

Communications: An Overview

Photography

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Introduction

Photography in its early days was mostly carried out by professionals. The processes were complex and the cameras were quite primitive and bulky. In 1888 George Eastman produced the first roll film camera. It was a Kodak. He had achieved his primary objective – he had simplified the photographic process and made photography available to everybody. The slogan – You press the button we do the rest – had been adopted. What happened in the film sector has to a certain extent repeated itself in recent years. Up to a few years ago a digital camera was a luxury of the few, but with the rapid development in its technology, with the introduction on the market of various small digital compacts and prices that can be reached by most; the digital age entered the homes of the man in the street. I think today Eastman's slogan can be modified in – You press the button and the camera does the rest. Still, did the ease in acquiring a camera produce more photographers or just snapshot enthusiasts?

Getting the good picture

The camera is the instrument but only a person with an eye for a picture will get a good picture. This does not mean that the functions in a camera are not useful in producing a technically correct photograph but one should look beyond this and should aspire for a picture, which reflects a mood that makes the picture unique. Below is a list of useful tips to help in achieving the good picture.

Knowing your camera. How many camera users bother to read the instruction manual? The more one is familiar with his/her equipment, the better he/she is in a position to exploit its functions.

One will produce a good picture only if he/she can learn to see a picture. Our eyes are somewhat similar to a camera. They register all that is in front of their lenses; still the brain filters what we prefer to see and puts aside the rest. This is not possible with a camera. A camera will record all that is in

front of its lens and its up to the user to make selections through various camera functions and other techniques.

Making the best use of camera functions and various techniques for a good picture

Exposure is an important tool in the hands of the photographer. Here are some terms related to exposure:

1. Aperture – the opening in a camera lens that regulates the amount of light, which enters the camera.
2. f-stop – it is an indication of the amount of light passing through the aperture. A small aperture would be for example f/16 or f/22 and will admit little light on to the film or digital sensor. A large aperture is for example f/2.8 or f/1.4 and will admit a large amount of light through the lens.
3. Shutter – a device that regulates the length of time light is allowed to enter through the lens onto the film or digital sensor.
4. Shutter speed – the time that a shutter is kept open for the light to enter the camera. Shutter speeds can be very long but usually they are either in seconds or much more common in fraction of a second: eg. 1s., 1/2s., 1/4s., 1/8s., 1/15s., 1/30s., 1/60s., 1/125s., etc. and there are cameras that have shutter speed of 1/8000s.
5. Relationship between aperture and shutter speed – it is important that the exact amount of light reaches the film or digital sensor so that one will have a well exposed picture. There are combinations of aperture and shutter speed which lets in the same amount of light onto the film or digital sensor; eg. the following settings all let in the same amount of light into the camera.

f/16 at 1/125s., f/11 at 1/250s., f/8 at 1/500s., f/5.6 at 1/1000s.

b. Selecting the right lens for a particular picture is very important. A lens is recognized through its focal length, which is usually indicated on its outer rim, and its maximum aperture. As the focal length is its most important feature, a lens is referred to by its focal length. Lenses are divided into three main categories – normal, wide-angle, and telephoto. A zoom lens has the facility to change from one focal length into another and so can be regarded as a combination of the three types.

Normal lens (standard lens) – lens usually found on a camera. The normal lens for a 35mm camera is usually a lens with a 50mm. focal length. A normal lens has an angle of view of about 45 – 50degrees.

Wide-angle lens – it has an angle of view larger than that of a normal lens. Its focal length is shorter than that of a normal lens. It is useful for landscapes and where space is limited.

Telephoto lens – it is a lens with an angle of view smaller than that of a normal lens. Its focal length is longer than that of a normal lens. It is usually used to photograph far off subjects.

c. Light is an essential element in a pleasing picture.

Front light usually gives a flat picture.

Sidelight gives shadows and thus gives shape to the subject/s. It tends to give a 3 dimensional effect in the picture.

Backlight also gives a similar effect to side lighting, including depth in the picture. Backlight can give a silhouette.

Shadows in a picture should not be hard but should have detail. The best time when taking pictures on location (out of doors) is either early in the morning or late in the afternoon. At that time light hits the subject at an angle and shadows are not hard.

A photographer can control the extent of sharp and unsharp areas in a picture. If for example the background for portraiture is distracting, one can have it unsharp whilst in a landscape one would prefer to have sharpness through out the picture. The control of what is sharp and unsharp in a picture is governed by the Depth of Field.

Depth of Field – is the area in a picture in which items within this area appear sharp. Depth of Field can be decreased when the aperture is increased say to f/4 or better still f/2.8. Lenses with long focal length (telephoto lenses) also tend to decrease the Depth of Field.

Whilst aperture is responsible in controlling selective sharpness in a picture, shutter speed can help to freeze action. The latter is a useful tool when a photographer intends to record a moment in time, as for example when a diver is caught in mid-air as he/she leaves the diving board. In such instances a fast shutter speed will freeze the moment

Sensitivity to light of a film or digital sensor makes it possible to take pictures at different lighting conditions, and it makes it possible to have more favourable exposures. Sensitivity in both film and digital sensor is

measured in ISO. These days it is common to have the sensitivity arithmetically calculated. Thus for example an ISO 100 film (or digital camera setting) requires twice the amount of light for a good exposure to an ISO 200 film (or digital camera setting) whilst an ISO 400 needs half the amount of light to an ISO 200 film (or digital camera setting).

Some useful terms and hints:

Camera – a photographic device used to obtain a photograph.

Aperture – the opening in a camera lens that regulates the amount of light which enters the camera.

f-stop – it is an indication of the amount of light passing through the aperture. A small f-stop (aperture) would be for example f/22 or f/16 and will admit little light into the camera. A large f-stop e.g. f/1.4 or f/2.8 will admit a large amount of light into the camera.

Shutter – a device (can be compared to the front door of your house) that regulates the length of time light is allowed to enter into the camera for an exposure.

Shutter speed – the time that a shutter is kept open for the light to enter. Shutter speeds can be very long but for common use they are either in seconds or more common in fraction of a second, eg. 1s., 1/2s., 1/4s., 1/8s., 1/15s., 1/30s., 1/60s., 1/125s. etc. and even 1/8000s.

Exposure – the setting of the aperture and shutter speed to take a particular picture.

Focal length of lens – the distance between the optical center of a lens and the focal plane when the lens is focused at infinity.

Normal lens (standard lens) – lens usually found on a camera. The normal lens for a 35mm camera is usually a lens with a 50mm focal length.

Wide angle lens – lens having a large angle of view and a short focal length (less than for a normal lens). It is useful for scenes and where space is limited.

Telephoto lens – a lens that works like a telescope. Distant objects are brought forward so as to fill most of the frame. It has a long focal length (longer than that of a normal lens).

Zoom lens – a lens with many focal lengths. It can give different sizes for the same image.

Depth of field – the range of distance in which everything appears in sharp focus.

The depth of field can be decreased when:

i. the aperture is increased eg from f/16 to f/4

ii. the focal length of the lens is increased e.g. from a lens with a 50mm focal length to that with 300mm focal length.

(the shutter speed is to be set accordingly – see 'relationship between aperture and shutter speed').

Relationship between aperture and shutter speed – It is important that the exact amount of light hits the film (or digital chip) so that we get a good picture. There are combinations of aperture and shutter speed which lets in the same amount of light into the camera.

E.g. the following settings all give the same amount of light:

f/16 : 1/125s., f/11 : 1/250s., f/8 : 1/500s., f/5.6 : 1/1000s.

Freeze (frozen action) – to get a moment in time, a fast shutter speed is required. Flash will also stop action if it is used as the only light source.

Having the background unsharp – use a large aperture (e.g. f/2.8 or f/4) and if possible a telephoto lens.

Having practically all the picture sharp – use a small aperture (e.g. f/16 or f/11) and if possible a wide angle lens.

Lighting of a subject – light is a very important element in a picture.

i. Front light gives very little or no shadows and so makes the picture look 'flat'.

ii. Side light gives shadows and so gives shape to the items present in the picture and makes the picture look 3 dimensional.

ii. Back light also gives a similar effect to side lighting and also gives 'depth' in the picture. Back light can give a silhouette.

Shadows should not be very dark but should have detail. The best time for having good lighting when taking pictures on location (out side) is either

early in the morning or late in the afternoon, when the sun is at an angle and the light is not strong.

Film / Digital camera – film can be for colour or for black and white. We need a certain amount of light to get a good picture. Different films require different amounts of light to get the same picture correctly exposed. This is because some films require more light than others to get the same picture. The sensitivity of film to light is called their 'speed'. A fast film needs less light than a slow film. We choose the film depending when and where it is to be used. Film speed is measured in ISO and for every day use a film with an ISO 100/21 is satisfactory. Digital cameras also have their ISO.

When a high ISO film or setting in a Digital camera is used we can use less light to get a good picture, but in film we can have 'grain' which makes enlargement of a picture limited. In a Digital camera we get what is called 'noise'. In this case the picture looks quite flat and with visible tiny 'dots' which make the picture look unpleasant. Always use as much as possible a low ISO. When taking pictures in daytime usually ISO 100 is enough.

Recommended reading

Ang, T. (2003). *Digital Photography: An Introduction*. New York: DK Publishing.

Galer, M., & Horvat, L. (2005). *Digital Imaging*. Amsterdam: Elsevier/Focal Press.

Roberts, G. (1995). *Mastering Photography*. Basingstoke: Macmillan.

Walker, R. J., & Walker, R. E. (1983). *Exploring Photography*. South Holland, Ill: Goodheart-Willcox Co.