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The Student Image of The Teacher

Part I

Edgar H. Schein
Massachusetts Institute of Technology

Douglas T. Hall
Yale University

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Abstract

Two classes of students in a graduate school of management were
asked to rate faculty members from whom they felt they learned "a lot"
or "very little" on 36 adjective dimensions. Clearly different images
emerged of the "good" and "poor" teacher. These images were summarized
in terms of three basic dimensions--competence, personal potency and
supportiveness. Factor analyses confirmed these dimensions. Teachers
were then scored in terms of the dimensions and profiles of good and
poor teachers were compared. The generality of the dimensions for
authority roles was discussed by comparing them to dimensions used in
leadership, management, and socialization studies.

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Introduction

Students are usually quite outspoken about the qualities of their teachers. They do not find it difficult to identify teachers from whom they learned a great deal and from whom they learned little.[2] But upon what kinds of perceptions do these judgments rest? Are the perceptions organized in such a manner that one could begin to describe the inter-personal charactersitics of the highly regarded teacher?

The set of studies reported below represents an attempt to answer the above questions, and to present some dimensions of interpersonal perception which may well be applicable to relationships other than the teacher-student one. Our basic aim is to determine how perceptions are organized in the minds of the perceivers and whether there tends to be any generality to this organization from one perceiver to another. The data of this series of studies will be presented sequentially. We start inductively by identifying basic categories; then we factor analyze the data to determine the reliability of the categories iden-tified, and finally we check the utility of the categories by using them to develop profiles of highly and lowly regarded teachers.

Procedure

The basic procedure was to ask a sample of students first to nominate and then to describe one or two faculty members in each of two basic categories:

a) A faculty member from whom I learned a great deal

   ("Learned a great deal" is meant to imply not only formal

knowledge but total personal influence in the sense of
new points of view, attitudes, and values).

b) A faculty member from whom I learned very little.

For purposes of this report, we will label members of category (a)
"good teachers" and members of category (b) "poor teachers," bearing
in mind that we are using only the student opinion as the criterion.

The adjective dimensions used are shown in Table 1 of the results
section. We included 36 dimensions to reflect a number of areas of
concern: a) intellectual competence (e.g., original-unoriginal);
b) interpersonal response traits (e.g., helpful-not helpful); c) per-
sonal qualities (e.g., high integrity-low integrity). Particular items
in each of these areas were selected in terms of the broader criterion
of relevance to the role of teacher. In addition to the 36 dimensions,
we inserted four blank spaces for students to write in their own
dimensions if they cared to do so.

Each student was asked to place a checkmark somewhere along each
of the dimensions and then to go back and circle the three adjectives
which for him best captured the characteristics of the person he was
rating. We, therefore, have three sources of data: a) the descrip-
tions along the 36 original dimensions; b) the adjectives circled as
being "most characteristic;" and c) the dimensions written in spon-
taneously by the student.

The sample studied

The rating forms were given to the entire membership of two groups
of students in the Sloan School of Management at M.I.T.: a) a class of
41 Sloan Fellows (hereafter simply called "Sloans") who are middle
managers ranging in age from 30 to 45 who attend M.I.T. for one year

to obtain a Master of Science degree in Management; and b) a class
of 71 regular graduate students in the Sloan School (hereafter called
"grads"). Grads are usually younger than the Sloans, usually have
not had prior work experience, usually come directly out of college,
and attend M.I.T. for two years leading to the S.M. in Management.
The Sloans were given the questionnaire after they had been at M.I.T.
for approximately seven months and had had some 10 to 12 courses; the
grads were given the questionnaire at the end of their first year after
some 10 to 12 courses. 98 percent of the Sloans and 78 percent of the
grads returned the questionnaires.

The Sloans mentioned 19 different faculty members as good teachers
and 14 as poor teachers; grads mentioned 30 different faculty members
as good teachers and 21 as poor teachers. In the sample of good
teachers, only 5 men out of the total 49 appeared in both the Sloan
and grad lists; in the sample of poor teachers, only 2 out of 35 were
common. When we later compare the Sloan and grad groups, therefore,
if we find the profiles to be similar, this is not based on the arti-
fact of the same people being rated. Basically, the two student groups
were exposed to different sets of faculty members, hence they can be
treated as independent both in terms of their stereotypes of the good
and poor teachers and in terms of the actual personalities they were
rating.

Data analysis

All descriptions were first disguised by replacing the faculty
member's name with a code number. Students were automatically disguised
since each questionnaire was identified only by number. For each rating

category (good teacher, poor teacher) the description sheets were then sorted by faculty member named. If a given person was named more than once, all the descriptions of him in that category were first averaged into a single profile. To get an overall profile of the good teacher, etc., we then averaged all the individual profiles of all the different people who had been named in that category. Thus the profile of the good teacher as seen by Sloans is based on 19 different faculty members, even though the number of actual descriptions is much greater. We followed this averaging procedure in order to elicit those characteristics which good and poor teachers had in common, necessitating that each nominee be allowed only one "vote" in influencing the final profile.

In examining the profiles, we looked for those adjectives which produced the largest differences and which received the most extreme average ratings along the seven-point scale. Extremity was considered important as an estimator of intensity of feeling. Size of difference was important because in comparing the good and poor teacher, almost all of the adjectives were significantly different from each other in terms of a purely statistical criterion. The profiles were used to seek out quantitatively which dimensions best differentiated the good and poor teacher, but then were supplemented with a count of relative frequency of mention of adjectives written in as "most characteristic." Finally, we relied on the spontaneously written in dimensions to provide further corroboration of dimentions previously identified.

Results

a. Profile analysis

Table 1 shows the average ratings for the good and poor teacher made by Sloans and grads. A number of results are evident from inspection of these profiles:

Insert Table 1 about here

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1) Sloans and grads tend strongly to agree with each other in their ratings of both the good and the poor teacher. This can be seen visually in Table 1. On none of the dimensions is there as much as one full category width of difference between the Sloan and grad ratings for good or for poor teachers. None of the differences reach the .01 level by a medians test on the underlying distribution of responses. Since there is virtually no overlap between the groups of faculty members being rated, these similarities reflect a genuine agreement in how students tend to perceive a good and a poor teacher. As we will see below, some differences between Sloans and grads emerge upon closer examination of all the data, but at a gross level the fact that Sloans are older, have had work experience, and approach the student role differently from grads does not influence their perception of good and poor teachers in a major way.

2) The image of the good teacher is generally "clearer" than the image of the poor teacher. a) The average disagreement between Sloans and grads is less on the good profile than on the poor profile (average difference of .266 vs. .333).   b) The means for the good profile tend to be relatively more extreme than the means of the poor profile; the

latter set tends to stay near the middle of the rating scale for all adjective dimensions while the positive profile moves from one extreme over to the other. Willingness on the part of the student to give extreme ratings implies that he has a clearer, less ambiguous image of the good teacher, and that there is relatively greater agreement among students concerning these characteristics. c) There are more dimensions in the positive than the negative profile on which high consensus is achieved, as measured by the size of the standard deviations around each mean. On the good profile, the number of standard deviations below 1.0 is 32 (21 for the Sloans and 11 for the grads); on the poor profile, the number of standard deviations below 1.0 is only 15 (10 and 5 respectively). The fact that the Sloans have more low standard deviations than the grads implies that they have greater consensus. This third datum is ambiguous, however, because of the possibility that the standard deviations are reduced by curtailment of the scale at one end.

3. <u>Both groups distinguish clearly between the good and the poor teacher</u>. On virtually every dimension in both student groups, there is a highly significant difference between the mean rating of the good teacher and the mean rating of the poor teacher. This result implies that the student makes a kind of global evaluation and then rates the good teacher on the positive side of most dimensions while the poor teacher is rated neutrally or negatively on most of them.

To clarify the manner in which the student discriminates above and beyond whatever global stereotyping he does, we must examine the <u>amount</u> of difference on different dimensions. Table 2 shows the ten adjective

dimensions which produced the greatest absolute difference between means
of good and poor teachers for each student group. These, we may infer,
are the dimensions which occupy the greatest importance in the student's
mind when rating his teachers. Choosing ten dimensions is, of course,
an arbitrary decision since the distribution of differences tends to be
fairly continuous, as can be seen by an inspection of Tables 1 and 2.

Insert Table 2 about here

Both groups give prime emphasis to clear thinking, helpful, original,
likes teaching, enthusiastic, and responsible. For the Sloans, the di-
mensions of confidence, intuitive, deep, and good listener are rela-
tively more important, while for the grads, the dimensions of active,
frank, fair, and tactful are more important. Clarity of thought and
helpfulness come out at the top of both lists.

b. Analysis of adjective dimensions listed as "most characteristic."

To what extent do the dimensions which have thus far been identi-
fied as differentiators correspond to the dimensions named when the
student circles the "three adjectives which best capture the character-
istics of the person"? Table 3 shows the adjectives most often circled
for the good and poor teachers.

Insert Table 3 about here

The dimension of clarity of thought again emerges unequivocally as the single most important characteristic of the person from whom students feel they learn. Not only is it the most frequently mentioned on the positive side, but muddled thinking is most often mentioned by Sloans as a characteristic of the teacher from whom they felt they learned very little. This characteristic is not one of the most often mentioned on the negative side by grads, however, indicating that for them it is not specifically a characteristic which disqualifies a teacher, even though its opposite is a clear quality of a good teacher.

Enthusiasm emerges clearly as the second most important dimension, being mentioned by both groups on the positive side, and by the grads on the negative side as the most important thing the poor teacher lacks. For Sloans, however, it is not a disqualifier, being rarely mentioned as a description of the poor teacher. Liking teachers occupies a clear third position as a characteristic of the good teacher, but its opposite does not seem to be an important characteristic of the poor teacher. Both groups mention confidence, originality, and helpfulness with considerable frequency on the positive side, and passiveness, and idealism on the negative side.

c. Analysis of adjectives written in and development of general dimensions.

The final source of descriptions is the adjectives written in by the students in the blank spaces provided. Table 4 shows the written-in adjectives with the frequency of mention in parentheses. Clearly one major concern of both groups is intellectual competence and ability to communicate. Adjectives such as intelligent, capable, and experienced clearly refer to intellectual competence, while adjectives such as interesting, articulate, precise, and organized refer to communication competence.

Insert Table 4 about here

A second area of concern which emerges is captured best by adjectives such as <u>dedicated</u>, <u>hard worker</u>, <u>high sense of purpose</u>, or <u>undependable</u>, <u>lazy</u>, <u>unprepared</u>, <u>easygoing</u>, and <u>not punctual</u>. These dimensions concern the degree to which the teacher is perceived to be committed to his role as teacher. If we look back at our earlier tables, we find that the counterpart adjective dimensions of <u>helpful</u>, <u>likes teaching</u>, and <u>good listener</u>. Commitment to the role involves not only personal competence but also certain <u>inter</u>personal competences and an interest in students. Thus helpfulness and liking to teach have implications for how the teacher will respond to the student. We can label this area of adjectives <u>concern for and commitment to teacher role</u>.

A third area is reflected in adjectives such as <u>vital</u>, <u>fascinating</u>, or <u>vulgar</u>, <u>sick</u>, <u>defensive</u>, <u>enigmatic</u>, and <u>hard to figure</u>. In the earlier tables, we find similar dimensions such as <u>confident</u>, <u>active</u>, and <u>enthusiastic</u>. Many of these dimensions appear to be related to the concept of <u>personal potency</u>, in the sense of the likelihood that the teacher will stimulate positive identification and thereby greater learning.

The three dimensions proposed do not exhaust all of the adjectives considered important by the students, and some adjectives cannot be placed clearly in one or another category. Nevertheless, it is useful to summarize the image of the good and poor teachers in terms of these three dimensions: 1) Intellectual and communication competence, 2) Concern for and commitment to the teacher role, and 3) Personal potency.

Having identified these organizing concepts inductively, it remains to determine whether they hold up factor-analytically and whether they have utility for describing individual teachers. Of obvious importance in regard to the latter point, is the question of whether the good teacher must only be very high in one of the above general dimensions or whether there is some minimum level of all three needed to be highly regarded by students.

Table 1

MEAN RATINGS BY SLOAN FELLOWS AND GRADUATE STUDENTS OF FACULTY MEMBERS NAMED AS SOMEONE FROM
WHOM THEY FELT THEY "LEARNED A GREAT DEAL" OR "LEARNED VERY LITTLE"

	1	2	3	4	5	6	7	
Fair								Unfair
Clear thinking								Muddled thinking
High integrity								Low integrity
Responsible								Irresponsible
Sincere								Insincere
Confident								Lacks confidence
Trustworthy								Untrustworthy
Frank								Guarded
Helpful								Not helpful
Original								Unoriginal
Active								Passive
Scientific								Unscientific
Enthusiastic								Unenthusiastic
Likes teaching								Does not like teaching
Realistic								Idealistic
Ambitious								Unambitious

GRADS +
SLOANS +
GRADS —
SLOANS —

Table 1 (continued)

Tactful — Tactless
Good listener — Poor listener
Humorous — Humorless
Intuitive — Non-intuitive
Trusting — Suspicious
Patient — Impatient
Warm — Cold
Accepting — Rejecting
Democratic — Autocratic
Aggressive — Unaggressive
Kind — Cruel
Sensitive — Insensitive
Humble — Proud
Like a father — Like a brother
Conventional — Unconventional
Formal — Informal
Easily influenced — Not easily influenced
Prejudiced — Tolerant
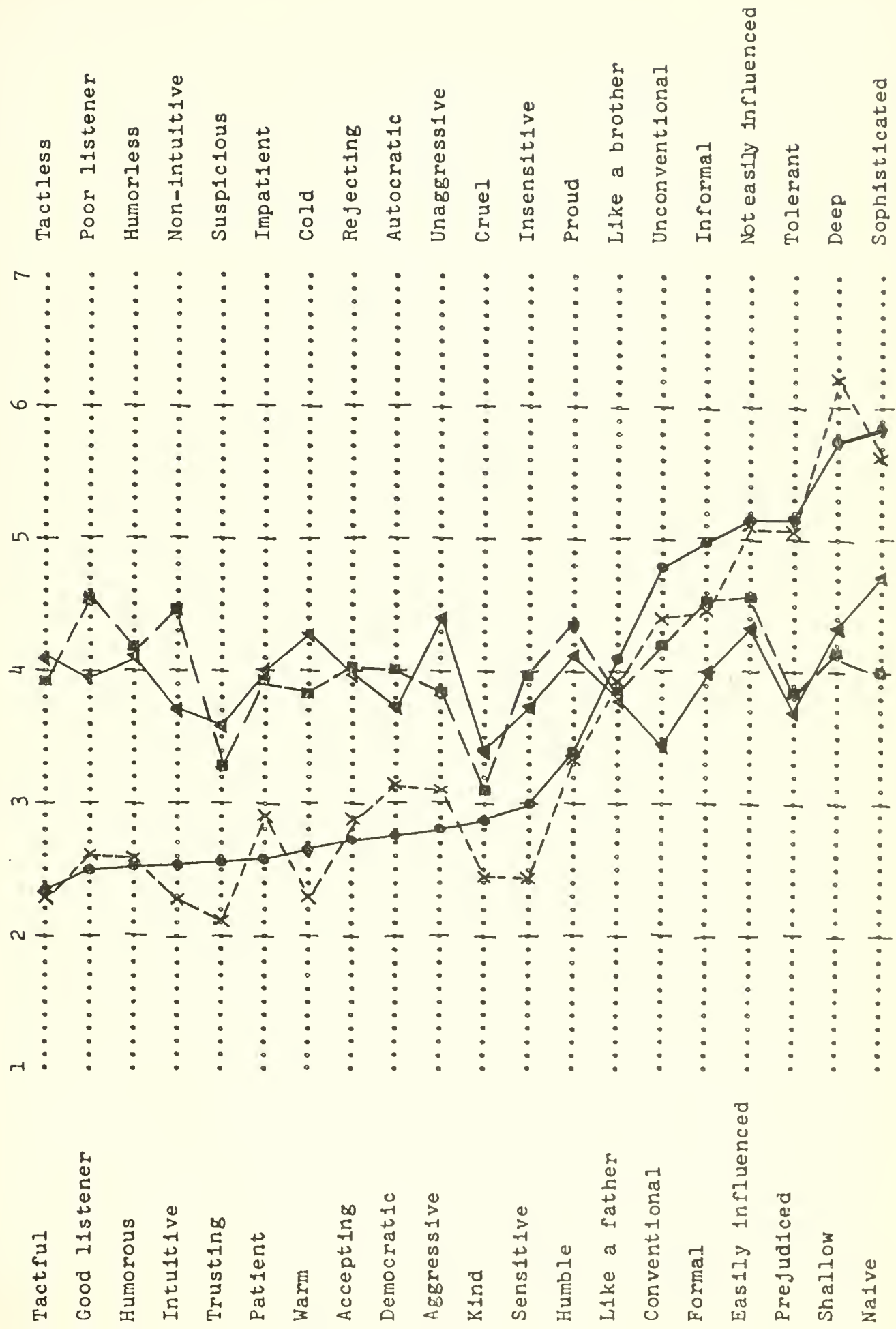Shallow — Deep
Naive — Sophisticated

Table 2

THE TEN ADJECTIVE DIMENSIONS WHICH PRODUCED THE GREATEST DIFFERENCE
IN RATINGS OF FACULTY MEMBERS FROM WHOM STUDENTS "LEARNED
A GREAT DEAL" OR "VERY LITTLE"

Sloan Fellows dimensions	"learned a great deal"		"learned very little"	
	Mean	S.D.	Mean	S.D.
Clear thinking--muddled thinking	1.38	.44	4.24	1.35
Helpful--not helpful	1.76	.79	4.30	1.13
Original--unoriginal	2.19	.97	4.40	1.39
Confident--lacks confidence	1.47	.54	3.62	1.38
Intuitive--non-intuitive	2.29	.74	4.46	.97
Likes teaching--does not like teaching	1.87	.66	4.00	1.11
Shallow--deep	6.20	.67	4.13	1.06
Enthusiastic--unenthusiastic	1.83	.69	3.72	1.34
Good listener--poor listener	2.68	1.74	4.55	1.19
Responsible--irresponsible	1.55	.38	3.32	1.32

Graduate Student dimensions				
Clear thinking--muddled thinking	1.53	1.12	4.27	1.43
Helpful--not helpful	1.94	.76	4.49	1.45
Enthusiastic--unenthusiastic	2.10	1.13	4.36	1.67
Original--unoriginal	2.00	.98	4.35	1.20
Active--passive	2.01	1.08	4.20	1.85
Frank--guarded	1.91	1.11	4.04	1.73
Likes teaching--does not like teaching	2.12	1.26	4.18	1.30
Fair--unfair	1.49	.58	3.34	1.35
Responsible--irresponsible	1.69	.58	3.36	1.04
Tactful--tactless	2.34	1.04	4.06	1.09

Table 3

ADJECTIVES MOST OFTEN CIRCLED IN RESPONSE TO THE QUESTION
OF WHICH ADJECTIVE BEST CAPTURED THE CHARACTERISTICS
OF THE PERSON BEING DESCRIBED*

Learned a great deal

Sloan Fellows		Grads	
Clear thinking	24	Clear thinking	34
Enthusiastic	18	Enthusiastic	19
Likes teaching	12	Likes teaching	16
Helpful	11	Confident	8
Confident	10	Original	8
Warm	10	Ambitious	7
High integrity	9	Fair	7
Humorous	8	Frank	6
Original	7	Helpful	6
Active	6	High integrity	6
Frank	6	Intuitive	6
Realistic	6	Realistic	6
Sensitive	6		
Sincere	6		

Learned very little

Sloan Fellows		Grads	
Muddled thinking	13	Unenthusiastic	15
Poor listener	10	Passive	11
Passive	8	Unaggressive	7
Lacks confidence	7	Informal	6
Idealistic	7	Not helpful	6
		Idealistic	6

*All adjectives circled at least six times are listed.

Table 4

ADJECTIVES WRITTEN IN THE BLANK SPACES UNDER
EACH CATEGORY BEING RATED

Learned a great deal

Sloan Fellows		Grads	
Knowledgeable	3	Experienced	2
Intelligent	2	Open minded, ques-	
Dedicated	2	tioning, conveys	
Capable	1	to students sense	
Hard worker	1	of responsibility	
Generous	1	for thinking	1
Research minded	1	Articulate	1
High sense of		Helps out of class	1
purpose	1	Precise	1
Interesting	1	Organized	1
Perceptive	1	Efficient	1
Vital	1		
Fascinating	1		

Learned very little

Sloan Fellows		Grads	
Defensive	1	Unorganized or	
Vulgar	1	poorly organized	4
Chaotic	1	Low teaching ability	2
Poor teacher	1	Unprepared	2
Unindustrious	1	Not punctual	1
Unperceptive	1	Inability to get	
Uncommunicative	1	across	1
Unprepared	1	Hard to figure	1
Undependable	1	Cannot express self	1
Inexperienced	1	Unclear lectures	1
Lazy	1	Obscure	1
Sick	1	Easygoing	1
Enigmatic	1	Dull	1
Language difficulty	1	Theoretical	1
Does not pace him-		Abstract	
self in class	1		

Footnotes

2. We are not concerned in these studies about the actual transmission
    of knowledge, skills, attitudes, etc. Our criterion is confined
    to how the student labelled the teacher.

Footnotes

2. We are not concerned in these studies about the actual transmission of information, although concern for this question is confined to the academic literature in general.

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Part II

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Factor Analyses of Teacher Perceptions

This section will discuss factor analyses of three samples of
semantic differential descriptions of teachers collected by Schein in
connection with Part I of this paper and by Hall (1966) in connection
with a separate study. In these analyses we will be concerned with
1) the extent to which the items cluster together consistently to form
factors which might be called personal style components of the teacher
role, and 2) the degree to which they confirm or disconfirm the general
dimensions of competence, concern, and potency as proposed above.

A. First Analysis

The first group of teacher descriptions to be factor analyzed was
the sample reported on in Part I of this paper. 55 M.I.T. graduate
management students and 40 Sloan fellows described 44 teachers "from
whom I learned a great deal" and 34 "from whom I learned very little." [1]

The data were analyzed by means of the McKelvey program for the
IBM 7094. Factors were extracted by the principal axes method (Harmon,
1960, pp. 154-191) and rotated by the equamax method, which tends to
equalize the communalities. [2]

Three factors emerged with matrix roots (eigenvalues) greater than
1.0, the "rule-of-thumb" value at which factor extractions generally
cease. The first factor had a communality of .535, which seemed un-
usually large for an equamax rotation. [3] Therefore, a four-factor output
was obtained to see if another meaningful factor would emerge, perhaps
branching off from the disproportionate first factor. With four factors

the communalities were more evenly distributed, but the root of the fourth factor was less than unity (.9641), and most of the items on this factor also loaded highly on one of the first three. Thus three factors were the maximum that could be meaningfully extracted from the Schein data.

The first factor contains items relating to the teacher's helpfulness and concern for students (tactful, helpful, patient, warm, kind, etc.) as well as to his fidelity or sincerity in communicating this warmth (trusting, sincere, trustworthy, fair, high integrity, etc.) A teacher rated high on this dimension would probably establish supportive, collaborative relationships with his students; he would feel and communicate a sincere interest in his students and in the activities of teaching. Paraphrasing Carl Rogers, we might call him student-centered. As can be seen, this factor parallels what in Part I we called concern for the teacher role.

Factor Number 1   "Faithful Supportiveness"

Loadings	Definition of Variables
.742	33 Tactful-Tactless
.733	34 Trusting-Suspicious
.727	15 Helpful-Not Helpful
.720	32 Sincere-Insincere
.719	35 Trustworthy-Untrustworthy
.705	25 Patient-Impatient
.702	11 Fair-Unfair
.700	36 Warm-Cold
.699	20 Kind-Cruel
.680	8 Democratic-Autocratic
.633	2 Accepting-Rejecting
.656	17 Humble-Proud
.649	14 Good Listener-Poor Listener
.625	16 High Integrity-Low Integrity
.612	28 Responsible-Irresponsible
-.610	26 Prejudiced-Tolerant
.554	30 Sensitive-Insensitive
.536	22 Likes Teaching-Does Not Like Teaching
-.535	31 Shallow-Deep
.477	12 Frank-Guarded
.450	19 Intuitive-Non-Intuitive
.443	5 Clear Thinking-Muddled Thinking

Communality =   .535

Root   =   12.923

Factor 2 is clearly a potency or activity factor.[4] A person rated high on this dimension probably impresses others initially with his activity, aggressiveness, and ambition, but in time it becomes apparent that this style is not hollow, random restlessness. Rather, the activity is oriented (supported, directed) by many characteristics of strength: confidence, clear thinking, low influenceability, originality, integrity, depth, and sophistication. A teacher rated high on this factor would probably be highly visible and productive - an exciting lecturer and a prolific writer.

Factor Number 2   Personal Potency

Loadings	Definitions of Variables
.802	3 Aggressive-Unaggressive
.787	1 Active-Passive
.714	4 Ambitious-Unambitious
.693	6 Confident-Lacks Confidence
.671	10 Enthusiastic-Unenthusiastic
.593	5 Clear Thinking-Muddled Thinking
-.524	9 Easily Influenced-Not Easily Influenced
.500	24 Original-Unoriginal
.475	28 Responsible-Irresponsible
-.458	31 Shallow-Deep
.439	16 High Integrity-Low Integrity
.433	22 Likes Teaching-Does Not Like Teaching
.408	29 Scientific-Unscientific
-.404	23 Naive-Sophisticated
.402	32 Sincere-Insincere

Communality =   .322

Root   =   3.680

Factor 3, considerably smaller than the first two, seems to describe the highly creative person: humorous, informal, intuitive, original, and unconventional. Since academic competence is defined largely in terms of original scholarly performance, this may be a general competence factor. However, as the root and the number of items are so small, the meaning of this factor is not completely clear.

Factor Number 3

Loadings	Definitions of Variables
.608	18 Humorous-Humorless
-.479	13 Formal-Informal
.476	19 Intuitive-Non-Intuitive
.472	24 Original-Unoriginal
-.420	7 Conventional-Unconventional

Communality =   .143

Root   =   1.320

The conclusion to be drawn from the above analysis is that two of the three general dimensions proposed for describing the teacher in Part I do, in fact, emerge clearly from the factor analysis. Factor 1, faithful supportiveness, is similar to the category "concern for and commitment to the teacher role," Factor 2, personal potency, is equivalent to "personal potency as a model."

Factor 3, which has been tentatively labeled "creativity," may be similar to "intellectual and communication competence." This latter category, however, contained many written-in items which were not included in the factor analysis. It should also be noted that clear thinking which was the basis for the earlier proposed competence dimension shows up factorically as an aspect of potency. The present data are ambiguous on the competence dimension, therefore.

B. Second Analysis

Data for the second and third analysis were obtained as part of a study of the role transition from graduate student to professor (Hall, 1966). In measuring the teacher (i.e. professor) role, Hall used the preceding analysis of Schein's data and predicted the existence of the same three factors in his own data: supportiveness, potency, and competence. He used

a 29 item check list containing items collected from the following sources:
1) the Schein 36 item list, 2) items written in on the Schein questionnaires,
and 3) items suggested by a 60-man graduate class in organizational psychology.

The first sample was obtained from 42 doctoral candidates preparing for
general examinations in the departments of electrical engineering, nuclear
engineering, mathematics, economics, political science, and management at
M.I.T. Students were asked to describe "the professor who comes the closest
to your image of the ideal professor.[5]

Four factors with roots greater than unity emerged from this sample.
The first is very clearly the intellectual competence factor suggested in
Part I and hinted at in the first factor analysis.

Factor Number 1   Intellectual Competence

Loadings   Definitions of Variables

.732   Clever-Not Clever
.698   Original-Unoriginal
.680   Creative-Uncreative
.619   Experience-Inexpert
.582   Scientific-Unscientific
.547   Clear Thinking-Muddled Thinking
.504   Sophisticated-Unsophisticated
.471   Knowledgeable-Uninformed

Communality   =   .303

Root   =   5.0199

Factor 2 is the familiar personal potency factor: ambitious, sophisti-
cated, active, aggressive and sensitive. The presence of "sophisticated"
and "sensitive" supports the contention that this is not a blind, pure
activity factor. Further support comes from the fact that the following are
the items loading between .3 and .4: knowledgeable, like a professor,
organized, and deep.

Factor Number 2   Personal Potency

  Loadings   Definitions of Variables

   .994   Ambitious-Unambitious
   .592   Sophisticated-Unsophisticated
   .563   Active-Passive
   .475   Sensitive-Insensitive
   .440   Aggressive-Unaggressive

Communality   =   .254

Root   =   3.9519

Factors 3 and 4 contain items which loaded together on Factor 1 of the first analysis. They both share the item "warm," and when three factors are extracted, these factors combine to form a single supportiveness factor.

There do seem to be meaningful differences, however, as suggested by the highest-loading items.

Factor Number 3   Enthusiasm for Teaching

  Loadings   Definitions of Variables

   .751   Enthusiastic-Unenthusiastic
   .629   Warm-Cold
   .609   Interested in Students-Not Interested
                 in Students
   .606   Accessible-Inaccessible
   .600   Likes Teaching-Does Not Like Teaching
   .567   Helpful-Not Helpful

Communality   =   .235

Root   =   1.9135

Factor Number 4   Faithful Supportiveness

  Loadings   Definitions of Variables

   .743   Sincere-Insincere
   .623   Trustworthy-Untrustworthy
   .593   Warm-Cold
   .583   Kind-Unkind
   .483   Sensitive-Insensitive

Communality   =   .208

Root   =   1.6887

Factor 3 seems to be more concerned with concern for the teacher role, whereas Factor 4 contains the personal sincerity or fidelity elements. Factor 3 represents the kind of enthusiastic interest in students and teaching that can be seen in the classroom (as indicated by the high loading for "Likes teaching ") or in other formal teacher-student encounters. Factor 4 contains the deeper personal traits of sincerity and kindness, which are more likely to be observed only in continuing relationships outside the classroom (for example, during thesis supervision or joint research).

These four factors clearly support the general categories previously proposed: 1) personal potency, 2) a sincere concern for students, and, 3) competence in intellectual tasks. The concern-for-students category is, however, a more complex factor than the other two.

C. Third Analysis

Using Hall's 29-item check list, further data were obtained from 150 graduate students in management at M.I.T. The factors emerging from the data were as follows:

Factor Number 1   Faithful Supportiveness

Loadings   Definitions of Variables

.632   Sincere-Insincere
.578   Warm-Cold
.571   Kind-Cruel
.537   Untrusting
.526   Helpful-Not Helpful
.506   Trustworthy-Untrustworthy
.431   Sensitive-Insensitive

Communality   =   .298

Root   =   5.0721

Again we see this dimension of sincerity and caring. All of the items in this factor have appeared on the same factor in one or both of the other analyses.

      Factor Number 2   Personal Potency

Loadings	Definitions of Variables
.634	Aggressive-Unaggressive
.579	Strong-Weak
.510	Creative-Uncreative
.498	Original-Unoriginal
.483	Active-Passive
.402	Ambitious-Unambitious

Communality = .275

Root   = 2.2607

This is the most "potent" potency factor to emerge from the three analyses. Not only are familiar items such as aggressive, active, and ambitious present, but also two ability items (creative and original) and the classic Osgood potency item, strong.

      Factor Number 3   Intellectual Competence

Loadings	Definitions of Variables
.622	Competent-Incompetent
.528	Clear Thinking-Muddled Thinking
.491	Expert-Inexpert
.441	Knowledgeable-Uninformed

Communality = .241

Root   = 1.1674

The competence factor also confirms the earlier analysis--all the items relate very clearly to intellectual expertise. One interesting difference though, is that the creativity items have moved from the competence factor to the potency dimension. The present competence factor contains more expertise and knowledge than creativity - the opposite ratio held in the previous analysis.

This difference may be explained by the difference in the populations sampled in the second and third analyses. The second analysis contained responses of doctoral students, while the third contains mostly master's candidates. The former group, being fairly knowledgeable themselves, might be more likely to define competence as creativity or originality. The master's candidates, whose task at MIT is more to acquire knowledge than to learn a profession, might define competence mainly in terms of this knowledge they lack and desire. In other words, from a distance (the vantage point of the master's students) academic competence appears to be mainly the possession of knowledge. But, as one gets closer to the professor role and acquires knowledge (as do doctoral candidates), mere information seems insufficient. The great professor must be able to use this information cleverly and in turn create new knowlege. Indeed, the culture into which doctoral candidates are being socialized places great value on the creative function of the professor role.

Factor Number 4	Concern for Students

Loadings	Definitions of Variables
.709	Interest in Students-Not Interested in Students
.544	Accessible-Inaccessible
.399	Likes Teaching-Does Not Like Teaching
.383	Helpful-Not Helpful
.399	Warm-Cold

Communality   =   .186

Root   =   1.0310

Since only two items loaded above .400 on Factor 4, the items loading between .300 and .400 were included to improve the definition of the dimension.

These data further clarify the distinction between an interest in students and a liking for teaching, on the one hand, and the general personality trait of supportiveness and sincerity, on the other. Since words like helpful and warm link Factor 4 with Factor 1, we see that people who enjoy teaching often are also supportive and sincere. But the fact that the items loading strongly only on Factor 4 are interested in students, accessible, and likes teaching indicates that this dimension is teaching-specific and measures a commitment to the student-related component of the teacher role. Factor 1 seems to be a more universal personality dimension that could apply to the incumbents of any social role.

D. Summary of Factor Analyses

To summarize, the first factor analysis (using Schein's data) contained 1) a clear potency factor, 2) a large global factor containing both supportiveness and liking for students and teaching, and 3) a rudimentary creativity-competence factor. Using a different check list and eliminating the global evaluative response set (by obtaining ratings of only good teachers), two subsequent analyses both yielded the following four factors: 1) sincere supportiveness, 2) personal potency, 3) intellectual competence, and 4) liking for students and teaching. Factors 1 and 4 do share certain items, however, and, as occurred naturally in the first analysis, could be combined meaningfully into one general supportiveness dimension.

We wish to underscore that the factor analyses corroborate dimensions identified by ratings and written in adjectives, and that three separate replications are involved in defining the dimensions. Our confidence in the dimensions rests more on the replication criterion than the factor-analytic solutions per se.

Teacher Profile

In order to test the utility of the dimensions identified in the above analyses we went back to the original set of data reported in Part I and scored each teacher on the three dimensions. The adjectives making up each dimension were chosen on a joint criterion of 1) emerging with high loadings on the first factor analysis, and 2) relevance to the dimension being scored, even if the factor loading was low. Criterion 1 was primary, but criterion 2 was used in moving a few adjectives like clear thinking to the competence dimension and informal to the supportiveness dimension. This somewhat arbitrary procedure was necessitated by the fact that the competence dimension was so poorly represented in the original questionnaire. Final factor scores were based on the following adjectives:

Factor I. Competence	II. Potency	III. Supportiveness	
Clear thinking	Active	Accepting	Patient
Unconventional	Aggressive	Democratic	Tolerant
Humorous	Ambitious	Fair	Responsible
Intuitive	Confident	Frank	Sensitive
Original	Not easily	Informal	Tactful
Scientific	influenced	Good listener	Trusting
	Enthusiastic	High integrity	Trustworthy
	Sophisticated	Humble	Warm
	Deep	Kind	Helpful
		Likes teaching	Sincere

Each faculty member was given a mean score on each factor. If a person was named more than once, these means were in turn averaged to produce a single set of scores for each person. Table 1 shows the distribution of these scores for the 44 "good" and 34 "poor" teachers on each of the dimensions. As can be seen, each of the dimensions clearly differentiates the two teacher groups. Medians tests done on the distributions give significance levels beyond .001. However, it should be noted that the difference between good and

poor teachers is greatest on the competence dimension and least on the supportiveness dimension, suggesting the possibility of a difference in pattern above and beyond the overall difference.

Insert Table 1 about here

Table 2 shows the individual profiles of the 5 "good" and 5 "poor" teachers who were named most frequently by students. It should be noted that in each group one can identify three types by score pattern--Type C who is highest in competence, Type P who is highest in potency, and Type S who is highest in supportiveness. Teachers 2, 3 and 6 represent Type C,[6] Teachers 1 and 10 are examples of Type P, and Teachers 4,5,7,8, and 9 are examples of Type S.

The question can now be raised of whether these types occur equally frequently among "good" and "poor" teachers. The results are shown in Table 3. As can be seen there is a clear trend for Type C teachers, those highest in competence to be found more often among good teachers, for Type P teachers to be evenly distributed, and for type S teachers to be found more often among the poor teachers. The differences observed in the table are significant at the .01 level by a chi-square test.

Insert Tables 2,3 about here

The interpretation of the above difference is, of course, a problem when we are dealing with perceptual data. We cannot determine from the present data whether the teacher who is accurately perceived to be highest in competence will be more often perceived as a good teacher, or whether

a kind of dissonance reducing mechanism is at work which makes the student downgrade the competence dimension of any teacher from whom he felt he learned little. Either mechanism could produce the above results. Similarly, is the high supportiveness teacher more likely to be perceived as ineffective or is the ineffective teacher seen to be high in supportiveness as a kind of compensation for the negative rating? Perhaps the student feels the need to be charitable in this dimension. In either case it appears that there is less dissonance in the student's mind between poor teaching on the one hand, and high supportiveness and/or high potency on the other hand, than between poor teaching and high competence.

Summary and Discussion

A class of regular graduate students and managers in an executive development program were asked to name and describe those teachers from whom they learned a great deal and those teachers from whom the learned very little. The ratings yielded data for 44 "good" and 34 "poor" teachers. Almost all of the adjectives used in the 36 item semantic differential tended to discriminate the good from the poor teacher. Three clusters or dimensions were revealed by an examination of 1) those adjectives which revealed the largest differences, 2) adjectives which were circled as "most characteristic" of the teacher, and 3) adjectives spontaneously written in. These dimensions were 1) intellectual and communication competence; 2) personal potency; and 3) commitment to the role of teacher.

Having derived these dimensions inductively, we then checked their reliability by factor analyzing the data, and repeating the analysis on two new sets of ratings by Masters and Ph.D. students. The potency factor came out unambiguously in all three analyses; the competence factor was

clear in two analyses and present but ambiguous in the third analysis; the commitment factor revealed a variety of interpersonal emotional aspects which could be viewed either as a simple factor of supportiveness or as two factors--an overall <u>personality</u> dimension of warmth and sincerity, and an <u>interactional</u> dimension of liking to teach and helpfulness. Taking these analyses together, we concluded that three basic dimensions called <u>competence</u>, <u>potency</u>, and <u>supportiveness</u> had been adequately demonstrated as characterizing how students perceive teachers.

We then scored each teacher on the relevant adjectives and obtained profiles based on the three dimensions. We found that the good and poor teachers were significantly different from each other on all three dimensions but that teachers whose high point in the profile was on competence (Type C) were more often found in the good set, teachers whose high point was on potency (Type P) were equally often found in the good and poor set, and teachers whose high point was on supportiveness (Type S) were more often found in the poor set.

Generality of the Dimensions

The analyses reported above demonstrate that the student groups we sampled do have systematic ways of perceiving their teachers, and that the dimensions in terms of which the perceptions are organized have utility for describing teacher types. Not only do these dimensions reveal meaningful differences within the sample studied but they concur remarkably well with dimensions identified in other studies.

For example, using five types of healers identified in an unpublished study by Jackson, Adelson (1961) creates the following theoretical typology of teacher styles:

1) Shaman: Possesses extreme narcissism, power, energy, and commitment.
   He is highly charismatic and teaches students by example and identi-
   fication.

2) Priest: Acts as the agent of an omnipotent authority and claims no
    power of his own. His appeal lies in his being the representative
    of a collective identity, his profession. Students learn by internal-
    izing the values he represents.

3) Mystic healer: Characterized by extreme altruism and commitment
    to helping the student develop to the limit of his potential. He
    teaches through insight, understanding, and vision.

4) Magician: Teaches through the knowledge of complex rules and the
    ability to follow ritual closely. He has no personal power, but
    represents the authority of knowledge.

5) Naturalist: impersonal, empirical, and task-oriented. He does
    not heal through blind ritual (as does the magician) but rather
    through a personal understanding of the processes he manipulates.

The three factors emerging from our studies provide an empirical
framework for defining these teacher types. In our terms, the shaman
would be characterized by high personal potency. The mystic healer and
the priest would both be high on supportiveness; however, in terms of the
two supportiveness sub-factors reported earlier, the priest would rank
highest on commitment to the teacher role, and the mystic on the faithful
supportiveness sub-factor. The magician and the naturalist would both be
high on the intellectual competence dimension; the former would perhaps be
seen primarily as knowledgeable or well-informed and the latter, creative
or clever.

Empirical support for the three teacher style dimensions is reported in a study of the origins of American scientists by Knapp and Goodrich (1952). They obtained ratings by the subjects of their former college teachers and factor analyzed these ratings. The three dimensions correlating most strongly with the teacher's effectiveness in motivating their students to enter their professional fields were:

1. Masterfulness (severe standards of grading, incisive leadership, and departmental entrepreneurship).

2. Warmth (use of humor and other histrionic skills, maintenance of contact with former students).

3. Intellectual distinction (intellectual mastery of the field; scholarly production).

The similarity between these three factors and those obtained in the present research seems clear. "Masterfulness" is the equivalent of personal potency, "warmth" is akin to supportiveness, and "intellectual distinction" is synonymous with intellectual competence.

Similarly, in an extensive study of teacher characteristics carried out by Ryans (1960) on several thousand teachers at elementary and secondary school level, three behavior patterns emerged:

Pattern X--warm, understanding, friendly vs. aloof, egocentric, restricted

Pattern Y--responsible, businesslike, systematic vs. evading, unplanned, slipshod

Pattern Z--stimulating, imaginative, surgent vs. dull, routine

Pattern X clearly corresponds to supportiveness and pattern Z to potency. Whether pattern Y is the elementary and secondary school equivalent of our competence dimension is not clear, but it should be remembered that the definition of competence does seem to vary as a function of the student group. In our own data, adjectives like knowledgeable were associated with competence in masters students, whereas adjectives like creativeness were associated with competence in doctoral students.

Further parallels can be found in related areas. For example, most work on the nature of attitudes identifies three distinct attitude components-- cognitions (competence), feelings (supportiveness), and action tendencies (potency). If a person's attitude toward another person is coded in terms of cognitions, feelings, and action tendencies could we not hypothesize that incoming information on which the attitude is based will be coded in terms of the same categories--perceived competence, perceived supportiveness, and perceived potency (action potential).

McClelland's theory of motivation provides another striking congruence in identifying three basic needs--need for achievement, need for power, and need for affiliation (Atkinson, 1958). If these needs are indeed basic, we can hypothesize that the dimensions of interpersonal perception are derived from the tendency to project our own motives onto others, and hence to code their behavior in terms of our own need system. Thus, need achievement relates to perceptions of competence, need power relates to perceptions of potency, and need affiliation relates to perceptions of supportiveness.

Interpersonal perceptions have been extensively investigated in the leadership area, and it is interesting to note that here too, similar kinds of dimensions emerge. In a thorough search of the factor analytic literature

on leader characteristics, Carter (1954) found that various studies, including his own data, consistently suggested the existence of three dimensions--group task concern, social maintenance concern, and personal activity and accomplishment. Bales (1958) found these same three factors in his data on group leadership, although his later coding scheme only covers the task and group maintenance concern. Helping the group to achieve its task seems parallel to perceived competence, group maintenance concern is clearly parallel to supportiveness, and activity is consistently the adjective which loads highest on our potency dimension.

Blake and Mouton (1964) in their managerial grid identify only two dimensions--concern for production (task) and concern for people or relationships (maintenance), but it is interesting to note that a number of users of the Blake system have argued for some kind of "effectiveness" dimension corresponding to personal potency. Reddin (1964) has made this dimension explicit in his construction of a tri-dimensional grid.

If teacher, leader, and manager perceptions tend to be organized in terms of similar underlying dimensions, what do these roles have in common? The most obvious characterisitc is that they are each roles which involve authority over others--students, followers and subordinates. Perhaps the most extreme authority relationship would be that of parent and child. What dimensions characterize children's perceptions of parents? We do not have direct evidence, but Brim (1966), in reviewing the pertinent literature on socialization after childhood, notes that the various factor analyses of parent-child interaction reveal two basic dimensions of the relationship--power and affectivity. If power is perceived as potency, and affectivity is perceived as supportiveness, the question arises of what has happened to

the competence dimension? Is it simply less relevant when one is dealing at the sub-adult level, as in the case of the Ryans findings on elementary and secondary school teachers; or does it change its definition and perhaps blend in with potency at the childhood level; or has it simply been missed by those investigators who found only two factors?[7]

To bring these points to a conclusion, we would propose the general hypothesis that in all interpersonal relationships which involve a tilted authority relationship (teacher-student, parent-child, manager-employee, therapist-patient) the perceptions of the authority will be organized in terms of the three dimensions of competence, potency, and supportiveness and that these dimensions reflect the key style components of any authority role.

Reliability, Validity, and Criterion Measures

In this section we will consider the issue of reliability (how stable are the student ratings), validity (what precisely do the student ratings measure), and the possible relationship of student ratings to other variables, particularly criterion variables.

Reliability. With respect to reliability, Osgood et al (1957) report that test-retest reliability on the semantic differential reaches satis-factory levels (r of .85) if no relevant material is introduced between administrations. In terms of inter-coder reliability, that is, consistency among students who are rating the same teacher in our data, we find high positive correlations (.5, .6, .7, .8) for most teachers, but the correla-tions are consistently higher in the cases of good teachers than poor teachers (dropping to .2 for several). Whether the higher correlations for good teachers result from clearer perceptions of positively evaluated objects or

whether they are a function of the more extreme ratings (which tend to
restrict the range of scores) is not, however, possible to determine from
our data. In any case, there is clearly enough reliability in the ratings
to make the validity question meaningful.

Validity. Assuming reasonable intra and inter-rater reliability, we
now have to face the issue of what the perceptual dimensions are actually
measuring. Among the candidates are at least the following: 1) actual
teacher characterisitics; 2) projections based on the student's needs and/or
stereotypes; and 3) projections based on positive and negatively valued
objects. If factor 2 or 3 were the overriding ones we would not be study-
ing perceptions of teachers so much as projections of students. However,
we can have confidence that actual teacher characterisitcs do significantly
influence perceptions from three separate findings: 1) clearly different
teacher images emerge, 2) there is inter-rater consistency for any given
teacher, and 3) teachers are described the same way in terms of profile
pattern, whether or not they were rated as good or poor.

Fifteen teachers were rated as good by some students and poor by others.
For seven of these teachers there is complete agreement between the average
of the good and poor raters on the rank orderings of the three dimensions;
on a purely chance basis (i.e. if there were no real style characteristics
being described), this agreement should occur only in 1/6 (2 1/2) of the
cases. In only three cases is there disagreement between the raters on
which dimension is highest and which is lowest; by chance, this disagreement
should occur 1/2 of the time (7 1/2) cases. And in five cases the good and
poor profiles agree on either the high or the low dimension, which is just
the number of agreements which would be expected by chance (1/3 of the cases).

Thus, in these cases where some raters saw a given teacher as good and some saw the same person as poor, the amount of inter-rater agreement on each teacher's style pattern is far greater than would ordinarily occur by chance alone. If student perceptions were heavily colored by projection or stereotyping it is hard to see how this much agreement could be achieved. We concluded, therefore, that the dimensions are indeed related to certain real characteristics of teacher style.

Several other kinds of direct validation should be undertaken, however, in our next series of studies: 1) comparison of student ratings of a teacher with ratings of that teacher by his own colleagues; 2) comparison of student ratings with teacher self-ratings; 3) comparison of the ratings made by the same student of several different teachers known to be different; 4) determination of the degree to which the common elements in given students' ratings of teachers can be predicted from personality or motivational characteristics of students, and 5) comparison of student ratings and observer's reports. Such steps would obviously help to refine the dimensions by making it possible, on the one hand, to partial out the contribution of the perceiver to the ratings, and, on the other hand, to learn more about the manner in which the students' perceptions are related to other personal characteristics in the students.

Other variables. What other variables should one relate to the student perceptions of teacher style? One obvious research direction is to relate overt teacher behavior to perceived teacher style to get at the kinds of determinants which lead a person to be categorized as a Type C, Type P, or Type S teacher. This could be done either by constructing a semantic differential consisting of verbs and action descriptions, by observing actual class-

room behavior of different types of teachers, or by interviews of students and teachers. Ratings and observations should be made both by students and colleagues to make possible the construction of indexes of teacher behavior or style which are based on a multi-variate analysis.

A second direction is to study student perceptions at different educational levels and in different kinds of educational settings. The dimensions themselves would probably not change radically as one goes from Ph.D. education to elementary school education, but one could certainly predict that the type of teacher who would be rated as high within the framework of our dimensions would vary greatly. One could hypothesize that the lower in the system one goes the more important supportiveness becomes and the higher one goes, the more important competence becomes. To put the question in terms of our typology, at what educational level will the Type C, Type P, or Type S teacher be most effective?

In terms of educational setting, one could hypothesize that in lecture courses it is the potency dimension which is paramount and that in seminars or tutorial relationships supportiveness becomes increasingly important. It would be interesting to determine to what degree either potency or supportiveness could compensate for relative absence of competence. It may well be that some minimum level of competence serves as a necessary but not sufficient condition of being effective regardless of the setting.

Perhaps the toughest but nevertheless the most important relationship to explore is the one between student perceptions and objective criteria of learning or change in the student. The studies reported above show the relationship between student descriptions and their own ratings of learning. But do those perceptions relate to other learning or change criteria? The investigation of this question is always plagued by the difficulty of clearly

establishing such criteria. The dimensions we have identified may help us by suggesting a more differentiated approach to the problem. The complex hypothesis we would like to propose and test could be stated as follows:

1) The motives of the student will determine what kind of teacher type he tends to respond to; specifically, high need achievement students will say they learned most from Type C teachers, high need power students will say they learned most from Type P teachers, and high need affiliation students will say they learned most from Type S teachers.

2) The actual change observed in the student by external criteria will be a joint function of his motives and his response to certain teacher types. Specifically, students who respond most to Type C teachers will change most in terms of knowledge criteria, students who respond most to Type P teachers will change most in terms of abilities and skills, and students who respond most to Type S teachers will change most in terms of motives, attitudes, and values.

The above hypotheses undoubtedly oversimplify the problem, but they make clear our assumption that one must relate student needs to teacher styles, that one must relate both needs and teacher styles to types of change in the student, and that our learning criteria must include knowledge, ability, and motivational or attitudinal components.

In making such an assertion we are not attempting to minimize the many other forces which have been demonstrated to influence learning--ability and aptitude; personal background factors in the student (e.g. Thistlethwaite and Wheeler, 1966); student values and aspirations with respect to the content and process of learning (Thistlethwaite & Wheeler, 1966); type of interaction between teacher and student, particularly in relation to student personality type (Heil, Powell, & Feiffer, 1960); classroom culture (Della Piana & Gage,

1955); and the larger setting within which the educational effort takes place (Sanford, 1962).

Rather, our intention is to sharpen the variables of teacher style and student perceptions of teachers in order to make possible a more precise assessment of what kinds of teacher and pupil factors lead to what kinds of learning outcomes.

A Practical Footnote

One of the major advantages of the semantic differential is the ease of administration, its face validity, and the short time[8] required to fill it out. These factors make it an attractive tool for teachers to use in evaluating their own classroom style. Any given teacher could administer the instrument to his own students, obtain his own criteria of which students changed in which manner, or which students rated him high, medium or low, and relate the style scores to whatever criteria he gathers. Such teacher self-study on a three-dimensional typology avoids the common problem of self-change tending to be limited by those dimensions which we recognize in ourselves. Our typology suggests to the teacher which areas he might be missing altogether and gives him a more differentiated picture of himself.

Table 1

Distributions of average scores on each dimension

for 44 good and 34 poor teachers

Score	Competence		Potency		Supportiveness	
	No. of "good"	No. of "poor	No. of "good"	No. of "poor"	No. of "good"	No. of "poor"
6.6-7.0	3		2		2	
6.1-6.5	9		11		6	
5.6-6.0	13	1	18	4	16	1
5.1-5.5	10	1	7	5	14	4
4.6-5.0	8	5	3	6	5	10
4.1-4.5	1	8	1	4	1	9
3.6-4.0		6	2	3		6
3.1-3.5		11		7		2
2.6-3.0		0		5		2
2.1-2.5		2				
Total	44	34	44	34	44	34
Mean	5.64	3.95	5.72	4.23	5.65	4.36
Median	5.75	3.88	5.85	4.45	5.68	4.45

Table 2

Profiles of the five teachers named most often as "good" and as "poor"

Dimensions	"Good" teachers						"Poor" teachers				
	1	2	3	4	5		6	7	7	9	10
Competence	5.5	6.0	6.1	4.9	5.4		4.6	3.4	3.6	3.5	4.7
Potency	6.0	5.8	5.9	5.6	5.0		3.6	3.4	3.4	3.3	5.3
Supportive-ness	5.5	5.5	5.8	6.3	6.3		4.4	4.1	4.5	3.9	4.3
Type (by high point in the profile)	P	C	C	S	S		C	S	S	S	P

Table 3

Number of teachers of each type

(i.e. whose highest score fell into each dimension)

Teacher Type	"Good" teachers Number	"Poor" teachers Number	Total
Type C, highest in competence	13	2	15
Type P, highest in potency	19	12	31
Type S, highest in supportive-ness	11	20	31
Total	43 [*]	34	77

Chi-square = 10.55, d.f. = 2   .01

[*]One teacher's profile produced tie scores on the high dimensions.

Table 5

Number of teachers of each type

(i.e. where highest score fell into each dimension)

Teacher Type	"Good" teachers Number	"Poor" teachers Number	Total
Type C, highest on acceptance	11	2	13
Type B, highest on rejection	19	4	23
Type A, highest on competition	17	14	31
Total	47	20	67

Footnotes

1.   These numbers are slightly smaller than those reported in Part I because a few teacher profiles were incomplete for purposes of this analysis.

2.   The technique used for estimating communalities involves an iterative refactoring procedure which takes the actual communalities computed in the first solution and inserts them as communality estimates in the subsequent solution, until a desired convergence criterion is reached. (See Harman, p. 89.)...The Equamax equation emphasized the co-variance criteria even more than does the Verimax equation and is especially applicable when extracting a large number of factors. With respect to accuracy, the program is able to reproduce the 24 variable examples used by Harman (p. 306) exactly for the principal component solution, and to the nearest thousandth for the Verimax solution; the latter differs due to the use of a more stringent convergence criterion in this program." (William McKelvey, personal communication.)

3.   Generally, the factor communalities on equamax outputs are approximately equal. Thus, for a three-factor output, the communality of each factor would usually lie in the range of .3 or .4.

4.   Osgood, et al (1957) separate potency and oriented activity as two separate factors. However, the items on their potency scale (strong-weak, large-small, heavy-light, thick-thin) seem to relate to physical size or massiveness. We are using the term potency in the sense of effective, impressive accomplishments - the product of ability and activity. Borrowing from physics, we are using potency as an analogue to momentum - the product of mass and velocity ("activity"). In terms of this analogy Osgood's potency factor seems related mainly to mass alone.

5.   Since students were describing only good teachers, little variance on the evaluative dimension was expected. This would then allow for a clearer picture of the characteristics of good teachers. Another element contributing to greater clarity is Schein's and Hall's finding that the student's description of the good teacher is clearer than his rating of the poor teacher. Perhaps more defense mechanisms are engaged in perceiving the "poor" teacher, which distortions would result in less reliable and valid descriptions.

6.   It should be noted that in the type C cases the competence score is not as clearly dominant as the type P's potency or type S's supportiveness score.

7.   There is evidence that educational level affects the relative salience of the three style dimensions. In samples of undergraduate students, Clinton (1930), Bousfield (1940), Trabue (1950), Kelly (1929), Guthrie (1954), and Maslow & Zimmerman (1956) found that personal characterisitcs such as warmth, fairness, and interest in students were rated as being most characteristic of good teachers. However, when advanced graduate students, faculty members, or other academics are doing the rating, scholarly qualities come to the fore (Guthrie, 1954, Maslow & Zimmerman, 1956, and Bogardus, 1946).

8.   Approximately 5 minutes for 30 adjective dimensions.

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