A portable, inexpensive, Walkie-Talkie-type "Bug-in-the-ear"

JACK N. HANEY and WILLIAM R. SEWELL
Memphis and Shelby County Community Mental Health Center, Memphis, Tennessee

and

BARRY A. EDELSTEIN and HARRY H. SARTIN
Memphis State University, Memphis, Tennessee 38111

An inexpensive portable "bug-in-the-ear" is described for use in behavior modification training and treatment. The apparatus consists of an inexpensive "walkie-talkie" and a miniature earphone and plug. The advantages of the system are discussed relative to more sophisticated, expensive, and less mobile sound systems.

One of the most effective methods of monitoring trainees during training (clinical, counseling, behavior modification) is the small "bug-in-the-ear" device or miniaturized radio receiver worn in the ear. This small receiver has the distinct advantage of permitting the trainee to hear supervisory comments without the client

or subject being able to hear the remarks. The device can also be used to provide feedback or reinforcement to a client or subject (Patterson, Jones, & Whittier, 1965) where it is beneficial for only the subject to receive the communication.

This note describes a portable transmitting device that

Table 1
Relative Advantages and Disadvantages of Three "Bug-in-the-Ear" Type Communication Systems

Point of Comparison	Commercial Systems	Modified Tape Recorder	Walkie-Talkie Bug
Expense	Between \$500 and \$1000 plus the cost of antenna	About \$2 plus the cost of a tape recorder	Between \$15 and \$50 depending on quality of walkie-talkie
Power source	Usually 110 ac from standard wall outlet	Usually 110 ac but could use a battery powered cassette recorder	Battery powered
Antenna requirement	Requires a permanently installed antenna	Requires no antenna	Retractable antenna on walkie-talkie
Disadvantages implicated in antenna system	Used in rooms having permanent antenna	Recorder can be easily moved from room to room but may require an opening in walls between observation and training room	Complete mobility and does not demand special connections from sender to receiver. Antenna may be an obstruction in cheaper models that require antenna extended
Portability	Essentially "nonportable" since disconnection and reconnection too cumbersome	Recorder can be easily carried, especially if cassette	Extreme compactness permits total portability
Mechanical convenience of the "bug"	Extremely convenient because of small size and absence of any connection wires	Wire from mike to receiver may become an obstruction	Wire from bug to receiver may become an obstruction
Limitation of physical movement of person wearing the "bug"	Complete freedom of movement within room having an antenna	Freedom of movement limited by length of cord to the "bug"	Complete freedom of movement depending on adequacy of signal in different areas
Physical locations	Can only be used in room with antenna	Can only be used in a single room	Can be used to follow a client going from room to room, or within a room if signal quality good
External interference	None	None	Subject to external monitoring and/or interference by ambient radio transmission (e.g., police or citizen band transmission), but usually only when no transmission occurring on walkie-talkie

has a number of advantages over the typical "bug-in-the-ear" device. The Archer Space Patrol citizens band transceiver is an inexpensive walkie-talkie used for one-way communication in behavior-modification programs at the Memphis and Shelby County Mental Health Center. Each unit is compact ($4\frac{3}{4} \times 2\frac{1}{2} \times 1\frac{5}{8}$ in.) and can be placed on a table or carried in a canvas pouch attached to a waistband or belt. A miniature close-circuit jack is mounted on the face of the receiver $1\frac{5}{8}$ in. from the bottom and $\frac{3}{8}$ in. to the right of the unit midline. This closed circuit switch is wired between the secondary of the output transformer and receive side of the T-R switch.¹ When the earphone is plugged into the jack, the speaker is inoperative and voice transmission is heard only through the phone. When the earphone is not connected, the units function as ordinary walkie-talkies. The units operate in the following manner: (1) The on-off thumb switch is "on" for both units. (2) The push-to-talk switch is closed on the Transmitter and open on the Receiver. (3) The aerial is fully extended on the Transmitter and all the way down on the Receiver. (4) The earphone is inserted in the ear and a plastic-coated hook attaches over the ear. The earphone is connected to the Receiver by a two-conductor cable.

The units may be purchased from Radio Shack, Fort Worth, Texas 76107. The units are also available from local radio shops. Order the following:

(1) Archer Space Patrol citizens band transceiver (60-3030)	Set of 2	\$14.95
(2) Miniature jack (274253)	Pkg of 3	.79
(3) Miniature earphone and plug assembly (33174)	Each	.98
	Total	\$16.72

Experience with this "walkie-talkie bug" (WTB) suggests that it has some advantages over both the commercial "bug-in-the-ear" and modified tape-recorder systems (Stumphauzer, 1971). The relative advantages and disadvantages of these three systems are summarized in Table 1.

REFERENCES

- Patterson, G. T., Jones, R., Whittier, J., & Wright, Mary A. The hyperactive child. *Behavior Research and Therapy*, 1965, 2, 217-226.
 Stumphauzer, J. S. A low-cost "bug-in-the-ear" sound system for modification of therapist, parent, and patient behavior. *Behavior Therapy*, 1971, 2, 249-250.

NOTE

Mr. Joseph A. Alexander of Division of Plant and Planning at Memphis State University provided the wiring description used in this article.

(Received for publication October 9, 1974;
 revision received December 4, 1974.)