Operating a Mini DV Camera using more advance technique standards

By
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Welcome!!!

The intention of this instructional project is to enable the learners to acquire the technique needed to operate a video camera using more advance technique standards than the expected by amateur videographers. The areas we will work are, framing a shot, controlling the light, operating in manual mode and producing special effects.

You will have the opportunity to use the knowledge acquired here in many situations such as, in family vacations, at business, or in extreme case of the need to have good quality footage for legal purposes. The best of all, you will have the opportunity to share with your family and friends the good time captured forever in video, with good quality.

The learning process will provide you an immediate feedback, and it will require a group participation with exercises and personal interaction.

We produced an icon system to help you in the navigation through this instructional.

Instruction content.

Instruction example.

Instruction exercise.

Exercise time constrain (please respect the stipulated time)

Instruction Feedback.

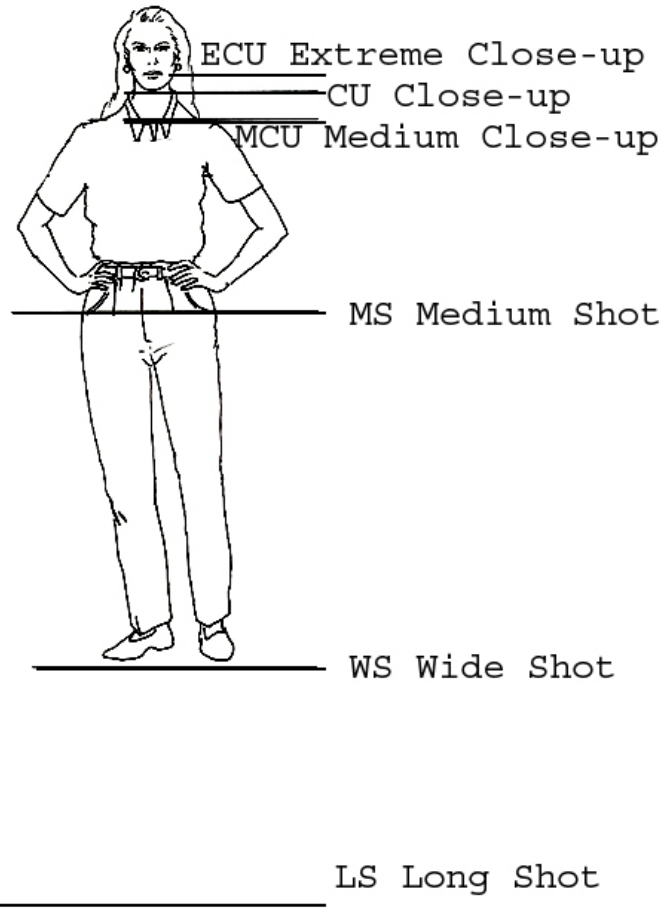
Section 1

The different types of framing.

There is a standard of framing procedures used on TV production, which is used in all production to determine the final objective of the script. Such convention of framing is important because it facilitates communication among the crew. As you can see on the illustration below each framing name has it abbreviation such as: Long Shot (LS), Wide Shot (WS), Medium Shot (MS), Close-up (CU), Medium Close-up (MCU), Extreme Close-up (ECU).

Example:
Look the Example in the figure 1:

Figure 1



Practiced Items and Activity:
The pictures below in the figure 2 do not have the framing names. Write underneath each framing layout the respective name for each one.

Figure 2



Names



Names

Feedback:
Now that you named the frames in the practice exercise, check with the figure 1 if you where able to get it correct at least 90 %, if not please repeat the exercise till you get the 90 % accuracy.

Categorize the types of framing.

Now you are able to identify the frames as used in the last exercise, we need to know when and why we chose one framing over another. For each one of the framing you will use, there a specific reason to choose the CU instead the MCU for example. Here is the list with a description of specific circumstance of utilization of the framings according to the narration context:

Long Shot (LS): Establish a location without focus in a specific subject. Usually it is used to geographically show a general idea where a situation is occurring, It sets the stage for the action.

Wide Shot (WS): Once the stage is set, there is a need to introduce the subject or character. The WS includes the subject in the stage context for the narration purpose.

Medium Shot (MS): It combines the quality of the WS and the CU. It captures the actor's gestures, but is still tight enough to include subtle variations in facial expression.

Medium Close-up (MCU): It has a capacity to examine in someone and can become a violation of privacy by sharing a degree of intimacy that should only be done by consent.

Close-up (CU): It brings us to a more intimate relationship with the subject on the screen than we would have with anyone but our closest friends or family.

Extreme Close-up (ECU): it directs the audience attention to a specify detail without any margin around the frame. It reviews a climax in a moment of high tension or the meaning either the detail responsible for the outcome in the scene.

Example:
Look at the framing basis list 3 with description of specific circumstance of utilization of the framings according to the narration context in mind and perceive the narrative message of it.

Practiced Items and Activity:
Yes, the choice of the appropriate framing to give the correct message planned on the script is really important. To make sure you mastered such basis, we provided you a framing list for the call frames bellow. Write for each one of the framing a situation that matches the specific framing. As an example we will do the first one and you do the rest.

Long Shot (LS) Used to show were the location is.

Wide Shot (WS)

Media Shot (MS)

Close-up (CU)

Medium Close-up (MCU)

Extreme Close-up (ECU).

Feedback:
Now that you did the practice exercise, check with the figure 1 if your choice was the best one.

Frame different subjects using list provided.

Hey… Are you thinking that only theory is boring? Yep… actually it is an instruction on " camera, light , and action.. " CORRECT ! Get you camera and lets do some practice around here. But hold on !!!! We need a script. Okay get the example below

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Example:
Here is the situation. " John is alone inside a room and not expecting anybody when unexpectedly under a heavy tension moment someone opens the door. The characters look at each other and John collapses on the floor." In this small plot you have to choose the best frame for each one of the moments. You have six framings to choose and many situations to use, write a list.

Practiced Items and Activity:
Since practice makes perfect, let's do the following. You will work in-group and you will alternate the positions until everyone has been on the camera. Two of you will be the actors, and the third will operate the camera. The actors will stage the plot of the example given above; the camera will follow the action. Use the list of shots you did and while you is on the camera being the cameraman, another learner will read the list to you giving the directions you just wrote. Do not record yet. It is just a practice to choose the best frame. Copy your list to the script sample included here. You will have ten minutes for learner to do all individual framings.

John is alone inside a room and not expecting anybody when unexpectedly under a heavy tension moment someone opens the door. The characters look at each other and John collapses on the floor.	**Scenes**

Feedback:
That is a lot of choices to be made, don't you think ?! Do you think you got the best option for the shooting sequence? Among yourselves, debate which framing you think was the best for the given exercise.

Evaluate the framing with the given Example.

I am sure you really wanted to press record on the camera in the last exercise, but now it is the time to record it. You have it all planned based on real criteria for storytelling with images, it is the time to get the camera again not for rehearsal, but for action.

Example:
You have done you shooting exercise for the script in the last exercise, so get your notes and use it for you example script.

Practiced Items and Activity:
Remember the practice of the script from your last topic? You will work in-group and you will alternate the positions until everyone has been on the camera operation. Two of you will be the actors, and the third will be the camera. The actors will stage the plot, the camera will follow the action and use the notes made for the shooting list. Another learner will read the list you did in the last exercise, giving the directions you wrote. You can ask the actors to repeat the scene many times in order to be ready for each chosen framing in your shooting list. You will have four minutes for learner to do all individual framings. Now it is time to press record it on the camera. So… lets have fun……

Feedback:
So…. Are you read for Hollywood ??? Do you think you got at least 50 % of your shooting sequence correctly? Let's compare your footage playing the video on your camera with your shooting sequence and the list on the instruction 1.3 and be your own critic. Also share your production with your classmates

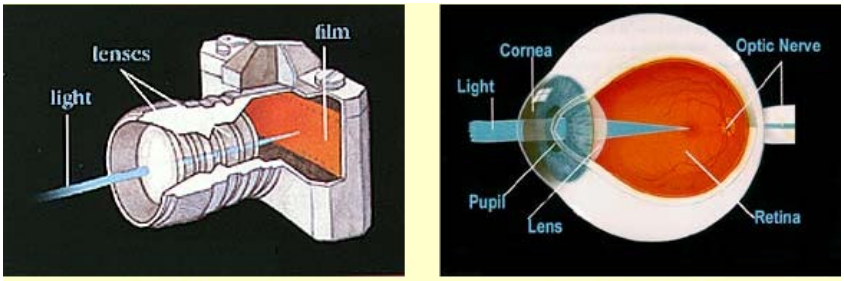
END

Section 2

Describe how light reacts in the context of iris and the CCD.

The camera's optical system is very similar to our own physical optical system. Yes it is that simple… The camera has a CCD (Charge Coupled Device), which is an electronic sensor that can detect and record patterns of light in a way similar to photographic film. The CCD is equivalent to our retina in the eye. The CCD sensor in a digital camera acts as the primary tool to capture an image. In its most elementary form, the CCD sensor is like the camera's "electronic eye" collecting light and converting it to electric charge, and subsequently emitting the signal that results in a digital image. When we are exposed to a bright light our pupil closes to control the light, as well as the iris of the camera closes to control and restrain the light intensity; consequently the optical system will always average the overall illumination not given us a control over dark areas, only on bright areas. The equivalent to the eye pupil is the camera's iris, which relates to the amount of the light allowed to pass through the lens.

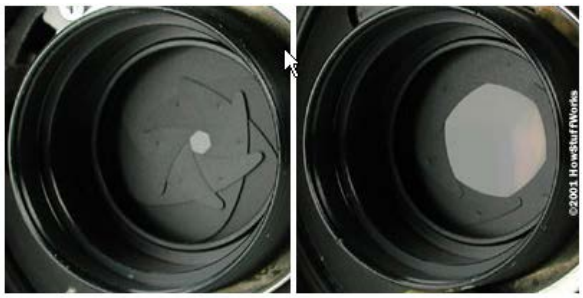
Figure 3



The Camera **The Human Eye**

Example:
If you try to frame a person and you have more light on the right side of the person' s face instead of the left side, the camera will register the brighter side with more light and use it to average the f-stop which is the aperture of the iris, what can make the other side of the face a lot darker.

Figure 4



Practiced Items and Activity:
If a scene is very bright, the iris will be:
a. Small iris
b. Bigger iris

If a scene is dark, the iris will be:
a. Small iris
b. Bigger iris

Feedback:
I am sure that this practice exercise was very easy, but compare your answer with the content on this section, and if your answer is not 100% correct please review the content and take the test again.

Explain the relationship between reflection and surface contrast.

You know already that the denominator to adjust the f-stop in a camera is the brighter lighting, therefore if you have dark spots in a scene it is not relevant to the electronic adjust of the camera, but it can be relevant for the quality of the footage you are doing. Light has a quality to reflect itself in the opposite angle. In another words if the light hits the surface in a 45 degree angle, it will bound at 45 degrees as well. Consequently we can control it if we use a bright surface to reflect the light, because bright color reflects the light and dark color absorbs it.

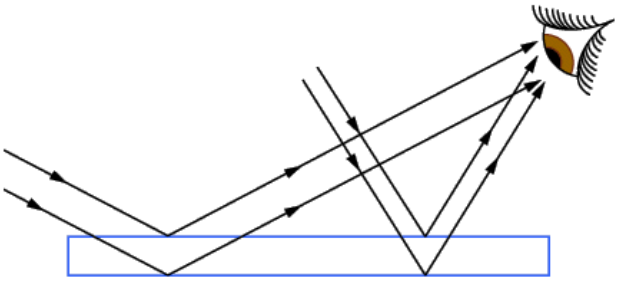


Figure 5

Figure 6
Example:
Observe the illustration light reflection 5 and you will understand better how light reflects in surfaces in relation to the source of the light and the surface in which the light is bouncing.

Practiced Items and Activity:
Going for what makes it perfect, lets practice with a camera and the reflector provided. You will work in-group and you will alternate the positions until everyone has been on the camera. One of you will be the subject; the other will hold the reflector to bounce the light and third will be on the camera. Do not press record on the camera yet. Just look through the viewfinder the angle in which the light bounces on the subject, as your classmate experiments with the reflector the lighting bouncing around the subject. Do not tell or assist your classmate telling what you think is the best position for the reflector to be. You will have four minutes for learner to do this exercise.

Feedback:
While you are on the camera do not tell the classmate which position to be in to improve the shadows on the subject. Through the cameras viewfinder just observe the light bouncing on the reflector's surfaces as your classmate, who is holding the reflectors, makes the choices.

Evaluate lighting with the list of the given Example.

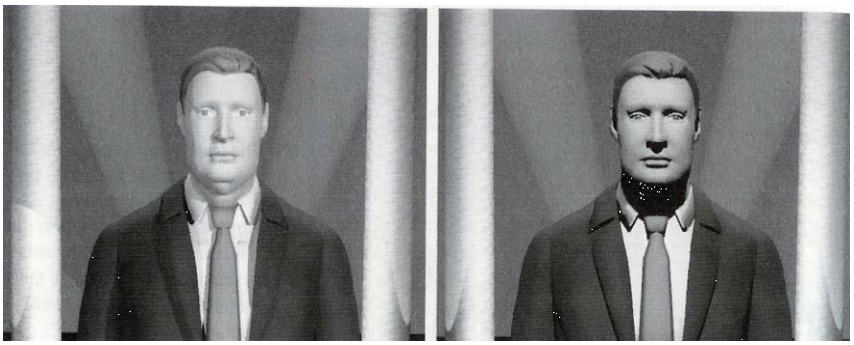
You were on camera and your classmate was moving the reflector around the subject, and also you used the reflector to bounce the light as well. You had the opportunity to visualize the angle in which the light hit the reflector and bounced at the same angle, besides the position expected for the best reflection of the light. Now it is the time for you to call the shots and improve a scene in which you will control the light source by bouncing it.

Example:
Some Example in which you can see first hand the advantages of bouncing the light is when you have the shadow underneath the chin or when half of the face is darker than the other. In these two situations you can easily improve your footage quality. How? Just go to the next step in this instructional and you will realize that you already have the knowledge to do it.

Figure 7

Practiced Items and Activity:
To increase the shadow underneath the chin the subject should have a light source above the head, exactly on top. To increase the shadow on the side of the face the subject should be at side of the window where the light source is coming from. Ask one of your classmates to stay exactly underneath the light in the room and another to stay at the **side** of the window's light. You will be able to identify the amount of the shadow in the two situations. Working in-group you will alternate the positions until everyone has been on camera operation. One of you will be the subject following the placement in the light source described above, the other will hold the reflector and sure enough the third will be the camera. When you are on the camera you tell the classmate which is holding the reflector where you want it to be. Do not ask for assistance on this exercise, it is a self-experiment practice. You got it, so… lets roll and press record on the camera and improve the lighting of the footage. You will have four minutes for learner to do this exercise.

Figure 8



Feedback:
Do you think your choice for the position of the reflector was the best one? Not sure, sure !?! Together with your classmates, review your footage and keep in hand the illustration light reflection 1 to better visualize the lighting bouncing angles as you where calling the shots.

Define the auto settings, focus, and iris.

So far we are operating the camera in the automatic mode, but the camera has a manual mode, which gives many options to improve the image quality when the auto mode is not able to properly adjust the image patterns. Before you start to use them you have to learn what they are.

a. Focus: That is easy right?! The focus manually adjusts the clarity of the image
b. Iris: It controls the light amount to access the CCD.
c. Gain: It is a feature in the camera's CCD, which increases a sensitivity of the CCD when exposed to the light when the iris is in the maximum.

Example:
By setting this items to manual you can: force your camera to focus on the subject, force more or less light through the lens or increase or decrease the CCD sensitivity to get good quality image without noise that could be the result of the use of the gain mode. All these examples will provide you a better control over the image quality in your shootings.

Practiced Items and Activity:
Fill the blank spaces with the correct manual mode. Do not use the reference material in the content presentation. Just recall it by memory.

The _____mode increases a sensitivity of the CCD when exposed to the light when the iris is in the maximum.

The _____mode adjusts the clarity of the image.

The _____controls the light amount to access the CCD.

Feedback:
Since you answered it by free recall, check your answer with the content presentation. Good job !!!

Explain the correlation among the settings and their interaction.

You already know the basic manual settings of your video, now you will learn that they interact with each other.

Turning the gain on the iris will need to be smaller, because the CCD is more sensitive to the light, therefore it needs less light to register the picture.

Opening the iris to the max you will need to turn off the gain, because the amount of the light coming through the lens is too strong for high sensibility generated by the gain mode on.

Also as a results of having a wider iris is that your depth of field is narrow. In other words the focus available in that frame would be from five to ten feet. But if you have a smaller iris your depth of field is wider in relation of what it was before. What was from five to ten feet it will be now from ten to fifteen feet the area that you would have to focus in a given framing.

Example:
Take a look on the illustration manual mode chart (insert illustration manual mode chart) and you will have a better idea of the adjusts and their correlations.

Practiced Items and Activity:
Did you just turn the camera on, and it was in the manual mode. Match the item with the respective effect of the related outcome.

a. Open more the iris and lower the gain.
b. Turn the gain on
c. Turn the gain off.

( ) The light coming to the lens is too strong.
( ) The background is in focus and you want to make it out of focus.
( ) The light available is not enough for lighting the scene.

Feedback:
Check your answers and discuss it with your classmates.
--- c. a. b.

END

Section 3

Operate camera in manual mode on individual adjust compensating secondary setting.

Since you have the basis on manual mode and have done the exercises, you are ready for the experimentation of these manual modes using your video camera. You need to be very familiar with these manual adjusts, because they are correlated to each other.

Example:
Turning the gain on the iris will need to be smaller.
Opening the iris to the max you will need to turn off the gain.
Also as results of having a wider iris is that your depth of field is narrow.

Practiced Items and Activity:
Turn your camera on and record the changes as you do it in the eight minutes time frame. Setting the camera in manual mode and record the changes as they are done in the fly. You will have eight minutes for learner to do this exercise.

Feedback:
You now can review the tape done in the practice exercise and check with the illustration manual mode chart and try to recall by memory when you are seeing your tape-- which adjusts, what you were doing as you recorded it.

Evaluate the manual adjusts with the list of the given Example.

In the feedback of the last instruction you where asked to recall by memory the adjust when you are seeing your tape that you shoot. You have the cues in you mind because did the changes as you where shooting, but can you do the same without your cues when you were shooting ? If you can, it means that you really learned it. How ?

Example:
Here is how ! You will use as the example for your next exercise the eight minutes footage done by your classmate.

Practiced Items and Activity:
Exchanging the eight minutes footage done in the figures 7 and 8 among yourselves you will have to take notes in the manual mode that you believe your classmate did at the give moment of the change in the footage aspects. You will have 10 minutes do this exercise.

Feedback:
Take the notes you did during the practice exercise and compare with your classmate's note. Did you get it all right ? Did your classmate ? Yes? No ? Why ? discuss it among yourselves and prove you are right or wrong.

END

Section 4.1

Explain the effect of the nylon hose as a filter.

You learned a lot of technical material that makes you somewhat an expert in video production already. Now it is the time to put your expertise beyond the limit and produce some special effects. For this effect all you will need is your camera and a regular woman's hose. When you stretch the hose in front of the lens, the light still can pass through it and the image can be registered by the cameras CCD.

Example:
The fact is that a semi-transparent material can be used as a filter to produce a special texture in a picture and a regular woman's hose is one of many examples of textures you can use as a filter for special effects. In this case it is an example of a soft focus filter.

Practiced Items and Activity:
If you look through the woman's hose stretched in front of the light to analyze the texture of it, you will notice that you can increase the layers between you and the light source as the texture gets denser as well. You will have four minutes do this exercise.

Feedback:
Once you have done the practice exercise give your impression of the best numbers of layers of the hose, which would be necessary for a nice soft focus filter.

Produce a soft-focus effect.

Get you camera and the hose and let's apply what you learned in the last instruction. Use a woman's hose to effectively produce a scene in which the context is a dream scene.

Example:
Imagine a scene in which the context is a girl dreaming and she walking in a garden. It indeed suggests that the soft-focus effect will be perfect for this footage.

Practiced Items and Activity:
Adding different layers of hose stretched in front of the lens and tight them with a rubber band, until you have the density necessary for the desired texture. Ask your classmate to walk through the class, and record the scene adjusting the camera's focus in manual mode. Make a footage of about three minutes of duration You will have four minutes do this exercise.

Feedback:
Surely when you were doing this exercise you chose a different number of layers than your classmate's. Exchange your tapes and check on your classmates' footage to survey different texture layers.

END

Section 4.2

Explain the movement panoramic and the time context.

A panoramic movement is when you stay still in one place and move the camera on the horizontal to follow something to show a panorama of a scenario. If you move the camera too fast to make your pan the image will be blurry, and you will not be able to visualize the image as the camera is moving.

Example:
You can get the relation speed and time to register an image if you notice when we are driving too fast in a car. You are not able to register our surroundings close to you due to the speed, but as the subjects go further the perception of speed decreases and your eyes are able to register the image clearly. Remember that your eyes and the lens' camera are similar, right !

Practiced Items and Activity:
Get your camera and let's practice some. Move the camera in a pan effect at different speeds to get the sense of in which speed the image starts to blur when moving the camera too fast. Do it for about five minutes.

Feedback:
After doing the practice you should have a good grasp of the average of how fast you have to do the pan in order to blur the image. Keep it in mind because you will need it.

Produce a whip effect.

You will use a defect to produce an effect now. You already know that at a given speed a panoramic effect is all blur and your eye is not able to identify any shapes in the frame. So, if you cut when shooting from one fast pan movement and start to shooting when the camera is still in a fast pan movement, you will not be able to distinguish where was the point in which the camera stopped recording neither when it started as well.

Example:
As you probably have seen on TV movies, when there is a transition from one scene to another it is done by connecting two very fast panoramic movements, one at the end of the first scene and cut for the beginning of the second scene.

Practiced Items and Activity:
To execute this effect follow the Practiced Items and Activity: You will have nine minutes for learner to do this exercise.

a. Learners using their own cameras will execute the effects as the following:
b. Hold the camera still and start recording, wait for five seconds.
c. Do a fast pan to the left and stop recording before the end of the panoramic movement.
d. Do a fast pan to the left and start recording before the camera ends the movement.
e. Stop the panoramic movement wait for five seconds and stop recording.
f. Review the tape and play it to see the effect.

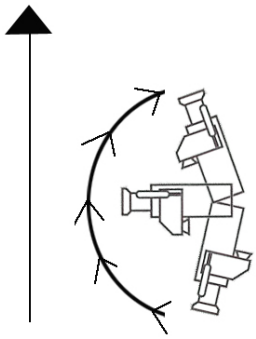


Figure 9

Feedback:
Repeat the practice exercise with different panoramic speeds and time and you will have a different feeling for each speed done.

END