

VIDEO PRIMACY—A FURTHER LOOK

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ABSTRACT: This paper reviews the literature on the complex question of the relative importance of the verbal, visual and vocal channels in various types of judgments. It is noted that a wide variety of methodologies are used in such research with studies differing in terms of the type of stimuli used (varying on the dimension of stylised to naturally occurring), the task required of the subjects (particularly varying on the cognitive-affective dimension) and the method used to assess the relative importance of the channels. An attempt is made to assess the important variables which affect the way the various channels are used by decoders, including whether deception is involved or expected, whether the message is discrepant, the particular judgment being made and the dimension on which the stimulus varies, the sex of the encoder and the decoder and the relationship between them, and the age of the decoder. The possibility of other related variables also acting as moderators is discussed.

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The question of modality primacy, or which communication channel is relied on most for judgments of affect and meaning, has been the subject of much research. While some early researchers attempted to quantify the relative contributions of the channels (e.g., Argyle, Salter, Nicholson, Williams and Burgess, 1970; Mehrabian, 1972), later researchers have been much more cautious. Ekman and his colleagues (Ekman, Friesen, O'Sullivan & Scherer, 1980) maintained that it is "unwise to claim that one channel predominates in judging people. Which channel predominates depends on what characteristic is being judged, as well as the interpersonal situation in which the judged behaviour occurs" (p. 276). Krauss and his coworkers (Krauss, Apple, Morency, Wenzel & Winton, 1981) reaffirm the importance of these factors, and claim

that there is little reason to assume that nonverbal information (vocal or visual) is the primary basis for judging affect in others.

DePaulo and Rosenthal (1979) in discussing what they call the video primacy effect, or the tendency for decoders to rely more on visual cues than vocal cues (Bugental, Kaswan & Love, 1970; Mehrabian & Ferris, 1967), see this effect as being moderated by at least four variables: the affect being decoded, the video channel conveying the affect, the sex of the decoder, and the degree of discrepancy between the different channels. DePaulo, Zuckerman & Rosenthal (1980) also note the importance of situational, personal and contextual conditions on the amount of information available from a particular communication channel and the extent to which that channel is likely to be relied on by decoders. Clearly, the situation is very complex in terms of the use of concepts, the different methodologies used and the number of variables that seem to have some effect on how the different modalities or channels are used in interactions.

An important conceptual issue relates to the difference between primacy and accuracy, and the relationship between these two measures. The primacy question asks which channel is relied on most by interactants, while the accuracy question asks which channel gives the "best" or most accurate information. While these would seem to be quite different questions, they are also questions that are closely related to each other. For example, if subjects are more accurate at decoding a communication when a particular channel is present, it would suggest that the particular channel provides information which is fairly crucial to the correct understanding of that message and which is important to the particular judgment being made.

There is also some evidence, however, that the channel which is relied on most by interactants is not necessarily the one that leads to the greatest accuracy. Noller, for example, found that one of the problems in the decoding of husbands low in marital adjustment (Noller, 1980a) was their reliance on the channel that provided the least accuracy. Rosenthal and his colleagues (Rosenthal, Hall, DiMatteo, Rogers & Archer, 1980; DePaulo & Rosenthal, 1979) have researched the relationship between attention to a channel and accuracy at decoding that channel and found that the strength of the relationship increased as the amount of information contained in that channel increased, the relationship being strongest for the face.

Ekman and his colleagues (1980) sidestep this primacy/accuracy issue to some extent by using the concept of "relative importance" which is sometimes assessed using measures of reliance (as in their own study), and sometimes using measures of accuracy (e.g., Cline, Atzet & Holmes, 1972). In the present paper, the focus will also be on the relative importance of the channels, recognizing that this concept includes both accuracy and primacy, but mainly concerns primacy—which channel is relied on most.

A further reason for the level of complexity in this area is that researchers have used very different methodological approaches—including different methods for assessing the importance of a channel, different stimuli, and different tasks for the subjects to perform. As well, researchers have asked very different questions. These methodological issues will be discussed in detail in a later section.

The aim, then, of the present paper is to review the literature on the relative importance of the channels (covering important trends rather than being exhaustive) and giving due regard to the question posed by Friedman (1978): "Which cues matter most to which individuals in which situations?" Friedman's question highlights yet another reason for the high level of complexity apparent in this research area—the large number of potential moderating variables, and their implications. The research results relevant to each of these variables will be presented and an attempt will be made to come to some conclusions about the circumstances in which each of the channels is likely to be more or less important.

Methodological Issues

Method used to assess relative importance

A number of different methods have been used for assessing the relative importance of a channel:

1. Which channel provides the most accurate judgments (e.g., Cline, et al., 1972).
2. Which channel provides the highest level of inter-rater reliability (e.g., Ekman, 1965; Berman, Shulman & Marwit, 1976).

3. Correlations between ratings made from a single channel and those from the full audiovisual record (Ekman et al., 1980; Noller, 1980a) or regression of single channel ratings on total channel ratings (Krauss et al., 1981).
4. Comparing judgments made when a particular modality is present or absent (e.g., studies of people's ability to detect deception, such as DePaulo, Rosenthal, Green & Rosenkrantz, 1982; Littlepage & Pineault, 1978). (See DePaulo, Zuckerman & Rosenthal, 1980, for a discussion of this area).
5. Comparing judgments made when subjects have been instructed to pay particular attention to different modalities. (DePaulo, Zuckerman & Rosenthal, 1980; Mehrabian & Wiener, 1967).

While all of these different methods have been used and they each ask slightly different questions there is no evidence that one method is superior to another.

Types of Stimuli

The stimuli used in research into the relative importance of the channels can be arranged on a continuum from stylised and not very close to real life, through to naturally occurring interactions. Some researchers, for example have used still photographs as part of their stimulus package, paired with a soundtrack (Mehrabian & Ferris, 1967) or with captions (Friedman, 1978, 1979). While still photographs give the researcher a very high level of control over stimuli, such tasks are not very common in real life and it would be a mistake to conclude that the results from such studies can be generalized to interaction situations.

Another technique frequently used by researchers is the construction of acted, videotaped messages systematically varied on the different channels in terms of the dimensions being studied. The classic example of this methodology is the Profile of Non-verbal Sensitivity (PONS) test developed by Rosenthal and his colleagues (Rosenthal et al., 1979) and its derivative, the Non-verbal Discrepancy Test (DePaulo, Rosenthal, Eisenstat, Rogers & Finkelstein, 1978; Zuckerman, Spiegel, DePaulo & Rosenthal, 1982). In these tests, items are varied on two dimensions, positivity and dominance. Argyle and his colleagues have used a similar technique but have tended to vary messages on only one dimen-

sion at a time—inferiority-superiority (Argyle et al., 1970) or friendly-unfriendly (Argyle, Alkema & Gilmour, 1972). Bugental and her coworkers (Bugental et al., 1970; Bugental, Kaswan, Love & Fox, 1972) also used acted video-taped messages varied on the positivity, or friendly-unfriendly dimension.

This methodology has some related problems since it is not at all clear that the balance of information in the channels for these communications is the same as that which applies in natural interaction (e.g., Furnham et al., 1981). Since an attempt is frequently made to make the balance equal, the question becomes to what extent do subjects rely on each of the channels when the channels are giving equal information. Again, the generalizability to situations of natural interaction must be questioned.

Another method used for creating stimuli has been to use standard content messages which are capable of being sent with different types of nonverbal behaviour to give different types of messages. Berman et al., (1976) used a standard set of instructions for a personality questionnaire, with the nonverbal behaviour being varied on the warm-cold dimension. Noller (1980a) used the Marital Communication Scale (Khan, 1970) where couples are asked to send each other standard content or ambiguous messages with intentions varying along the positivity dimension. These stimuli differ from the acted videotaped messages described earlier, primarily because the verbal channel is always neutral and thus only the nonverbal channels can be compared. As well, subjects are forced to use the nonverbal channels in the same way as they would normally, or at least normally when using neutral or ambiguous words. Noller (1982) found that this kind of utterance was quite common in her married couples, suggesting that results from this kind of study can more easily be generalized to natural interaction.

A further group of researchers have had subjects make a speech or participate in an interview according to specific instructions. Such speeches or interviews most commonly vary on the honest-deceptive dimension. Ekman and his colleagues (Ekman & Friesen, 1974; Ekman, et al., 1980) had subjects either describe truthfully their reactions to a pleasant film, or conceal their negative reactions to an unpleasant film. Kraut (1978) had subjects either lie or tell the truth in simulated job interviews, and Maier and Thurber (1968) used interviews between a professor and student where the student was being questioned about whether he

altered his exam mark. The technique used by DePaulo and Rosenthal (1979) was to have subjects talk about various people including someone they liked, someone they disliked, someone they liked as though they disliked them, and someone they disliked as though they liked them. While these studies may put people into situations in which they may not normally find themselves, they are also able to respond in their own way. Although some of the subjects would be more likely than others to engage in deception in their normal interactions, these studies do give us an indication of how people behave when they are trying to deceive.

Another step along the dimension of stylized/close to real life is the use of public performances such as the Dole-Mondale vice-presidential debate (Krauss et al., 1981). While such items are naturally occurring, they are also produced with the full knowledge that they are going to be recorded and shown very widely and thus the behavior of the interactants may be fairly different from private behavior. However, findings of these studies can be generalized to other public behavior.

Finally, several studies have used spontaneous or naturally occurring behavior (Archer, & Akert, 1977; Bugental, 1974; Noller, 1982). Bugental made her videotapes from naturally occurring parent-child interactions in a waiting-room situation while Archer and Akert used videotapes of naturally occurring behavior such as two women playing with a baby, two men discussing a basketball game they have just played, and a woman talking on the telephone. Noller (1982) used 10-minute interactions of couples discussing their marriages, although these were videotaped with the full knowledge of participants. Clearly, the closer the stimuli are to normal interaction, the more generalizable are the findings to behavior in natural interaction.

Tasks Required of Subjects

There has also been a great deal of variation in the types of tasks which subjects have been required to perform—particularly along the dimension of highly cognitive to closely related to judging affect.

Among the more cognitive tasks have been judging objective meaning (Solomon & Yaeger, 1969), deciding what grade a teacher would give (Friedman, 1978), predicting behavior (Berman et al., 1976), and giving answers to questions—either multiple choice (Cline et al., 1972) or direct answers (Archer & Akert, 1977).

Another common task is deciding whether the behavior being appraised comes from an honest or a deceptive interview (Ekman & Friesen, 1974; Kraut, 1978; Littlepage & Pineault, 1978). Such a judgment could probably be categorized as being both a cognitive and an affective task.

Noller (1980a) had subjects decide which of three alternative intentions their spouse was trying to communicate to them. While this was basically a judgment of affect on the positivity dimension, it also involved some cognitive component since they didn't just rate the messages in terms of positivity, but had to decide between a positive, a neutral and a negative intention.

A number of researchers have required subjects to rate the stimuli on either a single dimension, or on a number of Semantic Differential type scales. Friedman (1978) had subjects rate how friendly they thought a particular teacher was being when they saw all possible pairings of four facial expressions (happiness, surprise, anger or sadness) with four sentences varied on the dimensions of positive-negative and dominant-submissive. Bugental and her colleagues (Bugental et al., 1970; 1972) had subjects rate single channel and multiple channel stimuli on the positivity dimension. The task required of Mehrabian and Ferris' (1967) subjects was to rate on a scale from like to dislike the attitude of the speaker to the addressee, taking into account information from the content, the tone of voice, or both. Friedman (1979) asked subjects to rate stimulus people in terms of how positive, how dominant, and how sincere they were being. Clearly, these tasks are much closer to the affective end of the continuum.

Some researchers have asked subjects to make ratings on a relatively large number of Semantic Differential scales. Argyle et al., (1970) used ten different rating scales including hostile-friendly, unpleasant-pleasant, inferior-superior, and confusing-straightforward. Ekman et al., (1980) used fourteen scales, including some which were seen as relevant to a particular channel—e.g., awkward-natural for the body, and likeable-unlikeable for the face—and others relevant across channels such as relaxed-tense, calm-agitated, sincere-insincere, etc. Krauss et al., (1981) also used Semantic Differential scales chosen to represent the three factors of the Semantic Differential (Osgood, Suci & Tannenbaum, 1957) and had subjects make the ratings in four conditions: audiovisual, video only, transcript, and content-filtered. The scales used included sweet-sour, nice-awful (evaluative fac-

tor), fast-slow, active-passive (activity factor), large-small and strong-weak (potency factor).

Of these so-called methodological issues, the ones which seem to have most impact on the kinds of results obtained are the tasks required of the subjects, and the particular dimension on which judgments are being made. These factors would seem to define important characteristics of the situation in which the communication is occurring, and to some extent of the message itself. It is important then, to discuss the findings of studies, particularly with regard to the effects of various characteristics of the situation or message as well as the relevant characteristics of the encoder, and of the decoder.

Variables Affecting the Relative Importance of Channels

Characteristics of the situation/message

Cline et al., (1972) had subjects predict the likely behavior of stimulus persons after seeing a filmed interview with the person in question and reading a personality sketch and other written material. The verbal cognitive material seemed more important in making judgments about the person than were visual cues or tone of voice cues. It is possible, however, that the verbal material, particularly the personality sketch was crammed with important information for making the required predictions more so than would normally be true for content. Clearly, however, how important the verbal material is will be dependent on the amount of relevant information it contains.

Friedman (1978) had subjects answer two questions on the basis of the same stimulus materials—how positive/friendly was the teacher being to the particular student, and what grade would the teacher be likely to give to that student. Facial expressions had the greatest impact on answers to the first question, while verbal content had the greatest impact on the answers to the second question. Thus it would seem that more cognitive tasks lead to greater reliance on the verbal channel.

Another important characteristic of the situation or message affecting the use of the channels is the extent to which deception is involved or expected. Maier and Thurber (1968), for example, found that subjects making judgments about honesty were more accurate when they were exposed to the words only (from a tran-

script) or the words plus tone of voice than when they were exposed to visual cues which seemed to act as distractors.

Kraut (1978) also had subjects rate the truthfulness of stimulus persons and found that the single best predictor of such ratings was the plausibility of the statements and thus, judgments of truthfulness were relying mainly on the verbal channel. For decisions about whether the person smoked marijuana, subjects again relied heavily on the verbal channel, particularly judging people who admitted smoking marijuana as honest because they were working against their own self interest. Krauss and his colleagues (1981) also found that subjects relied most on the verbal channel and least on the visual channel when making judgments about whether a person was being honest or deceptive.

Ekman et al., (1980) found that even when subjects were making judgments on dimensions other than the truthfulness/deception dimension, reliance on the channels depended on whether the segment being rated was from an honest or a deceptive interview (even though raters were not told whether deception was involved). For the deception situation, subjects were more influenced by speech alone (that is words plus tone of voice) when making ratings on 12 of the 14 semantic differential scales. For the honest situation, reliance on the channels varied with the dimension on which ratings were being made—an issue to be discussed further a little later.

Zuckerman et al., (1982) varied the expectation of deception by labelling stimulus persons as those who never lied, sometimes lied, or very often lied. They also had a control group who had no expectation of deception. The results indicated that the more that subjects expected deception, the less they relied on cues from the facial channel. It seems then that decoders pay less attention to highly controllable channels (such as the face) and rely on less controllable or leakier (Ekman & Friesen, 1969) channels (such as the body and the voice). The findings of Littlepage and Pineault (1979) that the greatest accuracy in detecting deception was achieved by subjects exposed to body cues and the least by those exposed to facial cues would also seem to indicate that the leakier channels are useful in detecting deception.

A further finding from Zuckerman et al.'s (1982) study was that discrepant communications of themselves created a suspicion of deception and led to less reliance on the visual channel. Friedman (1979) claimed that consistency or lack of consistency on the

positivity dimension was the strongest influence on perception of the message, with discrepant messages being seen as less sincere and therefore almost certainly more deceptive. DePaulo et al., (1978) also found that subjects were relatively more influenced by audio rather than visual cues as messages became more discrepant. However, as DePaulo, Zuckerman and Rosenthal (1980) point out, reliance on facial cues decreases, while reliance on cues from the body does not. DePaulo and Rosenthal (1979) have also noticed less reliance on the visual channel for subjects exposed to messages discrepant on both the positivity and dominance dimensions.

There is also some evidence (DePaulo et al., 1981; Littlepage & Pineault, 1978) that subjects are more accurate in detecting deception when the communications they are exposed to include the words and that they are less accurate when they are judging purely from nonverbal channels. It seems likely that this finding indicates that subjects detect deception by comparing verbal and nonverbal inputs and therefore, have difficulty judging deception from either verbal behavior alone (e.g., from a transcript) or from nonverbal channels alone. In addition, they clearly rely on some characteristics of the verbal channel such as plausibility and relationship to self interest. DePaulo, Zuckerman and Rosenthal's (1980) review of the literature indicates that the greatest accuracy at detecting deception was achieved when subjects had access to words plus tone of voice than for any other single channel or combination of channels. In fact, evidence from a study by DePaulo, Lassiter and Stone (1982) showed that subjects given access to all cues, but instructed to pay particular attention to the tone of voice were also more accurate at detecting deception than subjects not given such instructions. Studies by DePaulo and Rosenthal (1979) have also shown that as the visual and auditory channels become more discrepant, subjects are more likely to rely on tone of voice. However, as Zuckerman and his colleagues (1982) point out, even when subjects expected deception, they were still more influenced by the face than the voice, even though less accuracy ensues. But for discrepant and/or deceptive messages subjects' reliance on visual cues decreases as the discrepancy and the likelihood of deception increase with heavier reliance on leakier channels such as the body or the voice.

Even young children seem to be aware of discrepant messages and to decode them differently from other messages. Volkman and

Siegal (1979), for example, found that children presented with discrepant messages to either approach or stay away, responded more to the auditory input when messages were discrepant. This effect has been found to be stronger for older children (Blanck & Rosenthal, 1982).

Thus the importance of the verbal channel seems to increase with the amount of information contained in that channel and with the extent to which the task is cognitive (as opposed to affective). Words are also relied on in situations of possible deception when they are very plausible or are seen as not being self serving.

While words are generally necessary for detecting deception, subjects have difficulty deciding whether someone is being deceptive on the basis of words alone. Interactants may compare verbal and nonverbal channels when deciding about deception. Also, the visual channel seems to decrease in importance in the case of deceptive or discrepant communications, except where body cues are available. What Ekman and Friesen (1969) have called the leaky channels seem to be relied on heavily by interactants expecting deception. Tone of voice (another leaky channel) also seems to increase in importance.

Dimension on which judgments being made

Another factor related to the message being communicated is the dimension on which the communication or the person is being judged. We have already discussed the assessing of truthfulness or deception, but a number of other dimensions are also used in studies of the importance of the channels. Other studies have particularly examined the evaluation or positivity dimension, the dominance or superiority dimension, and the activity dimension.

The positivity dimension is the one most commonly studied and also the one where the findings are most complex. Friedman (1978) found that subjects used the visual channel more than words in making judgments of friendliness/positivity. Argyle, Alkema and Gilmour (1971) compared the verbal and nonverbal channels and found the nonverbal to be more important to ratings on the hostile/friendly dimension, but these researchers did not separate the vocal and visual channels. Results obtained by Krauss et al., (1981), on the other hand, indicated that subjects relied on the verbal channel for ratings on the evaluative dimension, at least in the situation of a political debate.

Burns and Beier (1973) found that the visual channel was important in making assessments on the positivity dimension such as agreeableness and happiness. DePaulo and Rosenthal (1979) also showed that subjects focused on the visual cues much more when assessing positivity rather than dominance. Wish's (1976) study indicated that subjects used the visual channel for deciding the pleasantness of a particular affect and the vocal channel for assessing the intensity of the feeling. Mehrabian and Wiener (1967) combined neutral words with positive, neutral or negative vocal cues and visual cues and found that the visual cues accounted for about twice as much variance in judgments of feelings as did vocal cues. DePaulo et al., (1978) used the Nonverbal Discrepancy Test and compared ratings of positivity for audio only, video only and audiovideo conditions and found that combined ratings were closer to video only ratings than to audio only ratings, suggesting that the video channel was relied on more in audiovideo judgments. Thus it would seem that where visual cues are available they are the primary focus for judgments of affect on the positivity dimension in most situations. However, there is some evidence that this effect is moderated by sex of encoder and age of decoder, particularly for discrepant messages with positivity in the visual channel, and this effect will be discussed in a later section.

A further important question concerns the relative importance of verbal and vocal channels when visual cues are not available. Mehrabian and Wiener (1967) used positive, neutral and negative affect-communicating words combined with tone of voice cues and found that judgments of feelings were mainly based on the tone of voice component. Bugental (1972) found that negative words tended to override positive tone of voice for children receiving such messages from either parent—a finding which implies that the more important channel is the one carrying the negativity. Results from a study by Bugental et al., (1970) also indicated (again with children as decoders) that if either tone of voice or words were negative, any positivity in the other channel was discounted.

Bugental (1974) also compared tone of voice and words only and found that another important factor was the degree of evaluation in the words. If the content was evaluatively extreme (that is, very positive or very negative) then the negative part of the message received the greatest weighting. On the other hand, if the content was only moderately evaluative, then the positive part of

the message (either words or tone of voice) had the predominant effect.

Friedman (1979) also found a tendency for negative inputs to have a stronger effect on judgments than positive inputs. He found that an angry face led to highly negative evaluations even when the negative face was paired with a positive sentence. In fact, whenever a negative stimulus was present (either face or sentence) the overall rating tended to be relatively negative.

When judgments are made on the positivity dimension then, there seems to be a heavy reliance on the visual channel where that channel is available. When only verbal and vocal cues are available and there is some discrepancy between the channels, then the channel conveying the negativity seems to predominate, particularly where the content of the verbal channel is evaluatively extreme. As well, there is some evidence that negativity can override positivity even when the visual channel is present.

Several researchers have found a tendency for vocal cues to be relied on more than visual cues for assessing the potency or dominance dimension. Scherer and his colleagues (1977) showed that audio cues were particularly useful in making judgments about anger. DePaulo and Rosenthal (1979) found that the extent to which people attend preferentially to video cues is much greater for judgments of positivity than dominance, and that subjects skilled in decoding video cues were more accurate at making positivity judgments while those more skilled at decoding audio cues were more skilled at making judgments about dominance. Ekman et al., (1980) found that judgments of dominance made from the speech channel were most highly correlated with whole person judgments, suggesting a heavier reliance on speech cues for making such judgments. Krauss et al., (1981) in the political debate situation found that subjects who made potency ratings on the basis of filtered speech, rated subjects very differently from those who were exposed to audiovisual stimuli, which suggests that the politicians were attempting "to mitigate strongly expressed verbal affects by transmitting signals that were affectively opposite or neutral in the nonverbal channels" (p. 316). Such a finding implies that display rules which apply in particular situations are also important moderators of the use of nonverbal channels. In their study using undergraduate students, these same researchers found that potency judgments relied to some extent on vocal cues, but relied more on the words.

With regard to the activity dimension, Krauss et al., (1981) found some evidence for reliance on the visual channel when the politicians were being judged, but even this dimension seemed to depend on the verbal channel when the students were being judged. It is likely, however, that vocal channel ratings could be affected by the use of content-filtering which Scherer, Koivumaki and Rosenthal (1972) showed had a tendency to result in lower, perceived activity probably because of the absence of higher frequency information which makes the voice sound more flat. Ekman and his colleagues (1980) found that both face and body cues were relied on more for judgments on the activity dimension (calmness/relaxation) when subjects were honestly describing a positive experience, but the effect was not so clear for the deceptive situation.

Characteristics of the Encoder

Noller (1982) found that for male encoders, messages with discrepancies between the visual and vocal channels were more likely to be coded positive than negative, while for females such messages were equally likely to be coded negative as positive. Bugental et al., (1970) also found a tendency for males' smiles to be seen as counteracting a negative message, while females' smiles did not seem to have this effect, particularly when children were the decoders (Bugental et al., 1972).

Another encoder characteristic which is likely to be relevant to this question of the relative importance of the channels is individual differences in the use of the communication channels. As Krauss et al., (1981) comment, "It appears that some people communicate more effectively through one particular channel—some, perhaps preferring to be visibly expressive and others, vocally expressive (p. 319)." Berman et al., (1976) also found that some encoders showed their feelings primarily through visually mediated cues, while other subjects revealed their feelings more through the vocal channel.

A further, relevant variable related to the encoder is expectancy about the channels available to the decoder. The classic study related to this question was carried out by Krauss, Geller and Olson (1976) who made videotapes of senders communicating either face-to-face or over an intercom. Judges were most accurate at detecting deception when they could view the facial expressions of those senders communicating over an intercom. It seems that

these communicators controlled the auditory component (the one most salient to the receiver) but left the visual display unmonitored. Perhaps the leakiest channel of all in the case of deception is the one which the encoder knows is not available to the decoder. Thus the sex of the encoder, individual differences in the use of channels, and the salience of a channel in a particular situation are likely to affect the amount of information available in a channel, and thus reliance on that channel.

Characteristics of the decoder

There is some evidence that the relative importance of the channels also depends to some extent on the sex of the decoder. Argyle et al., (1970) found that females were less responsive to verbal cues and tended to rely more on the nonverbal cues. Rosenthal and DePaulo (1979 a & b) compared males and females decoding messages which contained contradictory cues in the video and audio channels. They found that females were more biased in favor of video cues than were males, and that this sex difference was even greater when the video cues were from the face rather than the body.

Noller (1980a) found that the males in her sample relied more on the vocal channel when decoding their wives, and were more accurate when decoding from the vocal channel. Wives, on the other hand, relied more on the visual channel when decoding their husbands but were equally accurate with either channel. These findings are particularly interesting since Noller and Gallois (1984) found that the females were more active in terms of visible, nonverbal behaviors than were the males. Given the large amount of evidence that females look more at the partner in interactions (Argyle & Cook, 1976; Exline, Gray & Schuette, 1965; Noller, 1980b), that they are more uncomfortable than men when they can't see the person with whom they are interacting (Argyle, Lalljee & Cook, 1968), rely more on visual cues (DePaulo & Rosenthal, 1979; Hall, 1979), and are better than men at decoding visual cues (DePaulo & Rosenthal, 1979; Hall, 1979), it seems likely that they will continue to rely on such cues even when decoding men who are not visually very expressive.

Several studies have also shown that women lose some of their decoding superiority over men when they are decoding more leaky channels (Rosenthal & DePaulo, 1979 a & b); Blanck & Rosenthal, 1982). Rosenthal and DePaulo see this finding as related to

the greater social politeness and accommodation of women compared to men, with women tending to decode communications in the way they believe the sender wants them decoded, ignoring any 'leaked feelings'. An important question is whether they notice the leaked feelings and then choose to ignore them or whether they do not notice them.

There is some evidence also that females lose more and more of their decoding superiority over men as they get older (Blanck & Rosenthal, 1982; DePaulo & Jordan, 1982) for the decoding of leaky or covert channels, while at the same time they become more and more superior for the more controllable channels. Blanck and Rosenthal (1982) see this effect as being related to increasing awareness with age of the traditional female role of keeping the peace in relationships, etc.

Bugental and her colleagues have also found a tendency for children to decode differently from adults (Bugental et al., 1970; Bugental, et al., 1972) with small children showing less reliance on the visual channel and more reliance on the vocal channel for messages containing positivity, especially when decoding females. These researchers found that when a critical statement was contradicted only by a smile, adults tended to interpret the message as neutral, while children interpreted it as negative. In fact, children seemed only to interpret a woman's smile as positive if there was supporting evidence from other channels that the message was intended to be a positive one.

Characteristics of the dyad

As well as considering the separate characteristics of the encoder and the decoder, it may also be necessary to consider the nature of the dyad. DePaulo, Lassiter and Stone (1980), for example, found that attention to the vocal channel aided lie detection particularly for opposite sex dyads. Noller (1980a), whose work was also with opposite sex dyads, found that males decoding females relied on the vocal channel, while females decoding males relied on the visual channel—much as would be expected in same-sex dyads. However, an important factor found by Noller to be relevant was the quality of the relationship. Low marital adjustment subjects relied on a different channel when decoding than did other subjects. For wife-to-husband communications, the low marital adjustment subjects relied more on the visual channel (the channel leading to least accuracy), while other subjects relied

more on the audio channel. For husband-to-wife communications, the high and moderate marital adjustment subjects relied primarily on the visual channel, while the low adjustment subjects did not rely particularly on either channel.

SUMMARY

Thus, it is clear that the question of the relative importance of the channels is a very complex one, although careful examination of the literature taking into account both methodological considerations and possible moderating variables has shed some light on the situation. The following points can be made:

1. The situation is far too complex for general claims to be made about the relative importance of verbal and nonverbal channels in interaction—relative importance is affected by too many variables.
2. Methodologies used in some studies have minimal relationship to the 'real life' situation and thus have minimal generalizability; findings from such studies should only be taken seriously when they are confirmed by studies using more realistic methodologies.
3. The importance of the verbal channel increases with the amount of information contained in the words and is greater for more cognitive (rather than affective) tasks.
4. While the visual (facial) channel is generally very important, that importance decreases with the extent to which deception is expected or involved. The focus for deceptive communications moves to the leakier channels such as the body and the tone of voice. Words can also be important for deceptive communication although generally, nonverbal cues are needed as well.
5. The vocal channel is important for judgments on dimensions such as assertiveness, fearfulness and sincerity, and also for judgments about the intensity of the feeling being expressed. The visual channel, on the other hand, is important for judgments on the positivity/pleasantness dimension.
6. The positivity dimension is the most complex with negative inputs having a tendency to have the greatest weighting, particularly when the verbal component is evaluatively extreme, or when no visual channel is available.

7. Sex of encoder, sex of decoder and age of decoder also seem to affect the relative importance of the channels. Female decoders are more likely to rely on the visual channel than are male decoders, and female encoders are more likely than are male encoders to have their positive visuals discounted, especially by children.
8. As well, characteristics of individual encoders such as expressivity in different channels affect the relative importance of the channels.

Finally, it is likely that other moderating variables affect the relative importance of the channels. For example, if sex of encoder and decoder are important variables, then what about sex role orientation—are male subjects with a more feminine orientation likely to behave more like female encoders and decoders? LaFrance (1981) presents some evidence that androgynous encoders performed fewer sex-typed behaviors than did masculine males or feminine females, but she only used two “masculine” behaviors (interruptions and filled pauses) and two “feminine” behaviors (smiling and gazing). It is also possible that there are particular, personality characteristics relevant to this question (DePaulo et al., 1978). For example, are more trusting subjects less likely to discount the visual channel in the deception situation? All of these questions await further research which is likely to reveal even more complexity in this already complicated area of enquiry.

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