CHAPTER EIGHT

The Basics of Basic Photography

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Introduction

Photography is the science, art, application and practice of creating durable images by recording light or other electromagnetic radiation, either electronically utilizing an image sensor, or chemically through a light-sensitive material such as photographic film. Cox (2022) defines Photography as "the art of capturing light with a camera, usually via a digital sensor or film, to create an image." Photography can serve many purposes and have many facets. Photography can tell a story, it can capture a moment in time, can document, and can be art. There are many technical uses for photography as well as social and creative ones. How we use and interact with photography is highly personal and will differ from one person to the next. Photography can be an art form, but not all photographs are created to be artworks or forms of artistic expression. It took time for photography to be truly recognized as a valid art form. However, in the present day, many art museums and art galleries now exhibit photographic artworks (Eden Gallery, 2021)
Typically, a lens is used to focus the light reflected or emitted from objects into a real image on the light-sensitive surface inside a camera during a timed exposure.

An electronic image sensor produces an electrical charge at each pixel, which is electronically processed and stored in a digital image file for subsequent display or processing. The result with photographic emulsion is an invisible latent image, which is later chemically "developed" into a visible image, either negative or positive depending on the purpose of the photographic material and the method of processing. A negative image on film is traditionally used to photographically create a positive image on a paper base, known as a print, either by using an enlarger or by contact printing.

Colour photography started to become popular and accessible with the release of Eastman Kodak's "Kodachrome" film in the 1930s. Before that, almost all photos were monochromatic – although a handful of photographers, toeing the line between chemists and alchemists, had been using specialized techniques to capture colour images for decades before. You'll find some fascinating galleries of photos from the 1800s or early 1900s captured in full colour, worth exploring if you have not seen them already.

Over the years, photography has grown to become one of the creative careers that cut across many other disciplines, there has been debate over who a professional photographer is, the ideal tricks for practice (great shots), and who should be addressed as a professional photographer. With the ease of accessing a camera device and the sophistication of technological mobile phone-enabled cameras, many seem to have acquired the label.

However, either joining the field as an amateur, intermediate or professional, there exists basic entry knowledge that every practitioner or hobbyist of the trade who loves to shoot on camera modes other than auto mode must possess. This is because being partly a scientific device as much as an art tool, the mechanism of the camera is structured in such a way that its exposures and outputs are determined by the mastery of its internal components and settings that govern the Exposure Triangle (Shutterspeed, Aperture and ISO). (Toluwani, 2021)

The Camera

A *camera* is an optical instrument for recording or capturing images, which may be stored locally, transmitted to another location, or both. ... The word *camera* comes from *camera* obscura, which means "dark chamber" and is the Latin name of the original device for projecting an image of external reality onto a flat surface. The camera is also a remote sensing device as it senses subjects without any contact. The modern photographic camera evolved from the camera obscura. The functioning of the camera is very similar to the functioning of the human eye. The first permanent photograph of a camera image was made in 1826 by Joseph Nicéphore Niépce.

Parts of a Camera (Front)

Plate 1: The parts of a camera. Source: google.com

1. **Shutter Button:** Press this button to release the shutter. The shutter button press has two stages: Half-pressing the button activates the AF function while pressing it down fully releases the shutter.

2. **Red-eye reduction:** If the red-eye reduction is enabled on your camera, half-pressing the shutter button will light up this lamp when you use the built-in flash.

3. **Self-timer:** When you set the self-timer, this lamp will blink for the duration of the timer until the picture is taken.

4. **Lens Mount:** This is the section that connects the interchangeable lens to the camera body. To attach the lens, you line up the lens mount index (see F3) on the lens with the corresponding one on the lens mount and turn the lens clockwise until you hear a click.

5. **Red Index:** Align the mark on the lens with this mark when you are attaching or detaching a lens.
6. **Lens Release Button:** Press this button when you want to detach the lens. The lens lock pin retracts when the button is pressed, enabling you to turn the lens freely. Before shooting, lock the lens into place by turning it until you hear a click.
7. **Mirror:** The mirror is unique to DSLR cameras. It reflects light from the lens into the viewfinder, which lets the photographer see the shot through the viewfinder in real time. The mirror flips up immediately right before the shutter release (the shot is taken).
8. **Mike:** This is a built-in microphone for capturing the audio sound during movie recording. The microphone used may be monaural or stereo depending on the camera model.
9. **Built-in Flash:** When needed, you can fire the flash to capture a shot in a dimly lit scene. The flash may be automatically fired in some modes

Parts of a Camera (Rear)

It is important to note that the camera has several functions, just like the knobs and buttons seem to be many, even from the simplest to most complex cameras. In recent times High definition cameras bear multiversal functions, a sequel to their dynamic abilities during usage.

Plate 2: The parts of a camera. Source: google.com

1. The eyecup prevents external light from entering when your eye is in contact with the eyepiece. A soft material is used to reduce the burden on the eye and the forehead.

2. The viewfinder eyepiece is a small window on the camera which you look through to compose your photo and establish a focus on a subject. When shooting using a viewfinder, external light is reduced. This allows you to put full attention on the subject right before your eyes, which in turn makes it easier to track moving subjects.

3. **LCD Monitor:** the captured image as well as text information such as the menu can also be displayed on the LCD monitor. Also, you can magnify the display image to check the details. Some camera models have a vari-angle LCD monitor, which allows you to alter the angle of the monitor during

Live View shooting, making it easier to capture low-angle or high-angle shots.

4. **Menu Button:** Use this button to display the menu for adjusting the different camera functions. After selecting a menu item, you can adjust the camera settings in greater detail.

5. **Playback Button:** This is the button for playing back images you have captured. Pressing the button once displays the last image you captured or showed on the LCD monitor.

6. **Wi-Fi Lamp**: This lamp indicates the wireless connection status.

7. **Access Lamp:** The lamp appears blinking when there is data transmission between the camera and the memory card. Do not open the card slot or battery compartment cover while the light is blinking. Doing so may cause the camera to malfunction.

8. **SET Button/Multi-controller:** The Multi-controller keys are directional buttons that allow you to: Move between menu items, move a magnified display to a different point during image playback, and move the AF point during AF point selection

9. **ISO Speed Setting Button:** Press this button to adjust the sensitivity of the camera toward the light. ISO speed is an international standard that is determined based on the sensitivity of negative films

10. **Quick Control Button:** Pressing this button displays the Quick Control screen (further explained in the section "Settings on the Quick Control Screen"), which allows you to confirm various camera settings at one glance and adjust them.

11. **Display Button:** By pressing the DISP button, you can turn the display on/off, toggle between different information displays in Image/Movie Playback mode and during Live View shooting, and display the camera's major function settings when the menu is displayed

12. **Erase Button:** Use this button to erase unwanted images

13. **Focus Point Selection Button:** Use this button to go into AF point (autofocus) selection mode during AF shooting. You can then select any of the AF points manually using the Multi-controller keys.

14. **Live View Shooting/ Movie Shooting Switch:** Use this button to turn on or turn off the Live

View function. Pressing the button once displays the Live View image on the LCD monitor, and the camera is ready for Live View shooting.

15. **Dioptric Adjustment Knob:** Use this knob to adjust the clarity of the viewfinder image according to your eyesight. To do so, turn the knob while looking through the viewfinder. (Takahashi, 2018)

Types of Camera

Kevin (2021) enumerated various types of cameras still in existence today. They are as follows:

Digital Single Lens Reflex Camera

Plate 3: DSLR. Source: Kevin (2021)

DSLR stands for "Digital Single Lens Reflex". If you're looking to take your photography to a more professional level, consider getting a DSLR camera. They have been the go-to camera for many professionals in the digital age. When you look through the viewfinder of a DSLR you're seeing through the lens with the help of a

mirror and prism. These are inside the camera body and allow you to view images the right way up. When you take a photo, the mirror flips up so light enter through the shutter and reaches the sensor.

Compact Cameras

Compact cameras are small and designed for easy use. This type of camera is often called a point-and-shoot camera because they are so quick and easy to take photos with. Everything is automated so you do not have to pay much attention to capturing an image. If you want something of an upgrade from your phone, but do not want to carry a larger camera, this is the type of camera for you. Most cameras use focus-free lenses or autofocus for focusing, automatic systems for setting the exposure options, and have flash units built in (Wikipedia, 2022)

Film Cameras

The film is not dead. Many beginner photographers are using film cameras to develop their style and skills. Many experience photographers prefer the look and feel of photos taken with film.

The main difference for digital photographers who pick a film camera is the lack of a screen. Using film you have to learn to be patient. You also need to be sure of your settings because you would not know if you get something wrong until your film comes back from the lab. This can certainly help hone your skills. Taking time to understand what you are doing while using film is a good

challenge. Most film cameras work the same way DSLR cameras do. Range finder film cameras are like mirrorless cameras but without an electronic viewfinder or screen. They all have a lens and a shutter to control the light. The film you load determines the ISO.

Action Cameras

For adventure seekers and adrenaline junkies, action cameras are a no-brainer. Action cameras are perfect for the outdoors. They can withstand rough weather conditions, they are shockproof, lightweight, and highly durable. This type of small action camera includes 4K video, screens, and high FPS rates. Choosing the right action camera will depend on what you're planning to use it for. But most of the action cameras available have similar features.

Plate 4: Phone camera. Source: Kevin (2021)

Smartphone Cameras

There is no doubt that the smartphone camera has been the widespread choice of photography for everyone, The smartphone camera is the most popular choice of

camera for everyone, everywhere. The main reasons are because they are so easy to use and they are always with us. Mobile photography may get a bad rep, but when it is the only camera you have on you, it can get the job done surprisingly well.

Storing all your photos on your device and having the option to upload them immediately also appeals to many people. You can capture all the candid moments, landscapes, and portraits without much effort. With new iPhones and Androids coming out every year, the quality of smartphone cameras has improved dramatically.

Instant Cameras

Compact instant cameras are back and they are a fun option. Instant cameras are not only fun and easy to use, but there are different types available when it comes to "instant" photography.

They cover a wide spectrum of photography styles. These range from toyish point-and-shoots to advanced instant cameras, Polaroids, and more. Instant cameras are like a hybrid of vintage analogue and digital photography. So you are getting the best of both worlds when you use them (Kevin, 2021)

The Mirrorless Camera

Today, with the advent and advancement of technology, camera types have evolved from the DSLR Camera which revolutionalized photography to Morden Mirrorless Interchangeable-Lens Cameras (MILC) or what

is also known as the Digital Single-Lens Mirrorless (DSLM) camera. Unlike DSLR cameras, the mirrorless camera works without a reflex mirror and allows Light to pass through the digital sensor directly which enables the displayed image on the LCD screen to be adjusted in settings before it is shot. According to (MasterClass, 2020), this provides a straightforward approach to capturing images by trapping light onto the viewfinder and the camera sensor directly and allowing for a more stable captured image. Examples of Mirrorless cameras include the Nikon Z 9, Sony Alpha 1, FUJIFILM GFX 100S, Canon EOS R3, Sony Alpha a7 IV, FUJIFILM GFX 50S II, Nikon Z FC, Sigma FPL and Panasonic Lumix GH6

Advantages of a Mirrorless Camera

Better shooting speed: The mirrorless camera allows photographers to shoot at a higher shutter speed rate and with better-focusing aptitudes.

Lightweight and compact size: The mirrorless camera comes with a smaller sensor and is lightweight hence is easier to be carried around than the DSLR camera.

Electronic viewfinder (EVF): A unique feature of the mirrorless camera is its ability to display captured images on the LCD directly as a live view through the image sensor, allowing for easy image adjustments and re-setting before snapping them. Settings like exposure, brightness,

saturation, and contrast can be adjusted before snapping your photo.

Image stabilization: Unlike DSLR Cameras, the absence of a mirror reflex mechanism makes the Mirrorless camera less prone to camera shake and improves image quality.

Silent mechanism: A mirrorless is best for discreet and quiet shots.

Irrespective of the type of digital camera being used (Compact, Waterproofed, Bridged DSLR or Mirrorless), a good knowledge of how the camera works is essential for every camera handler.

Genres of Photography

Genres of photography entail different aspects and subcategories of photography. Depending on the need and uses, they are Black and White Photography, Experimental Photography, Travel Photography, Landscape Photography, Advertising Photography, Wedding Photography, HDR Photography, Fashion Photography, Aerial Photography, Street Photography, Sports Photography, Portrait Photography, Still Life Photography, Abstract Photography, and Photojournalism (Markus, 2021)

Portrait Photography

This aspect of photography covers the recording of the human head and bust. Portraiture is arguably one of

the most popular types of photography. Today, virtually anybody can practice this genre of photography with their smartphone (Adorama, 2020). Portrait photography can be useful in a variety of projects, be they commercial or political. Portrait photography gives viewers the chance to connect with the subject of a photo. Unlike advertising photography, the subject of a portrait may or may not be made to look flawless. Portraits can include headshots or full-body shots, and they can encompass several emotions and imagery

Plate 5: Portrait Photography. Photo Credit: Emeka Obi, (2021)

Still Life Photography

Plate 6: Still life photography. Source: https://www.adorama.com/alc/17-types-of-photography-which-niche-is-right-for-you/

Like portrait photography, still, lives can be used for both artistic and commercial purposes. Still lives often tell a story through inanimate objects. These types of photographs are unique, as they typically work well for stock photos (depending on the content) and art galleries alike. The impersonal nature of viewing objects makes still-life photography a "safe" medium in many ways.

Travel Photography

In defining travel photography, it comes down to the story; the photographer captures new places and experiences and we get to view it from their perspective.

They try to capture the feelings that they're having at that strange place. They also learn landscape photography as they have to capture different beautiful landscapes.

Landscape Photography

Landscape photography is perhaps one of the most traditional photography styles, and it's no mystery as to why; our world has fantastic views. Capturing landscapes through photography is a powerful skill, as it often allows honest documentation of nature. Landscape photography is capturing an image that embodies the spirit of the outdoors. It carries a sense of *being there* to see something incredible. When viewers look at your work, their hearts should jump. You want them to feel the same emotions that you felt, standing in the middle of nature and bringing back something amazing.

Advertising Photography

As you may have guessed, advertising photography falls on the commercial end of the photography spectrum. Advertising imagery sojourns in the cultural space of making meaning to the target audience, often relying on photography for the delivery of its message, while at the same time shaping the destiny of photographic representation (Langmead, 2005). This style is used by brands, freelancers, businesses (small and large), and many others to market products and services.

Plate 7: Hair repair oil shot with a camera and used to design an advert. Source: https://rusaliniliev.com/en/ product-photography

Advertising photography can be utilized across several platforms, especially as social media and product design continue to develop.

Fashion Photography

Fashion photography is a high-end genre focused on showcasing clothing and products. This style of photography is commonly associated with magazines like Elle, Vogue, Vanity Fair, and other lifestyle features. This

popular genre is growing fast across university campuses, as many young people utilize this style in their fashion/beauty blogs. The DIY appeal of blogging has arguably begun a fashion photography revolution, specifically in females 16-25.

Aerial Photography

Aerial photography, or high-angled photography, became a reality through the invention of flight. Aerial photography was utilized during World War II, as a way to document enemy landings.

At the peak of World War II, British planes managed to complete one-hundred flights a day, capturing over 50,000 images to interpret daily.

Drones are now the best devices used in capturing aerial photographs. Drone photography is the capture of still images and video by a remotely-operated or autonomous unmanned aerial vehicle (UAV), also known as an unmanned aircraft system (UAS) or, more commonly, as a drone. ... A recent high-end camera designed for drone use, the 80mp iXU 180. Drone cameras are helpful, especially by law enforcement, in surveillance, monitoring crowds, and even identifying threats. This kind of surveillance is also vital in monitoring borders to prevent any criminal activities and alert authorities.

Street Photography

Street photography can feature the presence of people, animals, objects, and events. Whether artistic, political or simply a tool for mapping, street photography captures its setting uniquely. Street photography continues to resonate with artistic photographers as well as lifestyle photographers, due in part to the blog ability of such images. Even Google Maps has done a great deal to provide accessible street imagery; Google Street (an extension of Google Maps) allows a full, 360-degree view of various roads.

Sports Photography

When it comes to art, sports photography can often be overlooked. Athletics bring to mind coordination, business, and entertainment, but are not often affiliated with creative expression.

Plate 8: Photograph of an athlete. Source: google.com

However, sports are emotionally charged, and games and athletes can change course unexpectedly. Art is famously difficult to define, but art (photography, specifically) is often used to capture the truth. By shooting an athlete, coach, or even a fan at the right moment, photographers can take a genuine moment and make it permanent

Photojournalism

Photojournalism's core purpose is, to tell the truth objectively and without bias. This mission has become deeply controversial in some circles, with famous accounts of photojournalists shooting tragedies, such as the photos of famished children suffering and dying in Kwashiokor in Biafra.

Plate 9: Children ravaged by kwashiorkor. Source: https://guardiannewsusa.com/nigeria-millions-commemorate-biafran-war-anniversary/

Experimental Photography

Photo manipulation involves the transforming or alteration of a photograph using various methods and techniques to achieve desired results. Some photograph manipulations are considered to be skilful artwork, while others are considered to be unethical practices, especially when used to deceive the public. Other examples include being used for political propaganda, to improve the appearance of a product or person, or simply as entertainment or practical joke (wikipedia.org)

Plate 14: Manipulation is done by assembling two or more photos. Source: Johnny Montage, 2020

This aspect of photography, experimental photography uses photo manipulation to alter our perceptions as well as our expectations. Photographers often use this type of art to tell a story or create art specific to their cause (e.g. cover art, fantastical photographs, and even adverts).

The Darkroom

A darkroom is a workshop used by photographers working with photographic film to make prints and carry out other associated tasks. It is a room that can be made completely dark to allow the processing of light-sensitive photographic materials, including film and photographic paper. Various equipment is used in the darkroom, including an enlarger, baths containing chemicals, and running water. Darkrooms have been created and used since the inception of photography in the early 19th century. Darkrooms have many various manifestations, from the elaborate space used by Ansel Adams to a retooled ambulance wagon used by Timothy H. O'Sullivan. From the initial development to the creation of prints, the darkroom process allows complete control over the medium.

Lighting in Photography

The essence of photography is light. "The very word photography is derived from two ancient Greek words; *Photos*, meaning 'light' and *Graphos*, meaning 'writing'. Literally, photography means writing with light"

(Northon 1993: 21). Basically, light illuminates the given subject that will be recorded in the camera. Without lights, there will be nothing for the camera to expose. Simply put, light is the medium which the camera uses to record images. Grundberg (2009) in his article on Photography, submits that "light is the visible portion of a broad range of energy called electromagnetic radiation which also includes invisible energy in the form of radio waves, gamma ray, X rays, infrared and ultraviolet radiation". Both the eye and the lens of a camera detect the narrow band of electromagnetic waves as colours.

Studio Photography came into existence with the inception of commercial photography in the early twentieth century. Advertisers paid expensive fees to run advertisements and they in turn demanded high-quality photographs to communicate their ideas. In a photo studio, ambient light, ultraviolet or daylight is usually minimal space is limited as well. To consolidate such shortcomings, controllable lights and sets are put up in a PhotoStudio. Therefore, it is in the interest of the photographer to control and manipulate studio lights to spur interest in his photos. Light has various characteristics and should be understood by a neophyte and a professional photographer. Light can be absorbed, scattered (reflected) or refracted. Pegram (2009;32) in his book titled "Lighting Techniques", explains the phenomena of refraction and reflection thus:

> When light waves move from air to glass, the light slows down. If it strikes the glass at an angle, it will also change direction. This is known as refraction...when light is not reflected or transmitted, it is absorbed. Consequently, black velvet backdrops, which absorb virtually all of the light that strikes them are often used in photography.

These two characteristics are observed as a behaviour of light in photography. Pegram also situates that reflection also entails when light hits a flat, reflective surface like a mirror, the reflected waves will always come off the flat surface at the equal and opposite angle at which the incoming wave of light struck the surface. Some equipment is used in achieving reflection. The Umbrella reflector is an example of such equipment. The light attached faces the umbrella, when lit, its beam bounces off the interior of the umbrella, providing soft, diffused light for the subject. Many Umbrella units are sensitive to flash units and trigger their light once an exposure is made to highlight the subject. Like the camera, light can focus on the subject from many directions, creating beautiful effects on the subjects. They are front lights, sidelights, backlights and overcast lights. Pegram (2009: 35) believed that "front light comes directly in anterior of the subject". Norton (1993:30) enunciated that " sidelight gives dimensions to the subject". This means that side lighting defines the texture and form of the subject, giving it a sharp contrast between the highlights, mid-tones and shadows. On

backlight, Pegram affirmed that it occurs when the light source is directly behind the subject.

The situation of light in a photo studio

A photo studio is an enclosure owned by a creative entrepreneur, who employs photographers for commercial photography. Onwuekwe (2017: 4) explains the perfect arrangement of lights and subjects in a photo studio with the diagram above. He explained the various lights and their positions, including their functions in the studio, thus;

> The key light is usually situated in front of the subject. Depending on the position and angle, when placed in front of the subject, it creates a sharp contrast, casting a shadow on the opposite side where it illuminates. The fill light is the subordinate light located opposite the key lamp. It usually eliminates shadows cast on the subject by the key light. A hair light is a small light placed above the subject. The hair light illuminates the hair and separates the subject from the background. Background light eliminates shadows on the background and lightens it such that the subject stands out from the background, thereby creating a sharp contrast between the subject and the background. The backlight is placed directly behind the subject. It creates a beautiful outline of the subject.

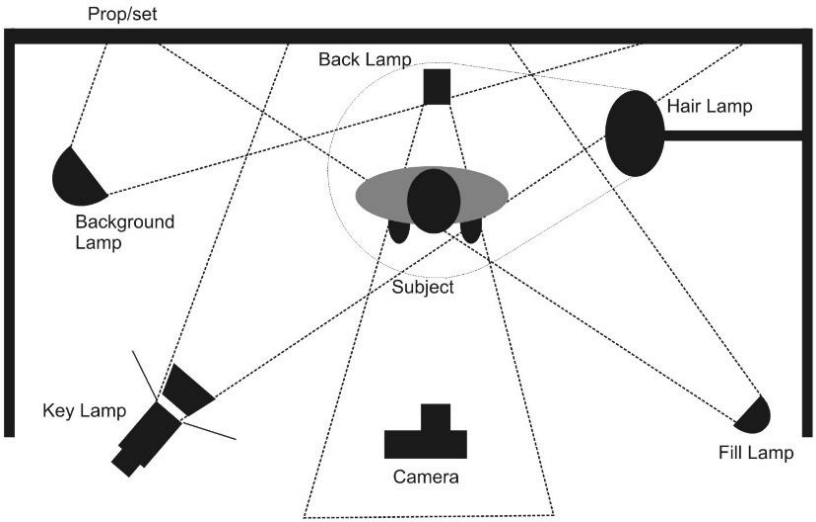

Fig 1: an illustration portraying the placement of lights, camera and set in a photo studio. Source: Onwuekwe (2017)

Sidelight, for example, evokes feelings of romance and nostalgia, whereas light from below creates a sense of terror. Hard shadows create more of a sense of drama than soft shadows, and cool colour tones convey more negative emotions than warm light (Taylor, 2019)

Camera modes

The Aperture priority, Shutter priority, Program mode and other camera modes are effective modes to engage while shooting as they help to provide a combination of both auto and manual mode settings for effective shots. From the above-mentioned camera modes (Aperture priority, Shutter priority), the photographer sets

his desired parameter while the camera automatically adjusts its end to compensate. For instance, while using the Aperture priority mode (Av/A), the photographer sets his aperture while the camera automatically provides the appropriate shutter speed for the object or scenery in focus, conversely, the Shutter priority (Tv/V) provides an automated aperture setting for the already selected shutter speed. The Program mode which also belongs to the creative zone is auto-driven and sets its shutter speed and aperture automatically and independently when exposed to any given sensitive light. Other camera modes are:

Landscape mode: It sets the aperture to a maximum depth of field and switches off the in-built flash.

Portrait mode: Sets a wide aperture to blur the background of the image and overrides all other settings.

Night portrait mode: This setting fixes other settings and combines the in-built flash with a slow shutter speed.

Sport mode: Sets a high shutter speed to freeze motion.

Closeup mode/Macro mode: Allows centralized focus on subjects that are only a few inches away.

The above-mentioned modes are great auto-driven parameters that aid good shots and could be explored by photographers when on deadlines.

Exposure

In photography, exposure refers to the control of light in the camera and how this affects image output. It is the amount of light that hits the digital sensor at a given time and measures how light or dark a photographic image is (Carroll, 2016). The context of overexposure and underexposure of images in photography (ie. The phenomenon of being too bright and too dark) is determined by the regulation of the aperture, shutter speed and iso or their effective combinations either in manual mode or automated in the aperture priority (Av/A) mode, Shutter priority (Tv/S) mode or Programme camera (P) mode (Toluwani, 2021). Carroll asserts that a 'perfect' exposure does not exist, He submits that the movement of the exposure by a step or two upward or downwards is all that is needed to adjust an underexposed or overexposed shot. The histogram graph in a camera device according to Carroll is used to monitor the 'clipped' and 'blown out proportion (distribution of light) of the captured image where the clipped shadows represent the areas that are pure black and without details and 'blown out' highlights represents areas that are pure white and without details. (Carroll, 2016).

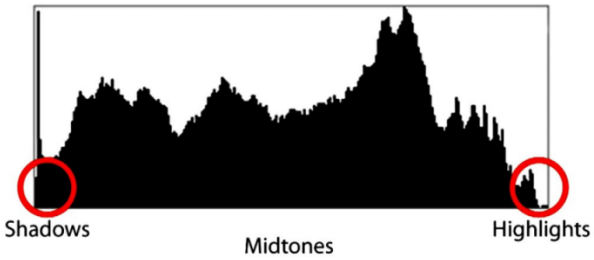

Figure 2. An illustration of a digital camera histogram guide. Source: Carroll, 2016) https://petapixel.com/aperture-shutter-speed-iso-beginners-guide-photography/

A properly exposed photograph will have a balanced histogram graph with a balanced spread of light, dark and shadow spikes while an underexposed or overexposed photo will not.

Plate 16. Example of a correctly exposed photograph. Source: (Carroll,2016) https://petapixel.com/aperture-shutter-speed-iso-beginners-guide-photography/

Plate 17. Example of an underexposed photograph. Source: (Carroll,2016) https://petapixel.com/aperture-shutter-speed-iso-beginners-guide-photography/

Plate 18. Example of an overexposed photograph. Source: (Carroll,2016) https://petapixel.com/aperture-shutter-speed-iso-beginners-guide-photography/

To cover the best dynamic range, photographers take multiple shots with slightly different exposure settings which leads to the creation of a series of photographs that are correctly exposed, underexposed and overexposed. this technique is called *Exposure Bracketing*

Exposure Compensation

While using the automated dial modes from the creative zones of the camera (Tv/Av/P), exposures might turn out not properly exposed as expected because of the locked-in auto-parameters, hence exposure compensation dial is used to alter the overexposure or underexposure of the image captured by the camera, this allows photographers to adjust the brightness or darkness of the exposure as desired. Exposure compensation parameters range from -2 to +2, -3 to +3 or -5 to +5 depending on the camera device and make

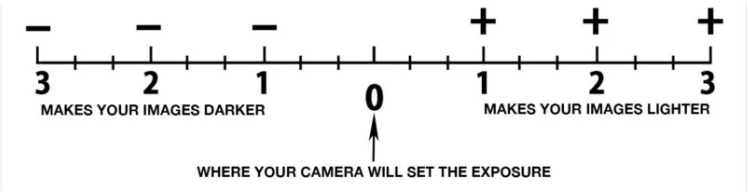

Figure 3. Illustration of exposure compensation belt. Source: (Carroll,2016) https://petapixel.com/aperture-shutter-speed-iso-beginners-guide-photography/

Shutter and the Aperture

Aside from the auto mode in the DSLR (Digital Single-lens Reflex) camera, the MILC (Mirrorless Interchangeable-Lens Camera) or the Bridge camera, the Manual mode allows photographers to adjust the aperture and shutter speed independently of each other like old Single Reflex-lens (SLR) camera versions. As creative controls, both the aperture and shutter settings aid the

exposure of accurately exposed photographs and hence are fundamental to the operation of any camera and the creation of creative photographs.

Aperture setting

The aperture is the degree of opening in the camera lens for light to come in. (Ryan, 2013) likens it to the opening of the human pupil (eyes), which adapts to high and low lights, (ie. the larger the opening, the more light is allowed in and the smaller the opening the less light is let in). The aperture opening is equally adaptable in size and calculates the intensity of light hitting the image sensor, it is measured in 'f-stops. Changing the f-stop value means changing the aperture size to either larger or smaller, but unlike the human eyes the aperture measures in reverse, "the larger the opening, the less light is allowed in and the smaller the opening the more light is let in" (Carroll, 2016; Ryan, 2013).

Figure 4: Illustration of aperture openings at different f-stops. Source: https://capturetheatlas.com/what-is-aperture-in-photography/

Often, f-stops numbers become confusing and difficult to interpret but Ryan, (2013) explains thus;

"These aperture numbers are simply based on a measured opening at the front of the lens. This measurement is relative to the focal length of the lens. For example, A 100 mm lens with an effective opening of 50 mm at the front of the lens would make this an f:2 lens. (2 x 50 = 100)" as illustrated below.

Consequently, the choice of aperture affects the ***Depth of Field*** of a photographed image. Depth of Field is the amount of the image that is in focus (sharp). A wide aperture will produce a shallow depth of field. The illustration below graphically explains how aperture size affects depth of field.

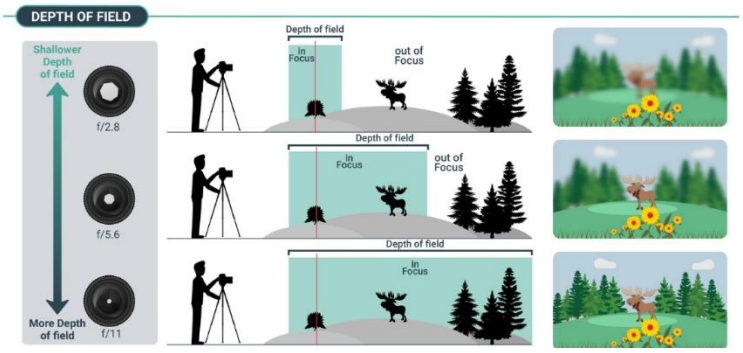

Figure 5: descriptive illustration of the relationship between Depth of Field and aperture. Source: https://capturetheatlas.com/what-is-aperture-in-photography/

Shutter speed

Shutter speed is the length of time the image sensor is exposed to the light that reaches the opening of a camera lens (aperture), it controls how motion is

represented in an image. A fast shutter speed freezes motion in a photographed image while a slow shutter speed blurs motion in a photographed image, shutter speed is measured in fractions of a second and is often referred to as exposure time, the shutter speed can be as fast as 1/10,000 of a second or as slow as several minutes (Carroll, 2016). Knowledge of both fast and slow shutter speed fractions can be adopted for various creative shots; from freezing waterfalls to blurring candid movements in sceneries.

Plate 19. Depiction of a slow (1/2 second) shutter speed on a waterfall using a tripod. Source: (Carroll,2016) https://petapixel.com/aperture-shutter-speed-iso-beginners-guide-photography/

In plate 21, Rakesh Rocky (n.d) on Flickr used an ISO of 1250 and a large aperture (f/2) with a high shutter speed of 1/4000s to achieve the exposure. The shutter speed setting is therefore an ideal way of experimenting

with capturing motion in landscape and sports photography.

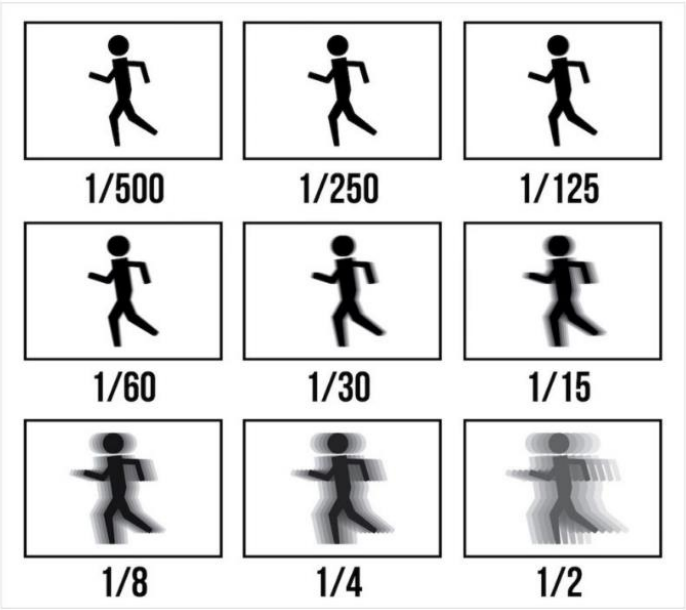

Figure 6: Illustration of the effect of different shutter speeds on the sense of motion. Source: (Carroll,2016) petapixel.com/aperture-shutter-speed-iso-beginners-guide-photography/

ISO

ISO deals with light sensitivity in photography and refers to how sensitive the camera's digital sensor is to light, ISO numbers can range from 50 to over 14000. A high ISO allows a photographer with a handheld camera to shoot at a higher shutter speed, say at an 800 ISO setting, despite the advancement in technology and the fact that most contemporary cameras are developed to

handle ISO well, caution must be taken not to excessively increase the ISO parameter as it often leads to image noise (graininess).

Composition in photography

Every visual artist is guided by the elements and principles of design and rules that guide their visual metaphors, the *Rule of Thirds* is one of such universal guidelines that creatives use for segmenting the plane of their art artboard, another is the golden ratio which stipulates 1.618 to1 for subject placement. In photography, the Rule of Thirds remains a significant guideline, it places the subject (point of interest or the appeal point) of an image in the right or left a third of the frame, leaving the other two-thirds more open (Adobe, 2022).

> "That means the corners of the central square are the intersection points in your grid where you want to place the focal point of your shot. It's called the rule of thirds, but you can think of it as giving you four crosshairs with which to target a shot's important elements. This will help you balance your main subject with negative space in your shot to nail an effective photographic composition that will draw the viewer's eye." (Adobe, 2022)

Plate 21. Rule of thirds in photography Source: Adobe. adobe.com/creativecloud/photography/discover/rule-of-thirds.html#:~:text=What%20is%20the%20rule%20of,compelling%20and%20well%2Dcomposed%20shots.

Plate 22. Rule of thirds in photography. Source: Adobe. adobe.com/creativecloud/photography/discover/rule-of-thirds.html#:~:text=What%20is%20the%20rule%20of,compelling%20and%20well%2Dcomposed%20shots.

How to use the Rule of Thirds

1. **Practice and Apply the rules:** Turn on the Rule of Thirds grid in your camera and practice with it. Explore the rules by taking several pictures of parks, locations and events

2. **Keep your eye on the frame:** Be clear about where your focus point will be before taking your shot.

3. **Be creative:** Alternate sceneries and subjects to see their spread on the grid, be experimental.

4. **Break the rule:** This might appear daunting for beginners, but professionals believe that the best way to improve your creative skill, is to "push beyond borders". This can be achieved by filling the frames especially when the scene is interesting, zooming in and out from your subjects to see how it alters the rule; using a different composition and reversing the rule by alternating the open space with your subject. As noted by photographer and designer Shawn Ingersoll in Adobe, (2022) "the rule of thirds, is not a rule. It's more of a guideline or best practice."

In conclusion, photography is the creative process of capturing images or drawing with light through a device called the camera, it is both a science and an art. Amidst growing technology and increasing ready-to-use automated camera types including mobile phones, today's photographers must continue to hone their skills by

understanding the rudiment of the art and acquiring updated information on global best practices to remain practically relevant and well-grounded in its theory. The creative zone and basic zones of the camera must also be explored and understood extensively by practitioners if we must transfer its knowledge to the next generation.

This book chapter, therefore, provides a standpoint for would-be photographers and design students who offer photography as a module in their field of study.

Questions

1. Name 6 parts of a camera you know
2. Mention 5 types of Camera you know
3. What are the Genres of Photography
4. Briefly explain lighting in the Photography studio
5. Explain the basic camera modes. (b)discuss exposure
6. Explain ISO, Composition. (b). Demonstrate Depth of field effect with any available HD camera

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