

Study of Photography Result using Blind Test Method

Ricky, Tony Wibowo¹

Program Sarjana Sistem Informasi, Fakultas Ilmu Komputer,
Universitas Internasional Batam, Indonesia
¹tony.wibowo@uib.ac.id

Abstract

This study aims to determine whether using blind test method able to tell that the average person can differentiate the photos that were taken with DSLR camera, mirrorless camera, and smartphone camera. Aside from using blind test method, this research also used qualitative research method where we collected the data through online distribution by utilizing google form and social media application called line in distributing questionnaires to the social media line group chat of UIB majoring in Information System class of 2015 which were estimated about 140 people. In filling out the questionnaire there were 30 students who fill out the online questionnaire that had been distributed. The result of this research is that the respondents still cannot distinguish the difference of photos taken by DSLR camera, mirrorless camera, and smartphone camera. Majority of people are still unable to point out distinctively to understand the results of those three. This could be the result of the technological advancement of photography tools already advanced so far, so that common tool can produce results that can't be discerned from professional tool.

Keywords: Photography, Blind Test, Qualitative Research, DSLR Camera, Mirrorless Camera, Smartphone Camera

Abstrak

Penelitian ini bertujuan untuk mengetahui apakah menggunakan metode blind test dapat menyatakan bahwa user awam dapat membedakan foto yang diambil dengan kamera DSLR, kamera mirrorless, dan kamera smartphone. Selain menggunakan metode blind test, penelitian ini juga menggunakan metode penelitian kualitatif dimana kami mengumpulkan data melalui distribusi online dengan menggunakan google form dan aplikasi media sosial yang disebut line dalam mendistribusikan kuesioner ke grup media sosial UIB jurusan Sistem Informasi angkatan 2015 yang diperkirakan sekitar 140 orang. Dalam mengisi kuesioner ada 30 siswa yang mengisi kuesioner online yang telah didistribusikan. Hasil penelitian ini adalah bahwa responden masih tidak dapat membedakan perbedaan foto yang diambil oleh kamera DSLR, kamera mirrorless, dan kamera smartphone. Mayoritas orang masih belum dapat menunjukkan secara khusus untuk memahami hasil dari ketiganya. Ini bisa jadi hasil dari kemajuan teknologi alat fotografi yang sudah berkembang sejauh ini, sehingga alat umum dapat menghasilkan hasil yang tidak dapat dilihat dari alat profesional.

Kata Kunci: Fotografi, Blind Test, Metode Penelitian Kualitatif, Kamera DSLR, Kamera Mirrorless, Kamera Smartphone

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I. INTRODUCTORY

For the last decade, we have witnessed the significant improvement of information technology to support human being in their daily lives such as smartphone and internet. It is a kind of tool designed in order to connect between people, possibly also will lead to a kind of disconnection of society from their family and their friends. So, people nowadays cannot live without a smartphone and internet

[1]. At the same kind of time, the matter of high-adoption of smartphone and increasing quality of smartphone-cameras brings people taking photos more frequently. Research showed that with people taking more pictures, they can become happier, reducing stress, and can help people to enhance their mood[2]. This behavior and highly popular social media created a new era of digital photography where all people can capture and share their digital picture widely.

Digital Photography is a digitalization of images changes from analogue photography [3]. Tools for photographer is the widely known DSLR camera and emerging trend in mirrorless camera. Digital Single Lens Reflex camera (DSLR) was introduced in 1980s-1990s to replace SLR camera where it still uses film to capture photo [4]. Canon and Nikon rapidly adopted this product at the time the era of digital revolution touch the market, thereby save their superiority in resources and also capabilities. Digital photography is using a picture sensor that allow photographers to do changing such photographic setup just before shooting. They can too, re-use the slot of memory-card and review a picture immediately with a digital-display not requiring the film exchange and the development.

Mirrorless camera was at first introduced in the year 2008 by Japanese companies, Olympus and also Panasonic which is a kind much smaller and rather lighter than compare to the DSLR-camera with interchangeable lens-ability and also preequipped with some sensors of the similar size entry level DSLR-cameras but smaller body [4]. Mirrorless cameras allowed for images immediately accessed and the removal of the pantaprism cut down on the over height also much more compact than the DSLR by not only have size benefits, but also has the similar photo quality due to the similar image sensor that they employ [5].

Smartphone has also emerge as an integral region of the field of medical recently to provide quick and clear reception to electronically send and receive digital pictures, instant messaging like WhatsApp and also virtual and private network, client interface service, along with mobile-healthcare computing device. Statistical result analysis for comparison in the area of the quality of non-mydratic-fundus photographs that displayed on one iPhone 3G versus one desktop computer shown the i-Phone's image quality appear to be superior to same image that viewed on computer display [6].

Blind test is a scientific experiment where some of the people that involved are prevented from knowing any information that might lead to conscious or subconscious bias from their side, which is invalidating the result [7]. Research found that with blind test method evaluation results can generate much higher naturalness than former researches and achieve competitive embedding rate [8].

Scope of Problem from this research consist of:

1. Can average people differentiate the picture taken between DSLR, mirrorless, and smartphone?
2. How to use blind test method to find out whether the average people can differentiate the picture taken between DSLR, mirrorless, and smartphone?

The objectives of this project are:

1. To determine whether using blind test can tell that the average people can differentiate the picture taken between DSLR, mirrorless, and smartphone.
2. To fulfill one of the requirements to graduate with a University Degree.
3. To contribute to the knowledge of photography especially public perception of photography.

II. LITERATURE REVIEW

Photography has a history of one hundred years. The birth of this great invention has now become a part of people's life. In the one hundred years of development, photographic equipment condition and technical innovation developed towards a much better effect, lower cost and more convenience [9]. In recent years, with the widespread application of smartphones, a revolution has breakthrough in the human history of photography that broke the limits of high cost and complex operating technology of camera equipment. Mobile phones and corresponding software make photography more popular and become the most distinctive feature and irresistible development trend of today's photography. And in their survey results, 97% of students have daily shooting basis. About 5% of students used professional tools like DSLR, 53% of students used ordinary mobile phone, and 42% of them used mobile phone with professional photography function. These conclude that nowadays people are less likely to choose professional tools like DSLR camera because of the superior image quality that taken with only a smartphone camera.

Certain image quality from smartphone cameras compared with one DSLR camera with

using the target image at the edges, the quality value of images is very important in order to do image processing along with object extraction from subsequent processes that are keep influenced by this [10]. In his final result of experimental process, he has concluded that image quality from one DSLR along with smartphone cameras in view of the geometric and radiometric value of qualities of the smartphone cameras are still comparable to these of DSLR camera with exception of lens distortion value of parameters.

In the other research [11] show appropriateness of mirrorless kind of cameras in the terrestrial photogrammetric applications, the digital cameras that are called mirrorless systems which can be utilized with the different kind of lens combinations have become obtained for utilizing very similar applications. The small dimensions of mirrorless cameras in relative to the mirrored ones are worthy of attention and the main separation between those two camera types is the fact of existing of the mirror operation which means that the arriving beam towards lens is rather different in the way beam reaches the sensor device, as for DSLR cameras have a bigger body and also heavier batteries are utilized for this type of body. So, the goal from their research is to test whether the mirrorless camera can accurately compose a 3D model for terrestrial photogrammetric software's such as the documentation of the cultural heritage, industrial measurements, and archaeological excavations in comparison to the DSLR. The result is the mirrored camera becomes more consistent in itself with follow to the change of the model coordinates for the models created with the photographs taken at a different time, with almost the similar ground of sample distance. As a result, it has been decided that point cloud and mirrorless cameras produced using the photographs taken from those cameras able to be used for terrestrial photogrammetric studies.

The blind test as a scientific method of experiment where individuals involved in the experiment have little to no information where its result lead to. Its one of the best way to avoid bias based on preference and understanding of said individuals thus in turn invalidate the test result [7]. Base on Research [12], blind testing's are a significant tool in which should be utilized by the whole analytical areas as an approximation for validating the method. In his research, where he

has studied the method in; lithic microwear have a boundary blind test dataset from which to create an understanding of approximation. This method is used to highlight on specific areas of the methodological weakness in which can be targeted by the developmental research. It draws the value in having a big dataset of a consistent designed blind-tests using method evaluation and also suggesting that areas such as lithic microwear analysis will greatly benefit from such testing.

A. Blind Test

Blind testing's are a scientific kind of experiment in which some of the persons involved are limited from understanding of the information in which it could lead to subconscious or conscious bias on their part that will invalidating results (Jun, 2015). Blind testing's are important tools in which should be utilized by the whole analytical field as an approximation for validating methods [12].

The benefit of using blind test method where they blind test the participants in steganography based on text poetry generation using markov chain model were conducted both machine and human evaluation results show that the method can generate text poetry with higher naturalness than former researches and achieve competitive embedding rate than other method [8]. Research about soundproofing and mechanical properties of nanofiller reinforced polypropylene composites where he used blind test to investigate which kind of nanocomposite shows the best soundproofing property by response of the ear in order to verify and prove the correctness of experiment results [7]. The results of his test more people can identify the specimens which were assembled tightly in a holding tube where the large sound that they heard shows the nanocomposites were better soundproofing property than the others.

B. Multimedia

Multimedia is a media and content which uses a combination of different forms of content. The term "multi" can be used as a noun or as an adjective which means an intermediary with some form of content. The term from the word media is a form of tradition from material that is printed or hand made [13]. Multimedia is a combination of text, audio, images, animation, and video. In addition, multimedia also has the benefit of transforming information from a

static form into a dynamic form where it is more interesting, interactive, and easy to understand so that it allows the audience to understand the information that they want to convey [14].

There are 5 elements of multimedia [15], which are:

1. Text

The form of multimedia data that is most easily to store and control is text. Text can form words, letters or narratives in multimedia that present language. Text is a symbol in the form of a visual medium used to explain spoken language. Text has various types of shapes or types (for example: Times New Roman, Arial, Comic San MS), size and color. The unit of the size of a text consists of length and size. Length usually states the amount of text in a word or page. Size states whether the size of a letter is small or large [15]. The text is divided into two types of fonts, Serif and Sans Serif. Serif is the first type of font created in the era of metal-based printing. Serif font is a type of font that is often used, has scratches at the end of letters, while Sans Serif does not have it [16].

2. Image (Graph)

A graph is a visual based medium. Whole two-dimensional image is a graph. If the image is rendered in three-dimensional (3D) form, it is still presented through a two-dimensional medium. This includes images presented through paper, television or monitor screens. Graphics can present reality or just shaped iconic. An example of a graph that presents reality is a photo and an example of an iconic graph is a cartoon like an image that is usually installed on a toilet door to distinguish between male and female toilets. Graph composed of the still images and moving images. Examples of still images are digital images, photos, posters, and paintings. Still images are measured by the size (often called the canvas size)

and the resolution. Examples of moving of images are video, animation, and film. Besides being measured using size and resolution, moving images also have a duration. The reason for using images in multimedia presentations or publications is because they attract more attention and can reduce boredom compared to text. Images can summarize, present complex data in new and more useful ways [15]. There are two types of image which are, Vector and Bitmap. Vector images are images arranged from mathematical formulas that describe each object in an image with a line. While the Bitmap Image is a set of pixels arranged in a square box and usually the image quality will be better [17].

3. Audio

Audio or sound-based medium is anything that can be heard using the sense of hearing. Example: narration, song, sound effect, back sound. Multimedia without sound is only called unimedia, not multimedia. Sound can be added in multimedia through voice, music and sound effects [15]. There are many kinds of sound types which are AIFF, WAV, MIDI, MP3, AAC, and FLAC [18].

4. Video

Video provides rich and living resources for multimedia applications [15]. Video is a combination of several supporting elements that interact with each other to form a video [19]. Videos consist of several types which are, MOV, AVI, MPG, MPEG, MKV, FLV, and MP4 [18].

5. Animation

In multimedia, animation is the use of computers to create motion on the screen. Animation will give a more nuanced feel to the application that will be made, so that the application that is made will looks attractive [15]. There

are 3 types of animations which are, Traditional, Stop Motion, and Computers. Traditional animation is an animation where all frames are used to create an illusion of hand-drawn motion on paper. Stop Motion animation is an animation that uses real-world objects that are manipulated with photography whenever there is movement between frames. Computer animation, also called CGI, is a type of animation that creates animated movements with computer graphics [20].

Multimedia is divided into 2 [21] which are:

1. Linear Multimedia
Linear Multimedia is a multimedia that is incomplete with a controller that can be used by users.
2. Interactive Multimedia
Interactive Multimedia is a multimedia complete with a controller that can be used by users. Therefore, users can choose the process they want to do next.

C. Photography

In the period since the 1990s, digital photography and digital imaging have developed as major creative industries and have become a taken for granted part of the media landscape. Photography was born into a critical age, and much of the discussion of the medium has been concerned to define it and to distinguish it from other practices. There has never, at any one time, been a single object, practice or form that is photography; rather, it has always consisted of different kinds of work and types of image which in turn served different material and social uses [22].

Many people had love taken photos of their everyday life to remember and collect memories [5]. From cell phone to other portable devices, it is true that various technologies allow us to take pictures easily and store them securely. It is important to understand that one of the main purposes of using a camera is to capture one's memories. We cannot imagine how human life will be without memories. Thanks to memories, people can recollect the past, feel the present and experience various feelings. In his study, he concluded that with

photography, people can live a much more convenient, satisfactory feeling, and unique experience. And he believes that by using camera for photography, people can achieve higher level of satisfaction and their value of memories can be elevated.

A research stated that photography has long enhanced too in practice of dermatology which is called Clinical Photography [23]. With clinical photography, it can enhance medical care, research, and teaching. It also facilitated the use of photographs for patient counselling, efficient tracking of disease progression, incorporation of visual data into patients' medical records, consultation with colleagues and supervisors, and has contributed to both in teaching and research. In their research which is entitled with patient perspectives on medical photography in dermatology, they recruited 400 patients in broad range of ages to do survey in willingness to allow photographs to be used in a variety of settings. Their results were 88% of patients had agreed that photography can enhance their quality of care in use of medical, teaching, and research purposes.

D. DSLR camera

Digital Single Lens Reflex camera (DSLR) was firstly introduced in 1980s-1990s to replace SLR camera where it still uses film to capture photo. Canon and Nikon rapidly adopted and promoted this product when the digital revolution hit the market, thereby preserving their superiority in terms of resources and capabilities. Digital photography using an image sensor allows photographers to change such photographic settings just before or even after shooting. They can also re-use the memory card and review an image immediately through a digital display not requiring film exchange and development [4]. The most broadly purchased consumer camera was the point and shoot. The design allowed users to simply press a button and the camera would automatically produce a decent quality photo. Professional photographers and photo enthusiasts alike tend to use DSLR cameras. The image quality produced by these cameras is more accurate and of higher quality than the analogue SLR cameras [5].

E. Mirrorless camera

The mirrorless camera was first introduced in 2008 by the Japanese companies, Olympus

and Panasonic which is much smaller and lighter than the DSLR camera with interchangeable-lens ability and also comes with sensors of the same size entry-level DSLR cameras but in a way much smaller body [4]. The reduction of these components reduced the overall size and weight to the camera and allowed the mirror-less camera to have a smaller form factor. Not only have size benefits, but also have a similar photo quality to that of the SLR camera. This is due to the physically similar image sensor that they employ [5].

F. Smartphone camera

The technological transformation of bodies, and the role of photography in that transformation, needs to be understood as both the physical manipulation of human and animal bodies and also the translation of the body into data, which accelerated in proportion to the perceived security risks and tightened border controls of the so-called ‘war on terror’. The smartphone has accelerated the processes of photographic production, circulation and consumption: they happen instantly, at the touch of a finger on a handheld screen. Photography appears at once less material and closer to the body (the image that circulates never leaves your hand). It has become an instant and transient form of communication – for instance, in apps such as ‘Snapchat’ where images disappear after a period of 1 to 10 seconds. While current artistic and curatorial practice seems less focused on the body as a theme, there is renewed interest in the materiality of the photograph, in response to changes in our embodied experience of photography [22].

G. Adobe Photoshop CC

Adobe Photoshop is a software created by Adobe System company, which is specialized for editing photos or images and making effects. This software widely used by digital photographers and advertising companies so that it is considered a market leader for image processing software [24]. Adobe Photoshop is a design application program that is useful for designing images, editing graphic images, and processing digital photos [25]. There are several features and tools in Adobe Photoshop CC [26], which are:

1. Menu Bar, menu bar is at the top of the system's main dialog box. Menu bar

system in Adobe Photoshop uses the standard Windows operating system which is very easy to use.

2. Tool Box, located on the left side of the system's main dialog box. In this toolbox it contains the tools used to create and modify images.
3. Palette, located on the right side of the system's main dialog box. This palette consists of several types, each of which has a unique function to organize, observe, or modify images or photos that are being processed.
4. Canvas/Active Image Area, is the tab area of the image that you are opening. Located at the bottom of the Tool Option Bar. This canvas is useful for opening more than one image and photo files simultaneously.
5. Tool Option Bar, located right below the menu bar. This tool bar option is useful for setting up a tool that we are using to edit images.
6. Status Bar, located at the very bottom. It has function to contain the image file information.

III. METHODOLOGY

This study is a Qualitative Research, which is a type of research that produces findings that cannot be achieved using statistical procedures or in other quantitative ways[27]. This study also uses Blind Test method, a scientific experiment method which prevented bias result because of prior knowledge and preference. These two methods are aim to solve the problem whether average people can differentiate the images that are taken with DSLR camera, mirrorless camera, and smartphone camera. Below is the research flow for this study is shown in Figure 1.

H. Camera Specification

The camera specification that were used in this study are detailed and shown in Table 1.

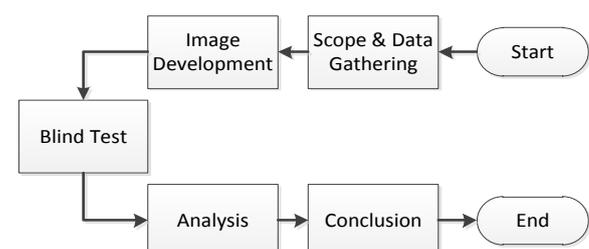


Figure 1. Research Flow

Table 1. Specification Sheets

Gadget	Brand	Model	Specifications	
DSLR Camera	Canon	EOS 600D	Pixel Count	18.7MP
			Sensor Size	22.3×14.9mm
			Pixel	5184×3456
			Dimensions	
Mirrorless Camera	Sony	A6300	Pixel Count	24.3MP
			Sensor Size	23.5×15.6mm
			Pixel	6000×4000
			Dimensions	
Smartphone Camera	Samsung	Galaxy S7 Edge	Pixel Count	12MP
			Sensor Size	6.69×5.55mm
			Pixel	4000×3000
			Dimensions	

As the studies that we mentioned before in chapter II, the camera specification that we used is above the majority specification for DSLR camera, mirrorless camera, and smartphone camera such as DSLR is Canon EOS 60D, mirrorless is Sony A6000, and smartphone iPhone 6s where the DSLR that we used is greater in pixel counts, where the mirrorless camera that we used is in the same specifications as the majority but is a newer model, and last the smartphone that we used is greater in sensor size than the majority specs.

I. Image Development

In this part, we started to state the themes for the photo taking and decided to make it 10 kinds of themes consist of:

1. Close-Up Shot

In this particular theme, the main object of the close-up shot was a flower. Which was taken under the same angle close-up front, in the same lighting where it's outdoor, and the same close distance across all of the gadgets.

2. Standard daylight outdoor shot

In this theme, the main object of the standard daylight outdoor shot was a statue. Which was taken under the same angle portrait shot, in the same lighting where it's outdoor, and the same far distance across all of the gadgets.

3. Well lighting indoor shot

In this theme, the main object of the well lighting indoor shot was a toy figure. Which was taken under the same close up front, in the same lighting where it's indoor but well lit, and the same close distance across all of the gadgets.

4. Dynamic range comparison shot

In this theme, the main object of the dynamic range shot was a person standing in front of the scene where there were clouds behind the scene and the bridge between them. Taken under the same landscape shot, in the same lighting where it's outdoor, and the same mid-far distance across all of the gadgets.

5. Depth of field shot

In this theme, the main object of the depth of field shot was an autumn leaf. Taken under the same portrait shot, in the same lighting where it's outdoor, and the same close distance across all of the gadgets.

6. Portrait shot

In this theme, the main object of the portrait shot was a person standing. Taken under the same portrait half body shot, in the same lighting where it's outdoor, and the same mid-close distance across all of the gadgets.

7. Indoor low light shot

In this theme, the main object of the indoor low light shot was a toy figure which was taken under the same close up front, in the same lighting where it's indoor but not lit enough, and the same close distance across all of the gadgets.

8. Outdoor low light shot

In this theme, the main object of the outdoor low light shot was a road sign which was taken under the same portrait shot, in the same lighting where it's outdoor but it's dark and the only light source was from the street lamp, and the same mid-far distance across all of the gadgets.

8. Color reproduction

In this theme, the main object of the color reproduction was a garden which was taken under the same landscape shot, in the same lighting where it's

outdoor in daylight, and the same mid-far distance across all of the gadgets.

10. Landscape shot

In this theme, the main object of the landscape shot was a building which was taken under the same landscape shot, in the same lighting where it's outdoor in daylight, and the same far distance across all of the gadgets.

All of these themes would be taken with the DSLR camera, mirrorless camera, and smartphone camera in full auto mode, same angle, same lighting condition, and without any additional filter.

J. Building Questionnaire (Blind Test)

In this part, we firstly edited all of the sample pictures from 10 themes and divided into each group. So, each theme consists three photos that were taken in the same condition that were edited into one single picture with each picture are labeled with A, B, and C sample. After that we put all of the pictures into the questionnaire. It would make a total of 10 questions because of the 10 themes that were stated before.

K. Scoring System

The scoring system in the questionnaire would be points system. The respondent would be asked to answer which picture are taken with DSLR camera, mirrorless camera, and smartphone camera. With each picture that are correct, the related gadget would get +3 points and the wrong one would get +1 points example, if sample A picture is taken with a DSLR camera, and the respondent answer it with the correct answer, then the +3 points will be added to the system.

So, if the respondent can perfectly identify 3 of the cameras that were shot from, then all of the camera points will all be in the same high scores. If the respondent cannot identify any cameras at all, then all of the camera points will all be in the same low scores. And if the respondent can identify only one of the cameras, then the related camera points will be the highest among all. This can be used to proof whether average user can differentiate the picture taken by a DSLR camera, mirrorless camera, and smartphone camera.

IV. IMPLEMENTATION

A. Data Gathering

The data and information in this study are the types of primary data collected through online distribution by utilizing google form and social media application line in distributing questionnaires to students who use the instant messaging line as a medium for delivering information.

The questionnaire was distributed to the social media line group chat of UIB majoring in Information System class of 2015 which were estimated at 140 people. In filling out the questionnaire there were 30 students who fill out the online questionnaire that had been distributed.

B. Respondent Description

The population sampled in this study were people in the social media line group chat of the Information System class of 2015 at Universitas Internasional Batam. The characteristics of the respondents in this study were gender, age, education, experience in photography, gadget, and occupation which will be shown in Figure 2, 3, 4, 5, 6, and 7.

According to the Figure 2 we can see that the majority of the gender of our respondents are male with the total of 18 respondents (60%). The female with the total of 12 respondents (40%).

According to Figure 3 we can see that the majority of the age of our respondents are mostly aged between 18-23 with the total of 26 respondents (86.7%), the second are aged between 24-30 with the total of 3 respondents (10%), and the last is aged between 31-40 (3.3%).

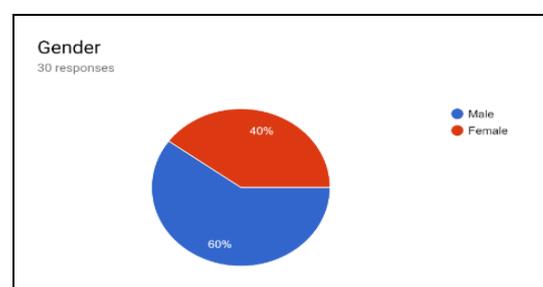


Figure 2. Respondent's Gender

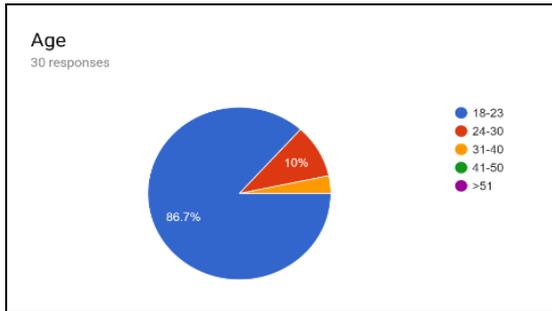


Figure 3. Respondent's Age

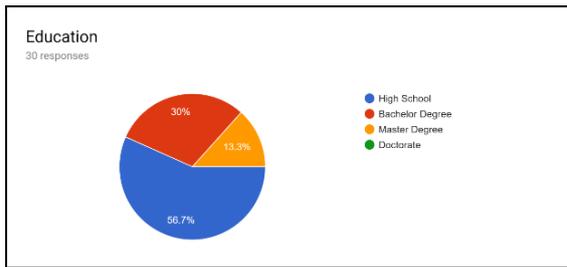


Figure 4. Respondent's Education

According to Figure 4, the majority of the education of our respondents are mostly high school in the total of 17 respondents (56.7%), the second are bachelor degree in the total of 9 respondents (30%), and the last are master degree in the total of 4 respondents (13.3%).

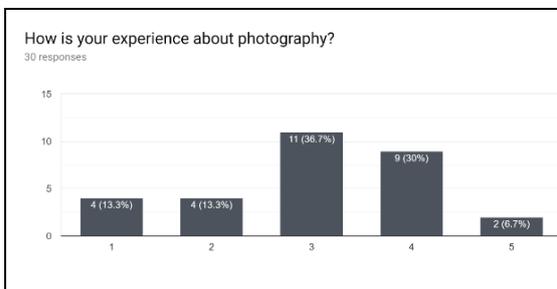


Figure 5. Respondent's Experience in Photography

According to Figure 5, most of the respondents rated themselves in the average score of 3 out of 5 where 1 is inexperienced and 5 is experienced with the total of 11 respondents (36.7%), the second is 4 out of 5 with the total of 9 respondents (30%), the third are both in the same score in 1 and 2 out of 5 with the total of 8 respondents (26.6%). Lastly the total with the score rated 5 out of 5 are 2 respondents (6.7%).

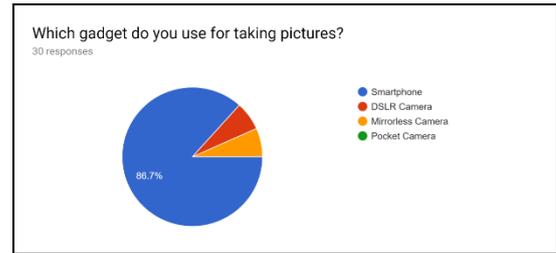


Figure 6. Respondent's Gadget

According to the Figure 6, the gadget that respondents uses for taking pictures are mostly from their smartphone which in the total of 26 respondents (86.7%), second are both the DSLR camera and mirrorless camera which in the total of 4 respondents (13.3%).

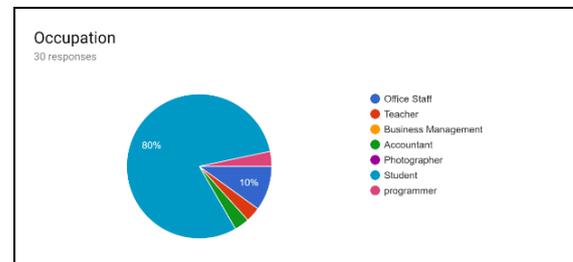


Figure 7. Respondent's Occupation

According to the Figure 7, the respondents are mainly students where the total is 24 respondents (80%), second is the office staff where the total is 3 respondents (10%), others were teacher, accountant, and programmer where total is 3 respondents (10%).

So, as we can see from the total score of 10 photos are very similarly close. Using our point-based system, this result indicate strongly that the average person still cannot distinguish the difference of photos taken by DSLR camera, mirrorless camera, and smartphone camera. It is consistent across all of the photos except in close-up shot, where the result of DSLR camera can be identified by the average person. While people tend to be confused of the photos that were taken by mirrorless camera and smartphone camera. DSLR capability to capture detail and light is much better than mirrorless and smartphone. Even though in photo 3 smartphone camera can be recognized but since DSLR camera and mirrorless camera is not really significantly different in score, thus it can't be concluded whether average people can differentiate the results by smartphone and the other 2 cameras.

Conclusively, the respondents did not aware and unable to differentiate unedited photo results of DSLR camera, mirrorless camera, and smartphone camera. Majority of people are still unable to point out distinctively to understand the results of those three. This could be the result of the technological advancement of photography tools already advanced so far, so that common tool can produce results that can't be discerned from professional tool. Without editing and specialized tools like special lens and lighting, the result of everyday smartphone can actually rival raw result of qualified photographer.

Table 2. Camera Score

Photos and Description	DSLR Score	Mirrorless Score	Smartphone Score
Photo 1 Close-up shot (Close-up front shot, daylight outdoor)	70	46	56
Photo 2 Color reproduction (Landscape shot, daylight outdoor)	48	62	50
Photo 3 Portrait shot (Portrait half body shot, daylight outdoor)	52	54	70
Photo 4 Standard daylight outdoor (Portrait shot, daylight outdoor)	60	64	64
Photo 5 Depth of field (Portrait shot, daylight outdoor)	60	50	60
Photo 6 Dynamic range (Landscape shot, daylight outdoor)	52	54	54
Photo 7 Landscape (Landscape shot, daylight outdoor)	46	56	42
Photo 8 Well lighting indoor (Close-up front shot, daylight indoor)	56	50	54
Photo 9 Indoor low light (Close-up front shot, daylight indoor)	52	52	60
Photo 10 Outdoor low light (Portrait shot, night time outdoor)	48	58	56
Total Score	544	546	566

C. Implication

This study results in conclusion that the respondents were unaware and unable to differentiate result of DSLR camera, mirrorless camera and smartphone camera. This indicate there are notion in public that result of professionals and amateurs are actually can't be discerned. Editing and specialized tool could be difference factor for professional result, but if editing skill is more common, this will result in more ambiguous between results of DSLR camera, mirrorless camera and smartphone camera.

Technology are upgrading every day and edges can't be maintained as long as previous time. Professional photographer needs to push the limits of their tool and editing skill to be able to differentiate themselves from amateurs. Blind test proved that result of photography by naked eye can't be that easily discerned, but aesthetic nuance and photo structured will be

the key of making artistic and professional photo.

Meanwhile in research avenue, this study is a precedent of how public can differentiate photograph. There are still more avenues left unexplored such as culture aspect difference, editing aspect and usage of specialized tool. More research of effect of photo for public and specific community will also need to be discovered. More study needs to be done to understand more of photography effect on wide community.

V. CONCLUSION

The conclusions for this research of photography result using blind test method consists of:

1. The problem of this research is whether the average person can differentiate the photos that were taken with DSLR camera, mirrorless camera, and smartphone camera.
2. The research methods that was used in this research is qualitative research method and the analytical method is blind test method.
3. We gather the results using point-based system where with each picture that are correct, the related gadget would get +3 points and the wrong one would get +1 points then the total results of the three devices were compared.
4. The result of this research is the respondents were unable to differentiate unedited photos that were taken by DSLR camera, mirrorless camera, and smartphone camera.
5. Professional photographer needs to push the limits of their tool and editing skill to be able to differentiate themselves from amateurs. Because technically their gap is starting to be close enough.

The recommendations for this research of photography result using blind test method consist of:

1. As the technology are keep improving every day, professional photographers need to push their work harder to be able for the public to differentiate their artwork from the amateurs.
2. There are still more avenues left unexplored such as culture aspect difference, editing aspect and usage of specialized tool. More research of effect of photo for public and specific community will also need to be

discovered. More study needs to be done to understand more of photography effect on wide community.

3. There are still a lot of room for the future research such as blind testing people in cinematography or video making using these three cameras. Is the technology today competitive enough between the professional gears and the compact size gear? There are still a lot of head room to improve in the much further research in the future.

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