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Overview

LEARNING ABOUT EXPOSURE – The Exposure Triangle

Adapted from: <http://www.digital-photography-school.com/learning-exposure-in-digital-photography>



Bryan Peterson has written a book titled Understanding Exposure which is a highly recommended read if you're wanting to venture out of the Auto mode on your digital camera and experiment with its manual settings. In it, Bryan illustrates the three main elements that need to be considered when playing around with exposure by calling them 'the exposure triangle'.

Each of the three aspects of the triangle relate to how light enters and interacts with the camera. The three elements are:

- ISO – the measure of a digital camera sensor's sensitivity to light
- Aperture – the size of the opening in the lens when a picture is taken
- Shutter Speed – the amount of time that the shutter is open

It is at the intersection of these three elements that a correct exposure is made. Most importantly – a change in one of the elements will impact the others. This means that you can never really isolate just one of the elements alone but always need to have the others in the back of your mind.

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Three Metaphors for understanding the digital photography exposure triangle:

Many people describe the relationship between ISO, Aperture and Shutter Speed using different metaphors to help us get our heads around it. Let me share three. A quick word of warning first though – like most metaphors – these are far from perfect and are just for illustrative purposes

The Window



Imagine your camera is like a window with shutters that open and close. Aperture is the size of the window. If it is bigger, more light can enter through and the room will be brighter. Shutter Speed is the amount of time that the shutters of the window are open. The longer you leave them open the more that comes in. Now imagine that you're inside the room and are wearing sunglasses. Your eyes become desensitized to the light that comes in (it's like a low ISO). There are a number of ways of increasing the amount of light in the room, or at least how much it seems that there is. You could increase the time that the shutters are open (decrease shutter speed), you could increase the size of the window (increase aperture) or you could take off your sunglasses (make the ISO larger).

The Sunbather

Another way that a friend recently shared with me is to think about digital camera exposure as being like getting a suntan. In a sense, your skin type is like an ISO rating. Some people are more sensitive to the sun than others.

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Shutter speed is like the length of time you spend out in the sun. The longer you spend in the sun the increased chances of you getting a tan. Think of it like your cumulative exposure to the light, or to the sun. It builds on itself. If you're in the sun for a short time, your skin will not be affected. If you spend hours in the blaring sun, you may get burned, or overexposed.

Aperture is like a hole in the clouds that allows the light to hit your body. A big hole in the clouds will allow a lot of light through. A small hole in the clouds will only allow a small amount of light.

ISO is like sunscreen which you apply to your skin. Sunscreen blocks the sun at different rates depending upon its strength. Apply a strong sunscreen and you decrease the your skin's sensitivity to light.



Neither metaphor is perfect but both illustrate the interconnectedness of shutter speed, aperture and ISO on your digital camera.

Bringing It All Together

Mastering the art of exposure is something that takes a lot of practice. In many ways it's a juggling act and even the most experienced photographers experiment and tweak their settings as they go. Keep in mind that changing each element not only impacts the exposure of the image but each one also has an impact upon other aspects which we will explore in the following weeks.

The great thing about digital cameras is that they are the ideal testing bed for learning about exposure. You can take as many shots as you like at no cost. They not only allow you to shoot in Auto mode and Manual mode, but also generally have semi-automatic modes like aperture priority and shutter priority modes. These allow you to make decisions about one or two elements of the triangle and let the camera handle the other elements.

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Focus Lock

One of the most common problems in digital photography is getting the camera to focus on your intended subject. Look at the example below. You can see that the two people (the subject) are out of focus, while the lady in the background is in focus.

Oops!
Subject is out
of focus!



Lady's face
is in focus.

The camera unfortunately didn't know where to focus and decided that it would focus far away on the background behind the subject. As a result, the subject was thrown out of focus.

This is a common mistake that many digital camera owners make (We've all done it). Digital camera manufacturers are now making cameras

with face recognition technology (where the cameras look for faces and make sure that they are the focal point) to overcome this problem. However, most of us are stuck with cameras that don't have this yet and need to learn about 'focal lock'.

It's a very simple technique and something that virtually every digital camera (and most film cameras) have the ability to do. Here's how you do it (pay attention because you will need to do this for your shooting assignment):

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1. Pose your subject. (It doesn't have to be a person. A tree, statue or building works just fine). Place your subject very close to the camera. The closer the better.
2. Put your subject (what you want to be in focus) in the middle of the viewfinder. The face of a person is generally the best point.
3. With the subject's face in the center of your image half press down on the shutter button to focus (not fully). This will tell the camera to focus on that point.
4. Without letting go of the shutter (it should still be half depressed) move your camera to frame your shot as you want it (i.e. the person's face doesn't need to be centered now). Once you've got the framing how you want it, press the shutter the rest of the way and the shot will be taken with the intended focus, even though the center of your image might not be the person's face.

This technique is not just useful for taking photos of people when they're not central in your shots but can also be used in many other types of photography. If you were taking a landscape shot but wanted to focus upon a house in the foreground that was off center rather than the horizon you'd use this technique. This technique is one that most people know but it's something that beginners should master in the early days of their photography as it's something you'll use constantly. It might take a little practice but after a while it will become second nature to you. See assignment #1 below for an good example of this in action.

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You can see what's happened immediately when you look at the images – the photographer put the subject in the middle of the frame assuming that the camera would know where to focus and took the image.



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