

PHOTOGRAPHING LIVE MUSIC

K. Rowley Monday, August 18, 2008.

The Basic Technique

My aim is to combine flash and ambient light as effectively as possible in order to

- Capture “atmosphere” created by low lighting and mixed light sources
- Show people and “freeze” their motion by using flash

I initially developed the following technique for doing this by experimentation, by trial and error. Years later, I discovered it is known to the pros as “slow-synch flash.” My ability to apply this has been improved by digital technology.

The basic technique has been as follows:

1. I used the camera hand-held, despite low lighting. This is directly contrary to what some of the old books recommended.
2. I then took a wide picture in Autoexposure Mode without flash. I check the LDC display. If the picture comes out underexposed, I push up the ISO. In most venues, I go up all the way to 3200. Basically, at this point I'm using the camera as an exposure meter.
3. When I get the “right” settings I switch to Manual Mode and dial them in. My aim is not to get the background exposed "correctly" as the camera's light meter sees it. What I'm looking for is a setting that
 - captures the general "look" of the place reasonably well without going below 1/10th of a second (because the camera is hand-held)
 - and has as high an aperture number as I can get

I usually don't get very far at all with this second objective. I usually end up shooting at about 1/20th of a second, f5.6 and 3200 ISO.

At this point, the photos of the performers are probably blurred, the stage lighting is over-saturated, and shadowed areas are deep, “empty” black. Still, it may be worth taking a few shots like this. It is possible to get some quite atmospheric shots using only existing lighting, so give it a try.

4. Then I turn on the flash and dial its brightness down (usually by one stop).

These settings mean that the camera operates at the manual settings I have dialed in, and exposes the background in much the same way as in the non-flash photos. But the flash now operates as a “fill” light on the performers. I don't want it to dominate the lighting generally. I take a picture, analyse what I've got on the LDC, and adjust the settings if necessary.

Problems – blur, noise, high contrast

The slow speeds I using in taking these photos result in a significant amount of blur – even with flash. These pictures are not “pin-sharp,” which is what many photographers are looking for these days. It is easy to get this - use a strong flash light, and crank the brightness up. Of course this will overpower the ambient lighting. But the ambient lighting is what creates much of the “atmospherics” of the scene. What we have is a “tradeoff” between sharpness and atmospherics. There is no “right” balance here. This is a subjective judgment, and my preference is towards the capturing the atmospherics rather than sharpness.

I try to minimise the problem of blur and loss of detail by using high camera sensitivity (a high ISO setting, most often 3200). I use a Pentax camera, and my impression is that it handles noise at this setting better than other brands. But it is still necessary to “clean up” noise in post-production.

A final problem with taking photos under these conditions is that they often involve high contrast (High Dynamic Range, in the preferred terminology today). I reduce this problem when taking the picture by using flash to fill key areas of shadow.

Post-production solutions

I use Corel’s Paint Shop Pro Photo X1 to address the problems of blur and noise as best I can in post-production. The terminology in the following explanation is derived from PSPPX1, but other programs have equivalent procedures. After I’ve made routine adjustments such as alignment, cropping, brightness and contrast, I try to address the problems of blur and noise with the following steps:

1. *Noise Reduction.* PSPPX1 offers several ways do this. The most useful are:

- Auto Noise Reduction (ANR)
- Digital Camera Noise Removal tool (DCNR)

DCNR is the more flexible and is my preferred method. Specialist noise-reduction software is also available from other vendors.

There are a couple of older tools that I find useful from time to time:

- Salt and Pepper filter
- Edge Preserving Smoothing tool

All of these tools reduce digital noise by removing detail from your photo, in different ways. They try to get rid of the detail you don’t want – the noise – but they also get rid of some of the detail you want as well. In other words, they reduce noise but make the picture more blurred.

The damage they do can be limited by applying noise reduction only to selected areas of the photo. It can also be offset by sharpening tools.

9. The two best sharpening filters PSPPX1 offers are:

- Unsharp Mask
- High Pass Sharpen

But sharpening the picture is restoring detail, and that includes the noise we don't want. This might sound like we are caught in a vicious circle between noise and blur. In fact it is a series of trade-offs, and the outcome can be a considerably improved photo. To judge these tradeoffs I go over my photo at 100% magnification with both noise-reduction and sharpening.

Illusory sharp focus

Carefully selective focus can create an illusion of wider sharp focus than is actually the case. I've got several pictures of guitarists playing their instrument which seem to most viewers to remarkably sharp, given the lighting. How did I pull this off?

There are three elements to this:

1. Take lots of photos - throw away the bad ones and show people the good ones. Random chance may give you a great photo, and people will think you are an incredibly brilliant photographer.
2. Focus on the guitar strings and use fill-in-flash. This will do a good job of "freezing" the strings, and if you've got the settings right it will blend almost invisibly with the ambient light.
3. Focus on the section of the guitar strings close to the picking hand. These are the parts that are easiest to keep in sharp focus. Why? Think of the guitar as a lever. The guitarist's picking hand is close to the fulcrum. As a result, when the guitarist swings his instrument around, the strings move more slowly here than they do higher up the neck of the guitar. As a result, they are easier to get in focus here.

But there's something else involved – the psychology of perception. If you look closely at one of these pictures, you will see that while this lower section of the strings (and one hand of the guitarist) may be in sharp focus, much of the rest of the picture is actually out of focus. In taking these pictures I'm using a wide aperture, and the field of focus is quite shallow. There will also be more motion blur higher up the neck of the guitar. So why do people look at all this blur and ask how did I get such a sharp picture?

The answer is that at the best of times our eyes see only a small area at the centre of our total field of vision in sharp focus. Our eyes register a large, blurred periphery around this. But our brains are habituated to this, take this into account, so subjectively we "see" much of this periphery as being in focus. But actually, if we need to see something in the periphery of our field of vision clearly, we move our eyes and refocus. We all do this much more than we realize.

I try to exploit this principle in composing photos. If I can place those sharply focused bits of the guitar strings where our eyes will naturally look at them, they will be at the centre of our field of vision. Our eyes will then see them in sharp focus with a blurry periphery. But that is how we would see them normally. Our brains will process this data normally, and so we will "see" most of the picture in focus. The illusion will only collapse if we actually try to refocus on something in the periphery of our field of vision. So the trick for the photographer is to avoid creating some alternative focus of attention in the periphery. And that is easy, as it is heavily blurred!

Equipment

I figured out the basics of this approach with pre-digital photographic equipment. But the new technology has made it easier and more effective.

The equipment I use for this photography is:

- *Camera:* Pentax *istDs (6 megapixel DSLR, sensitivity range 200-3200 ISO)
- *Lens:* Sigma 18-125mm zoom lens (equivalent to 35-200mm zoom on film camera), with widest aperture of f3.5-5.6
- *Flash:* Pentax AF360FGZ dedicated flash (TTL automatic metering adjustable from one stop up to two down by half-stop steps, and with manual control down to 1/32 full strength)
- *Flash modifiers:* These soften the harsh light of a small light-source like a flash. At first I used a Stofen Omnibounce with the AF360FGZ. Now I mostly use a small Sunpak Softbox attachment.

In addition, I always carry a Lumiquest Soft Screen in my camera bag. If I need flash lighting and I don't have my external flash with me, I will have to use popup flash. This provides very flat, harsh lighting. With the Soft Screen, the lighting from popup flash is still a bit too flat, but the shadows are much softer.

Two useful recent books

Much of the above I figured out by trial and error, with little reading. Over the past few months, I've been reading quite a few photographic books. I recently acquired two that I found especially helpful on these matters:

- Chris George, *Mastering Digital Flash Photography: The Complete Reference Guide*. This provides a good explanation of new-generation flash technology and its applications.
 - Michael Freeman, *Complete Guide to Night & Low Light Digital Photography*. I've yet to fully digest this, but it focuses on how to handle the three key problems that I ran into in this style of photography – blur, noise and high contrast.

Both are published by Lark Books, New York, 2008.