

# Perception, Communication and Educational Research: A Transactional View

Hans Toch and Malcolm S. MacLean, Jr.

*The authors are colleagues at Michigan State University. Hans Toch is associate professor of psychology. Malcolm MacLean is professor of communication and acting director of the Communications Research Center.*

THE TRANSACTIONAL APPROACH to perception has relatively limited aspirations. It does not pretend to offer a systematic set of principles concerning the mechanics of the perceptual process. Instead, it supplies a point of regard or emphasis or perspective—or, if you please, a *bias*. This transactional bias has been described as (among other things) neo-Gestalt, neo-behaviorist, radical empiricist and common sense. None of these labels can be totally rejected, but reservations may be entered to all of them.

## *Common Sense and Perception*

Of most interest is common sense: Perception viewed through the eyes of common sense is clearly a passive affair. The eye is the equivalent of a motion picture camera, and hearing functions in the fashion of a tape recorder. The chemical senses act in the manner of variegated litmus paper; the mechanical senses register physical weights and measures. In other words, perception unassumingly transcribes on the slate of our awareness whatever the world presents to us. It dispassionately and uncritically records the gamut of bewildering impressions which reach us—mostly from without, but sometimes from within. This information, having been duly recorded, is then sorted, edited, and evaluated subsequently and—very importantly—elsewhere.

In due fairness, one must add that common sense, when pressed, may

admit that there is probably more to the story. The senses, for example, don't appear to receive impressions at random: the eyes must be directed at some portion of the world, and the glass of wine must be sipped before anything of consequence is perceived in either case. Moreover, there is obviously some measure of control over the quality of the product: the languid gaze, the shameless stare, and the vacant look don't transmit comparable data. Sophisticated common sense also discovers that there is some question as to whether we always perceive equally well. Assuming, for example, that the cochlea responds with the same precision when a person sits in a concert hall or in his living room immersed in his newspaper, everyone knows that auditory awareness clearly differs in these situations.

These and other observations of perception in action may suggest to common sense that the process is not altogether passive nor invariant. Perception seems to provide, within limits, the type of information the perceiver needs. Perception, in other words, is invoked, suppressed, and modified in the context of what the rest of the person is about. In order to be instrumental in this fashion, perception must be flexible and active. The vocabulary is full of words which imply recognition of this truism. The eye, for example, does not merely mirror or transmit; it scans, peeks, watches, stares, scrutinizes, and inspects. Such terms reflect a recognition of directionality, selection, or variability in perception.

### *Transactional Departure from Common Sense*

At this point, however, common sense assumes that it is the "user" of the perceptual process who is active, while perception itself is simply being manipulated. In other words, the perceptual apparatus is seen as subject to the same type of manipulation as the motion picture camera which may be switched on and off, variously aimed, and possibly even changed to different speeds at the whim of its owner and the flick of a switch. These manipulations, of course, would be viewed as extrinsic to the process of receiving and recording information. The transactional view does not accept this argument. It regards perception as continuously and inextricably enmeshed in the enterprise of living. Do we ever encounter perception as a "pure" process? Or, for that matter, can we conceive of a person behaving without perceiving? Is not behavior both an outcome of past perceptions and a starting point for future perceptions? And is not the "user" of perception himself a perceptual result? This conclusion would clearly follow from the fact that every

human being is a product—a constantly changing product—of the situations through which he moves. Each encounter with life leaves its chink in the armor or its depression in the hide; the person who arises in the morning is never the same one who returns to his pillow that evening. His successor may be broadened, chastised, wiser, or warier; his jaw may be more set or his brow more furrowed—more likely, he may see things a little differently or feel somewhat different. Whatever the change, it represents a deposit of perceptions and will, in turn, affect future perceptions.

Perception, then—in transactional parlance—is so wedded to the rest of the human enterprise that it has no meaning outside this context. If common sense finds this conception hard to deal with, the next step may prove even harder to take. Because unlike common sense, which assumes that a person perceives the world, the transactional view denies the independent existence of both the perceiver and his world. The term “transaction” was first used by Dewey and Bentley to distinguish this new view of epistemology from the common sense “interaction” conception. Dewey and Bentley summarize their transactional approach to perception by saying, “Observation of this general (transactional) type sees man-in-action not as something radically set over against an environing world, nor yet as merely action ‘in’ a world, but as action *of* and *by* the world in which the man belongs as an integral constituent (7:228).” Ittelson and Cantril illustrate the meaning of this statement by considering the case of a baseball batter:

It is immediately apparent that the baseball batter does not exist independent of the pitcher. We cannot have a batter without a pitcher. It is true that someone can throw a ball up in the air and hit it with a bat, but his relationship to the batter in the baseball game is very slight. Similarly, there is no pitcher without a batter. The pitcher in the bull-pen is by no means the same as the pitcher in the game. But providing a pitcher for a batter is still not enough for us to be able to define and study our batter. The batter we are interested in does not exist outside of a baseball game, so that in order to study him completely we need not only pitcher, but catcher, fielders, teammates, officials, fans, and the rules of the game. Our batter, as we see him in this complex transaction, simply does not exist anywhere else independent of the transaction. The batter is what he is because of the baseball game in which he participates and, in turn, the baseball game itself is what it is because of the batter. Each one owes its existence to the fact of active participation with and through the other. If we change either one, we change the other (15:3-4).

Another baseball analogy bearing on the meaning of the perceptual transaction is cited by Cantril, who quotes the following story about

three umpires swapping views as to their professional function:

The first umpire said, 'Some's balls and some's strikes and I calls 'em as they is.' The second umpire said, 'Some's balls and some's strikes and I calls 'em as I sees 'em.' While the third umpire said, 'Some's balls and some's strikes but they ain't nothin' till I calls 'em (4:126).'

This story nicely illustrates the basic characteristic of the transactional view of perception, which may be summarized as follows: Each percept, from the simplest to the most complex, is the product of a creative act. The raw material for this creation is lost to us since in the very act of creating, we modify it. We can never encounter a stimulus before some meaning has been assigned to it by some perceiver. Moreover, the perceiver himself becomes available to us only when he has entered into his task and has been modified in the process.

Both of these statements hold true because meanings are given to things in terms of all prior experience the person has accumulated. Therefore, each perception is the beneficiary of all previous perceptions; in turn, each new perception leaves its mark on the common pool. A percept is thus a link between the past which gives it its meaning and the future which it helps to interpret.

### *Neo-behaviorist View*

Perception, in other words, is a form of learning. This view makes it possible to speak of the transactional position as a neo-behaviorist approach. And transactionalism clearly approximates behaviorism not only in its emphasis on learning, but also in its conception of how learning takes place. According to behavioristic learning theory, learning is stimulated and strengthened by rewards (reinforcing situations) and inhibited by punishments or disappointments. The transactional conception is analogous. Each experience or perception helps to provide us with unconscious expectations or assumptions about reality. We expect the world to behave in accord with these assumptions. Like the data supplied in a racing form about the performance of horses under particular conditions, the accumulation of our past experiences provides the basis for bets as to success or failure of our intended enterprises. These bets are repeated or discontinued depending on whether they pay off or fail to pay off.

Just as a horse which has a long record of "wins" becomes a favorite and is assigned a high probability of success, certain interpretations

come to be endowed with considerable confidence because of their repeated accuracy in the past. I have no hesitation in sitting down on what appears to me to be a chair, and I point my pencil at the paper in front of me with little doubt about the physical outcome. In other situations, however, past experience has not been as fully rewarding, and interpretations became long shots. The trustworthiness of friends, the reliability of colleagues, and the receptivity of students are not necessarily as punctually encountered as the seats of chairs. And even relatively simple perceptual dimensions such as size or distance may be incorrectly deduced—as has been the sad experience of many motorists. As a rule, however, perception results in confirmation, in the sense that our assumptions lead to successful conduct, thereby reinforcing our images of reality and our confidence in them.

### *Gestaltist View*

The scheme we have just outlined differs from the thinking of students of learning only in its emphasis on personal experience, which behaviorism has traditionally refused to discuss. In turn, Gestalt psychologists, who share the transactionalist bias favoring perceptual experiences as the basis of human conduct, reject the premise that such experiences are essentially learned. According to Gestalt thinking, the essential qualities of experience are, rather, built into the process of perception. The following statement by Wolfgang Köhler illustrates the Gestaltist rejection of the assumption that perceived meanings are acquired through past experience:

When I see a green object, I can immediately tell the name of the color. I also know that green is used as a signal on streets and as a symbol of hope. But from this I do not conclude that the color green as such can be derived from such knowledge. Rather, I know that, as an independently existent sensory fact, it has acquired secondary meanings, and I am quite willing to recognize the advantages which these acquired meanings have in practical life. In exactly the same fashion, Gestalt Psychology holds, sensory units have acquired names, have become richly symbolic, and are now known to have certain practical uses, while nevertheless they have existed as units before any of these further facts were added. Gestalt Psychology claims that it is precisely the original segregation of circumscribed wholes which makes it possible for the sensory world to appear so utterly imbued with meaning to the adult; for, in its gradual entrance into the sensory field, meaning follows the lines drawn by natural organization; it usually enters into segregated wholes (20:139).

Beside the difference, apparent in this quote, between the Gestalt

emphasis on innate perceptual qualities as against the transactional stress on learning, there is another divergence in emphasis between these two views of perception. This difference rests in the fact that perception, in transactional parlance, is *functional*, in the sense that it exists to enable the perceiver to carry out his purposes, whereas Gestalt thinking sometimes assumes that man strives for veridicality or accuracy for its own sake.

There is, however, an even greater difference between the transactional premise that perception derives its meaning from the human enterprise and the contention of some people that needs and fears can shape perceptual products. Unlike these New Look theorists, the advocates of the transactional view do *not* assume that we tend to see steaks when hungry, or that we have difficulty in hearing threatening language. In fact, the transactional assumption would be that it is never in the long-run interest of people to see what they want to see or to fail to perceive what doesn't meet their fancy, just as the deer is not aided by failing to notice the jumping lion. The greatest survival value lies in accurate perception. The purpose of perception is to help us cope with the world by assigning meanings to it which can stand the test of subsequent experiences.

### Perception and Communication

The above exposition of what—essentially—the transactional view is and is not, makes possible a few statements about perception which might have special bearing on non-verbal communication. Sample experiments illustrating some of these statements may help clarify them:

#### *Shared experiences result in perceptual communalities.*

There are many types of experience which people have in common, almost by virtue of their human condition. These range from the elements of geometry to their intimate exposures to other human beings which create the beginning of social awareness. Common human experiences create similarities in perception and make possible easy communication. Universally shared meanings, in fact, are the *simplest* means of communication because they require little translation from one person's frame of reference into another. When A offers B a chair, when B smiles at C, or when C makes love to D, communication problems are minimized.

Probably the most famous of the “Ames Demonstrations” (so-called because they were originated by Adelbert Ames, Jr.) is the “Rotating Trapezoidal Window” Demonstration. This device helps to show the perceptual role of assumptions which have their origin in relatively universal human experiences. The demonstration consists of a trapezoidally-shaped window which can be slowly rotated, and which is invariably perceived as a rectangle (in perspective) oscillating from side to side. If a rod is placed in the window, it will appear to fold around it or to cut through it while the window is in motion. A box attached to one corner of the apparatus seems to take to flight. Why do those illusions occur? Ames himself offers this explanation:

In his past experience the observer, in carrying out his purposes, has on innumerable occasions had to take into account and act with respect to rectangular forms, e.g., going through doors, locating windows, etc. On almost all such occasions, except in the rare case when his line of sight was normal to the door or window, the image of the rectangular configuration formed on his retina was trapezoidal. He learned to interpret the particularly characterized retinal images that exist when he looks at doors, windows, etc., as rectangular forms. Moreover, he learned to interpret the particular degree of trapezoidal distortion of his retinal images in terms of the positioning of the rectangular form to his particular viewing point (2:14).

These assumptions about rectangularity are in most situations not apparent because they lead to accurate perceptions, so that the perceiver can argue, “I see X (rectangular) because it *is* X (rectangular).” The “trapezoidal window” reveals assumptions because it is deliberately designed to be misleading.

*Differences in experience cause perceptual divergence.*

The “trapezoidal window” depends for its effect on universal human experiences with rectangular objects in perspective. But are experiences such as these really equally shared by every human being? In the case of rectangularity, for instance, some people may be more intensively exposed to rectangular objects than others. Zulu members of the Bantu culture in South Africa stand out as having relatively little experience with man-made rectangles.

Huts are invariably round (rondavels) or else beehive shaped, whereas in other Bantu tribes they are sometimes square or rectangular. Round huts arranged in a circular form with round stockades to fence in animals, constitute a typical African homestead (kraal). Fields follow the irregular contours of the rolling land, and never seem to be laid out in the neat rectangular plots so characteristic of

western culture. The typical Zulu hut has no windows, and no word for such an aperture exists. In the more primitive beehive grass huts, doors are merely round entrance holes; in the round mud huts, doors are amorphous, seldom if ever neatly rectangular. Cooking pots are round or gourd-shaped . . . (1:106).

When tested with the “trapezoidal window”, in a study by Allport and Pettigrew, non-westernized Zulus tended to perceive the illusion less frequently—under sub-optimal conditions—than did westernized persons who have more intensive experience with rectangularity (1). One can infer from this fact that differences in experience, even in cumulative experience that is common to people, can create subtle differences in the way the world is perceived.

*Perceptual differences can be readily produced.*

Social psychologists are frequently concerned with attitudes, values, and habits that are prevalent among groups of people and are transmitted from generation to generation. Less obviously, ways of perceiving also come to be acquired and transmitted collectively. Two experiments, both involving a relatively new research technique, may serve to illustrate this fact:

In 1955, a psychologist named Engel published a set of observations involving subjects who had been exposed to two different pictures—one to the left eye and the other to the right (9). One effect he discussed is that of perceptual dominance by more familiar pictures when they are paired with less familiar pictures. “A ‘right side up’ face, for instance, tends to perceptually prevail over the same face ‘upside down.’”

This observation has given rise to a number of experiments, one of which included matched Mexican and American observers. These persons were exposed to several sets of pictures, in each of which a typically American scene (such as a baseball game) was paired with a typically Mexican view (like a bullfight). The investigator, Bagby, concludes:

Subjects report scenes of their own culture as predominant in binocular rivalry over scenes from another culture. The national cultural differences appear critical in affecting perceptual predominance in the majority of the stereogram slide pairs . . . Differences in ways of perceiving come about as a consequence of differences in past experiences and purposes. These in turn emerge from influences in the home, in the school, and in the various groups with which an individual identifies. Thus, under conditions of perceptual conflict as found in the binocular rivalry situation, those impingements possessing the more immediate first-person meaning would be expected to predominate in visual awareness (3:334).



This statement, of course, need not be confined to past experiences associated with different cultures. Subgroups in the same culture also frequently become differentially indoctrinated, and such differences in indoctrination should leave their mark on perception.

To test for this possibility, terminal candidates in a Midwestern police training program were presented with a set of slides, each of which featured a violent scene for one eye, and a similar but non-violent picture for the other. Beginning students in the training program and comparable liberal arts students served as control groups. The persons trained in police work saw a considerably larger number of "violent" pictures in this situation. The investigators comment:

Assuming that extremely violent scenes are comparatively unfamiliar, we would thus expect violence to be relatively infrequently perceived in true binocular rivalry. We would predict the type of result we obtained from our Control Groups. We could assume that law enforcement training *supplements* this experiential deficit in the area of violence and crime. Unusual experiences, after all, become 'familiar' in the course of *any* specialization. The funeral director or the medical intern, for instance, may learn to accept corpses as part and parcel of everyday experience. The dedicated nudist may acquire a special conception of familiar attire. The air pilot may come to find nothing unusual about glancing down out of a window at a bank of clouds. In the same fashion, law enforcement training can produce a revision of unconscious expectations of violence and crime. This does not mean that the law enforcer necessarily comes to exaggerate the prevalence of violence. It means that the law enforcer may come to accept crime *as a familiar personal experience*, one which he himself is not surprised to encounter. The acceptance of crime as a familiar experience in turn increases *the ability or readiness to perceive violence where clues to it are potentially available* (29:392).

Subtle perceptual differences of this sort, although universally present, only manifest themselves for our inspection under special conditions such as binocular rivalry. At other times, we may deal with people under the assumption that their perceptions coincide with ours, although in fact differences in past experience have produced fundamental divergences in outlook.

The same point holds true over time, since research shows that subtle *changes* in perception continuously take place without our being aware of them. To illustrate: Two photographs, each of a different face, were mounted in a stereoscopic device. When the observer first looked into the stereoscope, he was presented with just one of the faces with normal illumination. Then the illumination was cut. Next, he was given the first face normally lit, with the second face under very low illumination. The procedure was repeated with a slight increase in light on the second

face, and so on until the subject was observing both faces each with the same normal light. At each step he was asked whether any change had taken place in what he saw. Most said they saw no change! But the second phase of the experiment was even more startling. In the same way, by small steps, the light on the first photograph was reduced to zero. At this point, the observer was looking at the second face, quite different from the first. He continued to claim that no change had taken place, that he was still looking at the same face. Engel reports that observers were much perplexed when they were again presented with the original face (8).

*Any given event is differently perceived by different people.*

The more complex a perceptual situation becomes, the greater the tendency for variations in perception to occur. Whereas a chair, for instance, provides a minimum of opportunity for differences in perception—at least, for members of our Western culture—any standard *social* situation constitutes a veritable perceptual cafeteria. This is the case not only because complexity multiplies the opportunity for the perceiver to assign meanings—for instance, one can choose to attend to one of many aspects of a complex situation in preference to others—but also because complexity usually evokes a wide gamut of personal experiences and needs which enter into the assignment of meaning.

Hastorf and Cantril illustrate this process in their study of the infamous football game between Dartmouth and Princeton which took place on November 23, 1951. The events which occurred in this game are conservatively catalogued as follows:

A few minutes after the opening kick-off, it became apparent that the game was going to be a rough one. The referees were kept busy blowing their whistles and penalizing both sides. In the second quarter, Princeton's star left the game with a broken nose. In the third quarter, a Dartmouth player was taken off the field with a broken leg. Tempers flared both during and after the game. The official statistics of the game, which Princeton won, showed that Dartmouth was penalized 70 yards, Princeton 25, not counting more than a few plays in which both sides were penalized (13:129).

The sequel of these events was a prolonged and intense exchange of recriminations between players, students, coaches, administrative officials, student publications, alumni and partisans of the two universities, each of whom claimed to have sustained the brunt of the injuries.

Hastorf and Cantril submitted a questionnaire concerning the game

to both Princeton and Dartmouth students and alumni, the results of which confirmed the divergent position of the two sides relating to the game. A film of the game also was shown to some 100 students; it yielded widely discrepant reports of the number of infractions committed by each side and the seriousness of these infractions. The Princeton students, for instance, "saw" the Dartmouth team make more than twice the number of infractions "seen" by Dartmouth students in watching the same film. They also "saw" two "flagrant" to each "mild" infraction for the Dartmouth team, and one "flagrant" to three "mild" offenses for their own team, a ratio considerably dissimilar to that of ratings by Dartmouth students. Hastorf and Cantril conclude:

. . . the 'same' sensory impingements emanating from the football field, transmitted through the visual mechanism to the brain, obviously gave rise to different experiences in different people. The significances assumed by different happenings for different people depend in large part on the purposes people bring to the occasion and the assumptions they have of the purposes and probable behavior of other people involved (13:132). . . .

It is inaccurate and misleading to say that different people have different 'attitudes' concerning the same 'thing.' For the 'thing' simply is *not* the same for different people whether the 'thing' is a football game, a presidential candidate, Communism, or spinach. We do not simply 'react to' a happening or to some impingement from the environment in a determined way (except in behavior that has become reflexive or habitual). We behave according to what we bring to the occasion, and what each of us brings to the occasion is more or less unique (13:133).

*All aspects of a percept are related to each other.*

A fundamental discovery of Gestalt psychology was that the basic unit of perception is the organized configuration which the perceiver perceives. Perceptual objects, in other words, function as indivisible units. This statement extends beyond the geometric or formal properties of stimuli. Thus, the perceived motion of the Ames "trapezoidal window" results from its perception as a rectangle in perspective: Object-identification and movement-direction are dependent on each other.

Hastorf has shown that the perceived size of a white square can range widely, depending on whether it is identified as an envelope or a calling card (12). This perceived size, in turn, can determine the apparent distance of the figure from the observer.

Less obviously, positive or negative feelings can also determine perceived size and distance. Thus, G. H. Smith set out to determine whether "faces regarded as friendly or pleasant" would be seen as "larger than

those regarded as unfriendly or unpleasant in order to appear opposite the same target post (27:47).” His findings confirmed these expectations. He concludes:

Ss responded to the meaning which faces elicited in this situation; and . . . this meaning emerged out of the assumptions, attitudes, expectations, purposes, and special sensitizations which Ss had acquired through experience. . . . The fact that ‘pleasant’ or ‘liked’ faces were made larger (closer) than others indicates that attributed meaning, rather than size of retinal image alone, determined the responses. . . . perception of a human face literally changed before the eyes of the Ss as a function of alterations in beliefs, assumptions, etc. (27:60-61).

Another set of experiments showing a relationship between affective significance and the perceptions of physical properties was provided by the “honi phenomenon” (30). This effect was first observed in an Ames Demonstration known as the “monocular distorted room,” which is a geometrically distorted structure that looks square when viewed with one eye. Since the room appears to be normal (although it is in fact distorted), any face viewed through a window of the room becomes expanded or contracted. The “honi phenomenon” was born one day when this customary illusion did not materialize. The face which refused to change belonged to a New York attorney, and the viewer was his devoted wife. Subsequent investigation showed that it is not uncommon for newlyweds to perceive their marital partners as relatively unchanged when optical distortions have in fact taken place. Similar phenomena can occur involving other kinds of affects (as with amputees and authority figures). The lesson to be drawn from such instances is that the apparent physical properties of a percept cannot be divorced from its other connotations.

### Perception and Educational Research

#### *Working Assumptions*

What difference might the viewpoint expounded above make in the ways we think about and treat audiovisual communication and learning resources development? How would it affect our research into problems in these areas? Before trying to answer these questions, we might follow the tradition of restating our teaching points. We will present these views so as to have at hand some statements we can readily refer to.

Here we go:

- There is no behavior without perception.

- Behavior is both an outcome of past perceptions and a starting point for future perceptions.
- Every human being is a constantly changing product of the situations through which he moves.
  - The perceiver and his world do not exist independently.
  - Each percept is the product of a creative act.
  - We never find a stimulus with unassigned meaning.
  - Meanings are given to things by the perceiver in terms of all prior experience he has accumulated.
  - A percept is a link between the past which gives it its meaning and the future which it helps to interpret.
  - Each experience or perception helps to provide us with expectations or assumptions about "reality". We expect the world to behave in accord with these assumptions.
    - We make bets on the outcomes of our behavior and continue or modify these bets according to our assessment of the pay off.
    - How assured we are in our bets depends on the amount and consistency of past relevant experience.
    - We are often surer in our assumptions about simple physical things than we are about complex social relationships.
    - Perceptual experiences are personal and individual, and they are learned.
    - Perception is functional. It exists to enable the perceiver to carry out his purposes. It helps him to cope with the world by assigning meanings to it which can stand the test of subsequent experiences.
    - Though no two persons can have exactly the same meanings for things-observed, common experiences tend to produce shared meanings which make communication possible.
    - Most failures in communication are due to mistaken assumptions about correspondence of meanings.
    - Systematic differences in experiences arising from cultural and sub-cultural differences create reliable differences in perception.
    - Those things that have been tied in most closely and most often with past personal experience predominate perceptually over the unusual or the unfamiliar.
    - The more complex a situation-observed, the more we are likely to differ in our situation perceptions. We will likely attend to somewhat different aspects and draw on much wider ranges of personal experience.
    - The thing-observed can never be exactly the *same* thing for two different people or for the "same" person at two different times (since he cannot be the same person).
    - Apparent physical properties of a percept (size of retinal image, for example) cannot be divorced from its other connotations.

There are other pertinent transactional views. Let's look at them briefly:

- Impingements on the senses are not uniquely determined. Many different distorted rooms, for example, can look to an observer like the same "normal" room.
- There is no revealed reality.

- The object is not necessarily less an abstraction than the word which refers to it.
- Since two people cannot be in the same place at the same time, they must see at least slightly different environments.
- Experience is cumulative and compounding in its effects on our perceptions.
- Though we work with subjective, functional probabilities, in acting we must deal with them as absolutes. In order to make decisions from one moment to the next, we act as though our assumed world is the real world.
- We tend to hold on to assumptions which were reliable in the past even when we are experiencing situations in which they no longer appear reliable (18).
- We remember past events as directly as we perceive present events. A poor memory is similar to unreliable perception (26).
- There can be no such thing as pure objectivity in terms of the meanings most people seem to assign to this concept.
- The only world we know is determined by our assumptions.
- Science is an activity designed by man to increase the reliability and verifiability of his assumptive world.
- Behaviors are present events converging pasts into futures (5:26).
- We can change the behavior of others only to the extent that we can help to produce situations and experiences which lead them to modify relevant assumptions.
- If common assumptions are not available, the only possibility of coming to perceptual agreement lies in making them available through common experience (17:288).

Some people get pretty angry when presented such statements.

“Nonsense!” they say. “Just a bagful of mystical philosophy. There are real things. We can see them and touch them and we can measure them. The aim of science is to reveal to us what they really are and how they really behave. Don’t tell *us* that ours is a world of assumptions.”

At least part of the resistance to transactional thinking stems from the implications it holds for many of our professional vested interests.

### *Implications*

What are some of the implications of transactional viewpoints?

They seem to say about any field: One of the most vital continuing activities we can perform is to examine our assumptions about what we are doing, our values, our beliefs, what we “know” about the world. This examination may be especially required where things don’t seem to be working as well as we would like. But there is a danger here. Especially in education and communication we may be blithely assuming that things are working well while events are leading us toward

crisis. A change in viewpoint, a tentative revision of assumptions might allow us to see the makings of crises we had been blind to before. Many of us go along talking chiefly with people who believe and think pretty much as we do. We have roughly similar philosophies of education, audiovisual communication, civil liberties, male-female relationships or what-have-you. We all "know" what is true and right and good, we know what works and how and why . . . we think. Then, whamo! We get mixed up with people from other cultures or other specialties. (Finn's letter to President Griswold of Yale University (10) makes explicit some of the assumptions underlying pro and con audiovisual education arguments.)

You are a researcher, a teacher, an audiovisual specialist, a you-name-it. Suppose, one of these fine days, even though you feel quite well, the best medical specialists tell you that you have at most six weeks still to live. What would you do?

Perhaps you have already had some experience which led you to re-examine seriously your values, your purposes in life. Most people apparently put off or avoid entirely such considerations of their own value systems. They get caught up in the busyness of their work and play and continue along, sometimes with even rather severe discontent. Questioning the adequacy of one's own values seems to be one of the hardest of human tasks.

Toch and Cantril conducted a simple demonstration-experiment in which experimental subjects were given a contrived letter (28). This letter from "Steve" merely asked the subject to put himself in the shoes of a man with only six weeks to live and to write notes on what he would do. Control subjects were given a crossword puzzle to solve. Most of the experimental subjects found even this minor excursion into personal values a tough but rewarding experience. Those subjects who worked individually on the problem found it more fun than did those who did so in groups.

Transactional viewpoints suggest that both our research and our educational efforts might much more than they do presently take into account our own purposes and assumptions and those of our students. They suggest, too, that our modern, rapidly developing world requires more contemplation of our own and others' values and greater readiness to modify our assumptions creatively.

Kelley has indicated some implications of transactional views for education (16). Much of our school work, he says, seems to be based

on the assumption that we adults know things as they really are. Thus, we can show the child the correct or true version of life. We act as though there are bodies of knowledge somehow distinct from observers. We seem to assume that if you tell the child he will know.

Though we give frequent lip service to the fact that all humans are different, our educational efforts often assume that they are highly similar in the ways that they learn and the kinds of things they grasp as meaningful and salient.

Some of the new developments in self-instruction may be very helpful here—especially those that take into account some of those assumptions which seem to be relatively common in the culture where they are used. In addition, they must allow some flexibility in starting from somewhat different assumptions.

### *The Educational Transaction*

Knowledge is what we know after we have learned and not some object outside of us. Kelley suggests the following procedures and ways of looking at education:

1. Let us find out what our learner is like. What are his values, purposes, beliefs, assumptions, *etc.*?
2. As teachers, let us consider ourselves as persons who facilitate growth. What experiences can we lead our learners through to help them test and modify their assumptions about the world?
3. Let us give our learners plenty of opportunity and freedom for honest creative expression. Let us not assume that the “reality” we know is necessarily better and more workable than the “reality” they know.
4. If we seriously put into question our assumptions concerning the efficacy of the lecture, we may wind up severely modifying this approach or getting rid of lectures altogether.
5. Let us remember that a learner can put meaning into reading matter—or for that matter films or slides or self-instruction programs—only when he has something in experience and purpose to put into them.
6. Let's get rid of the artificial separation of process and subject matter, the how and the what of learning experience.
7. One is always learning. We teachers can simply help to determine rate, direction, and quality by the variety and richness of experiences we lead our students into.

### *The Audiovisual Transaction*

In the first issue of *AV Communication Review*, Norberg suggested some implications of transactional research for audiovisual education (24). If we can say, Norberg writes, that we learn from a “look” at



something only when this “look” stands in a series of experiences linked together in a course of purposeful action, then our production, utilization, and research should reflect this.

We might, for example, more often present things in slides or films from various points of view, perhaps starting with those points of view most likely to relate to viewers’ previous personal experience.

Since words and memories, as well as present physical objects or pictures or sounds, all play a part in our perceptual experience, and since this experience always involves an abstracting process, we may be kidding ourselves when we consider the “thing” or the picture to be more concrete than the word or the memory. Norberg writes:

We cannot say what an individual will learn from any discrete visual presentation, as such, and aside from a context of other experiences, in time. Learning results from a *series* of purposeful acts carried out with continuity of purpose and direction. All action is not overt or ‘physical,’ but to maintain and carry forward a line of purposeful action, in time, requires adequate conditions of sensory contact with the environment. We learn *from* visual presentations in so far as they make it possible, or easier, for us to carry out our purposes. As we learn *from* perceptions, and *to* new ways of perceiving things, our ‘assumptive form’ world changes and this involves the most complex organizations of our behavior including social attitudes and conceptions.

We cannot learn without acting. We cannot act without perceiving (24:28).

A current research-educational project developed by Elizabeth Drews and her colleagues presents some interesting applications of transactionalism. Dr. Drews for a number of years has been working with and studying gifted children. She noticed that many such children seemed seriously limited by their values and assumptions in their own creative expression and in accepting creativity by others. For example, some children believe that most adults who are highly creative in their work are also emotionally sick. They tend to reject other children around them who express odd or unusual ideas.

Under a Title VII grant, Drews and her team produced a series of films showing highly creative adults at work, at play, talking with their families, *etc.* They also prepared a catalog of biographies, essays, novels, and magazine articles. These are all being used in experimental “careers” courses at the ninth-grade level along with such things as class discussions, the writing of essays and diaries, and the preparation of scrapbooks.

The major purpose of this course is to modify some of those assumptions about the future adult world which might seriously restrict students

in their educational and career choices. Some children seem to think that there is only one occupational niche into which they will be able to fit. Some girls practically exclude certain professions (that of judge, for example) from their thinking about careers because they are "men's work." (Half of the films present personalized biographies of professional women, including a woman judge.) In the same way, Negro children may have a potentially self-fulfilling prophecy about the kinds of careers open to them (14). A child may feel, even in the ninth grade, that he ought to make a career choice now and stick to it. The whole project has been set up to discover what kinds of assumptions the children are making and to move them purposefully through a set of related experiences designed to help modify assumptions which are likely to be debilitating.

The experimental courses will be compared with "typical" traditional careers courses taught by the same teachers. The careers courses common to many high schools simply present lectures and outside readings about different jobs and have the students write a research report on one occupation of their choice. The experimental course is expected to:

- reduce unfavorable stereotypes of artists and scientists
- increase awareness of the existence of successfully creative adults
- increase acceptance of creative qualities and potential in self and in others
- increase the number and variety of careers perceived by students as open and rewarding to them
- strengthen the value of intellectual creativity as a purpose in life
- develop a more open and flexible process view of career choice
- perceive work on the job and other aspects of life more as an integrated whole
- engage voluntarily in more independent, creative projects
- talk more with peers about goals and careers and creative values.

Our assumptions about how the Drews course may modify students' assumptions about adult life remain to be tested. We feel, however, that the focus on evaluation of assumptions and on their modification is likely to prove a great deal more enlightening and useful than that on gains in factual information.

### *Multiple Transactions*

Gerbner describes well how points of view, contexts, and assumptions become complex in mass media communication (11). We frequently observe somebody else's observation of somebody else's observation, *etc.*, and then we tell somebody about it from our own point of view. Writes Gerbner:

The analysis of communications is, therefore, compounded observation: In looking at a picture, for example, we do not merely observe a 'thing'; we observe an observation.

What's in a picture? A 'thing' viewed from a 'built-in' point of view, in a certain context, and probably on the basis of some implicit assumptions about the nature of the object or event portrayed. For example, the angle of the camera and the position of the lights used to take a photograph (and used to convey, implicitly, a point of view) are just as much objective elements of the picture as is the 'thing' portrayed. If we are unaware of the fact that we are observing the picture *through the eye of a camera* (or of an artist), we have lost some of our own power of observation; we fall in, unwittingly, with a 'given' point of view (11:271-2).

In a study of group photographs of the kind commonly seen in newspapers, Oshiki found (25) that camera viewpoint, lighting, and the arrangement of persons mattered much less in people's "like-dislike" ratings of the pictures than did smiles resulting from the photographer's simple instruction: "Smile, please!" Koch-Weser got similar results in a study of "ideal self-identification" with persons portrayed in advertising photographs (19). In Q sorts, most subjects ranked pictures of people smiling, especially "happy" family groups, considerably higher than those of "serious" people. Some recent work by Randall Harrison using cartoon faces indicates that when a smiling mouth is accompanied by *e*, eyebrows in a modified *V*, quite a different result obtains. People usually assume that a "normal" smile means that the person portrayed is happy and friendly, while they interpret the smile with the *V* eyebrows as meaning that the person is fiendish or happy with evil intentions. The latter expression is typical of the Charles Addams cartoons.

Transactional views and experimentation seem to support the widely held assumption that visuals which present things simply and relevantly (to the purposes and experiences of both teacher and learner) and with functional viewpoints and contexts, will best facilitate meaningful perception and learning. In diverse studies and teaching programs, it has been found that the learning of materials defined by instructors as irrelevant to their purposes can take place at the expense of materials defined as relevant (6 and 21).

Some other assumptions commonly held by audiovisual specialists may not be so well supported. For example, most such specialists argue that teachers, if they are to have their students obtain full value from a film, say, must introduce it before the showing and encourage discussion of it afterward. There is some evidence that students do indeed learn more "facts" from a film when this is done. But there is also some evi-

dence which should lead to at least a more sophisticated view of what we may be doing when we introduce a film. Several transactional demonstration-experiments using the distorted rooms have indicated that verbal explanations of the distortion have tended to *inhibit* rather than facilitate re-interpretation of the forms perceived (18). It may well be that the subjects who were given the verbal explanation would be better able to repeat this back in a verbal test of "facts." But the finding is that they could less readily shift to a functionally more adequate perception of the distorted rooms. Too much attention to the map may keep one from learning the territory.\*

### *The Learning Resources Transaction*

Another area which we believe may be suffering from traditional assumptions rigidly held is that of learning resources development. Most educators who discuss this subject seem to be picturing learning resources merely as a kind of bolstered audiovisual center-library-computer-combination in the context of the school-as-is, but with more than the usual number of students around. We suggest that if our educational administrators can break away no further than this from traditional assumptions, we face extravagant waste of time and money. Here, intensive creative effort and bold, dramatic experimentation might really pay off (22). We need to examine our instrumental and ultimate values. We need to examine the assumptions underlying present and proposed techniques. Why do students have to come to a university, for example, rather than the university coming to them?

### *The Research Transaction*

Transactional views imply a great deal of research, but research well integrated with action, research with purpose. They raise doubts about some of our traditional ways of viewing science. Take "validity," for example. Many textbooks define this term as "the degree to which our instruments measure what we say they measure." The transactionalist is not alone in considering this a ridiculous, non-functional kind of statement since it assumes an objective reality "out there" isolated from the observer and his measures. Rather, we think in terms of the

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\* A similar finding was obtained by the Norwegian psychologist R. Rommetveit in experiments involving concept formation by children. "Verbalized" concepts, according to Rommetveit, can inhibit the perception of relevant dimensions of problems. (R. Rommetveit's paper delivered at 1961 Meetings of Michigan Psychology Association, Detroit.)

predictive reliability of our assumptions. Meaning is not in events or words nor is it in people, somehow isolated from events. Beauty, say, is not in the sunset but it may very well be in the sunset-observed. "Science is an activity designed by man to increase the reliability and verifiability of his assumptive world (5:9)." Man, the scientist, or just plain man is in a continuing process something like the following:

1. He senses inadequacies in certain of his assumptions. They don't seem to hold as well as they did in the past. This is problem awareness.
2. He tries to locate those aspects of phenomena *except for* which the functional activities in question would not exist.
3. He chooses those aspects he feels are most crucial.
4. He works out some methods for changing those aspects and experimenting with the changes.
5. He modifies his assumptions on the basis of empirical evidence.

Notice that values are implied at each step. The notion that science is value-free—that is, purely objective—is a strange one, indeed.

Since the assumptive worlds of ourselves and the people we study are so complex, good research requires a great deal of speculation about research problems. We must explore different ways of viewing them and speculate about different potential outcomes for various alternative actions. Many experiments suffer from insensitivity to many of the crucial circumstances operating in the situations they investigate. In purifying and controlling, the experimenter may squeeze so much of the life blood out of the situation that the results provide us little help in dealing with our real-life worlds (23).

These are reasons why the present writers prefer, in research on complex problems, some of the more open-ended, comprehensive methods such as focused interviewing, inventories of relevant past experience, theme analysis, group interviews, Q methodology, field studies, and the like. Not that we would discard the controlled experiment. Not at all. Confirmation or disconfirmation of assumptions requires such research. But we wish to jump into the strictures of controlled experimentation only when we feel reasonably sure that we can take into account those aspects of the phenomena under study which are likely to be functionally crucial.

### *Summary*

We have not presented a transactional theory, since, so far as we know, there is no one such theory to present. Instead, we have outlined

some transactional viewpoints which we consider potentially useful in audiovisual communication, learning resources development, and research in these areas. We have suggested some implications and advantages of transactional assumptions.

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### Perceptual Act Restructures

. . . perceptual activity does not lead to a percept which duplicates the physical properties of the stimulus. . . . The incoming stimulus energy is operated upon so that a new structure is brought into topological mapping with it. . . . This final result can be achieved by many specific activities, just as the results of an instrumental act can be brought about by a variety of motor actions. An instrumental act restructures the physical environment; a perceptual act restructures the perceived environment. It would be inaccurate to refer to either as a simple response.

—Charles M. Solley and Gardner Murphy, *Development of the Perceptual World*. New York: Basic Books, Inc., 1960. p. 23.

### Light Waves and Perception

The fact that free vibration occurs in things, forced vibration in media, and that the wave events are coupled with our behavioral world, is of great importance. Thus things can easily be the objects of perception, since they are internally conditioned; and the externally conditioned media can serve as mediators. This is demonstrated by the exceptions. There exist nontransparent media and transparent things. The fog is something which has no importance for us as a thing. One can move in it as in 'empty air'; but the coordination of the light waves to things are destroyed by it. Another exception is glass. It does not impress its own characteristics on light waves; it lets them pass through and transmits them like a medium. But it is a thing unit, a solid body. These exceptions are of behavioral importance. Sailors and mountain climbers perish in the fog, and birds die when they dash themselves against a window.

—Fritz Heider, "On Perception and Event Structure and the Psychological Environment." *Psychological Issues*, Vol. 1, No. 3, Monograph 3. New York: International Universities Press, Inc., 1959. p. 15.