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A Behavorial Measure of Television Viewing

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A Behavioral Measure of Television Viewing[1]

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An experimental psychologist has developed a TV commercial pretest that is sensitive, continuous, immediate—and completely objective.

IF A television commercial is to induce purchase, it must first induce looking and listening. The only efficient commercials are those that are seen and heard by the prospective purchaser. How can an advertiser insure that his commercials will be thus perceived?

He may predict consumer viewing and listening on the basis of his past experience with other consumers and other commercials. Telephone interviews and receiver tuning can provide helpful feedback. But telephone interviews suffer the inaccuracies of recall; and tuned receivers mean not that the message was perceived, but only that it could have been. And since these are measures of previously used copy, they tell the advertiser when he has erred but do not insure him against error. For such insurance he must *pre*test, and for accurate pretest methods he has lately turned to the behavioral sciences.

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Pretests based on experimental psychological methods are more objective than raw past experience. Using a representative sample of the consumer population, a pretest can compare two media bearing the same message, or two different messages in the same medium. The best techniques evaluate the commercial by recording the consumer's immediate response to it without interviews, without recall, and without pausing. If the response is continuously recorded, it can be used to correct parts of the copy in order to induce sustained perceptual response.

One such behavioral measure has been obtained by the Lazarsfeld Program Analyzer (Peterman, 1940) in which the subject registers pleasure or displeasure by turning knobs. Another, recently reported by Hess and Polt (1960), is of the viewer's pupil. Pupil dilation was assumed to indicate pleasure, if incoming light were held constant, and was photographed with an infrared camera.

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[1] Copyright 1962, O. R. Lindsley. The research was conducted by the Behavior Research Company, Belmont 78, Massachusetts. Part of this report, entitled "Conjugate Reinforcement," was read before the annual meeting of the American Psychological Association September 3, 1961 in New York.

The present report describes a more precise behavioral measure which has grown out of the operant conditioning methods developed during the past 30 years by B. F. Skinner (1959). These methods have been widely applied in the pharmaceutical industry to predict the effects of drugs, and more recently in the classroom to program instruction by "teaching machines."

Our technique shows how rewarding a commercial is to the consumer by measuring how hard he will work to look at it. The measure is continuous, immediate, objective, and sensitive. It avoids most of the validity problems inherent in verbal or recall methods.

We will describe this new copy testing technique against a background of the history of operant conditioning. Some sample results will be shown and other applications of the technique suggested.

BACKGROUND

Operant Conditioning Methods

A response which involves little effort and can be emitted by the subject faster than he can make decisions is chosen to be the "operant." By selecting a simple response, physiological fatigue is ruled out of the experimental data and behavior can be analyzed in very fine units. Such would not be the case with responses such as writing down words, talking, or operating a complicated apparatus. One response often used in human behavioral analysis is the pressing of a small switch (requiring no more than 300 grams of force through a distance of two centimeters). It may be thought of as the sharply pointed fulcrum on a chemical balance. The more delicate and sharp the response, the more finely can the behavior be measured.

The response is defined by its consequences. These later events may be rewards or punishments. If pushing a button produces a candy bar, then button-pushing is called the candy response. If button-pushing produces cigarettes, it is called the cigarette response. If it illuminates a television receiver screen, it is called the television-viewing response.

Almost anyone can press a button several times a second. When his responses are recorded on a moving paper graph, the record permits behavioral analysis in units shorter than the time it takes to make most gross responses. Thus operant conditioners have a behavioral yardstick with measurement units finer than the behavioral processes which they wish to measure. High behavioral "resolution" is achieved, since operant methods are sensitive to very slight and subtle behavioral changes which occur in fractions of a second.

Since we are concerned only with measuring the *rate* of the response, a special technique of recording it has been developed. Recording paper moves continuously at 30 centimeters (almost 12 inches) per hour. Each response is indicated on the passing record by an upward movement of the recording pen. Thus the slope of the resulting graph indicates the rate of responding, and the original record can be fully interpreted without further analysis.

Laboratory scientists seek to control so much of the experimental environment that they need not resort to statistical analysis to determine the significance of the effects of the variables studied. In operant conditioning, this control takes the form of an experimental room which prevents variables other than those being studied from subtly altering the behavior of the subjects and thus putting unwanted "noise" into the data. Automatic programing presents all stimuli and experimental variables to the subject, thus eliminating the possibility of the experimenter's biasing the data by unconscious manipulation of the variables. Automatic recording similarly prevents experimenter bias in collecting data. Automatic equipment also saves money: one technician can monitor many subjects at once.

This environmental control, besides eliminating extra-experimental variables and experimenter bias, also permits recording the effects of experimental variables with such accuracy that conclusions can often be reached from single subjects. Usually the research design insures that each individual serves as his own control by presenting and removing the experimental variable several times within a single experimental session. Strong individual differences revealed in this manner can later be used to predict the behavior of single subjects or groups.

Studies of the Looking Response

By making five-second durations of projected Kodachrome slide images contingent on an operant response, we have been able to show wide individual differences among chronic psychotics and normal individuals responding to different pictorial themes (Skinner, Solomon and Lindsley, 1954; Lindsley, 1956). For example, male homosexuals responded at higher rates for male nude pictures presented as reinforcement than they did for female nude pictures.

Holland (1957, 1958) instructed Navy enlisted men to observe as many deflections of the pointer on a dial as they could. They were seated in a dark enclosure, with a key which produced a .07-second illumination of the dial each time it was pressed. The men pressed the key at rates as high as 120 per minute to light up the dial, showing that the opportunity to observe the dial was reinforcing to them.

It has been suggested by Jeffrey (1955) and Bijou (1959) and shown by Baer (1960) that children will respond to prevent sound movies from being totally withdrawn for five-second periods of time. This technique is called a Hefferline escape-avoidance schedule of reinforcement. In our laboratories since 1959 we have had children and adults respond on conjugate reinforcement schedules in order to produce the sound or picture of sound movies.

Conjugate Reinforcement

In conjugate reinforcement the intensity of a continuously available reinforcing stimulus varies directly and immediately with the rate of response (Lindsley, Hobika and Etsten, 1961). This schedule permits a more direct, immediate, and finer-grained analysis of the moment-to-moment changes in the value of a reinforcing stimulus than the episodic schedules of reinforcement which were previously used by operant conditioners (Ferster and Skinner, 1957).

By making brief, slight reductions in the intensity of a loud, aversive tone conjugately contingent upon pressing a switch, we were able to generate high, stable rates of response which were sensitive to intermediate levels of awareness and which could be used to induce behavior during sleep and thereby to evaluate the depth of sleep (Lindsley, 1957). Similar use of conjugate reinforcement revealed subtle changes in level of consciousness and produced unconscious responding in subjects under surgical anesthesia and in EST-produced coma (Lindsley, Hobika and Etsten, 1961; Lindsley and Conran, 1962).

Music, movies, or television must be continuously available to have maximal reinforcing power. Episodic presentation of these reinforcers greatly decreases their reward value. Five-second bursts of a Beethoven symphony are more a musical recognition test than an evaluation of the reinforcing effect of the music. Short bursts of Beethoven provide no chance for the music to reach its maximal reinforcing effect through the development of emotional responses.

Gradual approach or withdrawal of stimuli often enhances their reward value. Abrupt presentation of views of the human body produces responses in the opposite sex as unemotional as those of an anatomy class. In contrast, the gradual revelation of anatomical areas produces a much greater reinforcing effect of a vague, sexual nature. If an anatomy professor slowly and gradually revealed female anatomical structures on a chart, he would probably be expelled for "improper" presentation of his subject matter!

METHOD

The *consumer's enclosure* is schematically diagrammed, along with the other important apparatus components, in Figure 1. The enclosure can be any comfortably air-conditioned room which isolates the experimental consumer from other individuals and unwanted variables which might disturb his viewing behavior. Our experimental rooms are painted blue and are equipped with comfortable chairs for the viewer. Mounted in the wall approximately six feet from the viewer is the television receiver, whose brightness the consumer controls. The consumer can hold in either hand a small switch which produces a brief (less than 0.5 second), slight increase in the brightness of the television image. Even if the switch is held down, only this brief period of illumination is permitted. The *response definer* converts each press of the switch to an electrical pulse which operates the *conjugate reinforcer.* Thus, high rates of responding (above 60 per minute) keep the picture brightly illuminated for comfortable viewing; intermediate rates of responding keep the picture at dimmer levels; and during periods of no responding the picture tube is dark.

The audio part of the television program is continuously presented to the consumer through comfortable earphones. Earphones are used so that his vocal responses (e.g., laughing) can be recorded by a microphone within the room without also picking up the responses of the television audience.

The *experimenter's monitors* consist of earphones, one (labeled "P" in Figure 1) through which the experimenter can hear the audio part of the television program and another (labeled "C") through which he can hear the vocal responses of the consumer. The experimenter also has a television receiver equipped with a monitoring switch so that he may view either the program the consumer has an opportunity to see or the image on

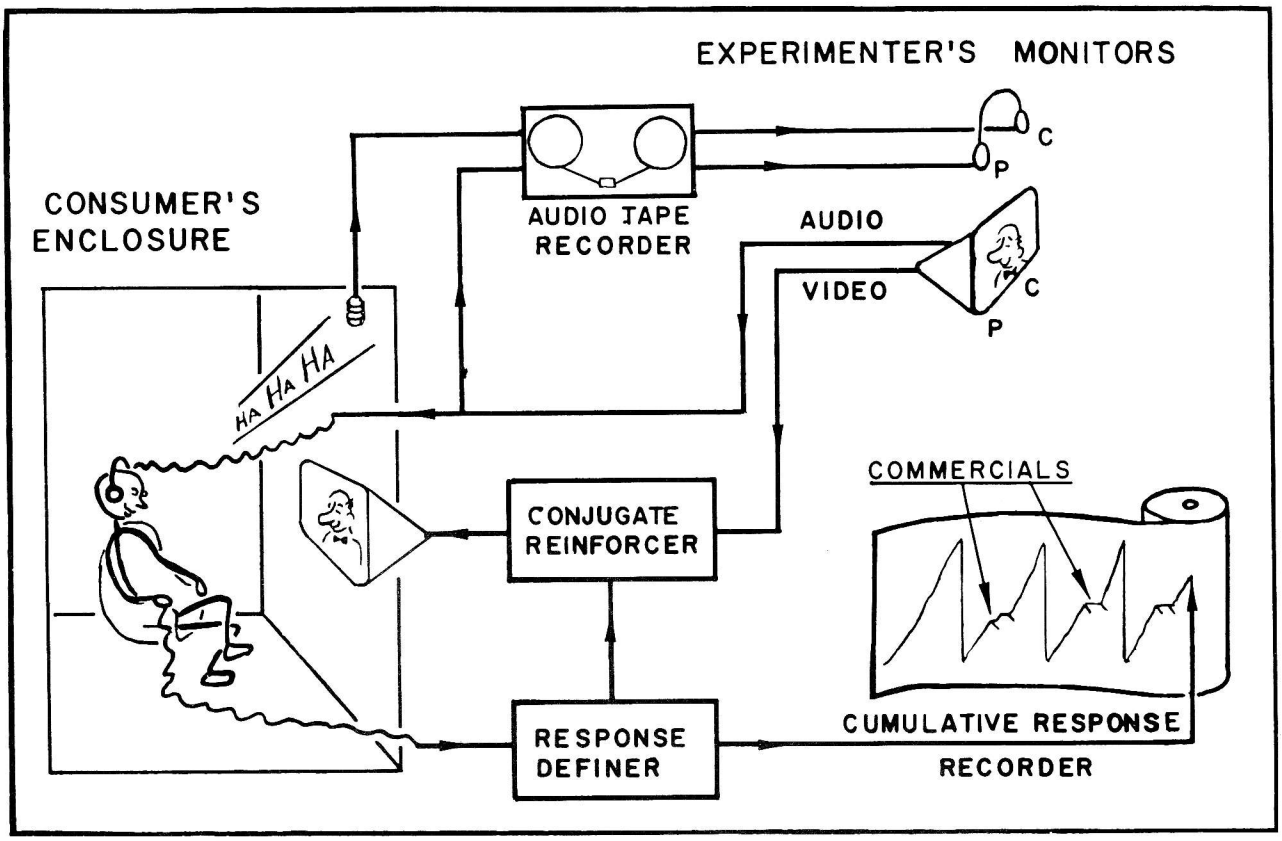
the consumer's receiver produced by his responses. The use of these monitors permits the experimenter to check when the consumer is not responding to see if it is because the set is out of tune or because the consumer is not interested in looking at a clear image.

Consumer's operant response rate is recorded on the *cumulative response recorder* (diagrammed in Figure 1 and described above). The slope of the line on these records indicates the rate of pressing the switch and the brightness of the consumer's receiver. These records provide a direct measure of the consumer's moment-to-moment interest, or desire to work for the video portion of the television program. In other words, they are records of his looking responses. The experimenter can indicate anything of interest on these records by pressing a switch which moves the pen to the right and downward, making a "hatch" mark on the record. In the figures in this article these hatch marks indicate the beginning and end of commercials appearing in a television program. If the experimenter wishes, he can also write on the cumulative response record any changes in program content, etc.

Consumer's vocal responses are recorded through the microphone in the consumer's enclosure onto one channel of a *stereophonic tape recorder*. At the end of the program additional responses are obtained from the consumer by having him fill out a questionnaire and by interviewing him. However, these questionnaire and interview results suffer from recall bias, even though the recall is almost immediate. Our data have shown that the results of these interviews are by no means as accurate, subtle, or sensitive to moment-to-moment changes in viewing behavior as is the directly recorded operant response.

Copy content is recorded on the second channel of the stereophonic tape recorder. It is also possible to record the video content on a video tape recorder. These records of copy content can then be compared with the cumulative response record and the consumer's vocal response record for moment-to-moment analysis.

FIGURE 1: A SCHEMATIC DIAGRAM OF THE EXPERIMENTAL ROOM



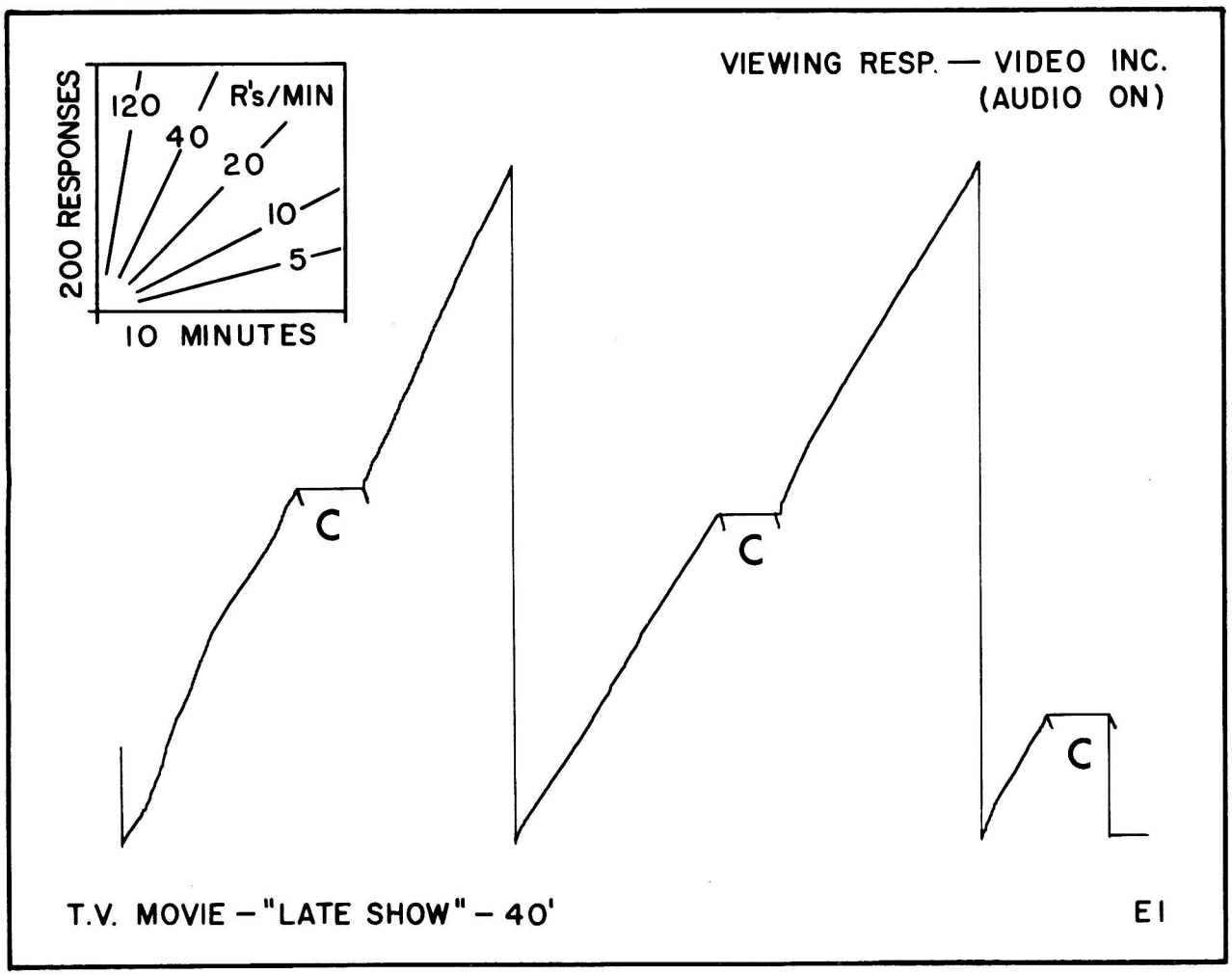
We pay the subjects to attend. This payment in no way interacts with the subject's viewing behavior since it is not contingent upon viewing responses but merely on his attendance.

The subject can be placed in the enclosure with absolutely no prior instructions, nor indeed any knowledge of the English language. The response is learned almost immediately. There is no possibility of distorting the subject's responses by instructions, since there are no instructions. To use infants as young as four months, for example, one need only substitute a crib for the chair, and a panel that the infant can kick for the hand switch used by adults. One copy testing session was run with a seven-year-old boy for six hours without interruption. The type of experimental consumer selected is determined by the nature of the product and the market rather than by the copy testing technique.

RESULTS

Figure 2 is a cumulative response record of a 40-year-old male adult's viewing behavior for a re-run Hollywood film on the Late Show. Sound was on continuously. The looking responses are recorded on the graph. Three commercials are shown (labeled "C"). Note that no looking responses occurred during the commercials. It is important to realize that since the consumer did not leave his chair, these interruptions in the looking behavior produced by the commercials cannot be attributed to an opportunity to visit the kitchen or bathroom. The commercials simply were not worth the operant looking responses required to view them. With this consumer the video channel of these commercials was wasted. The Late Show's audience is probably larger than that of most radio programs, but for this part, these commercials might just as well have been presented on radio.

FIGURE 2: HOW ONE MAN VIEWED THE LATE SHOW AND ITS COMMERCIALS (C)



Good commercials should induce both looking and listening responses. Had we used a two-response situation, in which both looking and listening responses were required of the consumer, it may well have been that the consumer would not even have listened to the commercial but would only have spot-checked it with his listening response to make sure the movie had not yet begun again.

Note that the movie produced a high, even rate (30 to 50 responses per minute) of looking responses with continuous audio presentation. We find that movies generally produce more looking behavior than do programs developed expressly for television, perhaps because so many television producers and performers were trained in radio and have not yet learned to take full advantage of the video portion of television programs.

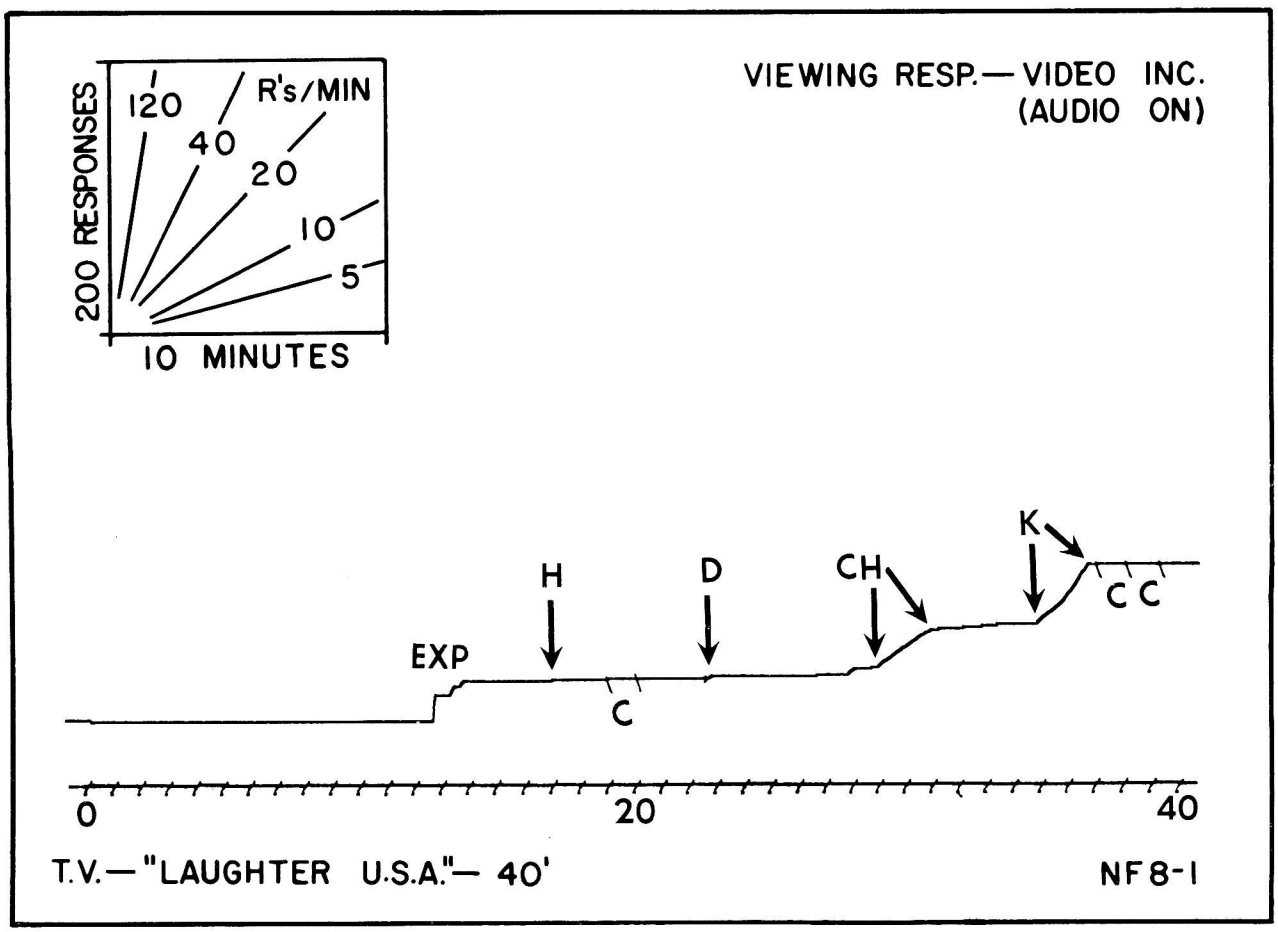
Analysis of a Program

Figure 3 presents the cumulative viewing response record for the first 40 minutes of a Du Pont Show of the Week, "Laughter U.S.A.," shown Sunday, September 17, 1961, over WBZ-TV, Boston, at 10 P.M. The subject was a 28-year-old woman with a high school education, married, with one child. Her husband was a machinist.

Note that very few looking responses occurred. At "EXP" the experimenter entered the consumer's enclosure and rapidly pressed the switch ten times to insure that the apparatus was working and to give the consumer a "demonstration." She made a few looking responses after this but did not brighten the screen again until she heard Bob Hope over the audio and took a brief look (labeled "H"). She did not watch the commercial (first "C"), but when she heard Jimmy Durante start to sing "Ink, a-dink a dee," she took another brief look at the video (labeled "D").

For about two minutes her viewing behavior was sustained by Charlie Chaplin ("CH" in the figure). She took four more brief looks, but did not continuously view the show again until the Keystone Cops came on ("K" in the figure). Two more commercials were not observed.

FIGURE 3: HOW A YOUNG WOMAN VIEWED A DU PONT SHOW OF THE WEEK

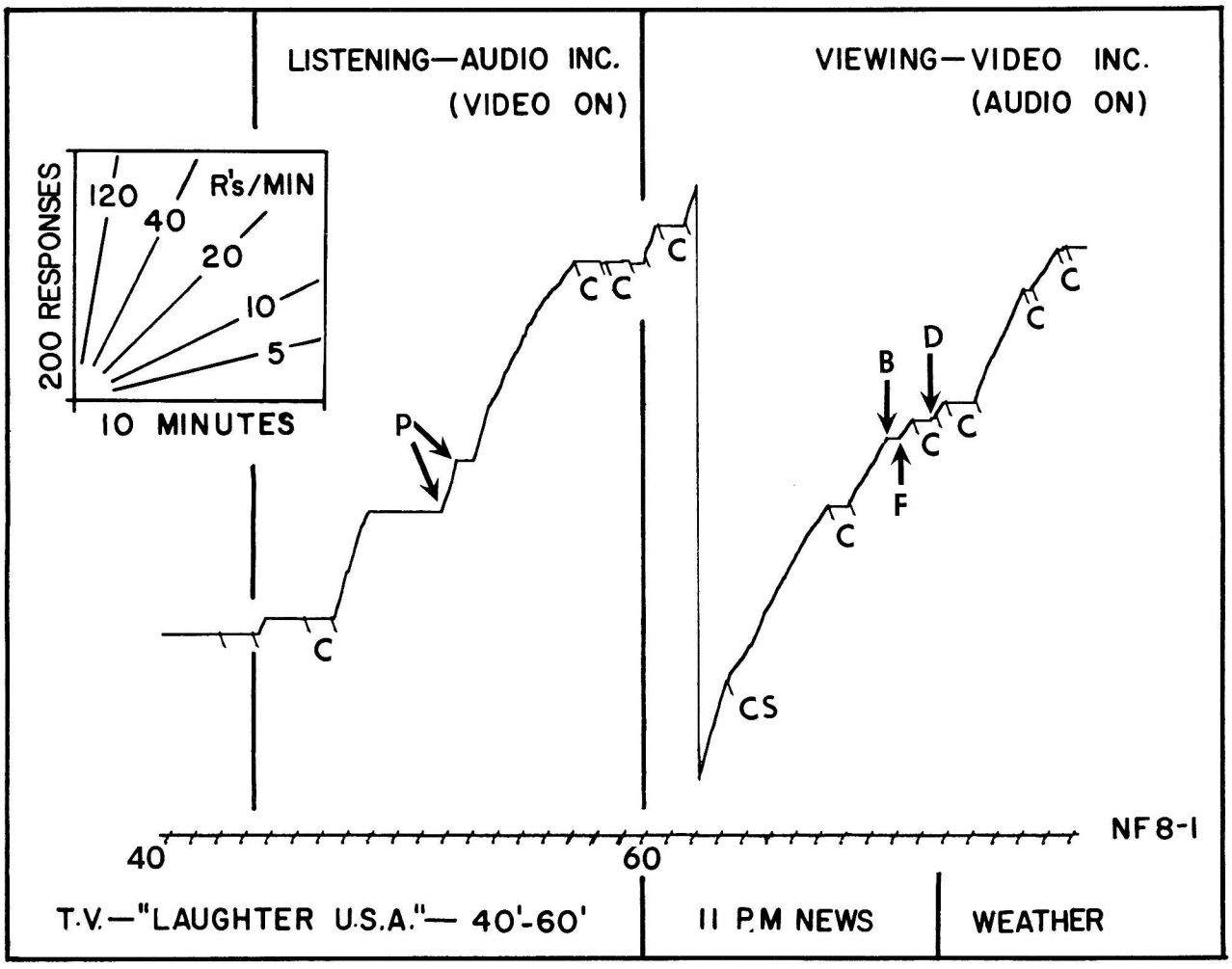


The analysis of this single record suggests that the commercials did not generate looking behavior and that the show itself was not suitable for television. Since it did not generate looking behavior, it might as well have been broadcast on radio. Note that most of the looking behavior was produced by actors who had prior experience in silent films (Chaplin and the Keystone Cops), not by performers originally on radio (Hope and Durante).

Figure 4 contains the last 20 minutes of "Laughter U.S.A.," followed by the 11 P.M. news and weather, for this same consumer. It is a continuation of the record shown in Figure 3. To be sure that "Laughter U.S.A." was at least functioning as an audio show for this consumer, we changed the experimental circuit so that the video channel was on continually while the consumer had to press the switch in order to increase the intensity of the audio channel. Note that when she had an opportunity to see the show continuously she pressed the switch to hear it. However, she did not bother to listen to the commercials, even when they were visually presented. At the arrow marked "P" she listened to Jack Paar.

When the news came on, the circuit was changed back again so that the sound was on continually while responding produced the television picture. She watched all the news report except the commercials. The commercial marked with only one hatch (marked "CS") was a spot commercial which caused a very brief interruption in looking behavior. At "B" she refrained from watching while the baseball scores were given, but when the football scores were given immediately afterward (at "F") she watched the football playing scenes. She did not look at the next commercial until (at "D") the sound track mentioned "and look at these lovely dresses," at which point she pressed the button to get a brief

FIGURE 4: SAME WOMAN'S LATER VIEWING OF DU PONT SHOW, NEWS & WEATHER REPORT



look. She followed by watching the whole weather report but looked at only a small portion of the last of its three commercials.

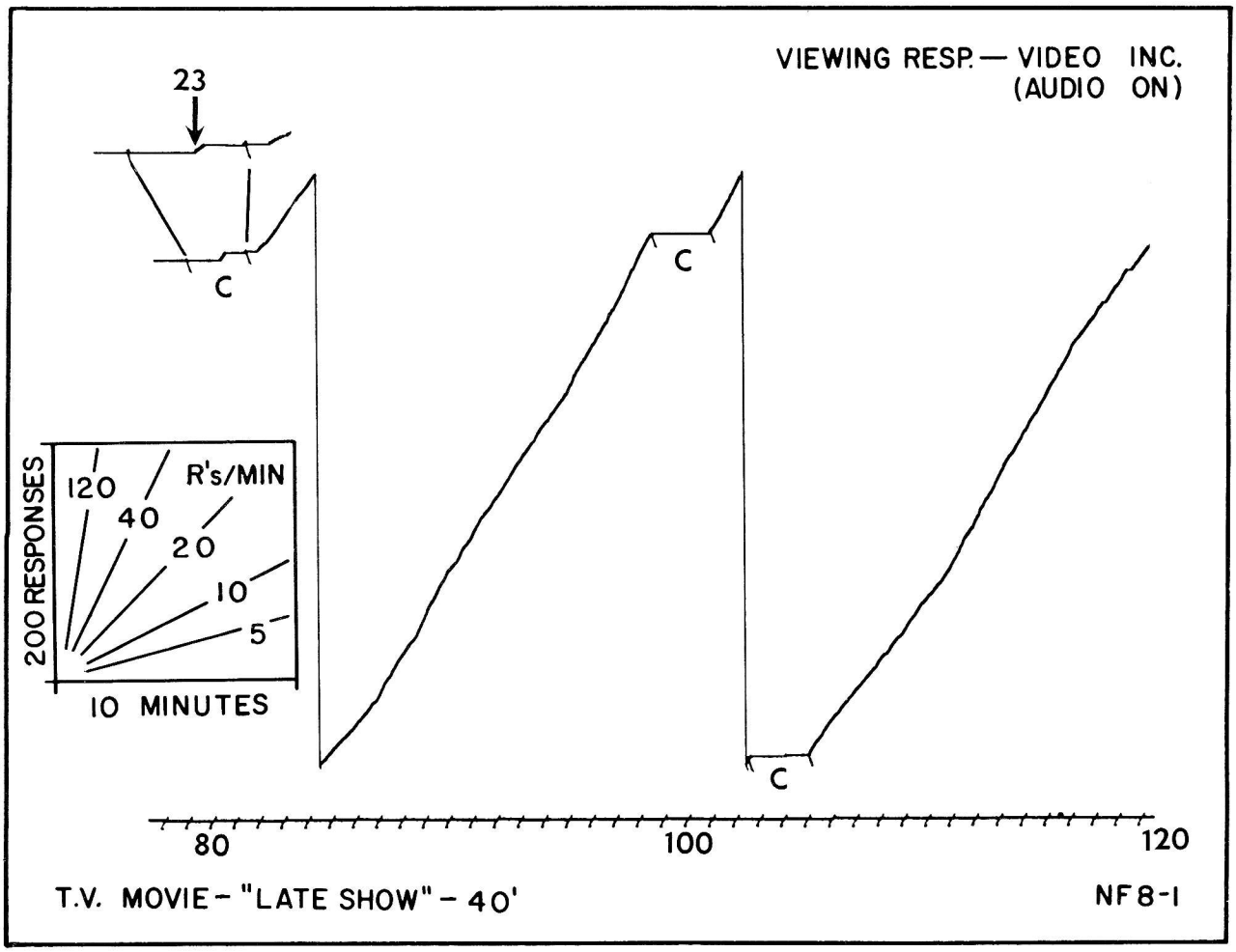
Analysis of a Commercial

Figure 5 is a continuation of Figure 4. At the beginning of the figure the Alka-Seltzer commercial was shown. The expanded record of this commercial, which was recorded on another instrument running at twice the speed, is shown above the response record. At the point marked "23" the sound track said "and 23 mechanical men," whereupon the consumer looked at the commercial. The sound track of the whole commercial generated looking behavior in this woman only at that point; at all other points the video portion was wasted. The rest of the record is clear evidence that the consumer was neither fatigued nor bored, for she continued to watch the "Late Show" with a high, even rate of looking responses except during the commercials (labeled "C"). The record shown in Figure 5 provided a control for possible satiation, boredom, and fatigue effects. Therefore, the low rates of looking response shown in Figure 3 must be attributed to low visual interest.

OTHER APPLICATIONS

The effects of different commercials on listening or looking responses can be compared easily. It is also possible to *select an appropriate program for a given commercial.* Perhaps, if a program commands very great viewing interest, trips to the kitchen and bathroom will be forced into the time of a moderately good commercial, reducing the advertising exposure more than if the commercial had been placed in a weaker program. Of course, if the program is too weak, the consumer will probably not tune in at all.

FIGURE 5: SAME WOMAN'S LATER VIEWING OF LATE SHOW AND COMMERCIALS (C)



Interprogram comparisons are possible using this technique. As shown in Figure 2, "Laughter U.S.A." was not as powerful a television program as the movie shown in Figure 5. These data were available immediately after the program was shown and could have been provided by copy testing prior to the presentation of the program. Critics' reports and interviews conducted later supported this experimental record, which suggested the program was more properly a radio show.

Accurate selection of media would be facilitated with this technique. If a taped or filmed program produced listening responses but not looking responses, it clearly would be most efficiently presented over the radio medium.

Description of consumer targets should become more and more precise as individually significant and sensitive looking and listening behavior is recorded and grouped into similar categories. Many investigators have already shown that men and women have very different viewing habits. As more precise copy testing techniques are developed, the consumer population will probably be broken down into a small number of subtypes with particular viewing and listening habits. Being able to describe the viewer subtypes and to predict their viewing responses should be useful in the selection and design of advertising media and messages.

Choice of technical procedures for producing commercials can be pretested by comparing the viewing responses under various technical procedures. For example, taped versus filmed commercials could be compared for ability to produce looking responses. A decision as to whether to use lyrics or not in background music could also be made in this fashion. Since the purpose of this paper is to describe this new method rather than to encompass all of its possible applications, these few suggestions for further application should suffice.

OTHER RESEARCH METHODS

The Audience Concepts Committee of the Advertising Research Foundation recently published a report clarifying the issues involved in measuring the effectiveness of advertising through media (Banks, et al., 1961). This committee concluded that the perceptive response to advertising is the most logical and convenient point to make comparisons between different media. It is clear that accumulated practical experience does not predict advertising consumer response accurately; experience must be supplemented by pretests. The copy tester must decide whether to use an older research method which, despite its well-known limitations, provides a large body of data to fall back upon, or whether to try newer, more objective devices which promise more accurate predictions, but lack norms.

Telephone and personal interview techniques are limited by the errors involved in human memory and recall. Moreover, the unconscious motivations of the consumer and his social interaction with his peers between the advertising exposure and the time of interview alter his interview response. A happily married man may be unable to take his eyes away from a screen displaying a scantily clothed young lady, but in an interview be unable to describe his interest in that commercial.

Television receiver operation and tuning information is objective and reliable, but by itself indicates only that there was an opportunity for one or more individuals to observe. It does not objectively record the viewing response. Individuals who have such automatic recording equipment in their homes may show sample inclusion bias: they turn on their sets to watch programs they would like the country to watch, rather than programs which they themselves would be more rewarded for observing (Dailey and Stahl, 1962).

The methods above measure consumer response to copy which has already been aired. They are of little help in preventing the waste of costly air time on untested copy. The objective methods described below, however, can pretest copy experimentally, do not include errors of memory and recall because they provide immediate measures of advertising response, and produce relatively continuous measurement, permitting a fine-grain analysis of copy content so that the poor parts of a copy can be cut and portions which produce more viewing behavior inserted. In this way, these measures can be used to monitor continuously the design and construction of efficient advertising copy.

Pupillary dilation, recorded by an infrared camera as a measure of pleasure (Hess and Polt, 1960), is affected by variables other than the content of the advertising copy. The amount of light falling on the eye must be controlled, as well as emotional stimulation and drugs which alter pupillary dilation. Also, the method is costly since the pupillary dilation measures must be taken from motion picture film which the copy tester must observe frame by frame. McCann-Erickson is now investigating the practicality of this method for copy testing.

Eyeball focusing information can also be obtained with the Hess-Polt technique. The focusing

of the eyes indicates how long the particular portions of advertising copy are looked at. Head movement disturbances could readily be ruled out by using a head positioning device with a biting board, or by superimposing the pattern of focus and the copy when a major shift occurred. It would also be possible to affix the copy to the head or to control the copy by head movements with servo mechanisms. More disturbing than the head movements is the realization that focusing the eyes on a part of advertising copy for a long period of time is not necessarily an indication that this part of the copy was preferred to other parts. It could well be, for example, that this part of the copy was simply more puzzling than other parts (Leavitt, 1961).

Objective reports of pleasure and displeasure, provided by a subject's turning one knob to indicate pleasure and another knob to indicate displeasure while viewing advertising copy, were developed by Lazarsfeld (Peterman, 1940) as a program analyzer for CBS. Recently modified by Marquis for Screen Gems, this is not a direct behavioral measurement device. The reinforcement to the experimental consumer for turning the knobs and registering his pleasure or displeasure is not provided by the advertising copy itself. Rather, it may be some social reinforcer involved with trying to please the copy tester, or perhaps a feeling that if the knobs are not continually adjusted and readjusted, payment will be withheld. Furthermore, it is possible for an experimental consumer to be pleased while he unconsciously turns the displeasure knob. In other words, the reward for busily adjusting the knobs is money or social approval. The rewarding value of the advertising copy is not directly and irreversibly related to the knob turning response. Even if pleasure and displeasure were accurately measured by this device, the data could not be considered conclusive, for pleasure does not always indicate reward value. People will stare, for example, at scenes such as automobile accidents, ugly sores, or deformed persons, which produce displeasure.

DISCUSSION

The operant viewing response described in this report can be thought of as giving the experimental consumer an additional, artificial pupil over which he has volitional control. With operant procedures, the looking response is externalized. The reinforcement for this response is the advertising copy itself. If the advertising copy is important to the experimental consumer he must respond in order to view it. There is no way for him to view the copy without recording his viewing.

Some additional points concerning copy testing with this new technique are discussed below.

Increasing response cost, by increasing the amount of force required to press the response switch or by increasing the rate of response required to illuminate fully the television screen, serves to adjust the sensitivity of the technique. Only strongly reinforcing aspects of advertising copy would be viewed when a high response cost was required. By increasing response cost, it is possible to take a commercial which produces stable and continuous viewing responses when response cost is low and determine which parts of the commercial have the most reinforcing value for viewing behavior. For example, the contents of the television programs shown in Figures 1 and 5 could be analyzed by increasing the response costs. This procedure is similar to increasing the degree of amplification on a cathode ray oscilloscope when it indicates a continuous voltage for different conditions. Similarly, if particular copy does not produce viewing responses from a particular subject, it is possible to reduce the response cost to the point where some viewing occurs. Thus, by adjusting response cost upward or downward it is possible to analyze experimentally the separate parts of copy which otherwise are either totally ignored or continuously viewed.

Sample inclusion bias may occur if an experimental consumer behaves differently when he is in an advertising research sample than when he is not. This has been suggested by many critics of advertising research techniques (most recently, Dailey and Stahl, 1962). The method described in this report has minimal sample inclusion bias for two reasons. The first is that it is very difficult for individuals to "fake" the looking response. If the advertising copy has truly compelling visual interest, it is more reinforcing for the experimental consumer to look at the visual content than to refrain from responding in order to get the delayed social reinforcement of "fooling" the advertising researcher. The second reason is that after 10 to 20 minutes of operating the switch to view the television screen, the response becomes unconscious. This is shown by increased rates of pressing when the actual program becomes dim or hazy, or when an image on the screen is hidden by some other object. In other words, the pressing of the switch gets to be as much of a looking response as focusing the eye or bending the head. When a character on the screen goes behind a fence or building, for example, there is an

increased rate of response as the experimental consumer tries to "follow" the individual behind the fence by increasing his looking response rate.

Individual versus group prediction. It is important to note that the ability of this method to predict the viewing behavior of single individuals is a distinct advantage in copy testing. Since sales responses are emitted by single individuals, it may be better to sell a hundred individuals fully than to sell a million partially. With this method it should be possible to predict how many individuals will be fully exposed to the advertising message. If different items in advertising copy produce viewing responses from different individuals, rather than having to choose among types of individuals to stimulate, it is possible to redesign the copy to include two or more viewing stimuli simultaneously. That is, by the summation of individually specific viewing stimuli, advertising copy can be experimentally constructed so that it will simultaneously and continuously maintain the viewing behavior of individuals with widely different viewing tastes. Only when a stimulus is reinforcing to one type of individual, and at the same time aversive to another type, would it be difficult to summate viewing stimuli in order to produce efficient advertising exposure for a heterogeneous population.

There is no limit to the number of experimental consumers whose looking and listening behavior can be experimentally recorded and analyzed at the same time for the same copy. Any number of experimental enclosures can be operated simultaneously.

Ideal copy testing steps. Ideally, the advertising copy selector should follow this procedure:

1. Characteristics of prospects should be determined from the nature of the product, its costs, prior sales response, and the manufacturer's recommendations.
2. A vehicle or program to carry the commercial should be selected for exposure to the maximum number of prospects.
3. After initial advertising copy is prepared by the usual creative and empirical procedures, it should be subjected to copy testing. This copy testing would insure maximal exposure efficiency, and would involve: (a) testing the program for optimal reinforcing value on experimental consumers selected to represent the prospect group; (b) testing the commercial for its reinforcement of the experimental consumers' viewing responses; (c) analyzing and correcting the advertising copy so that it will continuously maintain the viewing behavior of all viewing subtypes of the prospect group; (d) matching the viewing responses of the commercial to those of the program vehicle to insure that the vehicle does not rob the commercial of viewing behavior.
4. At this stage, since the rewritten copy is maximally efficient in producing viewing responses from all members of the prospect group and is also correctly matched to its vehicle, the first general distribution of the commercial could be safely undertaken.
5. When the advertising copy has been exposed to prospects long enough for sales responses to occur, it would be appropriate to correlate the advertising exposure with sales response. Since the advertising exposure is previously tested and modified for maximal efficiency, one could expect higher correlations with sales response than are usually obtained.

CONCLUSIONS

A modification of operant conditioning techniques and conjugate reinforcement has provided an extremely sensitive device for measuring and predicting consumer response to advertising.

The method directly measures viewing behavior and can be used to evaluate television programs and commercials. The records are sensitive to subtle individual differences among consumers, as well as to small details in the content of the message. Operant viewing responses appear to be closer to the ARF Audience Concepts Committee recommendation for copy testing by directly measuring advertising perception than any other available copy testing technique.

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