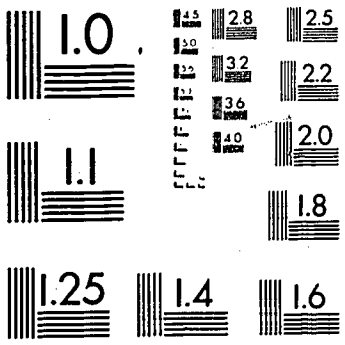

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ABSTRACT

The relationships among tutor and pupil characteristics, tutorial processes, and learning outcomes in a peer tutorial program of spelling with sixth grade children were explored. Prior to tutoring, tutors and their pupils were tested for peer group status and liking of the tutorial partner. After twenty sessions of tutoring were completed, participants were asked to rate their partner on perceived competency and personal like or dislike of the partner. The tutor's pretutorial liking of his partner was a significant predictor of the competency rating given to the tutor by his pupil following the program. Tutorial pairs in which the tutor and pupil rated each other similarly on competency tended to spend more time learning to spell each word, while pairs in which there was a large gap in mutual competency rating were likely to learn words in a shorter length of time. Changes in personal attitude toward a partner indicated a tendency toward increased liking as work progressed. While the tutoring resulted in the students learning to spell, it did not alter the inherent spelling ability of the participants. (JD)

EXPERIMENTAL ANALYSIS OF SOME PROCESS VARIABLES IN PEER TUTORIAL LEARNING

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EXPERIMENTAL ANALYSIS OF SOME PROCESS VARIABLES IN PEER TUTORIAL LEARNING: A PRELIMINARY REPORT

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This study was designed to determine the relationships between tutor-tutee characteristics, tutorial processes, and learning outcomes in a peer tutorial program of spelling with sixth grade children. All children were Anglo, and from a middle SES community surrounding the parochial school in which this study was conducted. Tutors and tutees were chosen on the basis of performance on a pretutorial test of spelling, then randomly assigned to same-sex or opposite-sex tutorial pairs. Children who scored below the group median performance were the tutees, while tutors were the children who scored above the group median. Prior to tutoring, tutors and tutees were tested for peer group status (peer acceptance and peer rejection), and liking of the yet to be announced tutorial partner. Tutees were tested on a digit span test for short term memory.

The tutoring program was a modification of the Peer Mediated Instruction approach of Rosenbaum (1973). Following training, the tutors worked for twenty sessions of ten words each. The 200 words employed in the session had been missed by every tutee on the pretutorial spelling test. After the twenty sessions were completed, tutors and tutees were asked to rate their partner on perceived competency and perceived affect as exhibited during peer tutoring. Tutors and tutees also were asked to give a second rank-ordered liking of the tutorial

partner. Change scores between first and second administration of this instrument were determined. Tutors and tutees were given a test on the 200 words of the tutorial sessions, and on the 100 additional words as a test of generalization of learning. Learning efficiency scores, calculated as the length of time it took a tutee to learn a word in each pair, were also determined.

A series of hypotheses were proposed for the expected relationship of predictors to criteria. Of particular interest were tutor-tutee characteristics as predictors of learning outcomes, tutorial processes as predictors of learning outcomes, and tutor-tutee characteristics as predictors of tutorial processes. The data collected to test the hypotheses were analyzed by linear regression models. The findings indicated that tutee pretutorial spelling score was the sole tutor-tutee characteristic predictive of the learning outcomes tutee posttutorial spelling score and score on the generalization test. If a tutee were a relatively good speller before tutoring, he or she would be a relatively good speller after tutoring. The tutoring resulted in children learning to spell, but did not alter the spelling abilities of the child in relation to the class.

Tutorial Process Variables as Predictors of Learning Outcomes

The findings for tutorial process variables as predictors of learning outcomes were few in number. The process variables, which were designed to reflect the climate of the tutorial sessions, apparently did not predict tutee posttutorial spelling scores and tutee generalization scores. The tutee pretest spelling score variable, inserted as a constant in the

analyses of process contributions to the prediction of learning outcomes, was again a predictor of these outcomes. Analyses of process variables as predictors of pair efficiency scores revealed that a tutee with a high pretutorial spelling score tended to be in a pair which required less time than other pairs to learn words in a lesson. The pair was more efficient in their use of time. The only significant process predictor of a learning outcome was the variable composed of difference scores of tutor competency and affect totals minus tutee competency and affect totals. This variable was a significant predictor of learning efficiency scores. There was a negative correlation between the predictor and the criterion. Small tutor-tutee difference scores tended to be associated with poor learning efficiency scores. Tutorial pairs in which the tutor and the tutee rated each other similarly on the competency and affect measures tended to spend more time learning to spell each word. Tutees in pairs in which there was a large gap in totals were more likely to learn words in a shorter amount of time.

In general, the process variables were not predictive of the outcome variables.

Tutor-Tutee Characteristics as Predictors of Tutorial Process Variables

The findings for tutor-tutee characteristics as predictors of tutorial process variables were extensive. The tutor's pretutorial liking of his partner was a significant predictor of the competency rating given on the tutor by the tutee following the tutorial program. A tutor who rank-ordered his partner as a friend (a low liking score) tended to be scored as competent (a low competency score total) by the

tutee. A tutor who liked his partner was in turn perceived favorably by the partner.

The pretutorial liking score of the tutor for the tutee was a significant predictor of liking score changes by the tutor following the tutorial program. The positive correlation between the predictor and the criterion indicates that a tutor who did not like his partner at the start of tutoring was likely to make a large change in his rank-orderings of liking by the end of tutoring. Examination of the data reveals that tutors changed as often in a positive direction as in a negative one. It is inferred that tutor-tutee interactions had an impact on the perceptions of the tutor and his liking for his partner.

The pretutorial liking score of the tutee for the tutor was also a significant predictor of liking score changes by the tutor. A negative correlation between the predictor and criterion indicates that the tutor of a tutee who did not like his partner at the start of tutoring changed his liking for the tutee to a small degree. The tutor whose partner liked him changed his liking for the tutee to a large degree. Again, tutor-tutee interactions affected the perceptions of the tutor. In one case, the tutor may have had his perceptions of the tutee confirmed and thus did not change his liking very much for the partner. In the other case, the tutor may have been more open to change in his liking for the tutee. Change, however, was not necessarily in a positive direction.

The sex of the tutorial partner affected the liking change score of the tutee for the tutor. Same-sex pairs were associated with greater changes of liking scores in a positive direction than occurred in opposite-sex pairs. Same-sex pairs were more condusive than were

opposite-sex pairs to the tutee liking his tutor more following the tutorial program. This sex-related effect was the only one of its kind found in this study. Overall, sex of tutor, sex of tutee, and the sex pairing of partners were not significant predictors of process and outcome measures.

With the set of models which examined the effects of combined tutor-tutee characteristics scores as predictors of process variables, the findings were more extensive, if not immediately interpretable. The difference between tutor peer rejection scores and tutee peer rejection scores was a significant predictor of the competency score given a tutor by a tutee. The predictor and criterion were positively correlated. Large difference scores were associated with large competency totals, which indicate that the tutee did not perceive the tutor as competent. The direction of the difference generally favored the tutors, who were less likely than tutors to have high peer rejection scores. The finding may be interpreted as meaning that a pair with either a relatively highly rejected tutor or tutee will tend to have a tutee who will assign the tutor a poor rating on competency. The tutee in pairs which were of a comparable rejection level tended to assign a favorable competency rating to the tutor.

An interesting finding is that the combined tutor and tutee liking score was a significant predictor of the competency rating assigned the tutee by the tutor. Tutors in dyads in which the partners liked each other tended to rate their tutee as highly competent. Tutors in pairs with little liking shared by the partners rated their partner as low in

competency. Again, the "warmth" of feelings shared in the dyad was related to the perceptions of competency of one partner for another.

Both the difference between tutor and tutee liking scores and the total of tutor and tutee liking scores were significant predictors of changes in liking by the tutors. Dyads in which there was little difference in tutor and tutee liking had large posttutorial changes in liking scores by tutors for tutees. Large tutor-tutee liking differences were associated with small liking changes by tutors. Disparate liking scores were associated with little shift in liking for the tutee, while similar liking scores were associated with a large shift in liking by the tutor. When the tutor and tutee liked each other, there tended to be a high change score for the tutor. Since the liking was high, it can be assumed that the change was in negative direction. When the liking total indicated that the tutor and tutee did not like each other, change scores for the tutor were small. These findings suggest that when liking scores between the partners are similar or both in a positive direction, the tutor will tend to experience a large shift in his liking for the tutee. This shift was usually in a negative direction, meaning that the tutor liked his partner less after tutoring. Large tutor-tutee differences in liking and poor liking of partners for each other were associated with little change in the feelings of the tutor for the tutee.

Similarly, both the difference and sum scores of tutor liking score and tutee liking score were significant predictors of liking score changes by the tutee. Dyads in which there was little difference in liking scores had small posttutorial changes in liking by the tutee. Large differences in pretutorial liking were associated with large shifts in liking by the

tutee. As in the case of tutor change scores and liking totals, combined scores indicating high liking were associated with large changes in tutee liking for the tutor. Thus, for the tutee, liking scores changed little if pretutorial levels of liking were similar or the total indicated little liking in the pair. Liking scores changed more when the pretutorial levels of liking were disparate or the total level indicated high liking. In contrast to the case for the tutor, the tutee would be more likely to shift liking for the tutor when there existed a large difference in the pretutorial liking of the two.

Tutor-tutee liking difference scores were a significant predictor of tutor competency and affect totals. Low liking differences were associated with poor process totals, while high liking differences were associated with favorable process totals. Tutees in pairs with similar liking scores tended to rate their partner in a negative direction on competency and affect measures. Tutees in pairs with larger differences in liking scores tended to rate their tutor in a positive direction on competency and affect measures. This finding makes more sense when pairs that do not like each other are considered to account for the poor tutor process totals, and pairs with a highly liked tutor and a relatively disliked tutee are considered in relation to good tutor process totals.

The criterion of tutor competency and affect scores minus the total of tutee competency and affect scores had four significant predictors: (1) difference scores of tutor acceptance score minus tutee acceptance score; (2) difference scores of tutor rejection score minus tutee rejection score; (3) difference scores of tutor liking minus tutee liking; (4) total scores of tutor liking and tutee liking. Predictors one and two were

positively correlated with the criterion, while predictors three and four were negatively correlated with the criterion. Similar levels of tutor and tutee peer acceptance and rejection were associated with nearly equal tutor and tutee competency plus affect totals. Peer status differences were associated with larger differences in process totals between tutor and tutee. Similar levels of liking were associated with large differences in process totals, while large differences in liking were associated with small differences in process totals. Liking totals indicating good liking in a dyad tended to be associated with large difference scores in process totals. Liking totals indicating low liking in a pair were associated with small differences in process totals. The above findings are not interpretable with reference to the direction of difference of the scores. Both a large difference favoring the tutor and one favoring the tutee can account for the difference scores. Further analysis of the direction of differences is not possible with the statistical package used to analyze data.

A similar problem exists for the interpretation of the next finding. Difference scores of tutor liking minus tutee liking were significant predictors of difference scores of tutor change in liking and tutee change in liking. There was a negative correlation between the two variables. Liking score totals were predictors of tutor and tutee liking change totals. In pairs with students who liked each other, there were high change totals. In pairs with students who did not like each other there were low change totals.

Overall, tutor-tutee characteristics, and in particular combination vectors of these characteristics, were predictors of tutorial process

variables. Sex of tutor and sex of tutee were not significant predictors of criteria. Sex pairing was a predictor of one criterion, while pretutorial liking levels were predictive of two criteria. In the models which combined characteristics' scores, pretutorial liking and peer acceptance and rejection were predictors of several process criteria. While tutor-tutee characteristics had effects on process variables, these effects did not transfer into changes in learning outcomes. Tutor-tutee characteristics, with the exception of tutee pretutorial spelling level, were not predictive of learning outcomes.