A MULTI-PURPOSE PERCEPTUAL DEVICE¹

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A commercially available projection device exists which has a wide variety of applications in visual discrimination research. The equipment described is the Perceptoscope², a remote control, reversible 16 mm. automatic strip film and motion picture projector. Its essential features are the following:

1. The remote control can be set either for motion picture, for automatic single frame projection (at variable speeds ranging from 1 to 24 frames per sec), or for single frame projection controlled by an external switch. The three modes of operation are available for both the forward and reverse operation.

2. Two films (or one) can be projected simultaneously or separately through the same optical system, thereby eliminating the problem of different focus and resolution. Typically, one of the films is a loop, and the other is a reel. These can be operated independently of each other. For example, one film can present circles on the left increasing in size with each presentation (and decreasing in reverse direction), and each frame of the other film can present a different circle on the right which is to be matched to the left circle. Hue and other dimensions can be varied similarly. The presentations can be superimposed on each other, so that the experimentally varied dimension can be the number of lines on a grid, with the other presentation involving a recognition stimulus, *i.e.*, identification of a signal under varying conditions of visual noise. The types of stimuli are limited only by what can be put on film. Custom made

film sequences are available from the manufacturer.

The two films can be arranged so that the advance of one is contingent upon the programming of the other. For example, the strip film can project a printed page which the subject (*S*) is instructed to read. The loop of film is made opaque, thereby masking the page, except for a transparent slit which exposes half a line. The slit is made to move systematically across and down the page from frame to frame in the loop. When the slit reaches the end of the loop, it recycles; *i.e.*, the top of the page is now exposed, but it also simultaneously triggers the page film to present a new page. By allowing the *S* to control the movement of the loop by a microswitch, the author is investigating silent and oral reading rate, and its control contingencies attached to each response (Goldiamond, 1962). Another obvious use is in programmed instruction.

One film alone can be used, so that each frame represents a discrete presentation in a psychophysical sequence. The author has investigated size discrimination in normal and mentally retarded children in this manner. Each frame contained three large circles and one small one, arranged Up, Down, Left, and Right, with the small one varying randomly in position. The *S* was required to press one of four buttons whose positions were analogous to the circles (Goldiamond, 1959).

The apparatus can be used for matching, for pair comparisons, Method of Average Error, Methods of Limits, Constant Methods, for systematically or randomly varying presentations—for practically all psychophysical procedures including the Blough-Bekesy procedures. The equipment also lends itself to Holland observing responses, as well as to the monitoring of complex visual displays. Adding a solenoid-operated shutter converts

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²Perceptual Development Laboratories, 6767 Southwest Avenue, St. Louis 17, Missouri. Price: approximately \$1300.

the instrument into a remotely controlled tachistoscope.³

For time and motion studies, the film can be stopped at any frame. The good optical qualities of the instrument have permitted the examination of fine detail in a given frame.

³Available on order from Wollensak Optical Company, Rochester, as board-mounted solenoid-operated shutters, for 2 in and 1 in Alphax shutters.

REFERENCES

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