

# LEARNING BY NATURE: THE IMPLEMENTATION AND EVALUATION OF CULTURALLY RESPONSIVE PICTORIAL MODULE OF NATURE TIE-DYE *BATIK* CRAFT

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## ABSTRACT

*The aim of this study is to determine the usefulness of Culturally Responsive Pictorial Module of Nature Tie-Dye Batik Craft for teaching and learning the topic 'Batik Pelangi' in Visual Art Education (VAE). The pictorial module was developed using the ADDIE Model that was supported by Zone of Proximal Development (ZPD) – Scaffolding by Lev Vygotsky (1978). This study uses the Design Development Research (DDR) approach. The Pictorial Module was evaluated by two expert panels which is one experienced VAE school teacher and one Visual Art senior lecturer at a local university. A purposive sampling consisting of 29 VAE students and one VAE teacher were used in this research to measure their acceptance using the module. Both the responding groups of students and VAE teacher provided positive feedbacks toward learning and teaching using the module. Based on the findings, the Pictorial Module is relevant and appropriate to be implemented at secondary school level for art education in Malaysia.*

**Keyword:** *natural dye, tie-dye 'batik', visual art education, culturally responsive education*



## INTRODUCTION

Numerous opinions and writings have put the importance of consolidating elements from the National Philosophy of Education into the educational curriculum in Malaysia to attain a holistic approach in developing generations who are not only academically excellent but also those who will be responsible citizens. It has been highlighted by Siti Zuraida and Saedah Siraj (2013) that the study of multicultural education in Malaysia has received much attention the past few years not only from educators but also from other stakeholders. Visual Art Education (VAE) is seen as a subject with multiple contents and skills which could develop and instil multicultural awareness among students and other stakeholders who have their interests in education. Additionally, to attain further understanding and inclusivity in learning, Dorn (2005) have put forth that a successful VAE classroom should engage students with activities which have significant influence for them to accept and be able to recognise. More significantly, Siti Zuraida Maaruf *et al.* (2017) have connoted that with all the current social mobility and diverse cultural conditions, it only make sense to fabricate the VAE curriculum content that would satisfy the needs of not only multicultural classrooms but to impart multicultural arts even in mono-cultural classrooms. Multicultural education is becoming an essential part in many societies now because it has been proven to provide life-enhancing impacts on students and other stakeholders with other outward benefits such as creating more multicultural awareness into the society (Stuhr, 1994).

The tie-dye art is an art practiced by various cultures worldwide including in multicultural Malaysia that is also popular with tie-dye for *batik*. However, it has been observed that the general public is more exposed to using synthetic dyes compared to the natural type when making this art. The VAE curriculum has for many years include tie-dye to produce *batik* which is a famous local heritage. Famous for being a cultural heritage both in Malaysia and Indonesia, batik has been long promoted in these two nations not only commercially but starting at its foundation – the education system through visual arts subjects. Despite tie-dye being widely used, current trend has made the shift for use of natural dye in *batik* production, promoting more environmentally friendly approach in producing art.

## Background of Study

Malaysia is made up of various ethnics which include diversity in their cultures. These cultures are either passed down through formal or informal teachings to ensure that they would not diminish in time. Therefore, conscious efforts have been made by various quarters in Malaysia to ensure that the uniqueness of cultural diversity in all of its forms will not fade with time. The Ministry of Education for instance has continuously given efforts to improve and maintain prominent elements of culture in the school curriculum aiming to instil cultural awareness at the school level. Culturally responsive teaching and learning would have a lot of benefits not only to teachers but also to students. However, a great deal of consideration needs to be thoroughly looked into so that teachers would have the appropriate skills and tools to teach for culturally responsive classrooms (Gay, 2002). This is especially necessary when teachers do not have certain cultural knowledge when teaching the content of other cultures. Therefore, Kozleski (2000) reminded that it is valuable to develop teaching modules which would assist teachers to not only develop their skills but to also have confidence when teaching for culturally responsive classrooms. Visual Arts Education (VAE) in the Malaysia school curriculum has been used as one of the various platforms to teach diverse cultural elements. It has been put forth by Badrul (2006) that art may be a used to proliferate knowledge of diverse cultural contents. Art has witnessed extensive presentations concerning matters on biasness, prejudice, racism, and discrimination in the society and within the school community.

The tie-dye art method has been used in various art products. It was mentioned by Krani and Goodarzian (2010) that the use of natural dyes in the textile industry gradually decreased when the synthetic dyes was developed. However, more efforts have currently been made to use natural dyes in this form of art due to a lot of issues which include health and the environment concerns. Such concern was highlighted by Siva (2007) who pointed out that synthetic dyes would release harmful chemical that could cause various health complications. Therefore, many now turn to the use of natural dyes which are more eco-friendly, biodegradable, and non-toxic to the health. It has been emphasized by Aminoddin and Haji (2010) that natural dyes are clinically safer than synthetic dyes which are non-biodegradable and hazardous to both the environment and health. The *batik* art is a prominent

cultural element in Malaysia which over the years has been taught in the Malaysia school curriculum and is an industry which is very much close to Malaysia economy. Subsequently, producers in Malaysia *batik* industry have also turn to natural dyes.

With various economic factors which affect the educational budget nationwide, teachers in Malaysia need to be more wary and prudent in selecting their teaching and learning aids. Costing of materials used for art projects in schools is also affected in the school budget which drives teachers to look for alternative solutions. Using natural dyes for tie-dye *batik* projects is one way be economical and importantly friendly to health and the environment which subsequently teach students a lot of other knowledge and concerns that would have impact on them and the society. Natural dyes may come from many different foods and plants. It was mentioned by Ashis, Samanta and Adwaita (2011) that natural dyes are aplenty, while more interests in the production of natural dyes would have positive impacts towards the socio-economy too. Therefore, teaching and learning arts for culturally diverse content may be extended to teaching and highlighting matters of other social concerns.

## **Problem Statement**

A concerning matter that needs to be appropriately addressed as mentioned by Siti Zuraida, Khadijah, Saedah and Voviana (2013) that the Malaysia VAE curriculum could be reviewed so the elements of cultural content belonging to other various cultures are not deprived and be included and taught in schools. Methods and skills of producing certain cultural art piece could also be appropriately practiced to allow students experience not only their own cultural element but also that of others. *Batik* for instance is not only famously known as the pride of Terengganu but it is also a gem from Kelantan, which has the influences from Thailand and Indonesia; two countries which practices Buddhism and Hinduism, similar to Malaysia that is made up of various people with different ethnic and culture with similar beliefs. Therefore, further review could consider developing a body of content throughout the school curriculum to discuss any necessary progression for cultural elements. However, it has been warned by Najeemah (2005) that the practice of multicultural education among teachers in Malaysia is not to desired level, thus requiring more careful look at teacher

training programmes. Therefore, this study will attempt to address only the teaching and learning of tie-dye *batik* with its present implementation within the VAE classroom.

Meanwhile, it was pointed out by Rungruangkitkran and Mongkholrattannasit (2012) that a number of commercial dyers and small textile export houses have looked at the possibilities of using natural dyes for regular basis dyeing and printing of textiles to overcome environmental pollution caused by synthetic dyes. It needs to be warned though that although synthetic dyes are widely available and sold at an economical price with wide variety of colours, these dyes can be toxic to the environment and health. Concerningly, July and Fatmahwaty (2014) highlighted that the European Union (EU) has declared that the Indonesian *batik* industry is damaging to the environment and health for use of synthetic dyes. A prior study by Ashis, Samanta and Adwaita (2011) revealed that there have been reports of skin allergies and other toxicities experienced by users of synthetic dyes. Therefore, an alternative using natural dyes is timely and would add further support to all the other prior and existing studies. Also, this study would supplement on details and steps in producing and using natural dyes in the Malaysia VAE classrooms.

Students and teachers who participated in this study will be required to produce their own natural dyes from organic items and ingredients for a tie-dye *batik* project in the VAE classroom. It is hoped that by learning and making their own natural dyes for their tie-dye *batik* product would enable them to not only have the knowledge of producing dyes from natural ingredients but would provide more health and environmental awareness between using synthetic and natural dyes.

## **Research Objective**

The present study seeks to provide more insights on the following matters:

- i. To investigate teacher's perceptions towards the use of the Culturally Responsive Pictorial Module of Nature Tie-Dye *Batik* Craft as teaching aid in the Visual Art Education subject.
- ii. To investigate students' perceptions towards the use of the Culturally Responsive Pictorial Module of Nature Tie-Dye *Batik* Craft as learning aid in the Visual Art Education subject.

## METHODOLOGY

This research applies the Design and Development Method (Richey & Klein, 2007) that focuses on the development of Culturally Responsive Pictorial Module of Nature Tie-Dye *Batik* Craft. In line with the research aim, this research has three phases that contain specific procedures following the sequences outlined in the ADDIE Model. However, this study will describe results and findings performed in Phase 3 for Implementation and Evaluation.

### Phase 3: Implementation and Evaluation

Table 1: Sampling Matrix

Sample	Number of Sample	Sampling Method	Research Method
Teacher (VAE subject)	1	Purposive sampling	Semi-structured interview
Students	29	Purposive sampling	Closed-ended question survey

#### Semi-structured Interview

After the implementation, the researcher employed a semi-structured interview in order to explore the VAE teacher's perceptions and opinions based on the experiences gathered while teaching using the module. According to Fraenkel, Wallen and Hyun (2012), data gathered from this instrument is most convenient to be tabulated and it is also more popular among respondents. The interview was also an instrument used to gather data of the teacher's perceptions and opinions. All the data collected were transcribed verbatim.

#### Closed-Ended Question Survey

A set of survey were distributed to the students to collect the students' perceptions after using the Culturally Responsive Pictorial Module of Nature Tie-Dye *Batik* Craft Module. According to Frankel, Wallen and Hyun (2012), this instrument is consistent, convenient and popular to be used. It is also considered to be a very relevant method for researchers.

## Research Participants

In this Phase 3 of the research, it will look into the implementation and evaluation of using the module in schools, one (1) teacher who is teaching the VAE subject was chosen and 29 fourth-formers VAE students from a secondary school in Kuala Lipis, Pahang also participated in providing their responses.

## Data Analysis

Data gathered from the semi-structured interview and closed-ended question gathered from the participating teacher were transcribed into Microsoft Word programme to while feedbacks obtained from the VAE students were analysed using the SPSS software. The data was analysed to interpret the overall perceptions and opinions about the Culturally Responsive Pictorial Module of Nature Tie-Dye *Batik* Craft.

## FINDINGS OF SEMI-STRUCTURED INTERVIEW

### Suitable Use as a Teaching Aid

From the interview session held with the VAE teacher, the perceptions towards the use of the module (Pictorial Book Module and PowerPoint Slide Module) were analysed. The teacher provided positive feedback suggesting that the module is suitable and easy for students to follow with the instructions during lessons. Importantly, the teacher also stated that the module is very effective for students to create tie-dye *batik*.

She stated that:

*“Okay...this tie-dye ‘batik’ module is...aaa...very easy and it is also simple to...aaa...what...to be followed by students in their learning process because there’s...aaa...what...there’s a few steps that I think...emm...are very effective for the students to create an easy tie-dye ‘batik’.”* (Respondent 1: L: 1-5, D: 6<sup>th</sup> April 2017)

## The Quality is Up to Standard

Another positive remark was also provided when the respondent viewed the quality of the module to be suitable for teaching and learning at the upper secondary level. Importantly the teacher asserted that the module had diligently included current school syllabus while providing some examples such as in the explanation of detailing of the steps to produce colours to support her assertion.

She stated that:

*“Aaa...to master...aaa...this existed tie-dye ‘batik’ module...aaa...it is very suitable...aaa...by following the current syllabus...and the right usage of material that already in the module itself, for example the production of colour material from nature was detailed...aaa...because the references material before this did not explain how to gain perfection in production... yeah...so...aaa...with this module, students can get their own material at home...aaa...with the help of the module.”* (Respondent 1: L: 1-4, D: 6<sup>th</sup> April 2017)

## Complement the Existing Teaching Aid

The respondent was also asked if she finds the module to be suitable to replace or to be compared to with existing books available in the market. Her feedback provide an encouraging input suggesting that the module is suitable and easy to be used for students in the school setting. Although the module may not consist of all elements of the *batik* art, it is considered sufficient in assisting students to achieve more than 50% of the elements they need to learn about tie-dye *batik*.

She stated that:

*“Aaa... as far as I know...ba...there’s a lot of tie-dye books but most of them comes from the other countries. So for tie-dye material aaa...that I know aaa...That I know so far...aaa...the module is very light...light which is easy to be carried by the students...aaa...and...aaa...not too much in detail...I think this module is very suitable even though they didn’t cover almost all of the ‘batik’ but when they were asked regarding the basic of tie-dye ‘batik’, for the students to reach the target more than 50% of them know about the subject or the topic of tie-dye ‘batik’...aaa...this...tie-dye...I*

*think it is one of the module that can be used.*” (Respondent 1: L: 3-8, D: 6<sup>th</sup> April 2017)

### **Increase Students’ Motivation**

The teacher respondent also highlighted that her students did not have any complains when they were using the module in the classroom. Additionally, in her personal observations while facilitating the student in the classroom, the teacher finds the students to be at ease while following the instructions provided in the module.

She stated that:

*“Aaa...most of them did not complain. They can use the module well. Aaa...they can follow...aaa...the production of colour...aaa...if there is...emm....any...err...mistakes or...emm...to fix it back there might be a few pictures that can be fixed...but those things are only minor.”* (Respondent 1: L: 1-3, D: 6<sup>th</sup> April 2017)

### **Students’ Reactions and Participation**

The teacher was also asked about the students’ reactions and participation level when using the module. The positive outcome is very welcoming as students were more excited during the lesson when they have coloured pictorial material with clear step-by-step instructions that are easy to follow such as the ones explaining the folding technique and producing colours.

She stated that:

*“They seem more excited when they have a pictorial material...aaa...and colourful. Yeah...because in their text references or stuff that been given by the teacher mostly we didn’t provide a lot of material with just a general material. So...the...material...for the tie-dye with the picture, folding, how to produce the colour...aaa...the steps of production the students...I think can...aa...use it easily compared...aaa...than only refers to the current text book being produced in Malaysia.”* (Respondent 1: L: 1-8, D: 6<sup>th</sup> April 2017)

## Teachers' Perception of the Module as the Teaching Aid

The respondent was asked about her perceptions towards the use of the module as a teaching aid for the *Batik Pelangi* (tie-dye) topic. The respondent is positive that the module is suitable to be used for all secondary school level from Form 1 to Form 5. Additionally, the respondent finds the module is easy to understand and not too complicated to be used as a teaching and learning aid because the words and sentences used are more relaxed.

She stated that:

*Emm...this book can be used to me for all level aa...for...secondary... secondary schools from Form 1 until Form 5. Aaa...because..it is easy to understand...aaa...the production...as well as this module is not too complicated...aaa...the sentences used also is not hard to understand... what...so this module will be use much more relaxed and easy..aa..I think as a reference for the teachers and students it is very convenient...aaa...the production using..aa..fabrics or tissue materials can also be included...aa... and slightly...added so the students can ...aaa...choose...aa...to produce this tie-dye 'batik'. (Respondent 1: L: 1-8, D: 6<sup>th</sup> April 2017)*

## Design for Further Module

The last question seeks to collect the respondent's opinion on how to improve the module for further reviews. The respondent mentioned that realistic images may be more beneficial when demonstrating the steps of producing tie-dye *batik*.

She stated that:

*Haa...okay. We can...aaa...imagine the production...aa...by steps... aaa... steps by steps from the first steps...aa...the process in producing... aa...the tie is more realistic. Okay...from the first step the students fold it... tie...fold...aa...students will colour them by themselves until they untie the ties and show it together by the students themselves. Maybe it might...be used as students' production of guideline material. It shows how the students succeed in producing. (Respondent 1: L: 3-6, D: 6<sup>th</sup> April 2017)*

## FINDINGS OF CLOSED-ENDED QUESTION SURVEY

### Students' Perceptions on the Pictorial Module Format

**Table 2: Students' Perceptions on the Pictorial Module Format**

Descriptive Statistics			
	N	Mean	Std. Deviation
Q1) Graphic design for the front and back cover pictorial module is appropriate and interesting	29	4.38	.494
Q2) The size of the module is compatible with the needs of the students	29	4.45	.506
Q3) Font / typeface used is appropriate and easy to read	29	4.66	.484
Q4) Thickness of module is sufficient	29	4.52	.688
Q5) The quality of module's binding / printing	29	4.31	.660
Valid N (list wise)	29		

The ratings for each item in the construct were summed up to get the total score. Students' perceptions on the pictorial module score is gathered from item Q1, Q2, Q3, Q4 and Q5. Table 2 shows the total score for students' perceptions on the Pictorial Module Format. It can be seen that the students' perceptions on the module of each question have different total score which are (mean = Q1=4.38, Q2=4.45, Q3=4.66, Q4=4.52 and Q5=4.31). Majority of the students find that the format of the pictorial module is sufficient, appropriate and interesting which suits to their level.

## Students' Perceptions on the Module Content of the Pictorial Module

**Table 3: Students' Perceptions on the Content of the Pictorial Module**

Descriptive Statistics			
	N	Mean	Std. Deviation
Q1) Learning outcome is clear by using the pictorial module	29	4.52	.509
Q2) Contents of the pictorial module arranged in orderly manner and help students to reach the learning outcome	29	4.72	.455
Valid N (list wise)	29		

The ratings for each item in the construct were summed to get the total score from item Q1 and Q2. Table 3 shows the total score for students' perceptions on the content of the Pictorial Module. It can be seen that the students' perceptions on the pictorial module of each question has different total score which are (mean = Q1=4.52 and Q2=4.72). However, majority students find that the content of the pictorial module provided clear and organised content for them to achieve the learning outcome.

## Students' Perceptions on the Learning Material of the Pictorial Module

**Table 4: Students' Perceptions on the Learning Material of the Pictorial Module**

Descriptive Statistics			
	N	Mean	Std. Deviation
Q1) Learning materials are appropriate and helpful in learning session	29	4.66	.484
Q2) The quality of the diagrams, illustrations and tables are clearly shown	29	4.38	.494
Valid N (list wise)	29		

The students' perceptions on the pictorial module score is the total sum of item Q1 and Q2. Table 4 shows the total score for students' perceptions on the learning material of the Pictorial Module. It is clear that the students'

perceptions on the pictorial module of each question has different total score which are (mean = Q1=4.66 and Q2=4.38) with majority of the students find the learning material of the Pictorial Module to be appropriate, helpful and clear.

### Students' Perceptions on the Activities and Exercise in the Pictorial Module

**Table 5: Students' Perceptions on the Activities and Exercise in the Pictorial Module**

Descriptive Statistics			
	N	Mean	Std. Deviation
Q1) Activities and exercises in the pictorial module are appropriate	29	4.66	.484
Q2) Appropriate guidance is given in solving activities and exercises	29	4.55	.506
Q3) Comment and feedback from the activities help students mastering the course requirements	29	4.38	.561
Valid N (listwise)	29		

The students' perceptions on the pictorial module score is the total sum of item Q1, Q2 and Q3. Table 5 shows the total score for students' perceptions on the activities and exercise in the Pictorial Module. It can be seen that the students' perceptions on the pictorial module of each question has different total score which are (mean = Q1=4.66, Q2=4.55 and Q3=4.38). In an encouraging analysis, the students viewed the activities and exercises have appropriate input which provided guidance for them to solve each activity and exercise while comments and feedback included help them with mastering the subject requirement.

## Students' Motivation towards Learning the Pictorial Module

**Table 6: Students' Motivation towards Learning the Pictorial Module**

Descriptive Statistics			
	N	Mean	Std. Deviation
Q1) Students were very interested in the VAE learning activities	29	4.45	.572
Q2) Students liked the activities in the pictorial module	29	4.41	.568
Q3) Students were very interested in learning the technique of the pictorial module in learning VAE	29	4.45	.506
Q4) I loved the pictorial module techniques that required me to think carefully to complete its activities	29	4.31	.541
Q5) Students were fully satisfied upon completion of the activities in the pictorial module	29	4.72	.455
Valid N (listwise)	29		

The students' perceptions on the pictorial module score is the total sum of item Q1, Q2, Q3, Q4 and Q5. Table 6 shows the total score for Students' Motivation towards Learning the Pictorial Module. It is obvious that the students' motivation towards learning the module of each question have different total score which are (mean = Q1=4.45, Q2=4.41, Q3=4.45, Q4=4.31 and Q5=4.72). The students were motivated to learn using the module with its interesting pictorial approach with appropriate guidance for techniques to be implemented while performing the activities. Importantly, the students find the activities to be interesting as they are required to use their critical thinking skills cautiously to complete each task.

## CONCLUSION

Results in this study prove that the teaching tools and materials used in the development of Culturally Responsive Pictorial Module of Nature Tie-Dye *Batik* Craft is very effective and successful in increasing the teacher's and students' skills and knowledge towards learning and making *Batik Pelangi*. All of the respondents who participated in this research provided positive feedbacks for the development of the Culturally Responsive Pictorial Module of Nature Tie-Dye *Batik* Craft giving further support in its future development. In addition, some respondents also mentioned that the module provided new experience with a new method in the Visual Art Education subject. It needs to highlighted cautions need to be taken when considering the values of crafts in education due to the possibility that crafts may lose their identities when they are made as only part of a subject content (Mason, Nakase & Toshio: 1988). Since batik is known worldwide and have vast audience beyond the Asian region, it is therefore essential that its arts receive central attention in Malaysia Arts Education.

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