Practice-Based Lessons in Photographic Education: An Alternative to Photo Image Development

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ABSTRACT

The utilisation of contemporary photography technology facilitates rapid knowledge acquisition and enhancement of several aspects. Nevertheless, the fundamental process of picture-making needs to be adequately emphasised, resulting in a negligent approach and a lack of comprehension among students regarding the significance of generating high-quality images. This practice-based lesson aims to elucidate to students the fundamental relevance of picking picture image designs as a precursor to producing impactful photography. The chosen topic for creating artistic works is around nature and is centred on the Malacca campus. The PCT256 - Contemporary Photography Practice course selection at Universiti Teknologi MARA was based on its alignment with the initial approach, which involves creating artwork through various photographic processes. The subsequent topic, assessment analysis, will use the scoring rubric to assess the student's comprehension of the material. The fabrication of 58 pieces involved a total of 29 students. This essay will address the production process's various difficulties, problems, and challenges. The research findings indicate that students have a more significant potential for comprehending the process when they engage in iterative attempts to produce optimal outcomes.

Keywords: *Practice-based lessons, alternative photographic processes, picture-making, Cyanotype, Chlorophyll Print.*

INTRODUCTION

The widespread adoption of digital photography technology may lead to decreased scientific research and understanding of chemical photography. The alteration in question may result in the loss of significant knowledge about past artistic, commercial, and experimental photographic processes and technologies. The nature of students who are too dependent on technology causes a lack of critical thinking to carry out the responsibility of learning the process of producing images creatively and proactively. Students will need more ability to solve problems, and at the same time, the lack of information from limited technological advantages will also limit students' active ability to solve problems.

The widespread adoption of digital photography technology may lead to decreased scientific research and understanding of chemical photography. The alteration in question may result in the loss of significant knowledge about past artistic, commercial, and experimental photographic processes and technologies. The nature of students who are too dependent on technology causes a lack of critical thinking to carry out the responsibility of learning the process of producing images creatively and proactively. Students will need more ability to solve problems, and at the same time, the lack of information from limited technological advantages will also limit students' active ability to solve problems.

Our study aims to provide a paradigm that prioritises instructional methods, in contrast to the prevailing body of literature on practised-based learning (PBL) that primarily emphasises curricular aspects. This program is based on the scholarly work of multiple teacher educators who have endeavoured to facilitate the development of innovative teaching techniques that can positively impact all students, particularly those who have previously faced educational disadvantages (Grossman et al., 2018; Loewenberg Ball & Forzani, 2009). The effort is being made by the subject course's resource person in the hopes that future educators will act as mediators to reveal the aesthetic of the traditional photographic technique, particularly in Malaysia. Therefore, prospective educators must not only be able to employ solid instructional approaches effectively but also to engage students in the learning process in the classroom.

LITERATURE REVIEW

Incorporating different supports and materials in the capture of light contributes to the overall message conveyed by the photo object and, under specific conditions, introduces an additional level of interpretation for the spectator. It is critical to evaluate the elements involved in creating an image, including the subject matter photographed, the photosensitive material used to capture it, and the media onto which the resulting image will be transferred.

Practice-Based Lessons in Photography

In practice-based research, the research and the practice function as complementary and interdependent processes that produce new and original forms of knowledge. It is a disciplined method for doing research by applying knowledge (Candy et al., 2021). Practice-based learning has emerged as a cornerstone in photography education (Curtis et al., 2021; Hasse, 2014; Pour et al., 2022), offering a dynamic framework for students to integrate theoretical knowledge with hands-on experience (Marougkas et al., 2023). The idea of experiential learning is fundamental to practice-based learning in photography., (CARR et al., 2019; Romano et al., 2022). According to this theoretical framework, individuals acquire and enhance their abilities by engaging in a cyclical progression of tangible experience, reflective

observation, abstract conceptualisation, and active experimentation. Within photography, this concept pertains to the cyclical procedure of obtaining visual representations, engaging in a meticulous assessment of the outcomes, and enhancing one's methodologies.

The studio setting functions as a central hub for the acquisition of practical knowledge in the field of photography. The concept of the "reflective practitioner" proposed by Schön (1987) holds particular relevance, as it underscores the importance of continuous reflection and critical analysis in the advancement of artistic growth (Guo, 2022; Hartmann et al., 2023; Tan et al., 2023). The iterative feedback cycle, commonly supported by group critiques and individual coaching, fosters the development of students' visual language and technical proficiency (Brill, 2016; Gurbuz & Celik, 2022; Hennessy et al., 2022). During field activities, students must put their skills to the test (Dalinger et al., 2020). Therefore, leading a group discussion and soliciting and understanding individual thought were two examples of practical preparation that must be included in university courses (Matsumoto-Royo & Ramírez-Montoya, 2021).

Moreover, there has been an increased emphasis on interdisciplinary inquiry in contemporary scholarly works. This approach promotes the exploration of diverse genres, styles, and techniques among photography students, broadening their creative range and fostering novel approaches to image creation (Gurbuz & Celik, 2022). The involvement of other disciplines in this context not only cultivates artistic adaptability but also equips students with the necessary skills to navigate the varied challenges of the modern photography industry.

Technology and digital tools are crucial in implementing practice-based learning (Neumann et al., 2021) within modern photography education. The emergence of digital photography has brought about a significant transformation in the field, requiring photographers to possess versatile and flexible technical abilities. This statement follows Wenger's (1996) theory of communities of practice, highlighting the significance of collective learning and the collective examination of developing technologies within the photography community. Practice-based knowledge plays a crucial role in photography education as it facilitates the growth of photographers with technical proficiency, creative ingenuity, and professional adaptability (Mathee, 2022; Papademetriou et al., 2022). Photography educators empower students to navigate the dynamic and ever-evolving world of visual narrative and image production through the adoption of experiential learning, cultivation of reflective practices within the studio, promotion of interdisciplinary exploration, and incorporation of emerging technology (Allard, 2020; Salazar, 2021; Thevenin, 2022).

Alternative Photographic Process

Alternative photography printing is a very imaginative process, mainly due to its capacity to engage with and modify diverse surfaces and objects (Markham, 2021; Opitz, 2022; Post, 2022). The notion and visual representation augment the significance of the physical artefact, endowing it with an unmistakable sense of tangibility (Markham, 2021). The thing in question has remained relatively vital, but it may need to improve its practicality (CARR et al., 2019). However, it is already preferred to follow with a foundation of its significance. It is critical to foster students' understanding of the essential role of photography in producing compelling images that are judged credible for informational purposes (Markham, 2021; Post, 2022).

The realm of alternative photography practices encompasses various techniques and approaches that actively question and disrupt conventional understandings of creating images. This review synthesises relevant material about alternative photographic methods, focusing on their historical origins,

inventive methodologies, and present-day significance. The platform provided by the organisation facilitates opportunities for artists to engage in experimentation, express their vision, and deviate from traditional photographic conventions. As modern practitioners persist in exploring and innovating within this domain, alternative photography maintains its vibrancy and relevance as a distinct part of the more fabulous photographic scene.

I. *Historical Roots and Evolution:* The historical beginnings and evolution of alternative photography techniques can be traced back to the experimental endeavours in photography during the 19th century. Prominent figures such as William Henry Fox Talbot (Brusius et al., 2013) and Anna Atkins (Isenogle, 2019) established the fundamental principles underlying alternative photographic techniques, including cyanotypes and salted paper prints. The methods mentioned above were distinguished by their experiential methodology and unique visual attributes.

II. *Cyanotype and Van Dyke Brown:* The cyanotype technique, which involves using iron salts in contact printing, and the Van Dyke Brown process, which utilises iron-silver salts, have garnered renewed attention in recent years (Politarhos, 2020, 2022). The accessibility of literature is often emphasised, along with its ability to evoke distinctive blue and brown hues. These procedures allow artists to engage in experimentation and show their individuality.

III. *Platinum-Palladium and Gum Bichromate:* Platinum-palladium printing, renowned for its exceptional tonal range and long-lasting quality, has attracted modern practitioners searching for a more archival option than conventional black-and-white printing techniques (Golaz, 2021). The gum bichromate printing process encompasses a mixture of gum Arabic, pigment, and dichromate, which facilitates the creation of painterly effects and imparts a visually intricate and multi-dimensional quality to the final output.

IV. Pinhole and Cameraless Photography: Pinhole photography, which traces back to the earliest attempts with camera obscura, continues to attract contemporary artists (Politarhos, 2020). The field of literature places significant emphasis on the inherent simplicity and potential for serendipitous outcomes associated with creating pinhole images (Politarhos, 2022). Cameraless photography, a technique that rejects conventional cameras in favour of direct exposure approaches, presents a departure from established norms and promotes the investigation of light-sensitive materials (Post, 2022).

V. Chemigrams and Lumen Prints: Chemigrams and lumen prints are two contemporary alternative approaches that expand the possibilities of photographic technology (Wilks, 2015). Chemigrams encompass the deliberate alteration of photographic paper by applying diverse chemical substances. Conversely, lumen prints rely on the direct interaction between plant materials and photographic paper, producing delicate and naturalistic visuals (Morrison, 2023). These procedures exemplify the experimental characteristics inherent in alternative photography (Enfield, 2020).

VI. Digital Emulation of Analog Processes:The current scholarly discourse explores integrating digital technology with analogue processes (Castellano & Vessio, 2021; Lynch & Edgerton Jr, 1987; Prokopovych et al., 2023). Contemporary artists can emulate the visual attributes associated with alternative procedures digitally. Integrating traditional and modern technologies broadens the creative potential of anyone involved in picture creation (Prokopovych et al., 2023).

Alternative Photography Practice-Based Lesson Assessment

The assessment of lessons based on practice in photography education is of utmost importance as it enables the evaluation of student learning outcomes and facilitates the provision of constructive feedback to promote growth and development (Alajmi, 2019). Evaluating photography education lessons grounded in practical application necessitates a comprehensive strategy incorporating many approaches, including authentic assessment, criterion-referenced assessment, and process-oriented assessment. The utilisation of rubrics, peer and self-assessment, and reflective activities serves to enhance and augment the assessment process. By implementing these tactics, educators can empower photography students to actively participate in their creative process and attain significant learning results.

I. Authentic Evaluation: Using authentic evaluation methods, including portfolio reviews, exhibitions, and publication chances, has become increasingly prominent within photography education (Hanifah & Irambona, 2019). These methodologies allow students to demonstrate their work within authentic, real-world settings, facilitating a thorough assessment of their technical proficiencies, creative abilities, and conceptual comprehension (Hanifah & Irambona, 2019; Sotardi & Dutton, 2022).

II. Criterion-Referenced Assessment: Criterion-referenced assessment is a form of evaluation designed to fit with predetermined learning objectives and criteria for each assignment or project (Sternberg et al., 2022). The methodology above guarantees that students are assessed per pre-established norms of competency, facilitating a clear and unbiased evaluation of their academic performance (Pui et al., 2021).

III. Process-Focused Evaluation: Given the iterative nature of alternative photography, evaluation should include the final product and the developmental stages. Evaluating students' abilities to experiment, iterate, and problem-solve during the creative process provides a complete view of their path (Lee & Lee, 2020).

IV. Feedback-Rich Environment: Constructive criticism is essential in alternative photographic education. It enables pupils to identify their strengths and areas for development (Himmetoglu et al., 2020). To foster a culture of continuous development, it is imperative to consistently tailor the feedback process to meet the unique needs of each student. (Byrd & Alexander, 2020; Rahmatullah et al., 2022).

V. Peer and Self-Assessment: Peer and self-assessment are practical tools for fostering students' capacity to critically evaluate their and peers' work (Stančić, 2021). This methodology enables active participation in the evaluation standards and cultivates a culture of constructive criticism within the educational community (Dahal et al., 2022; Dutta et al., 2023).

VI. Reflective Practice and Journals: Practising reflective activities, such as learning journals or reflective essays, fosters the articulation of students' artistic intents, decisions, and growth within the context of the alternative photography process (Kim & Li, 2021). Engaging in self-reflection facilitates the development of metacognitive skills and enhances individuals' comprehension of their ever-evolving artistic identity (Vernon & Paz, 2023).

VII. The Importance of Formative Assessment and Feedback Loops: Emphasising formative assessment, an ongoing process integrated within the learning experience, facilitates the provision of timely feedback that steers students towards enhancing their performance (Vernon

& Paz, 2023). Implementing feedback loops encourages continuous discourse and aids students in improving their academic output (Bishop & Allford, 2019).

RESEARCH METHODOLOGY

The research was conducted in two distinct phases. The first stage of the study focused on comprehending the process of creating images on a sensitive surface. The second stage of the study was synthesising findings related to students' understanding of making the image and enhancing experiential learning and improvement.

For stage 1, we considered several alternative methods for traditionally generating images, following the original photographic photography techniques (Post, 2022). The Daguerreotype and Collodion processes, which involve the application of sensitive chemistry onto a surface to produce an image, are widely known and continue to be employed in contemporary practice. The resultant image exhibits heightened artistic qualities, using somewhat costly, less secure, and less readily available materials. Another alternative photographic technique that utilises non-toxic chemicals, specifically cyanotype, has been selected due to its greater accessibility, enhanced safety, and affordability for student use. Another strategy employs natural resources and undergoes the inherent process of photosynthesis. The process under discussion is Chlorophyll Print, wherein the resultant image results from the leaf surface's exposure to sunlight. This exposure induces a yellow colouration in the exposed areas, while the unexposed regions retain their green hue. The Cyanotype and Chlorophyll Print processes employ the sun as the primary medium for picture formation through exposure. The primary aim of this practice-oriented lesson is to foster students' ability to identify and comprehend the process of image production.

Before beginning the Cyanotype and Chlorophyll Print processes, students must record high-contrast images while retaining line details. Pictures that are under or overexposed will be withdrawn from consideration since they do not match the photography criteria. The image will then be printed in positive and negative form on transparent paper. The negative image will be utilised in the cyanotype process, while the positive image will be used in the chlorophyll print. The subjects for the photographs are based on natural resources and artefacts associated with the state of Melaka.

In stage 2, the artwork created by the students must achieve the desired outcomes. Students must adhere to the procedure exemplified by the instructor to achieve good results. In the event of an unsuccessful work, the learner will engage in iterative attempts until reaching the desired outcome of generating an image. This instructional material aims to facilitate students' comprehension of the fundamental procedures involved in generating visual representations. The artwork produced by the student will be assessed based on the criteria developed by the Resource Person to evaluate the student's comprehension of the fundamental process of image creation.

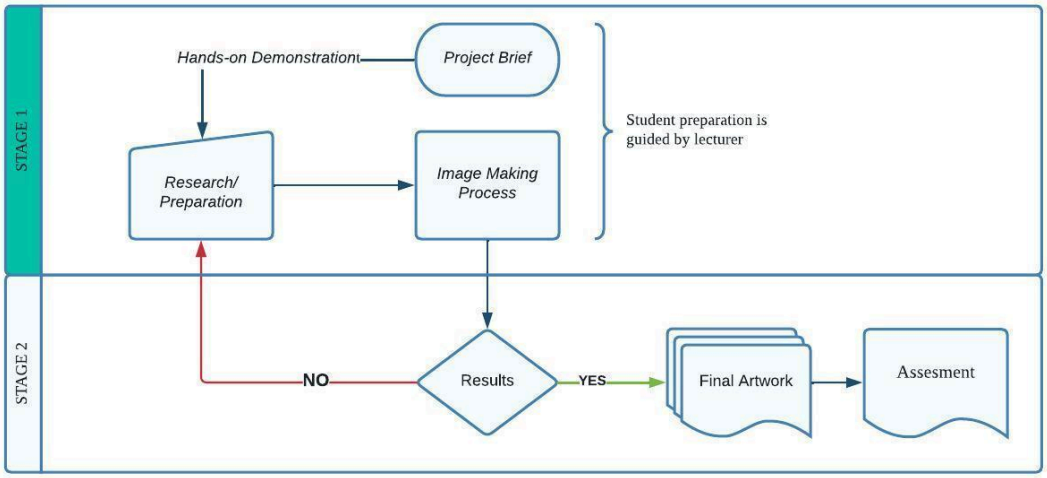

Figure 1. The research design process

The process of preparing and planning

The practice-oriented courses were specifically developed to incorporate various photographic techniques, styles, and creative approaches. Every session was meticulously designed with well-defined learning objectives, anticipated results, and precise assessment criteria. The aforementioned activities occurred inside a controlled studio setting, which offered an optimal atmosphere for engaging in practical experimentation and fostering the development of artistic creativity. Every educational session encompassed demonstrations, practical exercises, and individual project assignments, facilitating a complete learning experience.

A fundamental element of the methodology entailed methodical observations conducted during these experiential sessions to record the students' behaviours, strategic selections, and decision-making procedures. The comprehensive documentation method meticulously gathered field notes, photographs, and videos. Additional qualitative data sources were utilised to visually document the progress and endeavours of the students.

In addition, the educational process included many opportunities for reflection and debriefing, enabling students to articulate and exchange their newly acquired knowledge and insights gained from experiential teachings. This change proved to be of great value for students as it allowed them to reinforce their knowledge and enhance their comprehension of the subject matter. The curriculum demonstrated careful consideration in its creation, aiming to provide a thorough and engaging educational experience in photography. It successfully integrated theoretical concepts, practical applications, and opportunities for reflection, resulting in a holistic approach to learning.

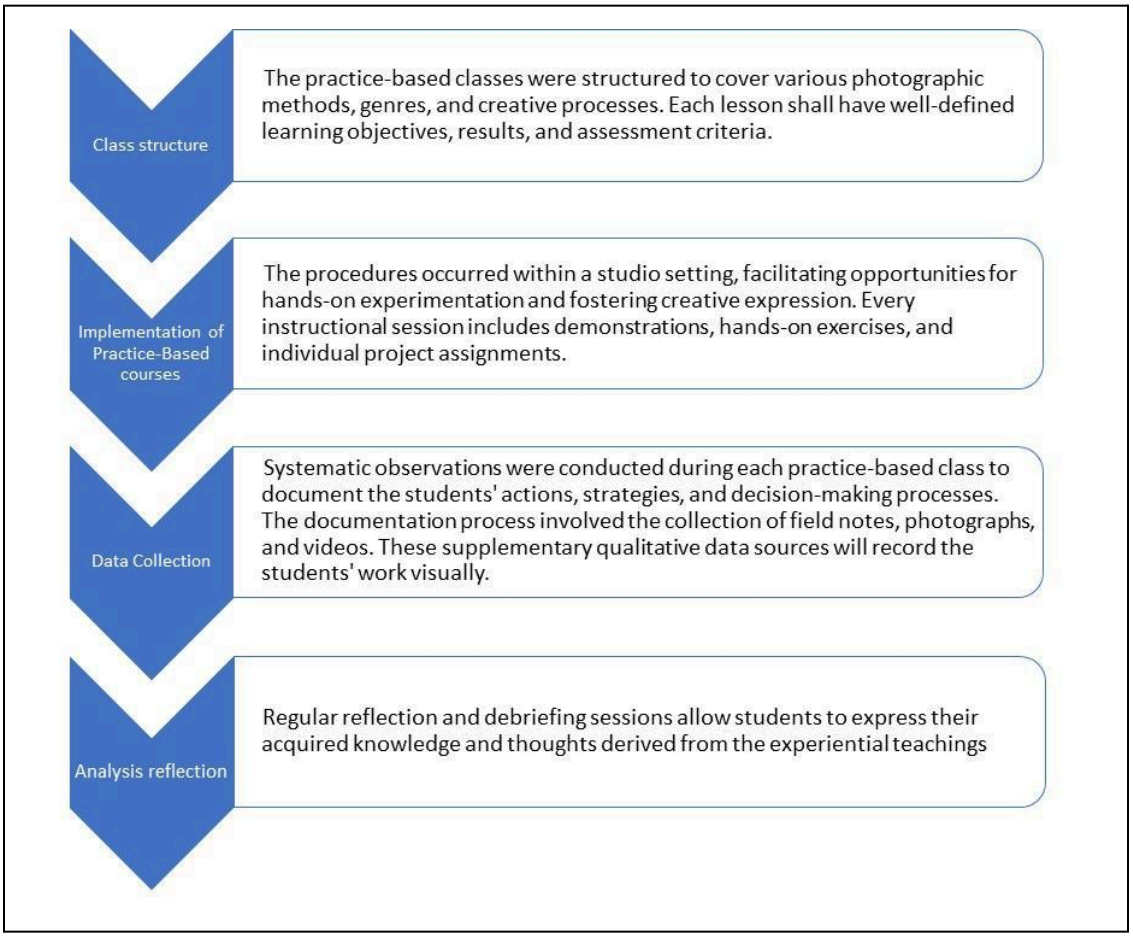

Figure 2: The process of preparing and planning.

The Cyanotype Process

The sequential procedures encompassed in alternative photography include the mixing of chemicals, the preparation of substrates, the printing of images, the processing of the prints, and the subsequent drying of the final product (Politarhos, 2020). Cyanotype is the process of combining two chemicals, potassium ferricyanide and ferric ammonium. Completing the chemical blending process ascertained The preparedness of the printing surface. In the context of the course, students exclusively utilised paper as their medium of choice. However, it is worth noting that any receptive surface, including but not limited to cotton, wool, or canvas, has the potential to be employed for artistic purposes (Post, 2022). Applying the chemical mixture onto the surface of the paper and its subsequent even distribution is facilitated by using a paintbrush. It is imperative to ensure that the paper is subjected to a dark environment to dry after applying the chemical (Politarhos, 2022).

Traditionally, a cyanotype print is subjected to solar exposure, while modern printing technology has introduced alternatives such as a lightbox or UV exposure unit (Post, 2022). The selection of the light source will significantly influence the duration of exposure. After being adequately exposed to light, the print was immersed in a water bath and air dry. Students were encouraged to develop the ability to make sensitive papers to comprehend the concept of image production on a surface. They will investigate how illumination affects the appearance of an image on sensitive materials. The duration and intensity of the

exposure may cause dyes and colourants to diminish or change colour. By exposure to ultraviolet radiation, paper and other organic materials weaken, bleach, and yellow.

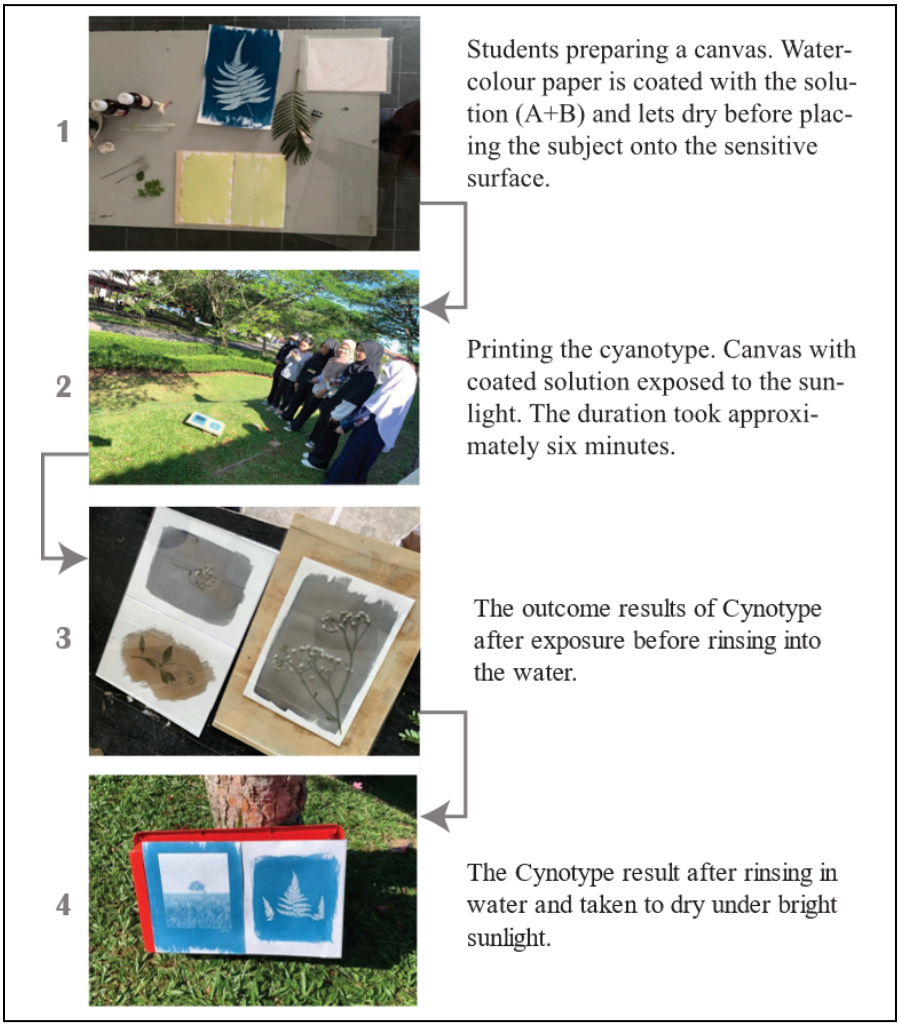

Figure 3. The steps in making the Cyanotype Process
(Source: Author's personal collection)

The Chlorophyll Print Process

The concept of chlorophyll printing technology involves using digital and analogue processing to create a picture through photosynthesis (Basuki, 2015). Engaging in an experiment that explores the effects of shifting sunshine, exposure durations, and diverse leaf specimens can provide a gratifying and humbling means of connecting with the natural world within artistic endeavours. This proposed educational program aims to enhance the comprehension of photography principles and fundamental photographic printing techniques among students pursuing photography (Dona Lowii et al., 2016).

Students need to get a bag of leaves from their residences. Previous research has indicated that vegetable leaves possess a substantial amount of green chlorophyll compared to leaves of other plant varieties. It has been determined that leaves with a waxy texture should be avoided due to their increased

resistance to compression and prolonged duration for chlorophyll release (Niklas & Spatz, 2012). Like the anthotype method, the chlorophyll process is an organic alternative to photography. However, the prints are directly bleached by sunlight onto the surface of leaves using a positive instead of printing on the crushed fruit or plant matter extract (Niklas & Spatz, 2012). The task will teach students how to use local plants' organic, natural characteristics to create visuals.

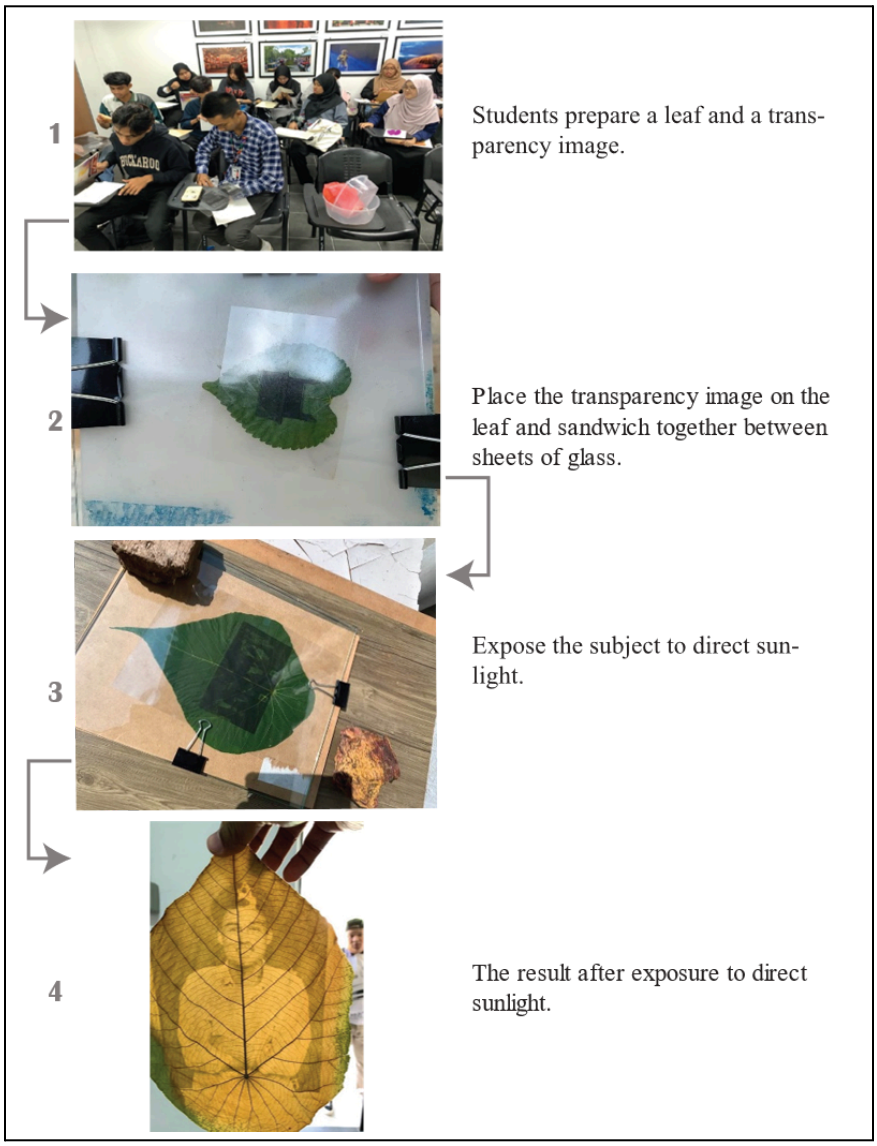

Figure 4. The steps in making the Chlorophyll Print Process
(Source: Author's personal collection)

FINDINGS

The overall group of students demonstrates a keen interest in engaging in the above-mentioned activity due to its incorporation of extracurricular activities. Students derive greater enjoyment from engaging in outdoor exercises instead of being confined to the classroom, solely engrossed in reading books or

engaging in minimal physical movement (Guardino et al., 2019; Hellison, 2000; Mullins et al., 2019). The observation findings indicate that students exhibit heightened concentration and engage in constructive competition to achieve optimal outcomes. Facilitate the seamless operation of the teaching and learning process through indirect contributions. Students gain a deeper comprehension of the fundamental aspects of photography photographs by creating their images instead of solely acquiring theoretical knowledge.

Table 1. Student's performance in making photographic images using the alternative process of image making.

	The ability to achieve the outcome	
Student	**Cyanotype Print**	**Chlorophyll Print**
1	Yes	Yes
2	Yes	Yes
3	Yes	Achieved on the third try because of weather condition
4	Yes	Yes
5	Yes	Achieved on the second try, but only a light image appears
6	Yes	Achieved on the second try because of weather condition
7	Yes	Yes
8	Yes	Yes
9	Yes	Yes
10	Yes	Yes
11	Yes	Yes
12	Yes	Achieved on the third try because of weather condition
13	Yes	Yes
14	Yes	Yes
15	Yes	Yes
16	Yes	Yes
17	Yes	Yes
18	Yes	Achieved on the second try because of weather condition
19	Yes	Achieved on the second try because of weather condition
20	Yes	Yes
21	Yes	Yes
22	Yes	Yes
23	Yes	Yes
24	Yes	Yes
25	Yes	Achieved on the second try because using dry leaf
26	Yes	Yes
27	Yes	Yes
28	Yes	Yes
29	Yes	Yes

The findings suggest that students successfully succeeded in the Cyanotype and Chlorophyll print processes. The notable aspect of Cyanotype prints lies in the ease with which the intended effect can be achieved, as evidenced by the proficient demonstrations of all students. On the other hand, Chlorophyll prints, although they achieved considerable success, exhibited a somewhat elevated level of variability

since three students faced difficulties associated with weather conditions. However, by repeated efforts, they were able to attain favourable results.

Figure 5. The results in making the Cyanotype Print Process.
(Source: Author's personal collection)

The students demonstrated high proficiency in generating images during their initial attempts to execute the Cyanotype process. The procedure employs established chemical principles, and students comprehensively understand production methodologies. Students acquire a comprehensive comprehension of the phenomenon wherein pigments undergo a colour transformation upon exposure to sunlight, as well as the mechanism by which an image materialises through the combination of exposed and covered areas, resulting in the formation of distinct shapes and lines that constitute the image. The strategy employed in imparting knowledge to students is a fusion of traditional and contemporary photographic methodologies. Art and design students can apply their knowledge by actively engaging in experimentation and exploring the diverse outcomes that can be achieved via unintentional and deliberate actions.

Figure 6. The results in making the Chlorophyll Print Process
(Source: Author's personal collection)

Students who were unsuccessful in their initial attempt to produce an image are likely to achieve success in subsequent shots, as their lack of success might be because of the improper timing of the chlorophyll print process concerning weather conditions. Intense sunlight is essential for the Chlorophyll Print process to initiate photosynthesis. Following the subsequent endeavour, the visual representation is generated. When queried about their comprehension of the incident, their response centred on the essential function of sufficient lighting in image formation. The deficiency of light results in the failure of an image.

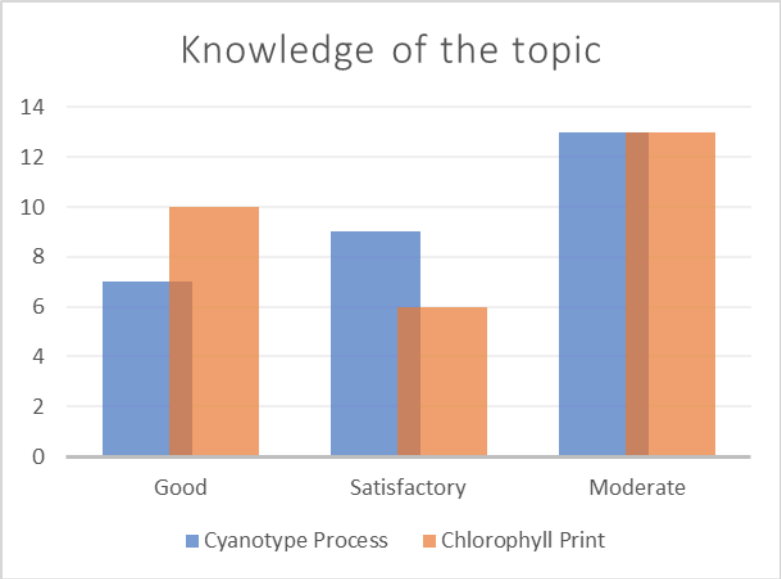

Figure 7. Based on the rubric's trait, students understand the specified topic before the process.

The data analysis reveals that a significant proportion of the shows, precisely 44.8%, can be categorised as moderate regarding their treatment of the cyanotype process. This is followed by 27.5% of shows deemed satisfactory, 24% considered good, and 3.4% classified as poor. In the case of chlorophyll print subjects, the results indicate that 44.8% of the samples were classified as intermediate, 34.4% as good, 17.2% as satisfactory, and 3.4% as poor.

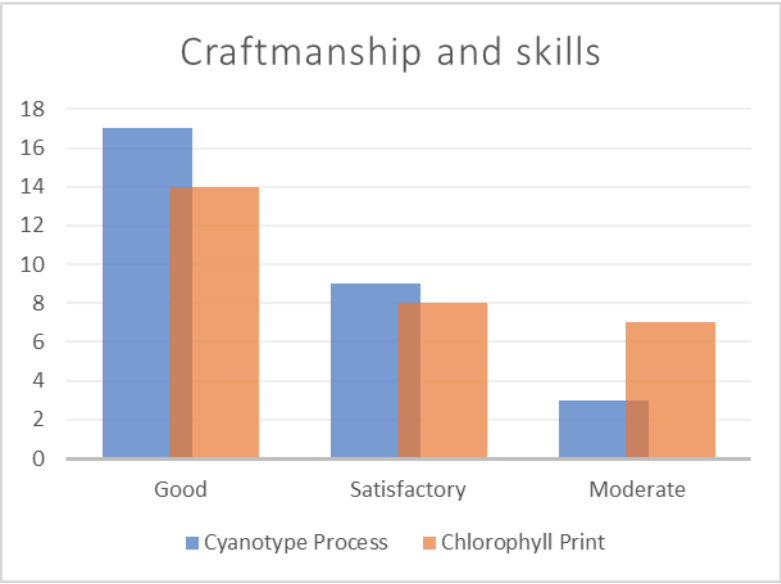

Figure 8. Student's craftsmanship and skills

Concerning the skills presentation, the findings indicate that 58.6% of individuals demonstrated a commendable level of craftsmanship in their understanding and execution of the cyanotype process. Additionally, 31% of participants achieved a satisfactory level of proficiency, while 10.3% exhibited a

moderate level of skill. In the case of the chlorophyll print theme, the data indicates that 48.2% of the samples had a high level of craftsmanship, 27.5% were deemed satisfactory, and 24% had a moderate level of craftsmanship.

Table 2: Subject matter selection for practising the image-making process

Subject Matter		
Student	**Cyanotype Process**	**Chlorophyll Print**
1	Photogram (Leaf)	Portrait
2	Digital Negatives (Architecture)	Portrait
3	Photogram (Leaf)	Portrait
4	Photogram (Leaf)	Architecture
5	Photogram (Leaf)	Landscape
6	Photogram (Leaf)	Architecture
7	Digital Negatives (Portrait)	Landscape
8	Digital Negatives (Portrait)	Architecture
9	Digital Negatives (Landscape)	Landscape
10	Digital Negatives (Architecture)	Architecture
11	Photogram (Leaf)	Landscape
12	Photogram (Leaf)	Architecture
13	Photogram (Leaf)	Landscape
14	Photogram (Leaf)	Portrait
15	Photogram (Leaf)	Architecture
16	Digital Negatives (Landscape)	Architecture
17	Digital Negatives (Architecture)	Architecture
18	Digital Negatives (Architecture)	Architecture
19	Digital Negatives (Architecture)	Architecture
20	Digital Negatives (Architecture)	Architecture
21	Digital Negatives (Architecture)	Architecture
22	Digital Negatives (Architecture)	Architecture
23	Digital Negatives (Architecture)	Architecture
24	Digital Negatives (Architecture)	Architecture
25	Digital Negatives (Landscape)	Landscape
26	Digital Negatives (Landscape)	Landscape
27	Digital Negatives (Landscape)	Landscape
28	Digital Negatives (Landscape)	Landscape
29	Digital Negatives (Landscape)	Landscape

A study found that most students, precisely 65%, utilised digital negatives for their artistic endeavours. Among these students, 34.4% focused on architecture, 24% on landscapes, and 6.89% on portrait photography. Conversely, 34.4% of students chose photogram methods as their primary subject matter when exploring the cyanotype process. In the case of the chlorophyll print theme, the data reveals that most students, precisely 51.7%, opted to utilise architecture as their primary subject matter. Followed by 34.4% of students who chose landscape as their subject, while a mere 13.7% selected portrait as their subject matter.

CONCLUSION

This study presents empirical evidence supporting the viability and efficacy of alternative photographic techniques, namely Cyanotype and Chlorophyll prints, within an educational setting. Although significantly more varied, most pupils successfully used Chlorophyll prints, but Cyanotype prints proved reasonably accessible. Using alternative methodologies presents significant prospects for fostering creative expression and promoting environmental sustainability within photography education.

In summary, before the commencement of the class, most students (44.8%) had a moderate awareness of the specified issue. The global proliferation of digital technology has resulted in a decline in the popularity of alternative picture-making methods in contemporary times. In addition, individuals needing a comprehensive grasp of disciplines such as photography, chemistry, or painting may encounter increased challenges in comprehending the cyanotype process.

Subsequently, following the practical demonstration conducted by the instructor, students exhibited heightened enthusiasm for image creation through unconventional means. The craftsmanship and skills are evident. Table 3 illustrates that a significant proportion, around 50%, of the students exhibited proficiency in creating images by utilising the cyanotype process and chlorophyll print techniques. One effective strategy for enhancing student engagement and cultivating interest in a particular subject involves using practical experiments as a demonstrative tool. It facilitates the active participation of individuals in learning, fosters the integration of theoretical knowledge with practical application, and often leads to a deeper understanding of the subject matter.

The subject matter indicates that students are more inclined to use transparency films for each topic, primarily due to the accessibility of tools, such as printers capable of producing transparency films. The photogram technique was readily accessible within the school vicinity for capturing subjects, focusing on leaves.

The Cyanotype and Chlorophyll Print techniques are artistic procedures that use elements of creativity in the production of images. Engaging in visual art creation through these techniques elicited excitement and a sense of fulfilment among students, potentially enhancing their interest, particularly in photography. The collaborative nature of the experiment likely fostered a sense of enjoyment among students as they engaged in collective idea-sharing and mutual learning, augmenting the activity's overall attractiveness.

Additional avenues for exploration in future studies could encompass the potential integration of these alternative methods within the broader framework of the photography curriculum. Furthermore, it would be beneficial to analyse other elements that may influence the success rates of these processes, such as using different types of plant material for Chlorophyll prints. Plus, it would be beneficial to

conduct a longitudinal study to evaluate the extent to which individuals retain and apply the abilities they have acquired from alternate image-making processes over an extended period.

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