudential to come in award ceremony and they have not been credited. For them Malaysia does not recognize their talent to help the industry.
	<b>Imri Nasution – Director/Videographer</b>
01:06:35 01:07:35	As I mention earlier, what is colour nuance that we looking for? You look at Japanese movie, instantly without dialog, you look at scenery you know this is Japanese movie. Other Asian country like Taiwan has that greenish tint, that kind of frame, that kind of look. You do nit need to put people in frame, only Bunga (flower) with falling leave, you know its Taiwan, you already can tell. Thailand infect is already heading that way, but Malaysia do we have that kind of look? I know for one, when I see a work from Filem Negara (FNM), you know even though it's done in year 2000 its look like in 1970s. So we need to come out with our own colour nuance.
01:07:36 01:08:31	I am not sure whether it is important but definitely it will put some value to our identity. We always said about “filem kita wajah kita”. Even just like what you said, can we explored just specifically colour? It could be possibly very important; yeah it's a stepping-stone.
	<b>Khabir Bhatia-Film Director</b>
01:08:32 01:09:12	We don't know how other Cineplex look after their projection. Sometimes the bulb is really dark. I have a problem when I did

	<i>NorKasih</i> , I was testing at CineLeisure and I don't know how many times that I test it. If my movie going to be like this, you know I shoot in ReDcam its supposed better then 35mm and its look. When you transfer it pretty good but what I am getting is dull visual.
	<b>Mohd Nor-Cinematographer</b>
01:09:12 01:09:27	Instead of the film production policy, FINAS should check the Cineplex. We wont know weather they check their projection lenses or light? We shoot and try our best in producing film but on previewing side they had never re-enforce policy.
01:09:28 01:09:48	Temperate country colour temperature are quite sustain but in tropical its very contrast and drastically changes. That's the challenge for DP but why if their DP shoots here their quality still the best? It's back to the correct workflow.
01:09:48 01:10:33	We never had and expertise about colour comes to Malaysia for this kind of knowledge transfer. They ever bring DP but they just talk about their work not the measurement or colour management.
	<b>Isma Daniel-Film Director</b>
01:10:10 01:10:34	Yes I am agreeing on this kind of research, it can be standardize our own technique of filmmaking. And if we want to expend further our creativity that event better for filmmakers and film students.
	<b>Yusri A Halim-Film Director</b>
01:10:49 01:11:15	I believed by improving the film budget we would improve our film workflow. 95% of our film doesn't have any storyboard; this should be taking in place in film workflow. The production design should be prepared before shooting, but here in Malaysia, if they have script they are ready for shooting. Storyboard is very important but we don't have budget for that.
	<b>Gaya Tri-Film Producer</b>
01:11:16 01:12:14	Is a same in our cinemas, if we count the brightness from the bulb to screen we are the lowest standard regionally.
01:12:14 01:13:16	We are actually the least tax sensitive I guest. We do not have shooting tax breaks in Malaysia. Singapore has, Korea has, Thailand has for those who spend money in the country but we don't. Then we have to pay entertainment tax. It is a frustrating industry to be in. People only know how to complain our local film but shooting in Malaysia is very difficult for a Malaysian producer. We can't even shoot in KLCC.
	<b>Raja Mukriz: Cinematographer</b>
01:13:17 01:13:50	Definitely their services, foreigner filmmakers and laboratories have systematic services and they appreciate clients. Our is not that good and in terms of price, laboratories expertise at foreign country are also cheaper.
01:13:50	Postproduction side should have a basic procedure to achieve our

01:14:09	own film look. It is hard to achieve because we always refer to foreign film. Basically we never determine our own reference for what kind of image identity that we want. This few years back we refer to Thailand, Japan or Korean we cannot avoid that because we don't have our own colour palette. If we have that is the better.
	<b>Josephine- Gaya Lab Manager</b>
01:14:09 01:14:30	Different lab has different colour calibration, this definitely because of colour calibration
	<b>Dato L.Krishnan -Gaya Lab Owner</b>
01:14:31 01:14:52	They did all in Singapore, the studio had black and white laboratory. Because Shaws were all Hong Kong based, they know the film industry quite well.

**Appendix 7: Transcribe DVD 1 - Interview with government agencies  
about Malaysian colour film workflow**

<b>Time Code</b>	<b>Maimunah Hamzah – Director Development Department FINAS</b>
00:00:00 01:00:27	Before this we do control the usage of foreign technology, but we couldn't do that because the Malaysian filmmakers don't like that action. So we will let them do it in foreign country if we do not have it here in Malaysia. Similar to the license procedure, previously we only charge them RM2 but they still saying that we try to make money. Now they need to have RM50,000 for their capital. We will do the best for the benefit of the film industry. Now we have a lot of grant just to accumulate the film industry. All these grant and film infrastructure is for the Malaysian film industry.
01:00:28 01:01:14	For your information, everything that we did in FINAS is to help people in the industry. It was our policy to decide and fix the price slightly higher than the local post house out there in the industry. The objective is to protect the local industry. If we charge lower rates than the local post house, everybody will come to Finas Post and local post houses will lose their customers. We charge industry higher rate because we want to be their last choice. We do not want to compete with the industry. Every profit that we get from the industry we will give back to the film industry.
01:01:15 01:01:51	We always support any research from scholar. In terms of your research, FINAS tries to support your research and I think this research will improve our industry development
01:02:52 01:02:39	We will help and support the film industry in every aspect. If the policy maker and the Malaysian filmmaker have good cooperation, we will achieve fast development in this industry, but among filmmakers association they were not agree to each others, I hope the new generation of the Malaysian filmmakers will cooperate better because the existing of FINAS is to help towards the development of the Malaysian film industry
01:02:40 01:03:01	For your information, everything that we did in FINAS is to help people in the industry. If the Malaysian filmmakers do not agree with us please come and discuss about it.
	<b>Muzamin- Engineer of FINAS</b>
01:03:01 01:03:43	We try to provide every solution in film area in the basis of every aspect. It doesn't mean everything in one roof. We never think on profit not like private company, our responsibility is to facilitate the industry. What they couldn't afford we will have the service here.
01:03:44 01:04:59	For now, when everybody going to foreign laboratories, is a lost to the government. Some services we are lack from them, and we try to find the best solution for this problem. But again we need

<p>01:04:00 01:04:16</p> <p>01:04:16 01:04:37</p>	<p>technical expert to come in and it is very costly for us. We try to get technical expert with less cost.</p> <p>Maybe to that extent, because there is still no regulation on that. We have our own dilemma where by we don't want our local producer to go outside but we also don't want to compete with local laboratories.</p> <p>In term of you research, we really need something like this to be proposed to FINAS and we can share this information. In directly I think this research is good and we are glad there is local person doing this kind of research. We needs Malaysian who specialist in this kind of issues</p>
<p><b>Ahmad Shazli- Director of Promotion Department FINAS</b></p>	
<p>01:04:38 01:04:59</p> <p>01:04:59 01:05:59</p> <p>01:05:60 01:06:32</p>	<p>Yes, we did a lot of short courses and went to a lot of international film festivals to promote local film as well as internationalize it in the international market. In terms of educational aspect, currently we have introduced film clubs in a few schools. It is to introduce our local film at an earlier stage</p> <p>The dimension was merely on creating awareness of public to appreciate our film industry. So there are few strategies, among them is to create "film lovers club" acknowledge by minister of education. Up until now we have 95 schools.</p> <p>I believed and support your premise, its so crucial and so essential having film syllabus to be thought in the early ages in primary schools. That's why we have this "film lover club" at least they been credited by joining this club. And I strongly believed in the premise that yes government have to do something to initiate this. Why not to have one syllabus or one compulsory subject. This appreciations, how would the kids inherit them its apply the same to the policymakers. I believes most of the politician or policy makers they don't watch local films</p> <p>If you suggest on this, I would love to see the impact on it. I mean what is the standard of our local producers compare to Thailand or Indonesia, because I cannot see the different. Infect local movies have diverse quality, I don't know which one is good or not. Yes I love to see the research impact on it. If you can suggest on, Malaysian needs to have this type of colour palette. The question is how important colour palette to creates cultural identity, yes we have less cultural identity, and people cannot see and distinguish if we send our film aboard. And we needs to have our own distinguish film identity.</p>
<p><b>Zainudin – Director of Licence Department of FINAS</b></p>	
<p>01:06:33 01:07:09</p>	<p>Previously this authority only under Ministry of Broadcasting but Now its also under Malaysian Communications and Multimedia Commission (MCMC). So its true that there are a lot have imported TV commercial has been view in local TV station. MCMC should take action into this.</p>

	<b>Raja Rozaimi – Head Director FNM (Film National Malaysia)</b>
01:07:10	We are implementing government agency, we are no service provider. We will provide service if our equipments are available.
01:07:40	FINAS setup would be different from FNM, FINAS is more administrator to the industry we are technical personal
	<b>FNM Engineering Director</b>
01:07:40 01:07:58	We try our best to cater film industry, most filmmaker think that we are not capable to do it. Nope we just does not have enough money, we will upgrade our facilities to 2K resolution
	<b>Mr Tan Kah Poh -FNM Laboratory Director</b>
01:07:59 01:08:36	I don't know what to say; most independent filmmakers like David Teoh they prefer to send to Thailand, they said our quality is not up to their expectation. They have money and that's their choice to go to Thailand, but if they said our quality is not good that was very subjective statement.
01:08:37 01:09:60	Yes, we should do that; we should have our own colour palette. As far as our own experience, when its come to skin tone we face few problem because our skin tone is different from others. I definitely agree with the invention of our own colour palette.