TECHNICAL NOTE

A PORTABLE RECORDING APPARATUS FOR RATING BEHAVIOR IN FREE-OPERANT SITUATIONS

The construction and testing of a small, easily portable apparatus for the rating of behavior in free-operant situations has recently been completed. Based on earlier designs (Lovaas, Freitag, Gold, and Kasorla, 1965) the present equipment is more flexible in that it allows a greater degree of freedom to the rater, rapid changing of rating scales, and a choice of either continuous or interval rating with time-sampling procedures. In addition, the recorder has the advantage of portability as it is small, 8 by 4 in. (20 by 10 cm), with a total weight, including cable, of under seven pounds (3.18 kg).

The basic recording unit is a commercially available eight-channel Rustrak¹, Model 292-8, event recorder. As the recorder uses pressure sensitive paper tape fed at 3 in. (7.6 cm)/min the problem of clogging and mess related to using ink pen recorders is eliminated. The pens are actuated by 24-v dc circuitry while the paper tape feed is controlled by a 115-v ac motor.

A custom-built, 24-v dc power supply and relay circuit are enclosed in a case mounted on the back of

the recorder. A hand-held remote response panel is attached to the recorder and power supply using a multiple wire cable and a "Cannon² sub-miniature connector" plug. The response panel consists of eight miniature, silent push buttons³ (one actuating each pen) mounted in a small (4 by 2 by 1 in. or 10 by 5 by 2.5 cm) aluminium chassis.

Fig. 1. Power supply wiring schematic.

Fig. 2. The photograph shows the Rustrak recorder with the attached power supply and carrying handle. The response panel is shown beside with push buttons coded using a scale modified from Thomas, Becker, and Armstrong (1968) and Bijou, Peterson, Harris, Allen, and Johnston (1969).

¹Available from Rustrak Division of Gulton Industries, Municipal Airport, Manchester, N. H. 03103. Several tape speeds are available on request as well as 4- and 16-channel models.

²Available from ITT Cannon Electronics (Canada) 160 Bartley Road, Toronto, 375, Canada, at a cost of \$2.93 per unit.

³Available from Grayhill Incorporated, 561 Hillgrave Avenue, P.O. Box 373, LaGrange, Illinois 60525 at a cost of \$1.29 per switch.

The power supply wiring schematic (Figure 1) also includes a 24-v dc relay circuit, actuated by a toggle switch on the response panel, which allows the rater control of the paper tape feed from a remote position.

The electronic components for construction of the power supply and response panel are available at any electronic supplier at a cost, in this case, of less than \$20.00. The purchase price of the event recorder from the manufacturer is \$178.25 and the pressure-sensitive tape (Type WE-E), approximately 63 ft. in length is \$3.00 per roll.

Three such recorders are now in use at the Mental Retardation Centre for the rating of classroom behaviors and several advantages over the usual pencil and paper or manual counter procedures have been noted.

The ratings are generally more accurate as raters are not required to look away from the subject once they have become acquainted with the equipment. Also, the apparatus allows a greater degree of subtlety in rating as the recorder and power supply are actually hidden from view and the dimensions of the response panel are such that it is rather inconspicuous as compared to the traditional methods of rating.

Previous time-sampling procedures (Thomas, Becker, and Armstrong, 1968; Baker, 1969; Baker, Stanish, and Fraser, 1970) usually break the randomly selected interval into smaller units (*e.g.*, 20 sec.). In each of these intervals, the subject is rated on his or her most prominent behavior using a single category from the particular rating scale employed. This procedure has the effect of inflating the scores of particular subjects when the most prominent behaviour is of short duration. For example, if a subject displays a loud disruptive verbal outburst it is usually noted despite the fact that the temporal feature of the behavior may be only a small portion of the entire 20-sec interval.

Rating procedures such as these have the function of producing misleading negative scores (Baker, Stanish, and Shapson, 1971) that can be eliminated with the use of the continuous rating procedures for

which the above described apparatus is designed. The rater merely holds down the response button corresponding to the subject behavior for the duration of that behavior. This technique combines the features of frequency counting and continuous recording, allowing more accurate analysis of data, important to the targeting of behavior for treatment.

The adaptability of this equipment to a variety of settings and rating techniques should be readily apparent to the researchers interested in recording free-operant behaviour.

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J. G. Baker and G. Whitehead
Mental Retardation Centre
Toronto, Canada