

## THE TEACHING RELATIONSHIP: A HYPOTHESIZED MENTAL MODEL AND ITS CONSEQUENCES

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*It is proposed that people share a "mental model" of the student-teacher relationship, out of which develop unexamined expectations and attitudes that may be responsible for some long-standing problems of higher education. The model assumes that 1) a knowledge-differential is central to the relationship; 2) the relationship is voluntary, so that both participants must find it rewarding; and 3) both participants are able to play their roles successfully. The first assumption leads to an emphasis on the teacher's expertise and accounts for the importance of research as the chief measure of academic virtue. The second allows either participant to assume that the other has initiated the relationship, often leading to frustrated expectations. The third complements the first, implying that "anybody who knows something can teach it," and accounts for both teachers' dissatisfaction with under-prepared students and the widespread failure to recognize differences in teaching skills. Survey data are presented on teachers' opinions of what makes students satisfying to teach, providing evidence for the reality of the model's second assumption.*

It is curious that Georg Simmel did not explore the student-teacher relationship with the same intensity that he applied to such "forms of sociation" (we would say "role relationships" today) as *the stranger, dominance-subordination, and conflict*. Lawrence (1976, p. 9) refers to Simmel's mention of "the provision of aid and instruction" as an example of "interacting purposes" that involve exchange, but it is clear that the roles of "teacher" and/or "student" do not receive any substantial treatment in Simmel's work.

Yet this relationship seems an obvious candidate for inclusion in any list of social forms, for its essence is to be found not only in the classroom but in any situation in which the participants' purpose is the transfer of information or skill by one person to another. Parents teach children, veterans teach neophytes, religious leaders teach their followers, employers may teach employees, and of course professors teach students. The relationship is of obvious public concern these days, both in regard to the public schools' apparent inability to teach effectively such basic skills as writing and mathematics, and in regard to the failure of institutions of higher education to reward excellence in teaching the same way that they reward excellence in research and publication. It is clear that there exists considerable confusion about the topic, and this affords ample reason to undertake a "Simmelian"

analysis of the relationship; this report offers such an analysis and offers empirical data in support of certain points.

### MENTAL MODELS

Levine (1971, p. xv) explains Simmel's use of the term "form" in these words:

Forms are the synthesizing principles which select elements from the raw stuff of experience and shape them into determinate unities. In this respect forms are identical with Kant's *a priori* categories of cognition; but... They inform not only the cognitive realm but any and all dimensions of human experience.

Over the last decade and more, increasing attention has been paid to the nature of the mental mechanisms that people use to "know" the world and to handle incoming information efficiently. Such mechanisms have been called mental models (Johnson-Laird 1983), categories and prototypes (Rosch 1977), frames (Goffman 1974), schemata (Anderson, Pitchert, Goetz, and Shallert 1976), etc. Rosch (1977, pp. 35-6) writes,

...prototypes [the "most-representative" exemplars of categories, or mental models] would appear to enable a subject to make use of his knowledge of the contingency structure of the environment without his being forced to engage in the laborious cognitive process of contingently computing and summing the validities of individual cues.... In the second place, prototypes enable humans to make greater use of representational codes such as imagery, a type of code which...can be argued to be useful or necessary for the performance of many cognitive activities.

For the most part, studies along these lines have been conducted by psychologists rather than sociologists--Goffman is a notable exception--and there has been little use of these concepts in the analysis of social interaction. Yet there is an obvious connection between the idea of "mental model" and Simmel's "social form," in that the latter can be viewed as a special type of mental model.

This report argues that people share extremely simplified but coherent and "closed" mental models of basic social relationships, and that these models shape their attitudes and expectations about those relationships despite occasional experiences that conflict with those expectations. Rosch (1977, p. 22) has found substantial evidence that such mental models are widely shared. They are, we assume further, so simple that we rarely recognize them at all in the course of daily life, much less examine them systematically.

Taking teaching as a generic social relationship about which people are likely to have a shared picture, this report hypothesizes a simplified mental

model of it which, if it is indeed widely shared, may help to explain some of the apparently irrational practices and beliefs that are found in connection with teaching, principally at the post-secondary level.

### A MENTAL MODEL OF THE TEACHING RELATIONSHIP

#### *Knowledge Differential*

We begin with the recognition that teaching is an activity with an objective, tangible purpose--essentially the transfer of some sort of knowledge or skill from one person to another. The *sine qua non* of the teaching relationship is thus the existence of a "knowledge-differential" between teacher and student; the teacher must by definition know more than the student about whatever is to be taught. (To jump ahead briefly, it should be noted that teaching in the sense of *instilling enthusiasm* for a topic is quite a different phenomenon which is not included in the basic model.)

This centrality of the knowledge-differential in the model opens the door to several logical expectations about the relationship. One naive but logical extension of it is that the *greater* the knowledge-differential, the more effective will be the teaching. Thus it may be unrealistic to ask a Nobel Prize-winning physicist to teach Introductory Physics to freshmen, but one can hardly expect parents and other observers of the education process to be displeased when the teacher has such impressive credentials. In the same vein, professors with the Ph.D. are to be preferred to graduate Teaching Assistants. A review of *The New York Times'* semiannual "Survey of Education" supplement, or any publication in which colleges advertise their wares, will show how universal are the claims by colleges and universities that their faculties are "eminent," "expert," "renowned," and so on. It is the university's assertion that it is indeed a storehouse of expertise that justifies its offer to teach students--and, naturally, the more expertise the better. The invidious ranking of universities on the basis of the number of volumes in their libraries is certainly a quantitative illustration of the "more is better" assumption.

#### *Motivation*

Recognition of the importance of a knowledge-differential, however, is not enough to provide a minimally complete model of the teaching relationship, for the participants' reasons for engaging in this form of interaction must be considered as well. Here we must recall the common assumption that Gouldner (1959) calls "the norm of reciprocity"--the idea that *both* parties engaged in a pattern of interaction should get something rewarding out of it. Without the prospect of some sort of gratification, after all, why should the participants engage in the relationship? (To be sure, this ideal is not always satisfied in organizations devoted to teaching, but this fact does not deny that the ideal exists and that it influences attitudes and expectations concerning education.)

To work from the simplest possible example of interaction, one involving only two people, we assume that one of the participants has initiated the

interaction, and that both anticipate something rewarding in the relationship. Now, when the interrelated roles are different rather than alike--when they are specialized and interdependent--the matter of which one initiates the relationship will have consequences for the kind of reward each participant expects.

In the teaching relationship, it is possible for either the teacher or the student to initiate the interaction. The teacher may initiate the relationship, believing that the student will enjoy or benefit from what the teacher wants to teach. If this is the case, then the teacher's reward will be evidence that the belief was correct: the student's enthusiasm for the topic and/or satisfaction with the predicted benefits.

If on the other hand it is the student who has initiated the interaction, in effect *asking* to be taught, say, how to speak Spanish or how to repair an automobile, his or her interest is taken for granted and a more direct expression of thanks is the appropriate reward for the teacher. Since the model assumes voluntary participation by both parties, incidentally, it is less relevant to the public school situation (where, for the most part, student attendance is mandatory) than it is to college-level education.

### *Consequences*

When education takes place in scheduled college classes, neither of these assumptions about how the relationship was initiated is likely to be valid. Instead, the relationship is nearly always "indirect," with both participants looking *outside* the relationship (at least initially) for the rewards that sustain their involvement. The students are in the classroom because the course is required (or because it fits into their schedules), and the teacher is there because he or she is paid to teach. The presence of the basic model outlined above seems still to be in the minds of the participants, however, and this often leads to misunderstandings, if not to frustration and disappointment.

Even in a required course, the teacher may define the relationship as having been initiated by the students--they did, after all, *choose* to come to college--while the students tend to define the relationship as somehow the responsibility of the teacher. Speaking in 1906, Frederick W. Taylor, the "Father of Scientific Management," noted the latter tendency (Copley 1923):

Somehow the average kindergarten child gets a firm conviction that it is the duty of the teacher to make things interesting and amusing, and from this follows soon the notion that if he does not like his studies and fails to learn much, it is largely the teacher's fault. Now, whatever views the parents or the teachers should hold upon the duties of teachers, there is no doubt that the boys should have firmly in their heads the good old-fashioned idea that it is their duty to learn, and not that it is the duty of the teacher to teach them.

So while the teacher may be unhappy when students show no initial enthusiasm for the subject matter, he or she may simply resent the situation

rather than accept the responsibility for arousing their enthusiasm. In turn, the students are likely to be unhappy if the teacher does not convey a sense of the enthusiasm that should account for his or her initiating the relationship.

### *Capabilities*

A third component of the model is important as well. This is the assumption that both parties are able to play their reciprocal roles successfully. The model must assume that the student is indeed *capable* of being taught—that he or she is able to understand what the teacher is offering and to demonstrate this comprehension. If this belief were not part of the basic model of the teacher-student relationship, the model would contain potential for self-destruction: one or the other participant might terminate the interaction out of frustration and the model would become irrelevant.

Further, "underprepared" students are by definition unable to reward the teacher by demonstrating the expected degree of comprehension, much less, enthusiasm for the subject matter, and their presence in the teaching relationship thus seriously contradicts the assumptions of the model. The student who cannot reward the teacher by taking advantage of the teacher's expertise is widely regarded as one of the major frustrations encountered in the job of teaching.

The other side of this coin is the assumption that "anyone can teach." If the knowledge-differential is the key element in the student-teacher relationship, it seems unnecessary to assume that special skill is required to transfer knowledge from the more-knowledgeable to the less-knowledgeable. In its simplest form, teaching involves simply telling another person what you know, or demonstrating a skill so that he or she can copy it. The realities of organized education conflict with this assumption, of course, but the unrecognized power of the basic model of the teaching relationship seems to prevail when policies are being made. Sidney Hook has it exactly: "Some of the worst teaching takes place on the university level because *the assumption there is that anybody who knows something can teach it*. This is a profound error" (1987, p. 28; italics added). It is to be wondered, however, why such an error continues to be made when there is abundant evidence to the contrary. The explanation proposed here is that the unrecognized power of our shared mental model of the teaching relationship accounts for the error's persistence.

Viewed from this perspective, it is not difficult to understand why it is the demonstration of expertise as measured by academic credentials and continued successful performance as an expert (research and publication), rather than classroom skills, that tips the scales when personnel decisions are made (Soderberg 1985; Rau and Baker 1989). According to the model, variations in teaching skill simply do not exist.

And there is an additional reason why teaching *skills* (except in the case of egregiously *bad* teaching) are ignored in making academic personnel decisions. Just as the model assumes the student's interest in being taught, so it assumes the teacher's genuine interest in his or her subject matter. This follows logically from the model's assumption that both participants have

entered the relationship voluntarily. The *desire* to teach is taken for granted, and this should be enough to guarantee the *ability* to teach. It is indeed true, incidentally, that genuine interest in one's subject matter is consistently associated with excellence in teaching, no matter how the latter is measured (Sherman, Armistead, Fowler, Barksdale, and Reif 1987).

But because the model takes enthusiasm for granted, the entire "inspirational" aspect of teaching is ignored. The literature focusing on "favorite teachers" is rich with memories of how particular teachers have inspired in their students a lifelong love of poetry, or history, or chemistry, yet it is all too evident that such abilities are rarely recognized by promotions or salary increases. To recognize differences among teachers in this respect would be to threaten the completeness, if not the validity, of the model. While we are aware that students are likely to learn more when the teacher is obviously interested in the topic, we treat this as a kind of icing on the cake of education. And as with other unrealistic components of the model, the assumption of universal teacher enthusiasm (as well as universal skill in transmitting knowledge or skill) seems to sweep all contradictory evidence before it--and the model remains as whole and apparently valid as before.

#### EVIDENCE FOR THE MODEL'S EXISTENCE

Despite the fact that college level education brings teachers and students together when neither party has personally initiated the relationship, if the above reasoning is correct, expectations apparently based on the model described here should be present. In particular, we can hypothesize that students and teachers hold fairly specific ideas about how the relationship should reward its participants.

In an attempt to get at some of the expectations held by teachers, I circulated a brief questionnaire to some 300 colleagues at Baruch College and received 173 responses. Baruch is a "sidewalk-campus college," a unit of the City University of New York located in midtown Manhattan that enrolls more than 16,000 students. In terms of distribution by School within the College and by the respondents' ages, the responses seem to mirror the universe fairly accurately. It is true that such measures of representativeness are less relevant when the focus is on analysis rather than description, but they provide assurance that the analysis can serve as a basis for generalizations.

A key question concerned the characteristics of students that the respondents thought would be most important in making a student "really satisfying" to teach. The question read, "Here are several desirable characteristics of college students... If your students had *only one* of these characteristics, which one would be *most* important in making them *really satisfying* to teach?" Then it went on to ask, "If *all* your students had the characteristic you just noted, which one of the other characteristics would be next most important in making them *really satisfying* to teach?" And in the same way, it asked for the *third* most important characteristic. The responses are found in Table 1.

## The Teaching Relationship

These choices provide substantial support for the assumption that teaching is satisfying mainly when the students *want* to be taught and can demonstrate this. Almost 90 percent of the respondents selected "serious interest" as one of the three most important characteristics that make students satisfying to teach, and more than 80 percent selected "ask questions, join discussion" as one of the three. In all, about three-quarters of the respondents included *both* of these qualities among their choices. (One may of course ask whether these responses reflect honest opinions or only represent what the respondents thought the appropriate opinions "ought" to be. This distinction is unimportant here, however, for *either* interpretation demonstrates the existence of a shared model of the teaching relationship.)

TABLE 1  
Student Interest is Basic to Satisfying Teaching

Characteristic	Importance		
	First	Second	Third
1. Able to write clearly	4%	12%	37%
2. Conscientious about doing assignments on time	1	9	15
3. Excellent ability to memorize class materials	0	1	2
4. Polite and respectful of others	2	2	10
5. Regular, prompt class attendance	1	1	6
6. Serious interest in subject matter	61	23	4
7. Willing to ask questions, join discussion	18	47	18
8. (All other write-in responses)	13	5	8
Number responding:	100% (171)	100% (171)	100% (169)

In comparison, only about half of the respondents (54 percent) included a "skills" characteristic (numbers 1 and 3) among their three choices, and slightly fewer than this (47 percent) opted for one or more of the "dutiful" characteristics (2, 4, and 5) as making students satisfying to teach. It is of interest, too, that after the two choices involving student interest had been made, a concern that students be *able* to demonstrate their understanding (and thus involvement) through the ability to write clearly surfaced as a major preference.

To sum up, of the 505 total choices made, almost two-thirds (65 percent) concerned student interest, about one-fifth (21 percent) concerned student skills, and less than one-sixth (15 percent) referred to the "dutiful" qualities of students such as turning assignments in on time.

For most teachers, then, it is clear that teaching involves an interactive or exchange relationship with students, one which requires voluntary, active participation by students if it is to be genuinely satisfying. Another indication of this expectation is the fact that 83 percent of the respondents "agree" or

"strongly agreed" with the statement, "It is important to me that my students appreciate my efforts to make my subject matter interesting." One must assume here that "appreciation" is defined largely in terms of visible student interest in the subject matter rather than simply a polite "thank-you" at the end of the term.

Additional support for the importance of student participation in the classroom relationship is found in the strong connection between the respondents' satisfaction with "The intellectual stimulation I get from my students" and their reported satisfaction with teaching. The more one reports high stimulation from students, the more likely one is to report high satisfaction with classroom teaching. The respondents were asked to indicate on a scale of 1 to 7 "how much *satisfaction in general*" you derive from classroom teaching." Table 2 shows the relationship.

TABLE 2  
Stimulation from Students Enhances Satisfaction with Teaching\*

Satisfaction with classroom teaching	Satisfaction with Intellectual Stimulation from Students		
	High (1-3)	Medium (4-5)	Low (6-7)
High (1-2)	76%	53%	26%
Low (3-7)	24	47	74
	100%	100%	100%
Number responding: (66)	(57)	(47)	

\*This relationship is significant by Chi-square test at the .001 level. One assumes, of course, that "stimulation" actually means the students' obvious interest in the subject, with teacher satisfaction stemming naturally from this.)

Another test of the relationship between student interest and teacher satisfaction is found in preferences for teaching graduate-level students, who we can assume are thought to be more interested in the teacher's subject matter and therefore more likely to reward the teacher by demonstrating this interest. Of the 90 respondents who rank highest in terms of satisfaction with teaching, only 32 percent "agree" or "strongly agree" with the statement, "If it were possible, I would rather teach graduate students than undergraduates." By contrast, 53 percent of the 76 respondents who are less satisfied with teaching give the same response. (This difference is significant at the .02 level.) The clear implication is that teaching *should* be gratifying--and that if it is not, a more responsive type of student should be sought.

## The Teaching Relationship

Further evidence supports the assumption that the model hypothesized here is geared primarily to post-secondary education because it is only here that the participation of both teachers and students is truly voluntary. Although Baruch's School of Education is represented in the sample by only 18 respondents (compared to 77 from the School of Business and 76 from the School of Liberal Arts and Sciences), the teachers of education differ sharply from their colleagues in the other Schools in their readiness to disagree with the statement, "It is up to the student to *want* to learn--*my* job is to teach the subject matter." While 16 of the 18 Education professors (89 percent) "disagree" or "strongly disagree" with this statement, only 67 (45 percent) of the faculty in the other two schools give these responses, a difference significant at the .001 level. (Nine respondents failed to answer this question.) In other respects, however, the Education respondents do not differ significantly from those in other Schools in terms of age-distribution, choice of satisfying student characteristics, and degree of satisfaction with classroom teaching.

One must assume that a professional concern with training those who will teach primary and secondary school students, whose presence in school is mandatory rather than voluntary, trains one to ignore the model's assumption of natural student interest, or perhaps even to hold in mind a quite different mental model of the teacher-student relationship.

### CONCLUSIONS

Both everyday experience and the data reported here suggest that *something* is at work in shaping the actions and expectations that characterize higher education, even when complaints about its character--particularly the emphasis placed on research and the consequent lack of concern for effective teaching--are widespread and vociferous. This report hypothesizes the existence of a widely shared "mental model" of the college-level student-teacher relationship, one composed of apparently valid assumptions which are in fact overly simple and prone to illogical extension. Our reliance on such a model can account for our inability to deal effectively with the problems noted above. The hypothesized model is the active embodiment of a Simmelian "social form" and is sustained, despite repeated misleading expectations derived from it, by its "intuitive" cognitive utility and by our failure to recognize the model's influence upon our thinking.

The model contains three assumptions about the student-teacher relationship: 1) it is essential that there be a knowledge-differential between them; 2) the relationship is voluntary, so that both parties must find gratification in it; and 3) both parties are capable of playing their roles successfully. Expectations derived from the model seem to account for the importance that evidence of expertise plays in determining the prestige of academic institutions, confusion over responsibility in the classroom (who has initiated the relationship, and thus what sorts of "rewards" should be

legitimately expected by each party), and for the ubiquitous failure of educational institutions to recognize, much less reward, excellence in teaching.

Additional understanding of students' expectations of teachers will be necessary for further exploration of the validity of this mental model, as will more sharply focused analyses of the assumptions that seem to underlie the development of policies and personnel practices on American campuses.

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## 'SOLVING' THE BARGAINING PROBLEM

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*The bargaining problem is here conceived as determining a point of final agreement in bilateral bargaining situations where there is an overlap in the interests of the parties. Several formal models for describing how persons may solve the bargaining problem (in particular, those of Nash, Kalai and Smorodinsky, and Felsenthal and Diskin) are briefly reviewed, and three experiments are described which seek a comparative test of these models. Experimental results fail to provide clear support for any of these formal models, but they do lead to a more general description of how bargainers tend to arrive at cooperative agreements. This is expressed in terms of the three central considerations of (1) prominence, (2) social efficiency, and (3) equity.*

### INTRODUCTION

There is a substantial literature in economics and other social sciences on what has been called "the bargaining problem." This literature concerns determining the point where bargainers are likely to come together for a deal that they find mutually acceptable. The present paper is intended to discuss some experimental work which helps clarify the nature of such bargaining activity.<sup>1</sup>

### THE BARGAINING PROBLEM

Perhaps an example will help us see what is usually meant by the bargaining problem. A seller lists a house for sale at \$91,000 but actually would be happy to sell it at \$85,000. In fact, she is not sure that she will be able to get that much. A prospective buyer particularly likes the house, however, and wants to buy it. He wants to buy it so much that he would be willing to pay up to \$95,000--\$4,000 more than the asking price. But of course he knows that you don't offer more than the seller asks. Although he would like to get the house at as low a price as possible, he also wants to make his bid high enough that serious negotiations will begin. He decides to offer \$83,000. Knowing what we know about the real interests of these house bargainers, we expect that they will in the end negotiate a successful sale. But what will be the final sale price? Somewhere between \$83,000 and \$91,000--but where? And what determines where this deal will be struck?

Traditional economic theory predicts with fair precision where sale prices will be in competitive markets, that is, where many buyers and sellers face one another to make trades concerning quantities of a reasonably homogeneous product. However, in cases of bilateral monopoly--where only a single buyer