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ABSTRACT

This document describes a 26-month proposed project to explore, through a multi-factor experimental design, some cognitive and affective consequences on both tutee and the tutor, of classroom reorganization for same-age peer tutoring. College students will serve as subjects. Volunteers from the same course section will be paired. Within each pair one member will be randomly assigned to each role (Tutor or tutee) to insure that in each third of the pairs, the initial competency of the tutor was superior to, equal to, or inferior to the tutee's, judging from pretested achievement. Each pair will know that they will be together for two sessions but will be uncertain initially as to whether their roles would be switched for the second session. The session tutor will receive instruction on material he is to cover in that session only, then will instruct the tutee on that material. An achievement test will be administered in each session to both parties, following the tutoring. Retrospective and prospective data both on perceived performance and on affective variables will be obtained. Obvious administrative benefits would derive from same-age peer tutoring. Furthermore, the proposed studies may well shed light on how to optimize learning and satisfaction in both the tutee and the tutor. (Author/JM)

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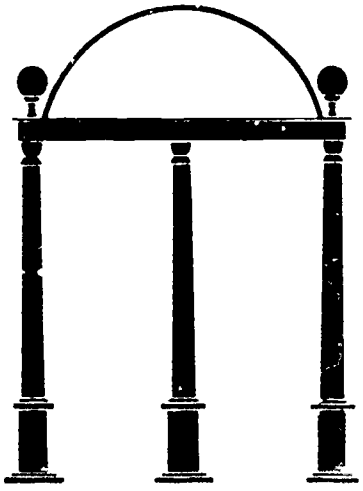

CLASSROOM ORGA ATIONAL RESTRUCTURING TO OPTIMIZE SOCIAL-EMOTIONAL GROWTH

National Institute of Education, Grant No. G-74-0023

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ABSTRACT

Objectives

In this 26-month project we propose to explore, through a multi-factor experimental design, some cognitive and affective consequences on both tutee and the tutor, of classroom reorganization for same-age peer tutoring. College, and later, public school students will serve as subjects. The project represents a convergence of practical concerns with the relative merits of same-age peer tutoring, and of theoretical concerns with the social structural variables that may affect the helping relationship of tutor and tutee. The peer-tutoring literature as well as social theory suggest that tutors more than tutees will (and expect to) learn from the tutoring experience, although it seems probable that the performance of both will be greater when the tutor's initial competency is superior than when it is inferior to the tutee's. Concerning affective consequences, one line of reasoning suggests that both parties would feel more satisfied if the more competent of the pair were assigned the role of tutor (what theorists would label "status congruency"), than assigned the role of tutee. Another theoretical position suggests the reverse. The first position seems the more credible here. It also suggests that the less competent tutee would feel most indebted for help received, but least motivated to switch roles, since he could not reciprocate as competently. If, in some pairs but not others, the roles were then switched, it is an empirical question as to whether role continuation or role reversal would be optimal for learning, but it is likely that subsequent satisfactions would be influenced by the initial tutor's relative competency and the particular pattern of role assignments.

Procedure

For the college experiment, volunteers from the same course section will be paired. Within each pair one member will be randomly assigned to each role (tutor or tutee) to insure that in each third of the pairs, the initial competency of the tutor was superior to, equal to, or inferior to the tutee's, judging from pretested achievement. Each pair will know that they will be together for two sessions but will be uncertain initially as to whether their roles would be switched for the second session. The session tutor will receive instruction on material he is to cover in that session only, then will instruct the tutee on that material. An achievement test will be administered in each session to both parties, following the tutoring. Retrospective and prospective data both on perceived performance and on affective variables will be obtained via questionnaires to be administered to each subject at the beginning and at the end of each session. The aim is to have at least 180 subjects. All will be thoroughly debriefed. The procedures presented, to be used in the following year with public-school students, may be modified by the experience gained in implementing the college experiment.

Implications

Obvious administrative benefits would derive from same-age peer tutoring. Furthermore, the proposed studies may well shed light on how to optimize learning and satisfaction in both the tutee and the tutor. In the long run, such an optimizing organizational strategy may help reduce the incidence of that "learned helplessness" that comes from only receiving instruction, while fostering growth in responsibility taking and in social initiative. Promoting such growth would be of crucial importance in classes containing both advantaged and disadvantaged students.

1. Introduction.

The focus of the proposed research is on the effects of grouping and juxtaposition of students upon peer attitudes and performance in classrooms reorganized for peer-tutoring. The paradigm involves certain experimental manipulations of variables considered important in the employment of a basic same-age peer tutoring model. The plan is to employ this paradigm initially with college students, then to expand it to public school samples. This paradigm of research is directly relevant to Issue 3, since the independent variables that are to be systematically varied have to do with the instructional organization of the classroom, and since the dependent variables deal with productivity (student) performance) and morale (student motivation and attitudes). Judging from the reports of other investigators, cross-age peer tutoring works well, in the cognitive domain (scholastic performance), but it is administratively difficult to arrange, the cognitive benefits accrue principally to the student doing the tutoring (the tutor), and little is known about the affective impact, particularly on the student being tutored (the tutee). It becomes important, therefore, to inquire systematically into the possible advantages and shortcomings of using the administratively more practical alternative of same-age peer-tutoring, and in so doing to study the cognitive as well as social-emotional impact of such an educational reorganization on the tutee as well as on the tutor.

It is intuitively obvious why same-age peer tutoring is administratively and organizationally more practical than its cross-age counterpart. In the first place, there is no danger of a diffusion of (legal and instructional) responsibility occurring in overseeing student care and performance as might be the case when two or more teachers or schools are involved in shipping students to each other for cross-age tutoring. Furthermore, there is no necessity for class rescheduling and for keeping classes of different levels or even schools on converging schedules. In addition, no time would be consumed, no travel expense incurred in transporting children to different geographical locations solely for peer-tutoring purposes. Furthermore, there is no reason to be concerned that the tutoring materials would be quite foreign to the tutor by reason of recent changes and innovations in curriculum material. Finally, the implied necessity and expense in employing a coordinator is reduced; such a coordinator would be especially necessary if cross-age tutoring were also cross-school. These arguments should not, of course, be taken to signify that cross-age tutoring is without merit in its own right.

The program of research being proposed here derives not only from these practical concerns. It also reflects a convergence of thinking from several theoretically important aspects of the helping relationship, particularly insofar as such a relationship is affected by social exchange and social-structural or status variables. A more elaborate statement of this theoretical background on the helping relationship and of the empirical literature concerning peer-tutoring appears under Section 4, and is used there to derive certain specific hypotheses.

2. Anticipated Results.

Although we have outlined some obvious administrative benefits that would come from same-age peer tutoring, it is necessary to consider some of the possible hazards. It seems to us that the principal hazard would come about under a condition in which the peer who is assigned to the tutorial role continues to operate in this unilateral relationship. Under such circumstances we would expect that the difference in performance between him and his tutee would continue to widen, that this increasing status differential, while motivating and self-enhancing for the tutor, might by the same token attenuate the rate of increase in the tutee's motivation to learn (particularly if for some reason the tutee feels that the roles should be reversed), and the increase in self-esteem that comes from enhanced competency in the subject matter. We believe that it may be possible to optimize both learning and satisfaction on the part of both parties, by providing the tutee also with the opportunity to tutor later on; e.g., by switching roles with his former tutor.

One long-range advantage of such an optimizing strategy in same-age reciprocated peer-tutoring is that it would begin to replace the sort of "learned helplessness" or dependency that seems to arise in school settings as a consequence of unilateral spoon-feeding and of the passive role in which the average student is often placed. The immediate utility of having to gain information in order to instruct a peer provides much stronger motivation, especially in younger children who may require immediate gratification, than the ill-defined and remote benefits of getting an education. This motivational advantage would seem to be especially important in the case of disadvantaged students who are reputed to require immediate reinforcement for learning.

As an antidote to the "learned helplessness" brought on through being unilaterally on the receiving end of information, the opportunity to reciprocate by serving as a tutor himself would foster growth in taking responsibility for himself and others in a school setting, and growth in social initiative. In the case of socially marginal students such as those from disadvantaged backgrounds, such growth would be especially salutary.

Needless to say, positive empirical results would be of no use to American Education, whatsoever, were no effort made to communicate these findings, comprehensibly, to the widest and most appropriate audiences.

## 3. Objectives

The overall objectives of this proposed project are to explore some of the cognitive and affective consequences of same-age peer tutoring on both parties, by means of a multi-factor experimental design. A college-age sample would be employed in the first stages of this project while a conceptual replication would be conducted with public school students during the later stages. The specific hypotheses to be tested with the college sample, and their rationale, are set forth in some detail in the section which follows (Section 4); while the steps to be taken in testing these hypotheses are detailed in Section 5. Here we shall allude to the hypotheses in more general terms.

The early phases of the experiment with the college sample basically entail a two-factor design, in which one independent variable consists of the tutor's relative pre-experimental competency vis-a-vis the tutee. Subjects will be paired so that the tutor's pretest performance on an achievement test (see, for example, Appendix E) dealing with course-related material was actually superior to the tutee's in one third of the pairs, equal to the tutee's in a second third, but inferior to the tutee's in the remaining third. The second independent variable will consist of the role, tutor or tutee, to which the members of each pair will be randomly assigned.

It is predicted that, following the training of each tutor and the tutoring, tutors will perform better than tutees on an achievement test based on those tutorial materials, particularly where the tutor was more competent to begin with. Moreover, subjects would anticipate doing (or having done) better under the more competent than the less competent tutor. Concerning the affective variables, it is expected that the social-emotional or attitudinal responses will be more consistent with a status-equity model than a status-equality model of justice in peer relations. In advance of the tutoring session, it is expected that anticipated satisfaction with one's relationship to the partner (also the positivity of evaluation of one's own imminent role) would vary directly with the tutor's alleged relative competency and with being assigned the role of tutor (rather than of tutee). The same predictions are being made with regard to subjects' retrospective affective reactions to that first session. In addition, it is predicted that tutees will acknowledge feeling more indebted to the partner than will tutors, given that the tutee is of lesser or equal competency. However, a preference for a switch in roles will be stronger in those tutees whose relative competency was greater or equal, than in tutees of lesser relative competency.

At the outset of a second tutorial session a third experimental factor will be added to the design; namely, in half of the pairs the roles will be exchanged, while in the remaining half each partner would continue in the same role he had earlier. The tutor for the second session would receive training on a new set of materials, and following the tutoring activity an achievement test based on these new materials would be administered. It is difficult to state an unequivocal prediction regarding actual performance on this final achievement test. One line of reasoning suggests that it would be more optimal for learning for a subject (tutor or tutee) to maintain the same role than to switch roles with his partner. Another line of reasoning suggests that the tutor's role is generally superior to the tutee's for learning, and that therefore a person who was a tutor for both sessions would do best while the person who remained a tutee would do worst. Still another line of reasoning calls for no differences. With regard to perceived performance, however, we would again expect tutors, more so than

tutees, to believe they performed well on that final test.

With regard to retrospective affective variables, we would predict that those who were tutees throughout will express least satisfaction with their relationship, and will evaluate their last role in least positive terms, particularly if their initial competency was at least equal to their partner's. Conversely, we expect that those who were tutees throughout will confess to feeling most indebted to their partner, particularly if their initial competency was, at best, equal to their partner's.

## 4. Review of Related Research

Cross-age peer tutoring is reported to make an important contribution toward the efficient utilization of classroom, teacher, and pupil time and dollar expenditures (cf. Glavin, 1974) in the delivery of high-quality education. Gartner, Kohler and Reissman (1971, p. ix) state that "children and youth learn far more when performing the teaching role than when acting as students in the classroom. This principle has been known for centuries . . . ." Gartner et al. are quite clear that while these benefits are available from cross-age peer tutoring, such programs are so unwieldy as to necessitate reorganization, planning grants, and community support, especially if the programs involve tutoring across schools. Problems of this magnitude and complexity would not arise with same-age peer tutoring.

Gartner et al. (1971) summarized the small amounts of empirical data available on cross-age peer tutoring--most of the data they cite deals with the effects of the cross-age peer tutoring on the achievement of the tutor; very little deals with the effects on the tutee. One oft-quoted statistic is the finding that, in a study of the Mobilization for Youth program in New York City, tutors' achievement improved 3.4 years (versus 1.7 years for controls) in a seven-month period, while the tutees gained one-half year in a five-month period, almost doubling the controls' gains. Another study cited by Gartner et al. (1971), of the Ontario-Montclair (Calif.) cross-age tutoring program, showed gains for both tutors and tutees in achievement. More importantly, in the latter study, both groups showed increases in self-concept, attendance, and teacher ratings of lack of discipline problems.

Jones (1973) was no more successful in finding studies with empirical data on tutees, and correctly noted that some empirical studies are weak. Jones' study of self-concept, reading achievement, and attitudes toward reading showed no clear advantage for either participant versus controls on any measure, utilizing cross-age peer tutoring among disadvantaged, rural, low-achieving and low intelligence students of the same race (Black), matched for sex.

Gartner et al. (1971, p. 121) provide anecdotal evidence that same-age peer tutoring may be desired by pupils; they found that same-age tutoring was occasionally a pupil-initiated by-product of cross-age tutoring in both the sending and receiving classes. In another context, they point out that since "individualization (in peer tutoring) involves special attention, explanation, immediate and direct feedback, and personalization . . . (these) are likely to encourage a sense of importance and self-esteem upon the part of the child receiving this special attention" (p. 54-55). Jones' (1973) study did not bear out this prediction. However, since same-age peer tutoring did spring up where cross-age tutoring was legitimized, there are positive and negative affective outcomes available to children which have not been examined empirically. Gartner et al. hypothesized positive affective outcomes. Yet there may well have been negative consequences as well. It would seem important to empirically examine both the affective benefits and the costs to <u>both</u> parties in the tutoring relationship.

Do we know whether tutees feel demeaned by their subservient positions? Does an opportunity to reciprocate mediate such feelings of inadequacy and/or do tutees freely seek further help? Can the tutoring situation be manipulated to ensure that tutees' self-concepts are not lowered thereby? What happens to

peer acceptance when classes are divided into tutor-tutee pairs of the same age but of similar or different ability? Do these problems become especially acute if the tutees come (as is likely) from disadvantaged groups and the tutors from among the advantaged? Or are Lippitt, Eiseman, and Lippitt (1969) correct when they hypothesize that "Where children teaching and being taught are different in terms of age, sex, race, cultural background, or ethnic group, the (tutoring) relationship may serve to reduce barriers based upon these factors (p. 69)?"

A considerable empirical literature has developed with regard to helping behavior. Much of the earlier work (cf. Krebs, 1970) was concerned with identifying those situational factors and those temporary and dispositional characteristics of the helper or of the beneficiary, which elicit helping behavior. In this context, one lively controversy which still persists is whether a social responsibility norm (Berkowitz & Daniels, 1963) or a reciprocity norm (Gouldner, 1960) was the prime mediator in the socialized helper, or whether normative explanations of helping are even necessary (Bryan, 1972; Darley & Latané, 1970).

There has been relatively less empirical work on the recipient of help. Most of it deals with the consequences of having been helped, and only a handful of studies exist on the antecedents of help seeking. With regard to consequences, a central concern is with reciprocation. It has been shown, for example, that individuals who receive a given magnitude of help reciprocate to that same degree (Pruitt, 1968; Wilke & Lanzetta, 1970), but if they receive progressively increasing help they reciprocate with less help than if they are exposed to a decrease of help (Lanzetta & Wilke, 1971). If B is helped by A, he will in turn help C; moreover, if B is hindered by A, he is still likely to help C, provided that C is dissimilar to A (Greenglass, 1969). Help freely given (Frisch & Greenberg, 1968; Kahn & Tice, 1973) or given under appropriate circumstances (Schopler & Thompson, 1968) is reciprocated more than coerced or inappropriate help. Nor is it necessary that reciprocation be in kind. For instance, Greenberg and Bar-Tal (1972) demonstrated that subjects expose themselves more to, and show superior learning of, information instrumental to repaying an obligation, the greater the amount of prior help.

A related concern in much of the "reciprocation" literature (cf. Krebs, 1970) is with whether the appropriate mediating variable is increased attraction. For instance, Berkowitz (1972) suggests that when a person receives help, the benefactor is evaluated more positively, which then increases the likelihood of reciprocation. The evidence for this seems to be mixed, if not largely negative (cf. Gross & Latané, 1973; Stapleton, et al., 1973). Greenberg (1968), on the other hand, has suggested that receiving help leads to an aversive state of indebtedness, the psychological state associated with inequitable social exchange, which can be reduced either through reciprocity or cognitive distortion. Greenberg and Bar-Tal (1972) found uniform support for indebtedness but equivocal support for attraction as the mediator.

The few studies that have dealt with antecedents of help seeking have shown that help will not be sought if the needy person anticipates having no opportunity to reciprocate later (Greenberg & Shapiro, 1971; Morris & Rosen, 1973), or has suddenly experienced a loss of task-relevant self-esteem (Morris & Rosen, 1973), or if he has characteristically high self-esteem but has just failed on an important attribute, and if the responsibility for failure was attributable to the self rather than externally (Tessler & Schwartz, 1972).

There does, however, exist a large body of correlational studies dealing with the reactions of clients to receiving institutionalized help. For example, welfare recipients admit to experiencing a loss of freedom (Briar, 1966): they feel obligated to follow the social worker's suggestions with regard to their marital, psychiatric, and budgeting problems. Similar findings are admitted by the aged who are needy (Lipman & Sterne, 1962). Receiving help often induces feelings of resentment, too. Thus welfare recipients resent caseworkers who appear to expect progress and gratitude (Bredemeir, 1964, p. 97). The disabled and the handicapped resent help if it had not been explicitly requested (Ladieu, et al., 1947). People undergoing rehabilitation often perceive it as humiliating (Alger & Rusk, 1955), and as inducing a feeling of inferiority and unworthiness (Haggstrom, 1964). By way of a final example, lower and working class people who receive help from professional helping organizations are often alienated by "accepted" middle class procedures for administering help (Sjoberg, et al., 1963).

In sum, the possibility for reciprocation and feelings of task-relevant competency emerge as two important determinants of the attitudes and behavior of the recipient of help. Receiving help also has social structural implications. Blau (1964) may be correct, for example, in positing that by accepting help the recipient may validate the donor's implicit claim to superior status and provide the latter with justification for imposing demands as the price for continued help. It seems reasonable, too, that the donor's incumbency in the position of resource person is often perceived as not legitimate by the recipient. In other words, the donor's other status characteristics may appear incongruent with his current superior status of donor. Thus, Exline and Ziller (1959) showed that when the relative decision-making power assigned to different group members was at variance with their relative ability, then, in contrast to groups where status congruence did exist, the social climate was less congenial and group performance was inferior. Equity and social comparison theories would make similar predictions. For example, Patchen (1961) showed that factory workers were less resentful that other workers earned more than they did, if those other workers also had more education and seniority than they did, than if those other workers had the same or less education and seniority.

A different tack to the issue of status congruency is taken by Sampson (1969). His writings, too, suggest that group performance is apt to be superior under status-congruent than under status-incongruent conditions. He would, however, question whether groups necessarily prefer status congruence to status incongruence. In this connection, Sampson makes a distinction between equity and equality, both of which he views as facets of justice. Sampson accepts Adams' definition of equity, which is essentially that a state of equity exists for one of the parties in a social exchange, when he perceives the ratio of his outcomes (profits) to his inputs (investments) as equal to the corresponding ratio of the other party. Thus, if one person brought higher task-relevant competency into the relationship than did his partner (i.e., made a greater input than his partner), he should receive a relatively greater outcome; i.e., benefit, than his partner. According to Adams, inequity (in either direction) is an aversive state of affairs which the individual in question (particularly if his is the less favorable ratio of the two) may try to reduce, either through appropriate behaviors or through cognitive distortion.

Sampson notes that if a situation of status congruency existed, this could be regarded as a special case of equity. According to Sampson, the preference for equity is probably to be encountered more in competitive contexts and in the market-place, where the outcome and inputs are easily measured or represented in quantitative or monetary terms. On the other hand, when the variables are non-economic (or the focus is not competitive), then the preference for equality may be more relevant. By equality, Sampson means simply that all would enjoy the same outcomes regardless of inputs. A situation of status incongruency, in the extreme, could be regarded as a special case of equality, since being low on one status dimension would be balanced by being high on another, thus making the partners equal insofar as overall status was concerned.

In one experiment cited by Sampson (Kardush, 1968), groups of three were composed to conduct certain "war games" against an imaginary enemy. Half of the groups were status-congruent; i.e., a graduate student was "randomly" given the most responsibility and the most powerful job (Captain), an upper division student was given an intermediate position (Sergeant), and a freshman was given a low position doing clerical work (Private). For the status-incongruent groups this order was reversed. After the first game, half of all the groups were told that each would have the same job again, while the other half were told that role assignment might be changed, again by "randomization."

On several different measures of team performance the status-congruent groups performed better than the status-incongruent. The possibility of a switch in roles had no effect on performance. In contrast, the status-congruent groups that expected a switch, as well as the status-incongruent groups that expected no switch, were more satisfied than were the other two groups. In other words, the prospect of a change from equity toward equality, or of a continuation of equality (i.e., inequity), was more satisfying than the other two possibilities.

How do these two partly conflicting models, the equity and equality models, relate to the tutor-tutee problem? Consider the following hypothetical situation: The students in each of several classes are broken up into tutor-tutee (same-sex) pairs.

It is reasonable to assume that assignment to the role of tutor confers relatively more status on that person than does assignment to the role of tutee. The reasons are numerous: There is a relatively greater implication of expertise in the tutorial role; teachers have more power than pupils; the tutor is more in the position of helper and the tutee of dependent, etc. It has been shown above, for example, that persons receiving help often resent their dependency status. This being so, one would expect that subjects assigned the higher status, tutor, role would be happier with the assignment, by and large, than those assigned to be tutees.

Suppose, in addition, that in one third of the pairs, the tutor, based on a prior task-relevant achievement test, is relatively more competent than the tutee; in a second third, the tutor and tutee are relatively equal in competency; in the remaining third, the tutor is relatively less competent than the tutee. We can assume that being seen as relatively more task-competent confers higher status, and is therefore more desirable than being seen as relatively less task-competent.

Suppose that every subject knows his standing on the test in question relative to his partner. He also knows that each pair of subjects will meet for two sessions, but that it is uncertain whether they will meet in the second session in the same tutor-tutee relationship or whether their roles will be reversed. This situation can be represented in Figure 1.

| | | Tutor's Relative Competency | | |
|---|---|---|---|---|
| | | Higher than Tutee's | Equal | Lower than Tutee's |
| First assigned role | Tutor | | | |
| | Tutee | | | |

Figure 1. Paradigm showing initial assigned roles and relative competencies in the tutor-tutee relationship.

In Figure 1, note that the left, or tutor-more-competent, column represents a situation of status congruence, since the more competent person has been given the higher status tutor role, and the less competent person the lower status tutee role. This assignment is one of equity but inequality from the perspective of overall status. In contrast, the right-hand column involves status-incongruence, since the more competent person has been given a role of lesser status. From the perspective of overall status, the assignment in this latter case is one of inequity but equality. The middle column represents a condition of both inequity and inequality, since though equal in competence, one person is given a higher status role and therefore enjoys greater overall status.

Given that the tutor is going to be receiving adequate preparation for instructing his tutee, what predictions would one make concerning performance? Judging from the empirical literature cited, performance would vary more in accordance with an equity than an equality model. Namely, one would expect the average performance of each team member to be best under the status-congruent conditions, and poorest under the status-incongruent conditions. The cross-age peer tutoring literature cited above suggests that tutors show greater improvement in performance after the tutoring than do the tutees.

Note, however, that the older tutors can be considered to be more task competent, and in general to have more age-associated status, than their younger tutees. This would suggest that the performance difference between such tutors and tutees might be located principally in the left-hand (status-congruent) column of Figure 1. We would tentatively hypothesize that by virtue of greater exposure (in training) to the material,

1. Tutors (in our hypothetical situation) will do better than same-aged tutees, particularly where the tutor is more competent, and

2. Subjects will predict learning (or having learned) more under superior tutor than under inferior tutor conditions.

With regard to affective variables, the equity model would predict greatest satisfaction with the tutorial arrangement under status-congruent conditions and least satisfaction under the status-incongruent conditions. The equality model would reverse this prediction. We are inclined to favor the equity prediction for the following reasons: In the key study (Kardush, 1968) cited by Sampson the tasks in question were simply games in which the stakes were basically trivial and irrelevant to the current concerns and preoccupations of the subjects. It may be therefore that the focus in the Kardush study was principally on enjoyment, rather than on production, and that promoting or maintaining overall status equality was the way to maximize enjoyment for all. The same-age peer tutoring context, however, is one in which the emphasis is at least as much on achievement as on sociability. It seems reasonable to suppose that at some level of awareness there would be a recognition by subjects of the likelihood that achievement could be maximized for both parties concerned under status-congruent rather than status-incongruent conditions and that there would be a tendency to prefer the former state to the latter.

More specifically, we would predict that:

3. Anticipated satisfaction with one's relationship, and evaluation of one's forthcoming role, will vary

   a. directly with the tutor's alleged relative competency and
   b. directly with being assigned to the tutor rather than the tutee role.

Once having participated in a tutoring session, some subjects may be expected to experience certain additional pressures, given that no subjects know as yet what roles they would occupy in the second session with the same partner. In particular, we might expect the tutees to develop greater dissatisfaction than the tutors, and no longer simply because they are jealous that the tutor was given a superior role but also because, having received instruction from the tutors, the tutees now experience that aversive condition which was labelled earlier as indebtedness (with the probable exception of those tutees who were allegedly more competent than their tutor).

We would predict therefore that after the first session:

4. Satisfaction with one's previous relationship to the partner will vary

   a. directly with tutor's alleged relative competency, and
   b. directly with having been assigned the tutor rather than the tutee role.

5. Evaluation with one's previously assigned role will vary

   a. directly with tutor's alleged relative competency, and
   b. directly with having been assigned the tutor rather than the tutee role.

6. Tutees will acknowledge feeling more indebted to their partner than will tutors, when the tutee is of lesser or equal competency to the tutor.

If offered a choice of reciprocating help received through a switch in roles, it does not necessarily follow that the preference for switching would be prompted only by feelings of indebtedness, nor that feeling indebted would lead one to prefer a switch in roles. Tutees who have allegedly superior tutors may feel most indebted, but recognizing the equity of the situation, realize that they could not "realistically" reciprocate in kind. The highly competent tutees may feel no indebtedness, in view of the condition of inequity and equality in which they have been placed. But they would be highly motivated to change roles in order to achieve equity. This is especially likely to be reinforced by a feeling of embarrassment (a blow at their public esteem) at having been "miscast." The equally competent tutees would also be highly likely to prefer a switch in roles but in the interest of being able to reciprocate; by so doing they can achieve <u>both</u> equity and equality

The prediction, in short, is that:

7. Tutees who are of equal or higher competency than their tutors are more likely to prefer a switch in roles than are tutees who are of lower competency than their tutors.

Let us suppose now that in half of the pairs, the roles have actually been switched, at random, and in half they have not. Tutors are then trained on new material, after which there is again a tutoring session, followed by a test. This complication brought on through switching can be represented as shown in Figure 2.

| | | | Original Tutor's Relative Competency | | |
|---|---|---|---|---|---|
| | | Second Assigned Role | Higher than original tutee's | Equal | Lower than original tutee's |
| First Assigned Role | Tutor | Tutor | | | |
| | | Tutee | | | |
| | Tutee | Tutor | | | |
| | | Tutee | | | |

Figure 2. Paradigm showing initial relative competencies, and initial and subsequent assigned roles in the tutor-tutee relationship.

From a theoretical standpoint, the prediction of actual performance on this final achievement test presents an interesting puzzle. Let us designate a sequence of roles as follows: Tutor-tutor means that a subject was tutor in both sessions; tutor-tutee means that he was tutor for the first session, but was switched to tutee for the second session, etc. There are at least three different rationales that one could employ here, each of which generates a different prediction.

8a. One rationale would be that in the long run it is more optimal for learning if a subject were to continue in the same role than to switch roles. This rationale would lead to the prediction that:

> Both the tutor-tutor and tutee-tutee will show superior performance on the final test than the tutee-tutor or tutor-tutee.

8b. Another rationale would be that the tutor's role is generally superior for learning to the tutee's role. This would lead to the prediction that:

> The tutee-tutee will show the lowest performance on the final test among all four conditions.

8c. Or both rationales may be correct and of equal and opposite strength. The prediction would essentially be for no differences among the three conditions other than tutor-tutor.

Concerning how subjects believe they have performed on the final test, so much has transpired that any prediction would be extremely tentative:

9. Compared to Session II tutees, Session II tutors will believe their performance on the final test to have been superior.

With regard to affective variables, there is of course the risk of habituation by the end of the second session, such that no systematic (predictable) differences would be found. Assuming that habituation did not occur, we might still perhaps expect that those who have remained tutees throughout would feel most dissatisfied. Among these tutee-tutees, the dissatisfaction of those whose initial competency was less than or equal to that of their partner would derive in large part from unresolved feelings of indebtedness, whereas the dissatisfaction of those whose initial competency exceeded that of their partner would derive in large part from unresolved feelings of inequity. While one could advance a number of detailed hypotheses, in the interest of economy, only rather general hypotheses will be advanced here. We would tentatively hypothesize that:

10. Satisfaction with one's immediately previous relationship will be lowest among tutee-tutees, especially those whose initial competency was equal or superior to their partners.

11. Similarly, the lowest positive evaluation of their immediately previous roles will be forthcoming from the tutee-tutees, especially those whose initial competency equalled or exceeded their partners'.

12. Tutee-tutees will acknowledge feeling more indebted to their partner than will the others, but principally where their initial competency was less than or equal to their partners'. (Conceivable also, the tutor-tutee will admit to feeling more indebted than the tutee-tutor, where the original tutor was less competent.)

No hypotheses are being advanced with regard to preferences for switching again, assuming there were to be a third session. It seems probable that some will want to change for a variety of reasons (out of a desire for novelty, to achieve equity, etc.), while others will not want to change for a variety of reasons (a desire for stability, satiation, satisfaction with the relationship, etc.)

Addendum. This post script to Section 4 consists of short capsules of earlier empirical work by the principal investigators having either a direct or indirect bearing on the proposed project.

The most relevant prior work of one of the principal investigators (Rosen) was a master's thesis directed by him, a journal-length version which was subsequently published (Morris & Rosen, 1973). A reprint of the complete article is appended (See Appendix C). The experiment in question was conducted out of a suspicion that Greenberg and Shapiro (1971), in their effort to demonstrate that the lack of an opportunity to reciprocate in the future would deter the subject from seeking help, may have inadvertently confounded their manipulation of opportunity to reciprocate with an induced feeling of inadequacy in the subject vis-a-vis the potential helper.

It was theorized that the parties to a relationship of social exchange are motivated to achieve or maintain equity and that receiving help from another party creates an aversive state of indebtedness which the recipient would ordinarily seek to reduce through reciprocation. It was hypothesized, as did Greenberg and Shapiro, that a person in need of help would be loath to request it from a work partner if he anticipated having no opportunity to repay the favor. Given that he needed help, it was further hypothesized that if the person were to discover that he was especially lacking in task-relevant competency compared to peers in similar circumstances, he would be less inclined to seek help from his partner than if he did not feel so inadequate. The reason advanced for this hypothesis was that to seek help under the former circumstances would be an open admission of one's inadequacy.

The experiment was conducted with 56 freshmen, using Greenberg and Shapiro's "physical disability" paradigm. Subjects were given to understand that they could not meet the quota on a manual task but had done well (or poorly) for persons similarly handicapped (by an arm in a sling). Later they learned that the electricity would be shut off by the maintenance people in 2 hours (versus 15 minutes), making it possible (impossible) to help their visually handicapped fellow worker subsequently on a visual task. Clear confirmation was found for the hypothesis that felt inadequacy inhibits help seeking. The hypothesis concerning lack of opportunity to reciprocate was significantly supported on a measure of latency of response, but failed to reach significance on a measure involving frequency of subjects seeking help (though the direction of the relationship was appropriate).

Of relevance, too, is an experiment reported in a 1967 paper presented by Rosen and Bielefeld (see p. 6 in vita), under USPHS Grant (MH-06685) to S. Rosen. The paper was entitled "Help received by a needy competitor as contingent upon the deference he shows." In that study, a person was in the position of being

that in one third of the pairs, the tutor's pretest performance was superior to the tutee's, in one third the tutor's performance was equal to the tutee's, and in one third the tutor performed less well than did the tutee (in accordance with Figure 1). At their first class period during the following week, subjects will be informed of their assigned roles and relative competency levels; they then will be asked to complete a "First Impressions" questionnaire. All tutors will then receive one of two sets of standardized materials (in counterbalanced order) and training in their use, while tutees are involved in some other classroom activity. The tutoring session will follow during the second hour of the two-hour block of class time, after which an equivalent achievement test, and then a "Second Impressions" questionnaire will be administered. Several days later the roles in half of the pairs will be reversed, at random. Training of tutors, tutoring, and achievement testing on a second set of curriculum materials will then take place, after which a "Third Impressions" questionnaire will be administered. As soon as possible thereafter, subjects will be thoroughly debriefed in the classroom. Confidential, individual feedback on actual scores achieved during the two sessions will be given at this time. It will be made clear to subjects both at the outset and during the debriefing that their course grade will not be dependent on participation and performance in the experiment proper, but that covering these materials will serve as useful preparation for the course work.

Overview of public school study. The public school experiment will be a conceptual replication of the college experiment with some obvious differences. Apart from differences in curriculum materials and in the language to be used in the questionnaires, it is expected that relatively more hours would be spent in tutor training and in tutoring with public school subjects. The consent procedure would necessarily be more elaborate since it would also involve obtaining parental consent. It is difficult to anticipate at this point whether, in executing the public school experiment, it would be feasible to include same or different race as another variable in constructing tutor-tutee pairs, or whether it would be more practical to pair students within race. Participant schools are available but not yet selected (see Appendix B).

Subjects and Design. For the college experiment the paradigm shown in Figure 2 calls for a 2 x 2 x 3 factorial design. The first factor, First Assigned Role, would have two levels, Tutor and Tutee. Orthogonal to this first factor is the additional factor of Second Assigned Role, which would similarly involve random assignment to the tutor or tutee role. The third orthogonal factor is (original) Tutor's Relative Competency, which would involve three levels: original tutor more competent, or less competent than original tutee, or equally competent to the tutee. In forming unequal pairs an attempt will be made to pair those subjects who differ in their actual pretest score, but by no more than one third of the range of distribution of class section scores. Equal pairs will be constructed from tied (or near-tied) scores occurring throughout the class distribution. The goal is to ensure that row means as well as column means in Figure 1 are equal with regard to pretest performance.

The aim of the college experiment is to use at least 180 subjects, with 15 subjects in each of the 12 treatments. These subjects would be recruited in their respective class sections of the undergraduate course "Learning and

able to help out both a needy and a non-needy competitor. It was found that a moderate degree of deference from the (rigged) needy competitor led the subject to extend more help to the financially needy recipient (in the form of a lower price for a scarce commodity) than to the non-needy recipient. But high as well as low deference by the needy person led to greater exploitation of the needy than the non-needy recipient. One implication of that experiment for the present study is that a recipient of help may have realistic reasons for concern over the psychological and other costs that he might incur in accepting help. That experiment was one of a series of experiments dealing with some of the conditions under which an owner of an informational as opposed to a material commodity was willing to transmit the resource in question. (See Rosen, 1966, in vita.)

Of lesser relevance is a recently completed program of studies on communication and message content under USPHS Grant (MH 18387) to S. Rosen (and co-investigator A. Tesser). The studies in question were concerned with the communicator-relevant, recipient-relevant, and norm-relevant determinants of the reluctance to transmit information that is needed by the recipient but which would presumably have a painful (bad news) as opposed to pleasant (good news) impact on the recipient. One generalization of possible interest here is that the potential communicator is quite concerned with how the recipient will evaluate him were he to transmit bad news, particularly when his own status is the more desirable of the two. Also of interest is the fact that the communicator is inclined to make the (probably erroneous) assumption that the recipient would prefer to remain ignorant of the bad news. (See pp. 3-4 in vita.)

A number of the early articles co-authored by one of the investigators (Rosen) were based on field studies dealing with status differences in children's peer groups both in classroom and in camp settings. (See p. 2 in vita.) The other investigator (Powell) has recently been involved in descriptive studies of classroom behavior of children, college students, and teachers, from the standpoint of naturalistic observation. While his studies of classrooms (USOE) and of helper-helpee interactions (NIMH) have been funded, they only have a general relevancy to the proposed study.

This work relating characteristics and behaviors of teachers to those preferred by students is more relevant in that the perceptions of teachers (Professors) and of students are related to behavior recorded in the classroom. The relationship of classroom process to achievement, satisfaction, and student ratings has been the subject of several studies, shown in Powell's vita. This involvement with tutor-tutee research currently entails helping a doctoral student complete a college-level study (using the peer tutoring materials to be employed in the proposed research) in which grade contingency is the major variable.

5. Procedures

The overall plan calls for two experiments whose execution would require 26 months. The first experiment would be conducted on college-age subjects during the first year of the proposed project. Depending on the results obtained and the lessons learned from this first experiment, and depending upon the availability of funding for the remainder of the proposed duration of this project, a conceptual replication would be conducted the following year with public school subjects.

There are strategic reasons for beginning with college-age subjects. One obvious reason is to facilitate instruction at the undergraduate level. A second important reason is that since a number of the hypotheses advanced above will require self-report by subjects and a certain degree of intelligent retrospection, it seems wisest to begin with a population of subjects who are quite uniformly capable of verbalizing how they felt. To the extent that a given measure fails to differentiate those subjects, then a decision would need to be made as to whether to discard or to redesign the items in question, or whether some procedural change would be called for. Since there are virtually no empirical data on the cognitive and affective consequences of same-age peer tutoring, we would be in a position to provide the public school personnel, pupils, and parents with relatively realistic predictions of the costs and benefits that would ensue from implementing such tutoring. Training and test materials have already been developed and tested in several local studies at the college level; materials for younger subjects are yet to be developed for same-age peer tutoring. Until we have more experience with this untested experimental paradigm, it would be simpler and more practical to use subjects who can give and withdraw consent freely and promptly, namely adults.

It will be judicious to pilot test the initial study in order to see whether the experimental manipulations are powerful enough to "take," and whether the self-report data are interpretable and appropriate for the hypotheses being posed. Appendix A contains drafts of the three questionnaires which have been designed to elicit data bearing both on subjects' assessments of their performance at different stages as well as on their affective reactions to the experimental situation. Since there will be new classes of relevant college-age subjects available quarterly, it would be desirable to begin the pilot test during the summer quarter of 1974. The main experiment would start either in the fall quarter or in the winter if the fall were needed to complete the pilot testing. It should be pointed out that we are not proposing to pilot test the curriculum materials or achievement tests that would be used in the experiment, since these are already available and the subject-matter is dealt with in some manner in the multi-section course, "Learning and Motivation," that will be the locus of the college study.

Overview of College Experiment. Subjects will be asked to participate in the proposed tutoring experiment as an integral part of their course, "Learning and Motivation." The subjects will first be given a pretest during the first week of the course in order to tap their knowledge of the course material to be covered in the tutoring sessions. Same-sexed pairs of students will be "yoked" within each section such that one member of the pair is relatively equal or unequal to the other in his performance on the pretest. Subjects within each pair will then be randomly assigned to either the tutor or tutee role such

that in one third of the pairs, the tutor's pretest performance was superior to the tutee's, in one third the tutor's performance was equal to the tutee's, and in one third the tutor performed less well than did the tutee (in accordance with Figure 1). At their first class period during the following week, subjects will be informed of their assigned roles and relative competency levels; they then will be asked to complete a "First Impressions" questionnaire. All tutors will then receive one of two sets of standardized materials (in counterbalanced order) and training in their use, while tutees are involved in some other classroom activity. The tutoring session will follow during the second hour of the two-hour block of class time, after which an equivalent achievement test, and then a "Second Impressions" questionnaire will be administered. Several days later the roles in half of the pairs will be reversed, at random. Training of tutors, tutoring, and achievement testing on a second set of curriculum materials will then take place, after which a "Third Impressions" questionnaire will be administered. As soon as possible thereafter, subjects will be thoroughly debriefed in the classroom. Confidential, individual feedback on actual scores achieved during the two sessions will be given at this time. It will be made clear to subjects both at the outset and during the debriefing that their course grade will not be dependent on participation and performance in the experiment proper, but that covering these materials will serve as useful preparation for the course work.

Overview of public school study. The public school experiment will be a conceptual replication of the college experiment with some obvious differences. Apart from differences in curriculum materials and in the language to be used in the questionnaires, it is expected that relatively more hours would be spent in tutor training and in tutoring with public school subjects. The consent procedure would necessarily be more elaborate since it would also involve obtaining parental consent. It is difficult to anticipate at this point whether, in executing the public school experiment, it would be feasible to include same or different race as another variable in constructing tutor-tutee pairs, or whether it would be more practical to pair students within race. Participant schools are available but not yet selected (see Appendix B).

Subjects and Design. For the college experiment the paradigm shown in Figure 2 calls for a 2 x 2 x 3 factorial design. The first factor, First Assigned Role, would have two levels, Tutor and Tutee. Orthogonal to this first factor is the additional factor of Second Assigned Role, which would similarly involve random assignment to the tutor or tutee role. The third orthogonal factor is (original) Tutor's Relative Competency, which would involve three levels: original tutor more competent, or less competent than original tutee, or equally competent to the tutee. In forming unequal pairs an attempt will be made to pair those subjects who differ in their actual pretest score, but by no more than one third of the range of distribution of class section scores. Equal pairs will be constructed from tied (or near-tied) scores occurring throughout the class distribution. The goal is to ensure that row means as well as column means in Figure 1 are equal with regard to pretest performance.

The aim of the college experiment is to use at loast 180 subjects, with 15 subjects in each of the 12 treatments. These subjects would be recruited in their respective class sections of the undergraduate course "Learning and

Motivation," which is taught in all four quarters each year under the direct auspices of the Department of Educational Psychology in the College of Education. Where possible, only same-sexed tutor-tutee pairs will be arranged. The data from opposite-sexed pairs will be discarded unless there are enough such pairs to warrant a side analysis. While of considerable interest in their own right, the theoretical issues involved in working with opposite-sexed pairs, particularly in these times of changing conceptions of the sex roles, are too complex to incorporate in the present project.

With regard to the public school experiment it would be advisable to use at least as many subjects as in the college experiment. It is too early to specify however which classes the pairs of subjects in the public school experiment would be recruited from since the latter experiment would take place in the 1975-1976 school year. Depending upon which classes were recruited, curriculum materials would be designed for tutor training and tutoring at the appropriate level.

Projected Approach to the Use of Human Subjects. Institutional screening and peer review will be sought locally with regard to ethical considerations in the use of human subjects in this project. In attempting to recruit the college subjects, they will be informed in advance of the more global objectives of the project, and they will be asked to participate in the experiment. It will be made clear that they are free to drop out at any time without prejudice to themselves, and free to request that their own data not be considered. The following theme will be communicated to them during the recruitment phase, before the pre-test phase:

"Many educators and researchers are sold on the benefits of having students who have had more advanced preparation and school work in a subject matter tutor students who haven't yet had such preparation. But such tutoring is often highly impractical and costly to arrange. Very little is known about the benefits of peer tutoring among students who are enrolled in the same course. Undoubtedly, peer tutoring among those of the same age or circumstance has always gone on informally. But few people have systematically tried to find out what the results of such tutoring are for the parties involved and how they felt about the tutoring at different stages of the tutoring process. What we propose to do is to investigate the effects of such same-age or same-class tutoring, not only at the college level, but also at the public school level. What we propose to do is to randomly organize you into tutor-tutee pairs. Every pair would meet for two sessions. In half of the pairs, the person that was the tutor during the first session will also be the tutor for the second session. In the remaining pairs, the tutor and tutee will switch roles at the beginning of the second session. We won't begin to form pairs until you have taken a preliminary test on course materials. Because we will use a random assignment to pairs, it may turn out that in some pairs the tutor and tutee will have done as well on the preliminary test, in other pairs the tutor will have scored higher than the tutee, and in still other pairs the tutor will have scored lower than the tutee. To some of you this may sound like an irrational way to pair individuals for tutoring. From a scientific viewpoint, however, we feel that it is best to proceed in this way in the beginning, if we are ever going to make much headway in trying to understand whether peer tutoring in the same class is a useful supplement to regular classroom instruction. You are probably curious about the manner in which the two sessions will be carried out. Briefly, each tutor for the first session will receive special training in the course

materials to be used during that session. Then will come the tutoring phase. After the tutoring has taken place, both members of each pair will each take an individual test on that material. The second session will involve training the tutor for that session on new course materials. Again, once the tutoring has been completed, both members of each pair will each take an individual test for the material in that session. Every participant will also be asked individually to fill out questionnaires concerning his or her impressions. Each of the two sessions will take a regularly scheduled class period. Once all the data are in and we have had a chance to analyze them we will report back to you on the specific findings that emerge from the experiment. The results that we report back will be in terms of the experiences of subjects in general. In communicating our results to you we will not identify who, specifically, among you did or said what, since that would not only be improper but also because isolated responses are of questionable significance in a study such as this."

It would be premature at this stage to spell out how the matter of participation would be introduced to public school students and their parents. In principle, the same options would be made freely available, the same rationale would be given for the experiment, and the same promises would be made and kept.

Validation Measures. To establish whether each subject knows equivocally what role he is in, each questionnaire will ask the subject to identify (by checking the appropriate category) whether he will be or was a tutor or tutee for the particular session in question. This is probably more critical at the beginning of the first session. With regard to relative competency, each subject will be given a memorandum at the beginning of the first session indicating with whom he (or she) has been paired, whether he was to be the tutor or the tutee, and whether he scored "higher than," "about the same as," or "lower than" his partner. This memorandum will also request him not to discuss the issue of their relative competency with his partner either during or after the sessions, and not to discuss the tutoring with his partner between sessions. As a check on this manipulation, however, each subject will be asked to indicate, by means of seven-point rating scales on the "First Impressions" questionnaire, how well he thinks he did on the preliminary test as well as how well he feels his partner did on the same test. The differences between the responses to these two questions will be compared by means of a simple (1x3) ANOVA. Presumably the mean difference will be greatest in the direction favoring the partner in the tutor-greater-than-tutee condition, and greatest favoring the tutee in the tutor-less-than-tutee condition. (Comparable difference scores will be determined after the Session I and Session II tests. However, it is an empirical question as to whether they would continue to reflect the same ordinal relationships which were hopefully induced at the outset.)

Measurement of Dependent Variables. The measure of actual performance will be the score attained by each subject on the test material relevant to the particular session. In Session I, the test will consist of a 16-item multiple choice (4 foil) achievement test which is equivalent (split-half) to 16 of the items in the pre-test. In Session II, the achievement test will consist of 16 new items which are the equivalent (split-half) of the remaining items on the pre-test. The rating scale data on perceived performance will of course also be available. In addition to permitting an analysis of whether

the experimental variables affected their impressions of how well they did, these ratings would permit a subsidiary analysis of the magnitude of the correlation between actual and perceived performance, whether this correlation changed in magnitude with sessions, etc. The initial ("First Impressions") questionnaire will also include two rating scales dealing with the extent to which they expect the tutoring to promote learning in themselves and in their partners.

The affective variables will be measured by means of seven-point rating scales appearing in the questionnaires to be administered at the beginning (shortly after the experimental manipulations are introduced) and at the end of the first session, and at the end of the second session. On all three questionnaires, subjects will be asked whether they expect to find (or whether they found) their experience with their partner enjoyable (distressing/enjoyable). Each questionnaire will also include four seven-point rating scales dealing with the extent to which they evaluated the (anticipated or previous) assigned role in positive terms (unimportant important; worthless/valuable; ineffective/effective; powerless/powerful). The intent is to combine the responses to these four scales additively in order to obtain a single measure of subjects' evaluation of their own role.

The second and third questionnaires will also include a (seven-point) scale dealing with the extent to which subjects feel indebted to their partner, and a scale dealing with the extent to which they would prefer to remain in the same role or switch roles with the partner (in the second session or just supposing there were a third session). As possible alternative measures for the three items dealing with enjoyment of the experience with the partner, feeling indebted, and preference for keeping or switching roles, the questionnaires will also carry parallel items in which the subjects would be asked to infer how their partner would respond to each of these three questions. The extent of correspondence, and change in correspondence, between the subject's inferences concerning his partner's feelings and the partner's self-reported feelings may provide some ancillary insights.

The third questionnaire will also contain four seven-point scales designed to tap the subject's overall impression of the value of the tutorial experience (poor/excellent learning device for tutees; poor/excellent learning device for tutors; detrimental/beneficial to social climate of classroom; experiment a waste of time/worthwhile learning experience for me). Finally, the third questionnaire will include two items designed as a check as to whether the results may have been contaminated by previous (did not know partner/was friend) or between-session contact (no contact/talked about the tutoring sessions) between the partners.

Data Analysis. In testing the specific hypotheses, 2x3 ANOVAs (first role by relative competency) will be computed for those hypotheses that concern the first tutoring session, while 2x2x3 ANOVAs (first role by second role by relative competency) will be calculated for the hypotheses that involve the second tutoring session. If equal treatment n's can be achieved without too much subject loss, n's will be equalized; otherwise it may be necessary to employ the method of unweighted means in computing ANOVAs. For some of the subsidiary analyses, zero-order intercorrelations among the measures of the dependent variables will be computed, by treatment, by condition, and overall.

If the results appear to warrant them, multivariate analyses of variance will also be computed. The .05 level of significance will be the criterion employed to indicate whether the results are supportive of the hypotheses in question.

Addendum: Selected Details of Procedures. This addendum presents an overall time schedule planned for the entire study, and the proposed sequence of events for the college study.

1. Overall time schedule

| | |
|---|---|
| 7/1/74 - 9/30/74 | Prepare materials, pretest materials and instruments on summer school classes. Make necessary modifications to instruments or procedures. |
| 10/1/74 - 12/31/74 | Run and analyze major portion of college study. |
| 1/1/75 - 5/30/75 | Run rest of college study, analyze data, apply for renewal, plan public school studies, disseminate results. |
| 6/1/75 - 9/31/75 | Design and pretest materials for public school studies. |
| 9/1/75 - 3/31/76 | Run public school studies with varieties of samples. |
| 4/1/76 - 8/31/76 | Analysis of data; final report; other forms of dissemination. |

2. Sequence of events in college study. Each class will go through the following three-week sequence once. Undergraduate Educational Psychology students' classes are the setting for the research. For n = 15 in each of 12 cells, 12-15 classes are needed in the 3 quarters scheduled above. Randomization within class sections will be used in assigning Ss to the 12 treatments.

Phase 1. Pretest Ss with split half of each achievement test.

Phase 2,
a. Tell students their roles and "competency levels";
b. Assign specific Ss to pairs
c. Initial impression, Questionnaire I
d. Train tutors on cognitive materials;
e. Tutoring session I;
f. Achievement test on material;
g. Cognitive and affective variables - Questionnaire II;
h. Inform Ss of roles for Phase 3;

Phase 3.
a. Reinforce original "competency levels";
b. Train tutors on new cognitive materials;
c. Tutoring session II;
d. Achievement test on new material;
e. Questionnaire III;

Phase 4. Feedback and debriefing.

6. Facilities and Personnel.

Concerning facilities: (a) Classroom space and tutoring stations are freely available in Aderhold Hall, a new building. (b) Office space, keypunch, programming, and assistant carrells as well as administration support are available in the Institute for Behavioral Research in the Graduate Studies Research Center as well as office and research space in the Education and Psychology Departments. (c) The library is excellent, as is the Information Services Center, searching all available data files (ERIC, RIE, APA, etc.) (d) For the public school phase, cooperation is excellent and liaison is maintained with local school systems. Of course, we have not requested a guarantee of cooperation from any of the three most convenient local school systems, since the proposal is not yet accepted and the public school phase is scheduled for Fall of 1975. The letter in Appendix B indicates, however, that cooperation is virtually assured. (3) The Computer Center is accessible and outstanding, containing IBM 360, 370, and CDC 6400 computers. In fact, the Institute for Behavioral Research maintains its own dedicated-line computer terminal. (f) Graduate and undergraduate enrollments are high; research assistants of high quality are available.

Concerning personnel, the co-investigators, Rosen and Powell, have included biographical information as well as publications in Appendix D. Other personnel will be two doctoral students in social or educational psychology with desired competencies.

7. Special Notes.

The five appendices following "References" constitute the "Special Notes" section of this proposal.

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# APPENDIX A

## Draft Questionnaires for the College-level Study

YOUR NAME _____ YOUR PRESENT ROLE: TUTOR _____
TUTEE _____

FIRST IMPRESSIONS

1. How well do you think you did on that last achievement test?

I did very poorly ___:___:___:___:___:___:___ I did very well

2. How well do you think your partner did on that last achievement test?

Partner did very poorly ___:___:___:___:___:___:___ Partner did very well

What is your prediction as to what effect the peer tutoring will have on learning new material?

3. Will not promote my learning ___:___:___:___:___:___:___ Will considerably promote my learning

4. Will not promote my partner's learning ___:___:___:___:___:___:___ Will considerably promote my partner's learning

Right now, what do you expect your experience with your partner will feel like?

5. It will be distressing to me ___:___:___:___:___:___:___ It will be enjoyable to me

6. It will be distressing to my partner ___:___:___:___:___:___:___ It will be enjoyable to my partner

Right now, how do you feel about the role that you have been assigned in the peer tutoring relationship?

7. unimportant ___:___:___:___:___:___:___ important

8. worthless ___:___:___:___:___:___:___ valuable

9. ineffective ___:___:___:___:___:___:___ effective

10. powerless ___:___:___:___:___:___:___: powerful

YOUR NAME_____ YOUR PRESENT ROLE: TUTOR_____
TUTEE_____

SECOND IMPRESSIONS

1. How well do you think you did on this last achievement test?

I did very poorly ___:___:___:___:___:___:___ I did very well

2. How well do you think your partner did on this last achievement test?

Partner did very poorly ___:___:___:___:___:___:___ Partner did very well

3. How do you presently feel toward your partner:

I don't feel indebted to my partner ___:___:___:___:___:___:___ I feel highly indebted to my partner

4. What is your best guess as to how your partner presently feels toward you?

My partner does not feel indebted to me ___:___:___:___:___:___:___ My partner feels highly indebted to me

Now that this tutoring session has been completed, how do you feel about the role that you were assigned?

5. unimportant ___:___:___:___:___:___:___ important

6. worthless ___:___:___:___:___:___:___ valuable

7. ineffective ___:___:___:___:___:___:___ effective

8. powerless ___:___:___:___:___:___:___ powerful

9. If you had your choice next time, would you prefer to keep the same role in working with your partner or to switch roles with your partner?

I would very much prefer the same role ___:___:___:___:___:___:___ I would very much prefer to switch roles

10. Do you think that your partner would prefer to remain in the same role or to switch roles with you?

Partner would very much prefer the same role ___:___:___:___:___:___:___ Partner would very much prefer to switch

How would you characterize the feelings in the tutoring session you just completed with your partner?

11. It was distressing to me ____:____:____:____:____:____:____ It was enjoyable to me

12. It was distressing to my partner ____:____:____:____:____:____:____ It was enjoyable to my partner

YOUR NAME _____ YOUR PRESENT ROLE: TUTOR ____
TUTEE ____

THIRD IMPRESSIONS

1. How well do you think you did on the test you just took?

   I did very poorly ____:____:____:____:____:____:____: I did very well

2. How well do you think your partner did on the same test?

   Partner did very poorly ____:____:____:____:____:____:____ Partner did very well

3. How do you presently feel toward your partner?

   I don't feel indebted to my partner ____:____:____:____:____:____:____ I feel highly indebted to my partner

4. What is your best guess as to how your partner presently feels toward you?

   My partner does not feel indebted to me ____:____:____:____:____:____:____ My partner feels highly indebted to me

Now that this second tutoring session has been completed, how do you feel about the assigned role that you were just in?

5. unimportant ____:____:____:____:____:____:____ important

6. worthless ____:____:____:____:____:____:____ valuable

7. ineffective ____:____:____:____:____:____:____ effective

8. powerless ____:____:____:____:____:____:____ powerful

9. If there were a next time and you had your choice, would you prefer to keep the same role in working with your partner or to switch roles with your partner?

   I would very much prefer the same role ____:____:____:____:____:____:____ I would very much prefer to switch roles

10. If there were a next time, do you think that your partner would prefer to remain in the same role or to switch roles with you?

    Partner would very much prefer the same role ____:____:____:____:____:____:____ Partner would very much prefer to switch

How would you characterize the feelings in the tutoring session you just completed with your partner?

11. It was distressing to me ___:___:___:___:___:___:___ It was enjoyable to me

12. It was distressing to my partner ___:___:___:___:___:___:___ It was enjoyable to my partner

13. How well did you know your partner before registering for this class?

/__/ No contact /__/ Knew by sight only /__/ Acquaintance /__/ Friend

14. How much contact did you have with your partner between the tutoring sessions?

/__/ No contact /__/ Saw briefly: didn't talk /__/ Saw socially; did not discuss tutoring sessions /__/ Talked about tutoring sessions

15. If there were a next time, and you had your choice, would you prefer to keep the same partner or to have some new partner?

I would very much prefer same partner ___:___:___:___:___:___:___ I would very much prefer new partner

Based on your tutoring experiences in this class, what is your overall impression of the value of peer tutoring?

16. Poor learning device for tutees ___:___:___:___:___:___:___ Excellent learning device for tutees

17. Poor learning device for tutors ___:___:___:___:___:___:___ Excellent learning device for tutors

18. Detrimental to social climate of classroom ___:___:___:___:___:___:___ Beneficial to social climate of classroom

19. This experiment was:

A waste of time for me ___:___:___:___:___:___:___ A worthwhile learning experience for me

20. You realize, of course, that the method of role assignment in this study was rather arbitrary. If peer tutoring were to become a standard classroom procedure in classes like this, what method of role assignment would be best in your opinion, for both the tutor and the tutee? (Use back of page if necessary)