

# PASSIVE LEARNING FROM TELEVISION\*

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Learning is generally conceived as active and purposive behavior, involving motivation, practice, achievement. Here, the authors focus on "passive" learning, on what is "caught" rather than "taught," and on the processes by which such learning may take place. Passive learning is typically effortless, responsive to animated stimuli, amenable to artificial aid to relaxation, and characterized by an absence of resistance to what is learned, thus opening up possibilities that, depending on one's point of view, one may welcome or deplore.

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WHEN WE speak about the processes of learning we usually talk about motivation, practice, achievement, new skills or insights attained—we usually talk, that is, about learning as active and purposive behavior. We think of it as the province of school and classroom. We know that there are other, more passive kinds of learning, but we focus less on these, in part because they are presumed to be less effective, in part because they have been less noticeable—at least until the rise of the mass media, especially the electronic media.

Much of what is taught by the mass media does involve passive learning, and especially so among young television viewers. This type of learning presents a difficult evaluation problem since the passively learned material is almost by definition unrelated to immediate needs or situations. If it were, the learning would be more than passive.

Critics of television recognize that later events or situations may trigger what has been passively learned and lain dormant. They have therefore been concerned about the content, especially the violent content of television that may be shown to children. However, few have asked *how* the child learns such content at the time of exposure, or how this may be different in process or consequence from

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the more active classroom types of learning. It is almost as if the more passive types of learning are presumed to be invisible, and therefore incapable of study. Yet most learning at most ages is outside the classroom, and much of it is passive.

The purpose of this paper is to identify some of the differences between passive and active learning, and to suggest some implications for education and for television.

A major distinction between passive and active learning is physical and concerns constitutional, inborn characteristics of the human being. In the visible history of research on communication influence such characteristics have been ignored in a one-sided emphasis on verbal data and the measurement of comprehension, recall, attitudes, and the like. The favorite research tool has been the interview. In the midst of the easily gathered verbal data many have lost sight of man's animal, mechanical, and physical properties, which define the limits, constraints, and conditions within which those verbal data function.

Research on those physical properties related to communication influence has been less visible until recently for several reasons. (1) Most of the pioneers (e.g., Wundt, Helmholtz, James) died before the development of radio and television. (2) Most of the medical people who are interested in man's physical properties are not interested in the question of passive vs. active learning (to a great extent the same is true of experimental psychology). Furthermore, the branch of medicine most relevant to the question is among the more recent. This involves certain aspects of the study of the brain, specifically electroencephalography, which began its modern history in 1933 with Berger's classical work on electrical emanations from the brain. (3) The relevant work done within the field of physiology achieved little cohesiveness in U. S. academic circles until translation and publication in the early sixties of the major Russian accomplishments (e.g., Sokolov<sup>1</sup>).

This research has relevance to the mass media in direct proportion to its age. That is, the older nineteenth-century research has the most relevance because it contains scientific observations that have been repeatedly rediscovered, repeatedly reconfirmed, and prior to its current relevance, repeatedly forgotten.<sup>2</sup>

<sup>1</sup> E. N. Sokolov, *Perception and the Conditioned Reflex*, Moscow, Moscow U. Press, 1958. Translation by Pergamon Press, New York, 1962.

<sup>2</sup> For example, in his final chapter Donald Broadbent (*Perception and Communication*, New York, Pergamon Press, 1958) reveals his debt to William James (referring to ch. 11, Vol. 1 of James's *Principles of Psychology*, New York, Dover Publications, 1890). Turning to the work cited, we find James acknowledging his debt to Helmholtz and others. All report and confirm many of the same observations.

Many of these observations concern some physical qualities of the phenomenon of attention. These acquire special relevance when attention is treated as the core aspect of human experience. For example, William James has said: "My experience is what I agree to attend to."<sup>3</sup>

James defined two types of attention, voluntary and involuntary, and noted that voluntary attention cannot be continuous; i.e. voluntary attention is a continual returning of attention to its object when it wanders away. He said, "*Voluntary attention is always derived; we never make an effort to attend to an object except for the sake of some remote interest which the effort will serve. . . . There is no such thing as voluntary attention sustained for more than a few seconds at a time.*" What is called sustained voluntary attention is a repetition of successive efforts which bring back the topic to the mind. *No one can possibly attend continuously to an object that does not change.*"<sup>4</sup>

James's distinction between voluntary and involuntary attention means that much of thinking, learning, and reading represents a sequence of successive efforts to attend, while much of the viewing of life around us, films, TV, and other *changing stimuli* are far less likely to require effort. In other words, the change, the switching or the rhythmic process goes on inside man when he is working at the job of attention, or it goes on outside man and inside (e.g.) the moving film as it relieves man of that work. The alternation process, furthermore, has an upper ceiling. Posner's review of the evidence suggests that "the rate at which a man can perform repetitive tasks is limited. Such diverse movements as tapping the finger, moving the eyes, or saying short words can be made no more often than about *ten times per second*. Moreover, the limitation appears to be of the central nervous system rather than of the muscles themselves."<sup>5</sup> Without this ten-per-second limitation, we would not experience the illusion of movement when we looked at a motion picture film.

A single TV commercial had much to do with one of the authors' present interest in attention and rates of stimulation. This was the Clairol Nice 'N' Easy commercial, which used a slow-motion technique borrowed from the film "The Pawnbroker," starring Rod Steiger. That film introduced tricks of flash scenes as well as slow motion, but the Nice 'N' Easy commercial used only the slow motion. The commercial

<sup>3</sup> Quoted in P. L. Wachtel "Conceptions of Broad and Narrow Attention," *Psychological Bulletin*, 1967, Vol. 68, p. 427.

<sup>4</sup> W. James, *Principles of Psychology*, Vol. I, ch. 11, New York, Dover Publications, 1890, p. 416, 421.

<sup>5</sup> M. I. Posner "Components of Skilled Performance," *Science*, Vol. 152, June 24, 1966, p. 1713. Italics supplied.

had exceptionally high recall scores but aroused absolutely no pupil response. This seemed quite unusual. Was the commercial learned without any excitement whatsoever, or was there another element present, an unmeasured response? Is the opposite of excitement just nothing? Is calm a flat emptiness?

The opposite of excitement is apparently relaxation, and relaxation is much more than a mere absence of excitement. That is, relaxation has physical properties which are just as real as, though different from, those of excitement. Some may be taken aback by the idea of a commercial which relaxes. However, once television gets out of the kitchen plumbing and into nurseries, romance, and Springtime freshness, there are quite a few varieties of commercial to soothe the viewer. This dimension has simply not been measured.

With such measures of arousal as pupil, skin, heart, or respiration, an absence of excitement brings the measure back to a minimal baseline. No further information is produced. With brain waves, however, a decline in arousal would be evidenced by a slowing of so-called Beta waves, rhythmic frequencies emitted in the 30-40 cycle per second range. As relaxation appeared there would also appear the relatively slow Alpha waves of about 10 per second. These or their harmonics would largely replace or dominate the Beta waves. Alpha waves are not simply slow Beta waves; they are a new parameter and offer the promise of measuring physical tones of peacefulness and well-being which might otherwise be looked upon only as verbal artifacts. In general, brain waves cover the full range of human response activity from peak arousal to deepest sleep.

Some special qualities of Alpha rhythms which need mention here are the following. (1) Internal Alpha responses can be stimulated by appropriate external rhythms or frequencies. The appropriate frequencies may vary slightly from person to person as a function of the variation in their spontaneous Alpha rates. (2) Some individuals produce Alpha responses quite easily, while some don't seem to have them at all, or only under the most restricted set of conditions. Some of these individuals may be individuals who cannot really relax. (3) The amenability of individuals to the external stimulation of Alpha is common enough so that the term "Alpha drive" has become established in the EEG literature. It means that one can literally drive down the brain frequencies to the slow levels of Alpha. (4) Another common term in EEG literature is Alpha "blocking," which refers to the disappearance of Alpha in resting individuals when they open their eyes and look upon some scene or stimulus which elicits attention or when they engage in "mental work." For some time, it was assumed that Alpha blocking occurred in response to all visual stimulation, but

work by Morrell and by Walter indicates that there are many exceptions.<sup>6</sup> Again, it seems that some people block or unblock more easily than others. (5) Alpha, once driven, can be maintained even in the face of conditions that ordinarily block it.<sup>7</sup>

These qualities of Alpha rhythm suggest that there are innate constitutional differences in individual susceptibility to different types of communication influence, in the efficiency of different types of study habits based on different degrees of required attention, even in response to drugs. Dr. Barbara Brown, for example, studied the EEG patterns and reported perceptions of 64 volunteers who were given doses of LSD. It became clear that some respondents were constitutionally predisposed to experience more exaggerated perceptual distortions in their "trips" than others, while some respondents had predictably modest reactions. The excitement/relaxation characteristics of particular individuals may prove to be chiefly constitutional characteristics, predominant over social and environmental influences.

The most special quality of passive learning is, by definition, an absence of aroused resistance to what is learned; resistance is exciting and a corollary, therefore, of active learning. This means that passively learned material has an important "advantage" which some have also associated with so-called subliminal perception, extrasensory perception, or hypnotism. This advantage, however, is not a property of the stimulus, but of the respondent; i.e. he can learn passively so long as the material is acceptable to him, without conflict.

It is possible that the relaxed and successful character of passive learning can be enhanced by the artificial induction of Alpha rhythm, this with the aid of a flickering light. For example, if a person wants to give up smoking and welcomes suggestion on this problem, then he may respond more successfully if the suggestion is made during an Alpha-induced condition. E. L. Hartley and Dr. Mali Thaineua, of the Ministry of Health of Thailand, have conducted a number of such experiments while both were at the East-West Center in Hawaii. The time may come when the mass media may create special programs to help people modify certain attitudes or behavior. We are all familiar

<sup>6</sup> L. K. Morrell, "Some Characteristics of Stimulus-Provoked Alpha Activity," *Electroencephalography and Clinical Neurophysiology*, Vol. 21, 1966, pp. 552-561, and G. Walter, "Patterns in Your Head," *Discovery*, February 1952, pp. 56-62.

<sup>7</sup> To some extent Alpha states may also be self-induced. Dr. Sato, editor of the *Japanese Journal of Psychology* at Kyoto University, reports in a personal communication that the Alpha rhythms of meditating Buddhist monks are restored after interruptions, but that the restoration takes much longer among novices than among experienced monks.

<sup>8</sup> B. B. Brown, "Subjective and EEG Response to LSD in Visualizer and Non-visualizer Subjects," *Electroencephalography and Clinical Neurophysiology*, Vol. 25, 1968, pp. 372-379.

with physical exercise programs on TV. Some day we may have TV exercises to cut down on (e.g.) smoking.

The distinction between passive and active learning involves a distinction between relaxation and excitement, two different aspects of what is usually called "interest." Too much of what we know about experience has been defined in terms of what excites, and little is known about what relaxes. This imbalance has been a function of the fact, now in need of redress, that excitement is (too) easily measured. In making this redress some particular opportunities may be listed:

1. For medicine there may be an opportunity to go beyond the routine procedures for EEG diagnosis of patients—i.e., with the patient supine, resting and eyes closed. The patient may also be measured while performing some standard tasks with eyes open. Many psychologists and neurologists are curious about "normal" EEG reports of patients who are otherwise clearly known to be not normal. Perhaps such patients are EEG "normal" while near sleep, but not while trying to cope actively with tasks.

2. For early education there may be an opportunity to accept the fact that many children fidget in class, and that this interference with their attention is not to be blamed on parents, teachers, or the child. Mild drugging of these children, or training in relaxation through Alpha driving, may be dramatically helpful to their educational achievement.

3. For adult education television there may be an opportunity to design programs to help people stop smoking, to lose weight, to control drinking habits, etc.

4. For public television there may be an opportunity to accept without shame the fact that it has taught violence to an entire generation. The clear story of television violence is not that a new generation is more violent but that the new generation *knows* more violence. The political consequences of this may yet be what some would call "good" (e.g., pacifist).

5. For students of attitude change and of the influence of the mass media, there is an opportunity to accept the fact that knowledge and information are more important than attitudes. The mass media have taught our society what it needs to know in order to have attitudes on a thousand serious matters which before television would elicit only "don't know." This attention to serious matters is made possible in part because, as McLuhan has noted, television is a cool medium, one which people can attend calmly. The thesis of this paper is that for many people the attention to and learning about serious matters on television could *only* have been successful if done calmly, without excitement and without effort.

The next step in research on these matters is to record the brain waves of individual respondents performing simple everyday tasks, *including* the viewing of various television programs. By comparing immediate physiological response with later measures of what has been learned, we may begin to answer questions about just how much attention (arousal, interest) is required to learn what.