NOTE

Simple optical methods for adding time and other signals to video recordings

G.M. COLLIS and N.J. SHARP

*Department of Psychology, University of Strathclyde
Glasgow, G1 1RD, Scotland*

Analysis of video recordings is greatly facilitated by the presence of a time clock, preferably digital, on the TV picture. It is also useful to be able to add simple binary signals at the time of recording, perhaps to indicate events that can be more easily detected "live" at the time of recording, than from subsequent playback. Such effects can be obtained by electronic means or by using an additional camera in conjunction with a split-screen facility. However, very good results can be

obtained by using a single camera and purely optical methods. Of course, researchers have used mirrors to reflect time markers for years; the technique is simple and inexpensive. This note describes some examples that have been successfully applied to the study of mother-infant interaction (e.g., Collis & Schaffer, 1975; Murphy & Messer, in press).

In this research, it was important that subjects not be distracted by seeing clock numerals or signal lights through the dark Perspex one-way window which was used when recording. Solution of this problem was facilitated by the use of TV cameras fitted with silicon diode tubes, which are necessary when light levels are reduced by a one-way window, and which are particularly sensitive to red light. Suitable occlusion of the red signal lamps, for example, with neutral dark Perspex, can render red light invisible to the subjects while still being "seen" by the camera.

DIGITAL TIME REFERENCE

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A digital counter with red numerals, counting pulses from a suitable source, is positioned so that the display

Figure 1. Using a digital counter as a video clock.

Figure 2. Indicator lamps fitted to move with the camera.

faces vertically upward (see Figure 1). An inclined mirror reflects the display toward the one-way window. An adjustable automobile interior rear-view mirror, with a suction pad fixture to the one-way window, reflects the image into a corner of the camera's field of view. If the counter is mounted so as to allow easy adjustment about both vertical and horizontal axes and the first mirror is fixed to the counter, arranging the system for use is very simple.

INDICATOR LIGHTS

Miniature tungsten lamps, controlled by push-button switches, can be mounted on the digital counter-timer described above. A disadvantage of this arrangement is the requirement that the camera remain static. Unlike the numerals on the counter-timer, indicator lights do not need to be in sharp focus to be useful. If the camera lens has a reasonable depth of focus, the lights can be mounted quite close to the lens and are moveable with the camera (Figure 2). A piece of polished aluminum, fixed between the camera and the pan-tilt head of its

tripod, serves as a one-piece "boom" and reflecting surface.

SOUND LEVEL INDICATOR

The present authors have been particularly interested in obtaining, on the TV screen, a visual display of fluctuations of the level of the audio signal, in order to study synchronization and integration of vocal and nonvocal behavior on a reasonably fine time scale. This was accomplished with a circuit incorporating an array of LEDs (Deley, 1975) which can be fitted, similarly to the indicator lamps, just in front of the camera.

REFERENCES

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