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A first attempt to investigate effects of viewing videotapes of one's teaching behavior is reported. Thirty-eight teaching interns at a California State College viewed videotapes of their practice teaching without the presence of a supervisor or guidelines. No control group was used. Pre- and post-viewing questionnaires and interviews were administered to assess self-attitudes and attitudes toward teaching performance. The results indicated that in the absence of standards or models, satisfaction with one's teaching performance was determined by initial self-attitudes. When low satisfaction with general performance was reported in the first interview, defensive reactions to self-viewing appeared to predominate with slight improvements in attitude occurring and few specific teaching cues recalled in the second interview. The findings are taken to suggest a differential use of self-viewing procedures in professional training with presentation methods determined by personality variables of the viewer. (SS)

PRE- AND POSTTEST REACTIONS TO SELF-VIEWING ONE'S PERFORMANCE ON VIDEOTAPE

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PRE- AND POSTTEST REACTIONS TO SELF-VIEWING ONE'S PERFORMANCE ON VIDEOTAPE

Studies of the effects of self-viewing on videotape or film tend to show contradictory results. Numerous studies done at the Stanford Center for Research and Development in Teaching (McDonald and Allen, 1967) and in the Air Force (Eachus, 1965) have shown consistent behavioral changes in teachers and in officers resulting from training procedures employing self-viewing on videotape. Similar results are reported by Walz and Johnston (1963) who studied the effects of self-viewing on the self-perception of counseling candidates. They reported that after self-viewing, counselors accepted other people's judgment of their professional skills more readily, and became less positive in their own self-evaluation. Stroller (1967) who worked with schizophrenics, reported that after a period of attending to aspects of physical appearance, subjects began to notice their own undesirable behaviors and tried to change them. Similar results were obtained when other methods of providing information to a person about his own behavior were employed. For example, Gage, Runkel, and Chatterjee (1960) tried to change the classroom behavior of teachers by means of providing them with negative information about their behavior originated by their students. The results showed that behavior changed in the direction implied by the negative messages. No verbal coaching or reinforcement were given to the teachers. The observed changes could therefore be clearly ascribed to the message.

On the other hand, Wolff (1943) and later Nielsen (1962) reported extreme emotionality, rejection and evasion of the message which accompanied self-viewing. Nielsen analyzed the situation and claimed that "An individual's awareness of his own behavior in a situation usually is distorted by self-interest and personal involvement. In the self-confrontation condition, a record of the reality of one's performance contradicts erroneous perceptions and may be painful." (Nielsen, 1962, p. 28).

The latter observations are very much in line with various studies in communication. Such studies have shown that people prefer to expose themselves to positive rather than negative information about themselves (e.g., Cartwright, 1949); become hostile toward the source of information (Leavitt and Mueller, 1951); evade the message (Cooper and Jahoda, 1947); or try to discontinue the process of communication (Thibaut and Coules, 1952).

It is assumed that the message presented to the self-viewer on a TV screen is (partly at least), aversive, since it conveys yet unknown information about his own behavior. However, in the first few studies cited above (e.g., Waltz and Johnston, 1963) the supposed aversive character of self-viewing did not impede behavior change. On the contrary, self-viewing enhanced changes in the direction implied in the message. The problem is--when do people accept and when do they reject negative, unsupportive, information about themselves when faced with a reliable recording of their behavior?

It will be noted that in all the studies in which people (mainly professionals) change their behavior as a result of receiving new and partly negative information about themselves, two conditions were met.

These conditions were not present in any of the studies where rejection, defensiveness, etc. were reported. The two conditions seem to be: a) the receiver of the information knows what behaviors are expected of him, hence, he looks for deviations of his behavior from the expected; b) the receiver has adopted the expectations for the desirable behavior and is ready to modify his behavior to make it congruent with the expectations. When both conditions are met, as is the case in the studies by Walz and Johnston (1963), McDonald and Allen (1967) and Gage, et al. (1960), one can talk of information which serves for the receiver as <u>feedback</u>. That is, the information which is selected by the receiver 'tells' him how far his behavior deviates from the desirable (and adopted) standards. Attention to cues contained in the message is directed accordingly. Moreover, defensive reactions are not likely to take place.

When, however, no standard is set and consequently cannot be adopted other variables determine one's reaction to self-viewing. Selection of cues is expected in such cases to be determined by the viewer's self-perception and predispositions. For instance, Wyley (1961) and later Steiner and Rogers (1963) pointed out that the main motivation in selecting new information about one's self is not to maintain cognitive balance but rather to increase, or at least preserve, self-esteem. Hence, it would be expected that the reactions of self-viewers to their own recorded image would be a function of their self-attitudes, satisfaction with their own performance, and other personal predispositions (e.g. anxiety). In particular, one would expect defensive reactions manifested, for instance, in projection, to correlate with the amount

of threat the viewer experiences.

The study reported here was a first attempt to observe teachers' cue-selection and attitudinal changes when faced for the first time with their own recorded performances on videotape. Since numerous studies have dealt with teachers' reactions when the two above-mentioned conditions were met, this study attempted to observe changes when these conditions were not met. Consequently, no standards were set, no model of "good teaching behavior" was presented, and no guidance was given as to what should be attended to. It was expected that under such conditions attitudinal changes and patterns of cue selection would be determined to a large extent by the teachers' satisfaction with their own performance. More specifically, it was hypothesized that: a) In the service of maintaining self-esteem, no self-evaluation follows self-viewing on videotape. b) Attitudinal changes which take place after self-viewing are related to one's expressed satisfaction with his own performance; the smaller the reported satisfaction, the more defensive (e.g. projective) responses take place, and the larger the reported satisfaction the more self-elevating changes take place. c) Self-reported satisfaction with one's own performance also relates to patterns of cue-selection. The smaller the reported satisfaction, the less teaching-related cues are noticed, and the more negative is the evaluation of the observed performance.

Method

Subjects and Procedures

Thirty-eight teaching interns in a California State College participated in the study as part of their training. Each intern was asked

to teach a standard 50-minute lesson to a fifth- or sixth-grade class of twenty-five students. No instructions as to how to teach the lesson were given. Each intern had twenty-four hours to prepare the lesson. The lesson itself was videotape-recorded with the permission of the interns.

At the end of the lesson the intern was given an attitude questionnaire and was interviewed. The intern returned on the following day and viewed a 20-minute section of the video recording of his lesson. Only the TV operator was present in the room during self-viewing (no comments as to the quality of the lesson nor the achievement of the students were made). At the end of the 20-minute self-viewing period the intern answered again the attitude-questionnaire and was interviewed a second time. The first and second questionnaires were identical in content except for the order of pages. The two interviews were dissimilar.

Measurement Instruments

The attitude questionnaire contained eight concepts, each of which was to be rated on nine seven-point scales (e.g., good-bad, strong-weak, hard-soft, etc.). Positions of positive and negative ends of each scale were randomized. The eight concepts were chosen to represent four domains. Two of these could serve for projective (i.e. defensive) changes since they were unrelated to the intern's 'self' but rather to the situation; one domain referred to the viewer's 'self' but was neutral to the situation, and the last referred to the 'self' of the intern as a teacher. The four domains are given below in the order cited above.

Institutional domain:	"Teacher Education"
Professional domain:	"Use of electronic devices in classroom"
	"Camera in classroom"

Self-non professional domain:	"Me as Student"
	"Me as friend"
Professional-self domain:	"Me as teacher"
	"My appearance in classroom"
	"Me as seen by by students"

The scales were scored from one (most negative) to seven (most positive). The score for each subject's rating of one concept was computed by adding the nine scale scores. Thus, the score of one individual on one concept could range from 9 to 63.

The Interviews

The first interview, which occurred before self-viewing, was conducted by four interviewers who were randomly assigned to interns. The interviewer inquired about the intern's perception of his performance and his satisfaction with it. He was asked to describe his objectives, difficulties, things he felt needed change, source of difficulties and his over-all evaluation. The interviews were recorded on tape recorders and later transferred to typewritten reports. Analysis of the interview material allowed a count of all positive and negative evaluative statements made by each subject. A ratio of the negative evaluative statements to the total number of evaluative statements yielded the final satisfaction score for each intern. A self-reported satisfaction score was obtained by dividing the number of negative evaluative statements done by each intern by the total number of evaluative statements. The analysis of the interviews was done by two independent and naive raters. Inter-rater reliability was .93.

The second interview was conducted after self-viewing by the same

four interviewers randomly reassigned to the interns. The interview dealt with the intern's evaluation of what he saw on the screen, the cues to which he attended, and the kind of information which was new to him. The analysis of the obtained responses was done along two lines: a) the kind of cues the intern reported noticing on the screen; b) his evaluation (positive or negative) of what he noticed. The reported cues were grouped into two main categories (i) Teaching behavior: presentation of material, use of teaching techniques, rapport with students, etc. (ii) Physique: body movements, parts of body, facial expressions, mannerisms, speech patterns etc. Six raters were trained to analyze and categorize the material of the second interview. Interrater reliability was .89.

Results

Changes in attitude ratings

The eight concepts received different ratings by the interns before self-viewing ($F = 6.72$, $P < .001$) and after self-viewing ($F = 7.39$, $P < .001$). The results are presented in Table 1.

TABLE 1

Summary of Analyses of Variance for Concept Ratings Before and after Self-viewing

Source	df	SS	MS	F
Before self-viewing				
Subjects	37	4859.1	131.3	2.46*
Concepts	7	2481.3	354.5	6.72**
Error	259	13657.7	52.7	
After self-viewing:				
Subjects	37	6641.4	179.5	3.86**
Concepts	7	2400.5	342.9	7.39**
Error	259	12017.5	46.4	

*p < .05

**p < .01

However, certain concepts received different ratings as a result of self-viewing on videotape (Table 2). The concept "Teacher Education" received a significantly lower rating after self-viewing ($F = 5.98$ $P < .05$) while the concept "My appearance in classroom" received a significantly higher rating ($F = 4.38$, $P < .05$). Other concepts in the same domain (professional-self) also received higher ratings, narrowly missing the .05 level of significance, ($F = 3.50$ and $F = 3.76$, respectively).

TABLE 2

Summary of Analyses of Variance for

eight Concepts;

Comparison of ratings before and after Self-viewing

Concept	Mean Rating before self-viewing	Mean Rating after self-viewing	SS	F
Teacher education	48.18	43.23	389.26	5.98*
Use of electronic devices	43.23	43.10	.03	.012
Camera in classroom	41.13	40.39	10.31	.85
Me as student	46.95	48.34	36.96	1.78
Me as friend	49.66	49.81	.47	.001
Me as teacher	43.10	46.21	183.21	3.50
My appearance in classroom	43.37	45.74	106.58	4.38*
Me as seen by my students	42.60	44.29	53.89	3.76

*P < .05

Scheffe's paired-comparison tests were employed to study the patterns of concept clustering both before and after self-viewing. Before self-viewing (Table 3) ratings of concepts could be grouped into two significantly different clusters: institutional and self-non professional on the one hand, and professional-self and professional on the other. The former concepts received significantly higher ratings than the latter.

TABLE 3

Paired Comparison between

Concept ratings before Self-viewing (Scheffe's Method)

	1	2	3	4	5	6	7
1. Teacher education							
2. Use of electronics	4.95*						
3. Camera in classroom	7.05*	2.10					
4. Me as student	1.23	3.71*	5.82*				
5. Me as friend	1.48	6.42*	8.53*	2.71			
6. Me as teacher	5.08*	.13	1.97	3.85	6.56*		
7. My appearance in class	4.81*	-.14	2.24	3.58	6.29*	.27	
8. Me as seen by pupils	5.58*	.63	1.47	4.35	7.06*	.50	.77

*P < .05

Confidence Interval, $\hat{L} = \pm 3.35$

After self-viewing there was a significant change in the patterning of the ratings (Table 4).

TABLE 4

Paired Comparison between

Concept Ratings after Self-viewing (Scheffe's Method)

	1	2	3	4	5	6	7
1. Teacher education							
2. Use of electronics	.56						
3. Camera in classroom	3.26	2.70					
4. Me as student	4.68	5.24	7.94*				
5. Me as friend	6.15*	6.70*	9.41*	1.47			
6. Me as teacher	2.55	3.11	5.61	2.13	3.60		
7. My appearance in classroom	2.08	2.64	5.34	2.60	4.07	.47	
8. Me as seen by my pupils	.63	1.19	3.89	4.05	5.52	1.92	1.55

*P < .05

Confidence Interval, $\hat{L} \pm 5.28$

Each of these two clusters was now subdivided, yielding four significantly different clusters which corresponded to the four domains. The first cluster was divided into the institutional concept (Teacher Education") whose rating dropped significantly, and the self-non professional ("me as friend"; "me as student") concepts whose rating did not change. The second cluster, similarly, was divided into the professional-self concepts ("me as teacher" etc.) which received higher ratings, and the two professional ("camera in classroom" etc.) concepts.

In light of the significant individual differences in concept-rating obtained both before and after self-viewing, further analyses were done following a division of the interns into high- and low-satisfaction groups. This division was done on the basis of responses to the first interview. High-satisfaction interns were those who had proportionally more positive evaluative statements about their performance while the low-satisfaction ones had more negative statements (the division was at the median of the proportion of negative evaluational statements to the total number of evaluative statements).

Two equal-size groups were formed (N = 19). For both groups differences in concept rating before and after self-viewing were computed. Only those concepts whose ratings changed from one time to another were entered into the comparison. A t test was used to test significance of changes in rating from pre- to post- self-viewing for each group. (Table 5).

TABLE 5

Comparison of mean ratings of two Concepts

before and after Self-viewing of low- and high-satisfaction subjects

	Teacher education			Professional-self		
	Before Self-viewing	After Self-viewing	t	Before Self-viewing	After Self-viewing	t
High-satisfaction	46.16	43.60	.338	35.56	42.00	6.34**
Low-satisfaction	49.27	45.77	2.12*	23.77	29.55	.53

*P $<$ .05

**P $<$ .01

Congruent with expectations, it was observed that the low-satisfaction interns devaluated the institutional concept significantly after self-viewing ($t = 2.12$, $P < .05$) while the high-satisfaction ones did not change it to any significant extent ($t = .338$). On the other hand, the high-satisfaction interns increased their evaluation of the professional-self concepts significantly, ($t = 6.34$, $P < .01$) compared with the low-satisfaction interns who did not change their evaluation ($t = .532$). Thus, it became apparent that the low-satisfaction interns were the major contributors to the downward change in rating the institutional concept. The high-satisfaction interns were the major contributors to the upward change in rating of the professional-self concepts.

Differences in cue-attendance

Part of the information contained in the post self-viewing interview

bears upon the nature of the cues the interns reported noticing on the screen. Congruent with others'reports (e.g. Stroller, 1967) the majority of cues attended to were categorized as "physique". The median percent of reported physique cues was 57.8 (range:22-83%). On the other hand the median percent of reported "teaching behavior" cues was 17.9 (range:1-59%). Similarly, the majority of evaluative statements of what had been observed on the screen was negative (mean frequency 8.26, S. D. 4.8) while the mean frequency of positively evaluated cues was only 3.23 (S. D. 2.11). However, the division of the interns into low- and high-satisfaction groups revealed an interaction between degree of satisfaction and nature of reported cues, and between satisfaction and negativeness of evaluation.

For purposes of comparing the groups with respect to these variables the ten interns with the highest satisfaction scores and the ten interns with the lowest satisfaction scores were chosen. The Rank-Sum test (Dixon and Masey, 1957) was performed. Table 6 presents the T values. Since n = 10 in each group, normal approximations were done.

TABLE 6

Rank sum differences between

the ten highest-and ten lowest-satisfaction subjects

for cue-attending behavior

	Teaching behavior Cues	Physique Cues	Negatively evaluated cues
High satisfaction	109.5	87.00	81.5
Low satisfaction	100.5	123.00	128.5
Z	2.03*	4.42**	5.50**

*P < .05
**P < .01

High-satisfaction interns reported significantly more teaching-behavior cues ($Z = 2.03$, $P < .05$) but significantly fewer physique cues ($Z = 4.42$, $P < .01$) than the low-satisfaction interns. They also had fewer negative self-evaluative statements ($Z = 5.50$, $P < .01$).

Discussion

The hypotheses of the experiment were accepted. Attitudinal changes took place after self-viewing which were clearly related to the subjects' predispositions. In spite of the fact that most observed cues were negatively evaluated by the viewers, no downward changes in self-evaluation of the interns as teachers took place. Thus, it can be concluded that when no model of "good teaching" is presented, no guidance is given and no new and common standards are adopted, reactions to self-viewing on videotape are determined largely by the viewers' predispositions. That is, his contentment with his own performance determines what will be noticed on the screen, how it will be evaluated and to what attitudinal change it will lead.

These findings are in sharp contrast with the ones obtained at Stanford Teacher Training Program (McDonald and Allen, 1967) and with those obtained by Walz and Johnson (1963) with counseling trainees. However, as it will be recalled, in the above studies the subjects were usually given a model to adopt and to compare their behavior with. The present findings are in line with the communication studies and the self-viewing studies done by Wolff (1943), Nielsen (1962) and Stroller (1967).

It should be noted, however, that we did not employ a control group which received guidance in self-viewing. Hence the results can only be indirectly compared with other studies where the presumed conditions,

presentation of a new standard of behavior and its adoption, were met. Given this shortcoming it seems reasonable to conclude that self-viewing on videotape would not lead to any desirable attitudinal and behavioral changes unless it serves as a feedback (Tustin, 1966). That is to say, one could expect particular desirable changes to take place after self-viewing only if the received message tells the viewer the amount of his departure from a desired and accepted standard. This would imply, as stated earlier, the existence of a standard condition, or behavior, and its adoption as a standard by the viewer. Since in our study no such standards were given, the message on the TV screen could not be regarded as feedback. At most, it told the viewer how much he departs from his own expectations. Since his own expectations were apparently a function of his satisfaction with his own performance, also the reactions to self-viewing became determined by this factor.

The question whether the subject's contentment with his performance was a reflection of a general disposition or a simple situational phenomenon, cannot be answered here. Some hints, however, were given in the first interview which might suggest that desgree of satisfaction was connected with a more general disposition. The low-satisfaction subjects tended to express feelings of being manipulated by some external sources over which they did not feel they had control. They claimed that the lesson to be taught was imposed on them, the students misdirected, and the TV operators, disturbing. It may be that these teachers, contrary to the high-satisfaction ones, felt that the locus of control was external, and that they were not autonomous modifiers of their environment. Hence, their tendency to blame "teacher education" and to disregard teaching related behavioral cues. This behavior is consistent with Lefcourt's find-

ings (1966) that those who do not perceive themselves as having control over a situation are unlikely to discriminate, recall, and evaluate much decision-relevant information.

The speculation about the 'locus of control' variable, if supported by empirical evidence, could suggest a differential use of videotape for self-viewing as part of professional training. Subjects with 'external locus of control' would receive different training procedures than those with 'internal locus of control' in the service of maximizing training outcomes.

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