Utilization of HVS paper waste with collage art and paper quilling techniques as a 2-dimensional medium for hair styling in beauty education program

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Abstract. The accumulation of paper waste encourages the utilization of HVS paper waste with Collage and Paper Quilling Techniques as a 2-dimensional medium for hair styling learning. The purpose of this study was to understand the process of utilizing HVS paper waste with collage and paper quilling techniques as a 2-dimensional medium for hair styling learning; to explore the design and shape produced in the utilization of HVS paper waste with collage and paper quilling techniques as a 2-dimensional medium for hair styling learning; to learn the validity of 2-Dimensional media for Hair Styling Learning by utilizing HVS Paper Waste using Collage and Paper Quilling Techniques. Development research with qualitative descriptive data analysis was carried out, the process of utilizing HVS paper waste with collage and paper quilling techniques using loose scrolls and multi strips scrolls was explored. Design and shape of hair styling for 5 face shapes. Validity by 5 experts with an average of 89.33% and, the results of final product assessment by 60 students obtained an average of 92.70% based on indicators of aspects of regulation, balance, color, conformity, attractiveness. Utilization of HVS paper waste with Collage and Paper Quilling Techniques as a 2-dimensional medium for hair styling learning is declared very feasible.

1. Introduction
Media serves a variety of roles in education. Its main role is to help students learn. One of the functions of media is to provide an information-rich environment. Media can provide a simulation experience. Students can see what the new discovery looks like, not just hear or read verbal descriptions [1]. Learning media is a physical device used to send messages to learners and stimulate them to learn. Messages and information carried by the media can be simple messages as well as complex messages. Therefore, media needs to be designed and developed deliberately to fit the needs of learners and learning goals. Learning media can also assist learners in improving understanding, presenting data interestingly and reliably, facilitating the interpretation of data and condensing information [2]. This is the basis for designing and developing 2-dimensional media or visual media for hair styling learning.
The design and use of visuals in instruction is an important consideration because so much learning involves visual imagery [3]. Visuals can increase attractiveness by attracting attention as well as stimulating thought and inquiry. Visual media is especially helpful when students learn to identify people, places or other things that can even use them to stimulate creative expression [1]. The 2-dimensional media or visual media designed and developed in this study utilized paper waste obtained from HVS paper. HVS is the most widely used paper in offices and in schools, because this paper is most suitable for various general purposes and there are no other items that can replace the function of paper. Papers that have been used for writing, printing, and drawing are usually thrown into trash. The value of the paper is reduced because it has become dirty, filled with writing or graffiti and cannot be used. Despite the research on application of paper waste for wig [4], the availability of more and more paper waste and has not been utilized to the maximum encourages the utilization of HVS paper waste with collage and paper quilling techniques as a 2-dimensional medium for hair styling learning. In addition, utilization of HVS paper waste helps reduce the impact of paper waste on the environment while increasing creativity of creation, art value while benefiting learning. Previous research on paper quilling as learning media has also been reported [5]. Colorful strips of paper and a few simple tools are needed to create an infinite number of amazing projects using quilling technique [6].

2. Materials and Methods
Qualitative descriptive development research was conducted to utilization of HVS paper waste with collage art and paper quilling techniques as a 2-dimensional medium for hair styling learning beauty management program. Figure 1 describes the research stages, while previous studies were done regarding the process of increasing the aesthetic value of HVS paper waste [7-8]. Quilling technique was carried out by following the method of Johnston [9].

2.1 Data Collection and Instrument
Data on product results through assessment sheet based on the criteria set forth, Data about the product through the observation sheet based on the criteria set interviews to supplement and support data

2.2 Data Analysis Method
The obtained data was analyzed using descriptive percentage as illustrated in Equation (1)

$$\% = \frac{N}{n} \times 100\%$$

Description:

\% : percentage score

N : Number of quality scores obtained

N : Ideal score

The Percentage intervals and eligibility criteria is given in Table 1.
Table 1. Percentage Intervals and Eligibility Criteria

| Percentage (%) | Criteria                      |
|----------------|-------------------------------|
| 81.25 ≤ x ≤ 100 | Very proper/very like        |
| 62.5 ≤ x ≤ 81.24 | Proper/like                  |
| 43.75 ≤ x ≤ 62.4 | Less Proper/less like        |
| 25 ≤ x ≤ 43.75  | Not Proper/Unlikeable        |

3. Manufacturing and Development Techniques

3.1. Identify the main material of 2-dimensional media with Collage and Paper Quilling Techniques

The paper waste was crushed into smaller size, as given in Figure 2.

Figure 2. Processing of paper waste

3.2. Supporting media manufacturing tools with collage art and paper quilling techniques

The materials and tools used in preparing the product are given in Figure 3, as follow:

1. black asturo cardboard
2. clear white glue
3. Quilling needles
4. roller needles
5. tweezers
6. small brushes
7. scissors
4. The Process of making collage art and paper quilling techniques from Paper Waste

4.1. Design

4.1.1. Preparation of design of the face and hair shape on black asturo cardboard as the basis of the medium. As shown in Figure 4, black color used to make the image stand out and contrast with white HVS paper waste.

4.1.2. Paper quilling. Tidying up HVS paper waste, making paper quilling with loose scroll technique for hair and for complementing with heart scroll, V-scroll & S-scroll technique can be seen in Figure 5.

4.1.3. Collage creation. Shown in Figure 6, giving glue according to the lines of the face, hair and then put the waste of HVS paper that has been made using quilling technique with an upright position.
Figure 6. Quilling sticking according to the design

4.1.4. Collage art and paper quilling final results shown in Figure 7

Figure 7. Quilling results based on the face shapes
5. Findings and Discussion

5.1. Product Validation

Product validation is done by 5 validators consisting of 2 vocational school teachers, 2 lecturers, and 1 practitioner with the following results in Table 2. Final product assessment results are described in Table 3.

Table 2. Product Validation Results

| No | Expert | Arrangement | Balance | Color | Legibility | Appeal |
|----|--------|-------------|---------|-------|------------|--------|
| 1  | SMK    | 13          | 7       | 8     | 12         | 13     |
| 2  | Dos 1  | 16          | 8       | 8     | 10         | 15     |
| 3  | Dos 2  | 13          | 6       | 6     | 11         | 13     |
| 4  | Prof 1 | 13          | 6       | 7     | 10         | 12     |
| 5  | Prof 2 | 16          | 8       | 7     | 12         | 16     |

(%): 88.75 87.5 92.5 91.67 86.25

Table 3. Final Product Assessment Results

| No | Name | Arrangement | Balance | Color | Legibility | Appeal |
|----|------|-------------|---------|-------|------------|--------|
| 1  | A    | 13          | 6       | 7     | 10         | 13     |
| 2  | B    | 16          | 8       | 8     | 12         | 16     |
| 3  | C    | 14          | 6       | 6     | 9          | 16     |
| 4  | D    | 15          | 6       | 7     | 11         | 16     |
| 5  | E    | 12          | 8       | 7     | 12         | 12     |
| 6  | D    | 12          | 6       | 7     | 12         | 16     |
| 7  | E    | 12          | 7       | 8     | 9          | 12     |
| 8  | F    | 15          | 7       | 7     | 12         | 15     |
| 9  | G    | 13          | 6       | 6     | 10         | 13     |
| 10 | H    | 12          | 7       | 7     | 10         | 12     |
| 11 | I    | 16          | 6       | 8     | 9          | 15     |
| 12 | J    | 16          | 7       | 6     | 12         | 15     |
| 13 | K    | 12          | 6       | 5     | 9          | 11     |
| 14 | L    | 16          | 8       | 8     | 12         | 16     |
| 15 | M    | 13          | 6       | 6     | 6          | 9      |
| 16 | N    | 12          | 7       | 7     | 12         | 16     |
| 17 | O    | 12          | 7       | 6     | 11         | 16     |
| 18 | P    | 15          | 8       | 6     | 10         | 14     |
| No | Name | Arrangement | Balance | Color | Legibility | Appeal |
|----|------|-------------|---------|-------|------------|--------|
| 19 | Q    | 15          | 7       | 8     | 11         | 16     |
| 20 | R    | 13          | 6       | 7     | 12         | 13     |
| 21 | S    | 13          | 7       | 6     | 10         | 16     |
| 22 | T    | 15          | 8       | 8     | 12         | 16     |
| 23 | U    | 13          | 7       | 8     | 10         | 14     |
| 24 | V    | 15          | 6       | 8     | 12         | 12     |
| 25 | W    | 12          | 6       | 8     | 12         | 12     |
| 26 | X    | 16          | 6       | 8     | 12         | 16     |
| 27 | Y    | 16          | 8       | 8     | 12         | 16     |
| 28 | Z    | 13          | 7       | 8     | 12         | 15     |
| 29 | AA   | 14          | 6       | 8     | 9          | 16     |
| 30 | AB   | 16          | 8       | 8     | 12         | 16     |
| 31 | AC   | 12          | 6       | 8     | 10         | 14     |
| 32 | AD   | 16          | 7       | 8     | 12         | 15     |
| 33 | AE   | 16          | 8       | 7     | 12         | 16     |
| 34 | AF   | 16          | 8       | 7     | 12         | 14     |
| 35 | AG   | 14          | 8       | 7     | 11         | 15     |
| 36 | AH   | 15          | 8       | 7     | 12         | 14     |
| 37 | AI   | 15          | 7       | 8     | 11         | 14     |
| 38 | AJ   | 16          | 8       | 7     | 12         | 16     |
| 39 | AK   | 16          | 8       | 8     | 12         | 14     |
| 40 | AL   | 16          | 8       | 7     | 12         | 16     |
| 41 | AM   | 16          | 8       | 7     | 12         | 16     |
| 42 | AN   | 15          | 8       | 7     | 12         | 16     |
| 43 | AO   | 16          | 8       | 7     | 12         | 16     |
| 44 | AP   | 16          | 8       | 7     | 12         | 16     |
| 45 | AQ   | 16          | 8       | 7     | 12         | 15     |
| 46 | AR   | 16          | 8       | 8     | 12         | 16     |
| 47 | AS   | 16          | 8       | 8     | 12         | 14     |
| 48 | AT   | 16          | 8       | 8     | 12         | 14     |
| 49 | AU   | 16          | 8       | 7     | 12         | 16     |
| 50 | AV   | 16          | 8       | 7     | 12         | 16     |
5.2. Discussion
Based on the data that has been obtained about the increase in the aesthetic value of paper waste for the manufacture of wigs can be explained as follows:

5.2.1 Product validity results. Validation results of utilization of HVS paper waste with collage art and paper quilling techniques as a 2-Dimensional Medium for Hair Styling Learning, the Beauty Planning study program majoring in Family Welfare Education, Faculty of Engineering, State University of Semarang was declared valid by five (5) validators consisting of: 2 lecturers, 1 vocational school teacher and 2 practitioners based on indicator of arrangement, which can be seen based on the placement or layout of the image, the suitability of the image shape, the arrangement of hair according to the shape of the face and the technique of proper hair completion, obtained 88.75%, i.e. very feasible. Indicator of balance was based on the technique of making the right hair styling, comparison of face and shape of hair styling right, obtained 87.5%, i.e., very feasible. Color indicator was based on the combination of colors used in the background and the right image, the choice of color in the right color found level of 92.5%, i.e., very feasible. The legibility was based on the accordance of this image media with the purpose of learning, the image used is easy to understand and communicative, the direction of hair fiber is clear, obtained 91.67%, i.e., very feasible. The appeal indicator was based on the overall appearance of the image, the combination of face shape and hair styling is right and attractive, the use of attractive hair styling techniques is obtained 86.25% = very feasible. This finding was comparable to previous study of Setyowati and Sukesi [10] about accessories modification.

5.2.2. Final Product Assessment Results. The final assessment of the utilization of HVS paper waste with collage techniques and paper quilling as a 2-Dimensional Medium for Hair Styling subject in beauty study program was given by 60 random beauty students from the class of 2016, 2017, 2018. They filled the instrument through questionnaires given through social media. Based on the indicator of arrangement, which can be seen based on the placement or layout of the image, the suitability of the image shape, the arrangement of hair according to the shape of the face and the technique of proper hair completion, obtained 92.60 % refers to very feasible, while for indicator of balance, which is based on the technique of making the right hair styling, comparison of face and shape of hair styling right, obtained 92.92 %, i.e., very feasible. Color indicator was based on the combination of colors used in the
background and the right image, the choice of color in the right manner, obtained 91.88%, i.e., very feasible. The legibility indicator was based on the accordence of this image media with the purpose of learning. The image used was easy to understand and communicative, the direction of hair fiber is clear, obtained a value of 93.74%, i.e. very feasible. The indicator of appeal was based on the overall image appearance, combination of face shape and hair styling right and attractive, attractive hair styling form, use of attractive hair styling techniques obtained 92.40%, i.e., very feasible.

6. Conclusion
The process of utilizing HVS paper waste with collage art and paper quilling method revealed that HVS paper waste obtained from the destruction of small long forms of paper, tidying up HVS paper waste, making paper quilling with loose scroll technique for hair strands and for complementing with heart scroll technique, V-scroll & S-scroll. The design line and the face shape were attached with loose hair styling, paste paper quilling according to the design. The resulting design and shape are in the form of 5 face shapes with loose arrangements, namely oval, square, triangle, round and long face shapes. Based on the results of validity by experts as many as 5 people obtained an average of 89.33% and the results of final product assessment by students as many as 60 people based on indicators arrangement, balance, color, legibility, appeal with an average of 92.71% declared very feasible.

References
[1] Newby T J 2011 Educational Technology for Teaching and Learning (Boston: Pearson) p 120-121
[2] Arsyad A 2020 Media Pembelajaran (Depok: PT. Raja Grafindo Persada) p 19-20
[3] Smaldino S E, Lowther D L and Russell J D 2008 Instructional Technology and Media for Learning (New Jersey: Pearson) p 51
[4] Widowati T, Setyowati E, Prasetyaningtyas W, Wahyuni I E and Pangastuti N W 2021 IOP Conf. Ser.: Earth Environ. Sci. 700 012040
[5] Pawekas R A, Syafii and Murtiyoso O 2019 Eduarts: Jurnal Pendidikan Seni 8 36-47
[6] Curet E P 2019 The Art of Modern Quilling (Gloucester: Quarry Books)
[7] Khumar V 2017 Environmental and Pollution 14 31-36
[8] Ozola Z U, Vesere R, Kalnins S N and Blumberga D 2019 Environmental and Climate Technologies 23 260-273
[9] Johnston M 1993 Paper Quilling (New York: Sterling Publishing)
[10] Setyowati E and Sukesi S 2018 AIP Conference Proceedings 1941 020034