The Efficiency of Using Polyflax Screen Printing in Learning Two-dimensional Fine Arts as a Provision for Entrepreneurial Skills

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Abstract. Screen printing is considered a difficult graphic arts technique because it requires the use of special tools. There is a need for media that can make it easier for students to learn graphic arts efficiently at school. So the aim of this research is to test polyflax material and analyze its efficiency so that later it can become a reference for making two-dimensional works of art in arts and culture subjects at school. The research method used is action research. The action intervention design for this research cycle design uses the Kemmis and Taggart action method. Work procedures in action research according to Kemmis and Taggart, which include the following stages: 1) Planning, 2) Action, 3) Observation, 4) Reflection, then continued with replanning, action, observation and reflection to next cycle. The research results of the polyflex screen printing method have screen printing quality that is quite durable. There are not many heat press machines sold on the market, but you can use alternative tools such as an iron to make it easy to apply. Students can work and learn entrepreneurship at the same time.

Keywords: Efficiency, Graphic arts, Polyflax, Entrepreneurship.

1 Introduction

Screen printing or screen printing is a printing process technique that uses a screen with a certain density and is generally made from nylon or silk (silk screen). This screen is then given a pattern that comes from the negative of the design previously made on HVS or tracing paper. This fabric is stretched tightly to produce flat screens and prints. After being given photoresist and irradiating it, it must be doused with water so that the pattern is visible and then parts will be formed that can and cannot pass through the ink. Screen printing is often applied to t-shirt media, but t-shirts generally use screen printing using complicated methods [1].

The field of manual t-shirt screen printing has its own interests and market. It has been proven that until now manual t-shirt screen printing still exists as a business unit in the advertising sector. The development of screen printing, which is often called screen printing, is in line with developments in the fashion world of printing today.

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To start a screen printing business, you need to have technical and aesthetic knowledge, understanding and skills [2]. Furthermore, Guntur in Maiti explained that t-shirt screen printing is part of practical graphic science, namely printing graphics using gasa cloth (screen), on the area that is the target for printing. Apart from that, t-shirt screen printing is also easy to apply, does not require large capital and has market opportunities that are always open with the times.

Polyflex screen printing is a screen printing method where the raw material is made from stickers or vinyl, then cut using a sticker cutting machine and pressed using a heat press machine so that the material sticks to the fabric. This polyflex screen printing method produces screen printing quality that is quite durable. There are not many heat press machines sold on the market, so some people who want to make polyflex screen printing simply can use an iron as a substitute for a press. Meanwhile, motif painting can be made manually by tracing the image on polyflax paper and then cutting it to match the desired image [3].

Middle and high school students in the independent curriculum are advised to use the PjBL learning model, one of the outcomes of which is the creation of works. Works that are often applied in fine arts learning include painting, making decorations using craft products, handicraft works, or batik. Screen printing is considered a difficult technique because it requires the use of special tools. This is different from polyflax screen printing which should be used as an alternative graphics technique to be practiced simply at school [4].

1.1 Problem Solving Approach

Research by Suryo Atmojo et al entitled PPM UKM Mas Bro Screen Printing, Sumberejo Village, Pakal District, Surabaya City. Researching the management and production of screen printing. Mentioned that the research results obtained data that promotional media was still lacking updates, image design capabilities were still limited, and there were no tools or systems for financial recording. Another research by Septiarashinta entitled Men's Outerwear Design As A Support Of Bandung Historic Touring Activities produced data on the use of polyplex screen printing. This research explores the elements of the West Java People's Struggle Monument to be used as decorative elements applied using the polyflex printing technique [5]. It is hoped that carrying out this research will become a reference and alternative outerwear design for those involved in historical touring activities and similar activities [6].

Previous research shows that polyfleck screen printing can be applied to t- shirts and outerwear, which leads to the first hypothesis that this technique can be applied easily in schools. However, what needs to be analyzed further is how the simple polyflex screen printing technique is applied and where this technique can be applied. Based on this problem, it is necessary to conduct media trial research which can later be used as a reference for the application of polyflex screen printing in schools.

From this background, the formulation of this research problem is:

a. What is the process for applying polyfleck screen printing?
b. How is entrepreneurship developing in the graphic arts sector?

1.2 State of the art

The application of polyfleck screen printing on various textile materials is very interesting to explore because it can be used as a new alternative medium in creating two-dimensional works of art. In previous research, there was no trial research on the polyfleck screen printing technique using simple tools. From this gap, research into the application of polyfleck screen printing has research urgency. The following is a state of the art research roadmap chart:

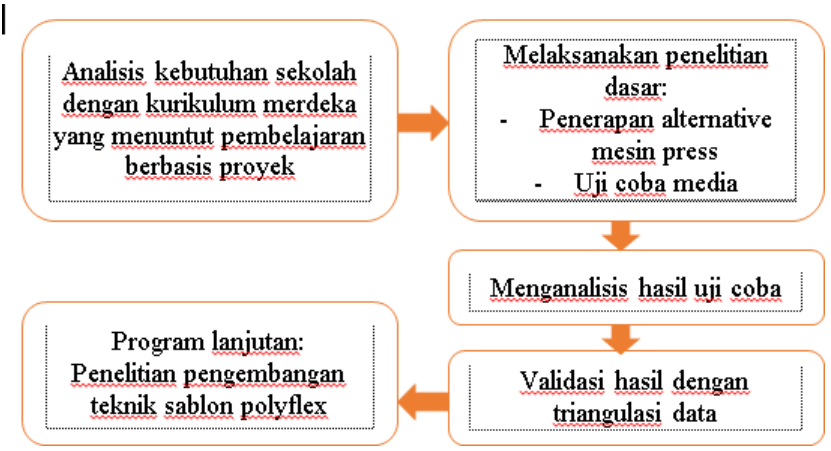

Fig. 1. State of the art.

From the chart above, it shows that the research carried out was studio-based basic research. The results are in the form of a media trial catalog which can be used as a reference for arts and culture teachers. Meanwhile, the continuation of research is in accordance with the roadmap, namely in the form of development research from basic research on the application of polyflex screen printing.

2 Methods

The research method used is action research. The action intervention design for this research cycle design uses the Kemmis and Taggart action method [7]. Work procedures in action research according to Kemmis and Taggart, which include the following stages: 1) Planning, 2) Action, 3) Observation, 4) Reflection, then continued with replanning, action, observation and reflection to the next cycle, and so on, forming a spiral [8]. At the reflection stage, improvements can be seen as a result of follow-up intervention for the next cycle. Classical success follows the Milss standard in his research, namely setting a percentage of 71%.

The data collection techniques used in this research are observation and documentation. Observations were carried out using field notes, to record various activities consisting of written notes about what the researcher saw and experienced to collect

data. Documentation in the form of photos and videos during experimental method implementation activities. The instrument grid was developed through conceptual and operational definitions which explain that the pressing technique is another form of technique developed from screen printing. The dimensions of resistance of polyflag materials on various media are measured through this test, which includes: observing, analyzing, making hypotheses and concluding. To measure the strength of the polyflax material glued with a simple press, it is assessed from the durability of the design attached to various products and assessed based on the checklist on the assessment sheet.

Data processing in this research uses two types of data, in accordance with the demands of action research, namely qualitative and quantitative. Data analysis of quantitative data uses descriptive statistics to describe respondents' scores in the form of tables and graphs. Qualitative data analysis contains information in the form of sentences that describe the durability of materials applied to various different products through the process of data reduction, data display and data verification carried out during the activity process.

3 Results and Discussion

3.1 State of the art

Planning. Planning in learning graphic arts in the form of screen printing using polyflax begins with preparing tools and materials. The material used is polyflax paper which functions for color transfer. Polyflax paper has various colors, so when designing it is recommended to use a minimum of colors so that making it is easier. Apart from that, the materials used are design transfer media, namely t-shirts, cloth tote bags, or other textile objects. Meanwhile, the tools used should be a writing tool to form the basic design and a press tool that can attach the polyflax to the embedded textile material. An alternative tool used in making polyflax designs is an iron, this has recently been found to be also efficient when used in entrepreneurship.

Action. The second stage is implementation. Starting by making a design using a maximum of three colors, after determining the design the students continue by printing the design on a polyflax sheet. The print out is adjusted to the color selection that must be cut out and then applied to the textile media. Before pressing, cover the top of the polyflax with newspaper, and press it with a heated iron, moving it slowly until all the motifs that will be made stick together perfectly. Here is an example of the designed design.

Fig. 2. Polyflax design (Dok. Ika Anggun)

This design is then sketched on a plane of polyflax paper according to the color, and cut out to later observe the temperature and resistance ratio of the material.

Observations. Observations were made by testing polyflax on various materials, including t- shirt materials, cotton fabrics, blaco, and sifun on 3 washes. The observation results are as follows.

Table 1. Polyflax Observation.

Material	Iron temperature	Durability	Description
T-shirt	50^0	Peel	Less suitable
	70^0	Peel	Less suitable
	90^0	Sticking	Applicable
Cotton	50^0	Peel	Less suitable
	70^0	Sticking	Applicable
	90^0	Peel	Less Suitable
Blaco	50^0	Peel	Less Suitable
	70^0	Peel	Less Suitable
	90^0	Sticking	Applicable
Sifun	50^0	Peel	Less suitable
	70^0	Melt	Less suitable
	90^0	Melt	Less suitable

From the observation results, there are two successful and feasible trials to be applied to learning in schools, including the application of polyflag on t-shirts with a temperature of 900, cardboard fabric at a temperature of 700, and blaco at a temperature of 900. The heater used can use an iron with temperature settings according to the observation results. The example of the results of application on t- shirts with a temperature of 850-900.

Fig. 3. Polyflax in T-shirt (Dok. Ika Anggun).

Reflection. The results of the analysis of making graphic art using polyflex material have screen printing quality that is quite durable, from testing two soaking and drying cycles, the polyflax material still sticks to the textile area. There are not many heat press machines sold on the market and have a high selling price so that it is not possible to apply them to students at school, therefore there is a need for alternative press equipment. From the results of the analysis of the tool's function, namely to heat the material so that it sticks to the textile product, you can use alternative tools such as an iron to make it easier to apply. This has proven to be effective and efficient when applied to arts and culture learning at school.

The reflection obtained from the analysis of material trials carried out in making press technique graphics using polyflax material for student learning at school is how to make learning easier by using tools and materials that are easy to find and obtainand implementing learning activities does not require infrastructure and facilities. lots of time. Limited learning time and student abilities must be considered in designing learning practices. The advantages of graphic arts, apart from being efficient, can also be a support for entrepreneurship programs, because students can independently createproducts and market them in a custom way.

3.2 Entrepreneurship developing in the graphic arts sector

Entrepreneurship in the graphic arts sector has seen significant growth and innovation in recent years. With advancements in technology, particularly in digital design tools and printing techniques, the barriers to entry have lowered, allowing more individuals to start their own graphic design businesses. Here are some key trends and developments in entrepreneurship within the graphic arts sector. The graphic arts industry has undergone a digital transformation, with traditional printing methods being supplemented or replaced by digital printing techniques. This shift has enabled entrepreneurs to start small-scale printing businesses with lower initial investment and more flexibility in production.

Online freelancing platforms like Upwork, Fiverr, and Freelancer have democratized access to graphic design services. Entrepreneurs with graphic design skills can easily find clients globally, build their portfolios, and establish their own freelance businesses without the need for a physical office or extensive marketing efforts. Besides that, the rise of e-commerce platforms and print-on-demand services

has created opportunities for entrepreneurs to monetize their graphic design skills. They can create and sell custom-designed products such as T-shirts, mugs, posters, and phone cases without the need for inventory or upfront costs. Platforms like Shopify, Printful, and Teespring facilitate this process.

Entrepreneurs are tapping into specialized niche markets within the graphic arts sector, catering to specific industries or demographics. For example, some focus on designing branding materials for startups, while others specialize in creating graphics for the gaming or fashion industry. By targeting niche markets, entrepreneurs can differentiate themselves and command higher prices for their services. Collaboration and networking play a crucial role in the success of graphic arts entrepreneurs. They often collaborate with other creatives, such as photographers, illustrators, and copywriters, to offer comprehensive design services to clients. Networking through social media, industry events, and online communities helps them build relationships, gain referrals, and stay updated on industry trends.

The graphic arts industry is dynamic, with new design trends, software tools, and printing technologies emerging regularly. Successful entrepreneurs in this sector prioritize continuous learning and skill development to stay competitive. They invest time and resources in mastering new design techniques, software applications, and business strategies to meet the evolving needs of their clients. Overall, entrepreneurship in the graphic arts sector offers diverse opportunities for creative individuals to turn their passion for design into profitable businesses. Whether as freelance designers, print-on-demand entrepreneurs, or specialized design agencies, graphic arts entrepreneurs play a vital role in shaping visual communication across various industries.

4 Conclusions

The Process For Applying Polyfleck Screen Printing are planning in learning graphic arts in the form of screen printing using polyflax begins with preparing tools and materials. The second stage is implementation. Starting by making a design using a maximum of three colors, after determining the design the students continue by printing the design on a polyflax sheet. From the results of the analysis of the tool's function, namely to heat the material so that it sticks to the textile product, you can use alternative tools such as an iron to make it easier to apply. This has proven to be effective and efficient when applied to arts and culture learning at school. The advantages of graphic arts, apart from being efficient, can also be a support for entrepreneurship programs, because students can independently create products and market them in a custom way.

With advancements in technology, particularly in digital design tools and printing techniques, the barriers to entry have lowered, allowing more individuals to start their own graphic design businesses. entrepreneurship in the graphic arts sector offers a variety of opportunities for creative individuals to turn their passion for design into a profitable business. This can be used by students as a basic skill in entrepreneurship.

Learning is not only about getting to know a work of art but also equipping students for entrepreneurship.

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