

# PROPORTIONAL DRAWING AID

Issarezal Ismail<sup>1</sup>, Muhammad Najibul Muthie Che Yaacob<sup>2</sup>, Hilal Mazlan<sup>1</sup>, Ruzamira Abdul Razak<sup>1</sup>, Rosmidahanim Razali<sup>1</sup>, Siti Humaini Said Ahmad<sup>1</sup>, Aimi Atikah Roslan<sup>1</sup> and Nur Farhana Mohd Sukeri<sup>1</sup>

<sup>1</sup>*Fine Art Department, Universiti Teknologi MARA Cawangan Perak, MALAYSIA*

*E-mail: issarezal@uitm.edu.my*

<sup>2</sup>*Creative Technology Department, Universiti Malaysia Kelantan, MALAYSIA*

## ABSTRACT

Students in the field of art sometimes don't have ability and skills to achieve accurate proportion and arrange composition in their drawing due to lack of experiences and less of practices. They are seen hard to obtain the best focus area before starting to produce drawing and easily lose direction during artistic process because of the wide eye view. Therefore, this innovative design named Proportional Drawing Aid (PDA) was created as a tool and technology suitable for art students to compile the drawing process in the drawing class, whether implemented indoors or outdoors. The prototype design was inspired by conventional window frame method used to be held by hands but now has added added value through the innovation by combining it with eyewear to be more practical and provide comfort to its users. The prototype is produced using a 3D printing machine where the components between the window frame and eyewear can be adjusted according to the suitability of the users. The results of a study conducted on art and design students proved that the use of this tool and technology can increase the ability of students in drawing and especially in order to get accurate proportion and interesting composition.

**Keywords:** proportional drawing aid, innovation, art technology, accurate proportion, art students

## 1. INTRODUCTION

A drawing expands the way we see the world. To draw sensitively and accurately, one needs to adjust perception and deconstruct the world to its simple visual elements; shape and form, negative and positive, light and shadow. That is why artists need to have such ability and skills to transfer all the visual elements in front of their eyes into drawing paper. According to Ostrofsky and Seidel (2012: 124), this ability and skill comes through experiences and practices as well as having knowledge of using various techniques in producing a good piece of drawing. However, novice art students in the field of fine art sometimes do not have ability and skills to draw due to lack of experiences and less practice. This is a normal phenomenon in art school. They are seen hard to obtain the best focus area before starting to produce drawing and easily lose direction during the drawing process because of the wide eye view. Besides, it is found that the proportion of the novice art student's drawing is inaccurate.

To address these issues and problems, art teachers or lecturers will usually recommend the use of window frames. The function of a window frame is as an aid to guide art students to transfer the visual information seen on the drawing paper through the grid method. This method allows them to break the

subject matter into “bite-sized” pieces. However, conventional window frames often have to be held by hand for a quite long time and this often poses problems such as sluggish hand muscle and unsteady position.

## 2. PROPORTIONAL DRAWING AID (PDA)



**Figure 1.** Proportional Drawing Aid (PDA)

Proportional Drawing Aid (PDA) is a product that is specifically designed to help novice art students during the process of drawing. This product aims to give a new dimension for them to get accurate proportion and precise composition of the subject matter that is going to be transferred into drawing paper.

### 2.1 Method



**Figure 2.** Technical Drawing and Method of Application

Proportional Drawing Aid (PDA) consists of two components namely window frame (A) and eyewear (B). These two parts are connected via an adjustable handle mounted on both left and right sides of the eyewear. The combination of window frame and eyewear is not only to facilitate the process of drawing to be more targeted and focused as seen on *Fig 2* (right) but also to reduce the psychological effect that can occur when conventional method of measurement is applied. In addition, the application of grid on the PDA will help art students to get accurate proportions of the subject matter without the need to move from one's current location.

## 2.2 Material



**Figure 3.** Proportional Drawing Aid (PDA) Prototype

This product that is still in the prototype phase is produced using a 3D printing machine where the main material used is plastic type material. The use of 3D printing is because it has been recognized as an efficient and sustainable technology and the material is light and durable (Liu and Jiang (2016: 1). The printing process takes about two-hours where six (6) components are printed at once and then assembled before final touch is given through air brush. On the window frame section, a thick thread is tied around each hanger button to obtain a grid division.

## 2.3 Result



**Figure 4.** Product Simulation and Testing

The results of a study conducted on art and design students proved that the use of this tool and technology can increase the ability of students in drawing and especially in order to get accurate proportion and interesting composition.

## REFERENCES

1. Liu, Z. & Jiang, Q. (2016). Sustainability of 3D Printing: A Critical Review and Recommendations. Proceedings of the ASME 2016 International Manufacturing Science and Engineering Conference. June 27<sup>th</sup> - July 1<sup>st</sup> 2016. Virginia.
2. Ostrofsky, J. & Seidel, A. 2012. Perceptual Constancies and Visual Selection as Predictors of Realistic Drawing Skill. *Psychology of Aesthetics, Creativity and the Arts*. 6(2): 124-136.



Surat kami : 700-KPK (PRP.UP.1/20/1)  
Tarikh : 30 Ogos 2022

YBhg. Profesor Ts Sr Dr Md Yusof Hamid, PMP, AMP  
Rektor  
Universiti Teknologi MARA  
Cawangan Perak



YBhg. Profesor

**PERMOHONAN KELULUSAN MEMUAT NAIK PENERBITAN UiTM CAWANGAN PERAK  
MELALUI REPOSITORY INSTITUSI UiTM (IR)**

Perkara di atas adalah dirujuk.

2. Pihak Perpustakaan ingin memohon kelulusan YBhg. Profesor untuk membuat imbasan (*digitize*) dan memuat naik semua jenis penerbitan di bawah UiTM Cawangan Perak melalui Repositori Institusi UiTM, PTAR.
3. Tujuan permohonan ini adalah bagi membolehkan akses yang lebih meluas oleh pengguna Perpustakaan terhadap semua bahan penerbitan UiTM melalui laman Web PTAR UiTM Cawangan Perak.

Kelulusan daripada pihak YBhg. Profesor dalam perkara ini amat dihargai.

Sekian, terima kasih.

**“WAWASAN KEMAKMURAN BERSAMA 2030”**

**“BERKHIDMAT UNTUK NEGARA”**

Yang benar