

## THEORETICAL CONSIDERATIONS OF PEER TUTORING

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The need for a theoretical analysis of the peer tutoring process has been recognized by reviewers of the research in this area. This paper addresses itself to this need by discussing the process of peer tutoring from the various psychological, educational, and social perspectives. The main areas covered in the paper are: definitions of the peer tutoring process, the psychological and educational processes in peer tutoring as a learning and teaching experience, and the conceptualization of peer tutoring in terms of a cooperative social system and as a group reward structure. This theoretical discussion provides both the researcher and practitioner with a framework for studying and implementing peer tutoring for enhancing specific academic and social goals.

In their review of peer tutoring programs, Devin-Sheehan, Feldman, and Allen (1976) attribute the limitations of the existing research to the absence of a theoretical foundation. The present paper analyzes peer tutoring as a learning and teaching experience that together form a social process. The special characteristics of the learning, teaching, and social processes involved in peer tutoring explain and predict its outcome. Understanding these theoretical considerations, as well as research results, can furnish the practitioner wishing to implement a peer tutoring program with guidelines for procedural decisions; e.g., selection of tutor and tutee, program structure, and training of peers.

Peer tutoring is defined as a one-to-one teaching process in which the tutor is of the same general academic status as the tutee. Other terms such as "proctoring," "peer teaching," "cooperation," "unstructured tutoring," and "group reinforcement" are sometimes used interchangeably with "peer tutoring" in the literature.

Peer tutoring can be viewed from an academic perspective, as involving learning and teaching processes, or from an interpersonal perspective, as a social system. From the academic perspective, the main features of the process to be discussed are: exposure to the material, development of learning and teaching skills, motivational factors, the effects of individualization, and the advantages of the teacher's being a peer. From an interpersonal perspective, peer tutoring is conceptualized as a social system, comprised of a cooperative dyad with members of unequal status, and providing an opportunity for social contact and the development of social skills.

### PEER TUTORING AS A LEARNING AND TEACHING PROCESS

The most common explicit goal of peer tutoring is that of *academic gain* for the *tutee*. Whereas most frequently this goal is attained by mere *exposure* to and *rehearsal* of learned material (to improve retention and recall), peer tutoring can also be used for teaching new material and for facilitating the development of higher order cognitive skills (Collier, 1980). Peer tutoring may also train in "learning to learn." It involves the use of a peer as a model of a learner, demonstrating structural learning skills such as concentrating on the material, attending to another person, organizing work habits, and asking questions.

Many studies (Breedlove, 1975; Cloward, 1967; Conrad, 1976; Crandall, 1974; Devin-Sheehan, Feldman, & Allen, 1976; Johnson & Bailey, 1974; Klann, Kinsman, & Egner, 1972; Richer, 1973; Trovato & Bucher, 1980) indicate the broad range of effectiveness of peer tutoring, across ages, settings, populations, and subject matter. Few studies, however, document higher cognitive gains. Torrance's (1970) found that dyadic interaction facilitated originality of thinking or "creativity" among a population of college students, with a weaker effect on his 5-year-old subjects' production of original ideas. Lack of significant academic gains has been reported by Allen and Feldman (1973), Davis (1967), Erickson and Cromack (1972), Kelly (1972), and Robertson (1971). Factors that may have contributed to these nongains will be discussed later in this paper.

Although it is not the explicit goal of peer tutoring, the *tutor* can also benefit from the peer-tutoring experience. As in the case of the tutee, the tutor's *academic gain* may result from the mere exposure to and rehearsal of the material, or it may involve the development of *higher organizational-cognitive skills*. Furthermore, the tutor's organization of the material (especially when it occurs prior to actual peer-tutoring sessions) facilitates long-term retention, as well as aiding in the formation of a more comprehensive and integrated understanding (Bargh & Schul, 1980).

The academic benefits for the tutor have been documented (Cloward, 1967; Conrad, 1976; Davis, 1967; Devin-Sheehan et al., 1976; Dineen, Clark, & Risley, 1977; Richer, 1973) for a broad range of ages and backgrounds. Two insignificant results may be attributed to floor and ceiling effects, where the tutors in Robertson's (1971) study were selected on the basis of their poor performance (possibly too poor to be remedied by acting as tutors), whereas the tutors in Snapp, Oakland, and Williams' (1972) study may have already mastered reading skills, and therefore showed no particular gains.

#### *Which Components of Peer Tutoring Promote Learning in Tutees and Tutors?*

As with other learning processes, tutoring provides a *learning structure*, for both tutee and tutor, that includes an environmental and temporal setting for learning and involves modeling, communication, feedback, and a motivational system, all of which are modified by the special characteristics of the peer-tutoring process: its individualized nature, and the closeness of the peer teacher and student.

#### *Individualization*

The "*one to one*" ratio of teacher to pupil maximizes the *active participation* of pupil and teacher, which, according to Piaget's theory and findings, enhances comprehension and the development of cognitive-organizational skills. The individualized nature of peer tutoring can improve on the traditional classroom setting, since it involves constant attention, explanation, demonstration, and direct and immediate *personal feedback* and reinforcement of the *tutee's* questions and responses. The *tutor* also tests his own knowledge and receives feedback via the questioning and the understanding of the tutee. A further advantage of individualization is that it adjusts the learning experience to the *level* and *pace* of the individual tutee.

#### *Modeling*

Research on modeling has shown its influence to be promoted by the *similarity* of the model to the viewer and by the latter's perception of the model as having a relatively *high status*. The mere use of a peer maximizes the similarity factor that enhances an identification process. The relative impact of similarity and status varies in different populations. Bronfenbrenner's (1970) comparative study of children in the U.S. and

U.S.S.R. asserts that American children are more inclined to look at their peers (similarity) rather than at adults (status) for models, as compared to the Soviet children. Barry and Overman (1977) found that peer models were more effective than adults for mentally retarded children. Inherently, similarity and status, the two components shown to increase modeling effects, cannot be maximized concomitantly.

### *Motivation*

The individualized character of peer tutoring facilitates a reliable, consistent, and effective use of reinforcements for rewarding the tutee. In contrast to other academic systems, the reward depends solely on the individual pupil's effort and performance. The *motivational system* in peer tutoring may consist of tangible, social, academic, and moral reinforcements. *Tangible, material reinforcement* for tutees can be monitored and delivered by child tutors in accordance with an adult's direction (Suratt, Ulrich, & Hawkins, 1969; Willis, Morris, & Crowder, 1972); sometimes, however, the administration of the tangible reward system may be too strenuous for the child who is also responsible for teaching (as was the case in Towson's 1972 research). Tangible reinforcement also can be administered by adults in conjunction with the peer-tutoring program, as in the home-based reinforcement program used by Trovato and Bucher (1980). Tangible reinforcement programs are usually effective motivators (e.g., Davis, 1972; Harris & Sherman, 1973; Trovato & Bucher, 1980; Willis, Morris, & Crowder, 1972; see, however, Hamblin, Buckholdt, Ferritor, Kozzloff, & Blackwell, 1971, for an insignificant result). Nevertheless, it is debatable whether they should be used when not absolutely necessary, since they may also impart the expectation that any academic effort deserves material consequence, so that the student is less likely to exert academic effort when reward is not automatically conferred and may attend to and value less the intrinsic intellectual rewards (see Ryan, 1979).

The tangible reward for the tutor involving direct pay is not very common. The prevalent view of peer tutoring perceives it as an opportunity to individualize instruction without additional monetary obligations for the academic system. The most common way of overcoming the lack of tangible rewards is by establishing the tutoring role as an integral *structure within the academic curriculum*: every student has to act as a tutor or tutee within the given educational setting: class, college, etc. Other motivating systems are usually implicit and are inherent in the tutoring process.

The more common reward is the *social reward*, obtained by the *tutee* through attention and *verbal reinforcement*. The importance of the peer group for the tutee, and the social status of the tutor are crucial to the efficacy of the peer as a social reinforcer. The peer may also supply verbal praise that is more meaningful to the tutee through the use of "slang." Patterson and Anderson (1964) suggest that because of the child's increasing experience with his peer group, the peer should be a more effective reinforcer for the older child than for the younger. The tutor is reinforced by social contact, social verbal and nonverbal reinforcement, the cooperation and the understanding of the tutee, and by his perceived high status in the interaction with the tutee. While high status is typically attributed to the tutor's role, the provision of alternative rationales for the role can change this attribution. As demonstrated by Bierman and Furman (1981), such a feeling of high status can be maximized by a competence rationale and minimized by a chance rationale. Within a broader social context, the role of a helper is valued positively. Being in the tutor's role implies academic success (since the tutor is able to teach

another peer) and prestige. Through this teaching role, the tutor becomes a meaningful, active member of the academic society, not just another student.

Another motivational system is that of *academic achievement and status* outside the peer-tutoring process, which in itself involves social, and sometimes tangible, reinforcements. This academic status may refer to ongoing performance in a classroom setting, or, for the tutee, to a specific examination scheduled at the completion of the tutoring experience. The tutor also may be motivated by the academic gain possibilities inherent in teaching. S/he may prefer to review the material through the active and interactive method of teaching rather than through going over it by himself/herself. Alternatively, the tutor may be motivated by a *moral* consideration: the desire to help another student, an underachiever or an underprivileged student. In a series of experiments, Weiner (1979, 1980a,b) has shown that causal attributions influence readiness to help. The attribution of an internal cause of failure and perceived controllability (such as lack of effort on the part of the person in need of help) is likely to promote less sympathy and fewer helping behaviors than the attribution of an external cause (e.g., difficult circumstances) and perceived uncontrollability (e.g., a physical disability). The cognitive-attributational set of the tutor is, therefore, crucial in engaging the moral-motivational system.

### *Similarity*

The *closeness of a peer* as a teacher (compared with the adult teacher), a characteristic unique to peer tutoring, renders a number of advantages to the learning process. The similarity of the peer as model, and the possible potency of the peer as a social reinforcer have already been mentioned. In addition, the peer may be better equipped than an adult to present the subject matter in terms of the tutee's way of understanding it, because of his greater familiarity with and better appreciation of the tutee's cognitive framework; also, the peer may communicate more effectively with the tutee than does an adult teacher, since he shares the same peer-language and gesture repertoire, as well as the necessary sensitivity to it. The peer seldom has the adult's prejudices against specific students or slow learners, which can act as "self-fulfilling prophecies." These factors contribute to the tutee's being more free and relaxed with a peer tutor.

Which of the above components of peer tutoring are really essential? Which are necessary, sufficient, or most important for achieving its effects? Initial answers may emerge from the research assessing peer tutoring in relation to other instructional options. Most of these studies compared it either to a no-learning condition or to regular classroom teaching. The former result shows that learning does occur in peer tutoring, while the latter demonstrates that the special characteristics of peer tutoring—individualization and interaction with a peer—can render it advantageous over traditional classroom teaching. There has also been some research comparing peer tutoring to other learning methods. Myers, Travers, and Sanford (1965) found it superior to studying alone, showing that peer interaction adds significantly to the impact of the individualization factor in peer tutoring. In Jenkins, Mayhall, Peschka, and Jenkins' (1974) study, peer tutoring was more effective than small-group instruction or studying alone, which lends support to the notion that both individualization and the feedback and social reinforcement provided by the peer were essential in maximizing gains. The importance of individualization also is seen in the research on multiple tutees per tutor. One tutee per tutor is usually more successful than multiple tutees, although adult tutors can

sometimes teach a number of tutees without adverse effects on the tutees' performance (Devin-Sheehan et al., 1976).

The above advantages of having the peer as a tutor also address some of the pitfalls of peer tutoring. Sometimes the child's social skills of communication, attention, empathy, understanding, etc., may be insufficiently developed for him/her to effectively fulfill the role of teacher. In addition, since the peer tutor still retains less developed cognitive structures, s/he may not have fully mastered the material, and may transmit a distorted version of it in his teaching. This may have been the critical factor responsible for insignificant gains of tutees in some studies. In three such studies (Allen & Feldman, 1973; Erickson & Cromack, 1972; Kelly, 1972), the tutors were low-achievers, who may have been deficient both in mastery of the material and in their teaching skills. Nevertheless, positive academic gains for tutees tutored by low-achievers have been reported (see Devin-Sheehan et al., 1976). However, it seems advisable to assess the tutor's teaching skills or his/her mastery of the material relative to the tutee before assigning him/her the role of tutor.

#### PEER TUTORING AS A SOCIAL EXPERIENCE

Besides its explicit manifestation as a teaching and a learning experience, peer tutoring is also a social experience. It provides peers with an opportunity to interact, to get to know each other, and to develop the *social skills* of listening, understanding, soliciting and delivering help, and communicating clearly. For the tutor, it trains in empathy, managing and organizing, persistence, concentration, setting reasonable standards, taking on responsibility, and sticking to a work schedule. The tutor learns to shift from a peer role to a leader's role (see Cazden, Cox, Dickinson, Steinberg, & Stone, 1979) and thereby practices teaching skills, such as the distribution of verbal and nonverbal directives, distancing from another person, imparting feedback and criticism. It is a relatively non-threatening social interaction, since the roles and content for interaction are comparatively well defined and since it demands concentrating on only one individual. Tutoring can therefore provide an introduction to and *preparation for working*.

As a social structure, peer tutoring is similar to cooperation, as defined by Deutsch (1960), Zajonc (1966), and Kelley and Thibaut (1969). In order to understand the cooperative nature of peer tutoring, as well as the unique features differentiating it from other comparative structures, the definitions of cooperation will be discussed. Deutsch characterizes the cooperative social structure as one in which the goals for each of the individuals can be achieved only if all other individuals in the structure also can reach their respective goals. Accordingly, peer tutoring is a two-member cooperative structure, in which both members, tutor and tutee, share the same goal, i.e., the improved academic performance of the tutee. Only if the other reaches his/her goal can either achieve the goal.

Adherence to other definitions of cooperation leads to somewhat different views of peer tutoring. Zajonc (1966) describes a cooperative response as one that benefits the partner and promises a small long-run payoff, at the sacrifice of some self-interest. A noncooperative response is one that promises a larger temporary payoff at a definite disadvantage to the partner. Although this definition originated in the study of game strategies, rather than learning processes, it can be extended to peer tutoring. If attending to another person and concentrating on his needs is conceptualized as a sacrifice of some self-interest, then the tutor is cooperative according to Zajonc's definition, though

the tutee is not. Thus, peer tutoring is a social structure consisting of one cooperative and one individualistic (i.e., neither cooperative nor uncooperative) participant.

A similar view emerges from Solomon's (1960) research of game strategies in two-player games. He investigated the effects of both the feedback that the subject player receives, and of the relative power of the two players on the subject player's cooperative behavior during the game. Peer tutoring is similar to the differential power structure in which the more powerful mate, the tutor, is unconditionally always cooperative. (The equal power condition with a conditionally cooperative mate is the role switching, or equal-status reciprocal cooperation, which is the typical cooperative process.)

A further view of cooperation, based on learning theory, defines a cooperative structure as one in which the individual's reward is directly proportional to the quality of the group work. Again, peer tutoring emerges as a structure similar to cooperation, though distinct from it. In peer tutoring, both group members, tutor and tutee, are rewarded in a similar manner (by the tutee's performance), but the reward is contingent on an individual's, rather than on the group's, performance; i.e., reward is directly proportional to the quality of the tutee's work.

The analysis of peer tutoring in terms of the different definitions of cooperation shows it to be similar to cooperation, since both participants share the same goal. Its distinct feature lies in the power differential between the participants, in which the tutor is an unconditionally cooperative powerful mate. Whereas in a cooperative situation all group members are both workers and helpers, in peer tutoring one is the helper and the other the worker. Moreover, peer tutoring is a structure in which the group (tutor and tutee) is the recipient of a reward contingent on a subgroup's (the tutee's) performance. Peer tutoring is a cooperative dyad composed of members of unequal status, in which the high status member is in a helping role.

An appreciation of the cooperative nature of peer tutoring has deep implications for *interpersonal relations*. Research on cooperative structures has shown them to promote positive interpersonal relations, characterized by mutual liking, positive attitudes towards peers, friendliness, and attentiveness (Aronson, Bridgeman, & Geffner, 1978; Deutsch, 1949; Johnson & Johnson, 1974). This effect has rarely been investigated in peer-tutoring studies, although the process probably promotes good interpersonal relations in a manner similar to cooperation, since we tend to like those who enable us to achieve our goals. Two differences, however, can be predicted: a great initial trust in peer tutoring following Solomon's (1960) finding that subjects made more trusting first choices when confronted with more powerful mates than with equal partners; and a differential effect on cooperativeness of tutor and tutee, such that the tutor feels less competitive than the tutee (Cohen, 1985).

The magnitude of the effect peer tutoring has on interpersonal relations is to some extent mediated by *individual personality style*. While investigating cooperative and competitive tendencies as individual styles, Cohen (1982) found that competitive individuals liked their peers better and viewed their peers as more friendly as *tutees* (as compared to being in competition with the peer, or in reciprocal equal-status cooperation), while cooperative individuals evaluated peers similarly when engaged in equal-status cooperation. This effect is readily understood from the above discussion of the differences between the tutor's and the tutee's role. The tutee, like the competitive person, can concentrate mainly on his own work, and is a recipient of help, rather than a helper. In contrast, the cooperative person improves his/her interpersonal relations through the give-and-take relationship of cooperation.

As a result of its tendency to promote positive interpersonal relations, cooperation is employed as a vehicle to improve *interracial relations* and attitudes. It is more complex to determine the applicability of peer tutoring in meeting a racial integration goal. On the one hand, peer tutoring provides an opportunity for familiarizing individuals with people from other backgrounds and for developing interracial communication within the framework of mutual goal seeking. On the other hand, the higher-status-race individuals typically serve as tutors because of their higher academic level, thus reinforcing the commonly held prejudices of racial superiority, and inhibiting interracial respect and integration. It is, therefore, not surprising that the few studies investigating the effects of cross-racial tutoring on interracial attitudes have found mixed results: Hunt (1971) and Witte (1972) found a positive change in attitudes and communication, while McMonagle (1972) found no effects.

Cooperation seems to *reduce anxiety* in and *improve attitudes* towards academic situations (Johnson & Johnson, 1974). This effect also can be expected to be true for peer tutoring. In some cases, peer tutoring is likely to produce less anxiety than cooperation, because the peers' roles and distribution of power may be more clearly defined. The impact of peer tutoring on attitudes towards school has been investigated with mixed results (Devin-Sheehan et al., 1976). On the whole, the tutors' attitudes seem to improve, and less frequently those of the tutees improve as well. The tutors' improved attitudes can be attributed to reasons besides their participation in a cooperative experience with a peer: They are also participating in a collaborative experience with their teachers, or with the academic institution toward which their attitudes improve. In addition, the tutor's role facilitates an understanding of the teacher's role, and empathy with the (adult) teachers, resulting in more cooperative interactions with his/her own teachers, improved attitudes towards them, and a decline in conduct problems among tutors. This effect may sometimes be used to eliminate or prevent conflicts within the academic setting of a school or a college.

The above processes resulting from cooperation are modified by the asymmetrical power distribution among participants. Accordingly, the tutor's high status can improve his/her self-concept, self-confidence, and self-esteem (see Devin-Sheehan et al., 1976), notably among those tutors known as underachievers and/or poorly motivated students.

What about the self-attitudes and the behavior of the tutee? As the tutee makes significant gains academically, s/he will feel better integrated within the academic setting (class, college, etc.), and thus attitudes towards the setting may improve. The tutee's self-esteem also may be enhanced by the collaborative experience with a high-status peer. However, a perceived rationale of inferior status or performance for being in the tutee's role may have adverse effects on the tutee's self-concept and attitudes towards the academic setting. This explains the negative and insignificant findings concerning attitudes reported above.

Conceptualizing peer tutoring as a form of cooperation has a number of implications for process variables. Cooperation is enhanced by trust and effective communication, and apparently peer tutoring also would gain by fostering an atmosphere of trust or by training to improve communication skills. The research on group reinforcement contingent on the performance of a subgroup (e.g., Alden, Pettigrew, & Skiba, 1970; Drabman, Spitalnik, & Spitalnik, 1974; Hamblin, Hathaway, & Wodarski, 1971) shows it to result in peer-influence processes manifested by commands, threats, and helping, some of which have been reported to occur in peer tutoring (Cazden et al., 1979).

## IMPLICATIONS FOR THE IMPLEMENTATION OF PEER TUTORING

### *Selection of Tutors and Tutees*

The research has shown that people of various ages and backgrounds can function effectively as tutors or tutees. This includes kindergarten-aged children to adults, and various populations such as retarded children, juvenile delinquents, children with behavior problems, underachievers, high achievers, and poorly motivated students. Both tutors and tutees may be selected to improve their academic levels. Students may be chosen as tutors with the purpose of improving their academic environment. Since peer tutoring presents a secure social situation, it can therefore be used to introduce isolated individuals to social contacts. Alternatively, when the performance in peer tutoring is the main object, tutor or tutee may be selected for their communication and tutoring skills, or their abilities to foster trust; for their motivation, (e.g., volunteering for the job), or for their high and influential social status.

When interpersonal liking and friendliness are the main objectives of the program, individual personality styles should be taken into consideration. Individuals with competitive styles may benefit more from a tutorial program, while individuals with cooperative inclinations are better matched to a reciprocal cooperation program. Sutter and Reid (1969) found that subjects high in sociability and low in test anxiety achieved better in pairs, while subjects low in sociability and high in test anxiety performed better alone.

### *Matching Tutors and Tutees*

When the tutee's academic performance is the main object of the program, the tutor should be matched to the tutee by his/her superior knowledge of the material, as compared to that of the tutee (see Ehly & Larsen, 1976), or, alternatively, by his ability and readiness to master the material. When considering the tutor's knowledge, cross-age tutoring would be expected to surpass same-age tutoring. Securing the tutor's self-confidence and ability to shift from the role of peer to leader, so as to manage the tutoring experience from the high-status standpoint, provides another reason to prefer cross-age tutoring (alternatively, high achievers or dominant individuals [Smelser, 1961] should be selected as tutors). Cross-age tutoring is likely to eliminate the competition between peers that hinders teaching. It also protects the tutee's self-esteem by providing an acceptable rationale for his/her role. In contrast to these advantages of cross-age tutoring, the social process in peer tutoring is likely to be maximized by same-age tutoring, since a same-age peer is a better candidate for a friend. From the social standpoint, peers are best equated on critical variables such as socioeconomic status or race, and personal preferences could be used as a criterion for matching them. Because of the tutor's higher status, this role is typically preferred to that of the tutee, as demonstrated in research findings (Rosen, Powell, & Schubot, 1977). When the development of self-esteem, helping, or cooperative skills per se (as distinct from general social skills) is the main objective of the program for a specific individual, s/he would be most likely to attain these attributes while in the tutor's role.

Although many programs match tutor and tutee by their sex, there is no empirical evidence that same-sex pairs perform better than cross-sex teams.

### *Choice of Materials*

The material is usually chosen according to the academic goals desired for the tutee. When the tutor's academic gain is also an aim, the material should be matched to the



subject matter, the tutee's level, and the tutor's understanding and ability to explain. For retarded or brain-damaged peers, a high level of structure is needed; the material should be prepared by the teacher or consist of programmed materials. With high-level older or adult peers, the material frequently can be prepared by the tutor, who may benefit from the preparation itself. Although the most common tutoring experiences involve helping the tutee assimilate material that has already been learned by the tutor and to which the tutee has been previously exposed, effective learning also can occur when the material is new to the tutee, or new to both tutor and tutee (Cohen, 1985). The material to be studied should be selected for its appropriateness in a helping process. Subject matter that demands much personal experience, concentration, or thinking-through may be less appropriate than something that can be discussed and readily explained and evaluated for feedback. This may be the reason for the higher success of peer-tutoring programs teaching reading than those teaching mathematics.

#### *Frequency and Length of Tutoring Program*

Since the peer-tutoring program consists of learning, it seems obvious that the longer the program and the more frequent the sessions, the greater the gain should be. This is true only within certain limits. Cloward (1967) found superior results for tutees who received 4 hours of tutoring a week in comparison to those who received only 2 hours a week. Yet too frequent sessions may strain tutor and tutee without additional gain. A study reviewed by Devin-Sheehan et al. (Department of Health, 1969) found no further gain in a group that was tutored twice a day in comparison to a group that had only one session a day. The same considerations hold for the length of the program. The longer the program, the greater the opportunity to benefit from it. However, periodic assessments are necessary to assure that gains are not diminished and effort wasted. Gains diminishing with time may result from mastery of the material, boredom, loosening of the tutorial structure, social involvement of tutor with tutee, etc.

#### *Amount of Structure and Supervision of Program, External Feedback, and Motivation for Tutor and Tutee*

The amount of structure and supervision should be matched to the age and level of the peers. The younger, more dependent, less capable, and less motivated they are, the more structure and supervision should be maintained by external agents, such as teachers, social workers, program coordinators, etc. However, at least some supervision, feedback, and reinforcement from external agents is needed for the tutor to maintain most peer-tutoring programs. This necessary structuring of the tutoring encounter should be implemented unobtrusively and with minimal interference, so as not to detract from either the tutor's sense of control or the free and relaxed atmosphere between the peers. When social contact, in particular, is desired, the structure should loosen with time, allowing the interaction to become freer and more friendship-oriented.

#### *Preparation for Tutoring*

The cognitive set of conceptualizing the tutoring experience can influence tutor's and tutee's motivation to participate and their attitudes toward the task, toward themselves, and toward each other. The perception of the tutoring experience as a game, homework, teaching, friendship, "big brother," or a course requirement can determine the peer's readiness to participate in it. The rationale accepted for being in the tutor's or tutee's role (e.g., a competence rationale or a chance rationale) will influence their conception of the tutoring process. The causal attribution the tutor makes regarding

the tutee's need for help (e.g., laziness, lack of opportunity, bad luck, or intentional negativism) affects the tutor's readiness to help and the acceptance of the tutee. The organizer of the peer-tutoring program should take these modifying factors into account when presenting both program and peer to the participating student, so that positive affect and motivation can be maximized and loss of self-esteem minimized.

### *Training*

The teaching role requires the use of many tutoring skills: listening, patience, observation, understanding, monitoring, correcting, giving effective feedback and social reinforcement, effective expression and communication, self-disclosing, building trust, influencing and supporting others, and handling conflicts constructively. Some of these tutorial skills can be developed through training, which may be especially necessary for child-tutors, who have yet to develop many social skills. A number of studies have demonstrated success in training tutors, resulting in more effective tutoring: Buckholdt, Ferritor & Tucker, 1974; Conrad, 1976; Devin-Sheehan et al., 1976; Greenwood, Sloane, & Baskin, 1974; Neidermeyer & Ellis, 1971. Especially important is training the tutor in helping and positive influence processes (e.g., positive reinforcement) to avoid resorting to negative methods such as the threats that were observed in the research on group reinforcement. When *tutees* are young or lack social skills, training them in asking questions, soliciting feedback and help, and explaining their particular difficulties also may be beneficial.

*Physical environment* should inspire confidence, concentration, intimacy, and freedom; a large hall full of tutoring pairs is less likely to promote a positive experience than small individual rooms, because of the noise and lack of privacy prevailing when many pairs share the same space (see Davis, 1972).

This paper has discussed alternative theoretical conceptualizations of the peer-tutoring experience. First was the analysis of the component psychological process active in peer tutoring as a learning and teaching experience. The components affecting the tutor included reinforcement, modeling, the closeness of pupil and teacher, and individualization – manifested by the active involvement of the tutee, consistent attention, explanation and demonstration, immediate and direct feedback, and individualized pacing. The influence on the tutor was explained in terms of social reinforcement, the effects of learning through teaching, and the development of skills.

In an alternative analysis, based on studies of cooperation and competition, peer tutoring was conceptualized as a cooperative system, in which the cooperation is mainly one-directional, since only the tutor is fully and unconditionally cooperative. According to the behavioral orientation, peer tutoring was described as a group reinforcement structure contingent on an individual's performance.

The above conceptualizations can serve as the basis for directing research into more basic and systematic channels and guiding the practitioner in making effective choices when implementing peer tutoring.

### REFERENCES

- ALDEN, S. E., PETTIGREW, L. E., & SKIBA, E. A. (1970). The effect of individual-contingent group reinforcement on popularity. *Child Development*, 41, 1191-1196.
- ALLEN, V. L., & FELDMAN, R. S. (1973). Learning through tutoring: Low achieving children as tutors. *The Journal of Experimental Education*, 42, 1-5.
- ARONSON, E., BRIDGEMAN, D. L., & GEFFNER, R. (1978). The effects of a classroom structure on student behavior and attitudes. In D. Bar-Tal & L. Saxe (Eds.), *Social psychology of education: Theory and research*. Washington, D.C.: Hemisphere Publishing Co.

- BARGH, J. A., & SCHUL, Y. (1980). On the cognitive benefits of teaching. *Journal of Educational Psychology*, 72, 593-604.
- BARRY, N. J., JR., & OVERMAN, P. B. (1977). Comparison of the effectiveness of adult and peer models with educable mentally retarded children. *American Journal of Mental Deficiency*, 82, 33-36.
- BIERMAN, K. L., & FURMAN, W. (1981). Effects of role and assignment rationale on attitudes formed during peer tutoring. *Journal of Educational Psychology*, 73, 33-40.
- BREEDLOVE, D. L. (1975). Improvement, supervision and dissemination of a model cross-age tutoring program, *ED117048*.
- BRONFENBRENNER, U. (1970). *The two worlds of childhood: U.S. and the U.S.S.R.* New York: Russell Sage Foundation.
- BUCKHOLDT, D. R., FERRITOR, D. E., & TUCKER, S. (1974, April). *Effects of training in tutoring and shared group consequences on reading performance and tutoring behaviors*. Paper presented at the American Educational Research Association Convention, Chicago.
- CAZDEN, C. B., COX, M., DICKINSON, D., STEINBERG, Z., & STONE, C. (1979). "You all gonna hafta listen": Peer teaching in a primary classroom. *The Minnesota Symposia on Child Psychology*, 12, Lawrence Erlbaum Associates.
- CLOWARD, R. D. (1967). Studies in tutoring. *The Journal of Experimental Education*, 36, 14-25.
- COHEN, J. (1982). Cooperative and competitive styles—the construct and its relevance. *Human Relations*, 35, 621-633.
- COHEN, J. (1985). Tutor or tutee—matching students to the roles. *College Student Journal*, 18(2), 207-212.
- COLLIER, K. G. (1980). Peer-group learning in higher education: The development of higher order skills. *Studies in Higher Education*, 5, 55-62.
- CONRAD, E. E. (1976). Effects of tutor training, achievement and expectancies on process and product peer tutoring variables. Research Summary. *ED124523*.
- CRANDALL, L. D. (1974). The effects of peer tutors and individual skill kits on arithmetic achievement and attitude in grade seven. *Dissertation Abstracts International*, 34(1-A), 94.
- DAVIS, M. (1972). Effects of having one remedial student tutor another remedial student. In G. Semb (Ed.), *Behavior analysis and education*. Lawrence, KS: University of Kansas Support and Development Center for Follow Through, Department of Human Development.
- DAVIS, R. J. (1967). Student to student tutoring in selected English language skills at the Island Trees Junior High School, Levittown, NY, *ED033136*.
- DEPARTMENT OF HEALTH, EDUCATION AND WELFARE. (1969). Programmed tutorial reading project. Indianapolis, IN: Office of Education, Division of Compensatory Education (OE-37029, #2). Washington, D.C.: U.S. Government Printing Office, Division of Public Documents. No. 1969344-843 (2048).
- DEUTSCH, M. (1949). An experimental study of the effects of cooperation and competition upon group process. *Human Relations*, 2, 199-231.
- DEUTSCH, M. (1960). The effects of cooperation and competition upon group process. In D. Cartwright & A. Zander (Eds.), *Group dynamics research and theory* (2nd ed.). New York: Harper & Row.
- DEVIN-SHEEHAN, L., FELDMAN, R. S., & ALLEN, V. L. (1976). Research on children tutoring children: A critical review. *Review on Educational Research*, 46, 355-385.
- DINEEN, J. P., CLARK, H. B., & RISLEY, T. R. (1977). Peer tutoring among elementary students: Educational benefits to tutor. *Journal of Applied Behavior Analysis*, 10, 231-238.
- DRABMAN, R., SPITALNIK, R., & SPITALNIK, K. (1974). Sociometric and disruptive behavior as a function of four types of token reinforcement programs. *Journal of Applied Behavior Analysis*, 7, 93-101.
- EHLY, S. W., & LARSEN, S. C. (1976). Tutor and tutee characteristics as predictors of tutorial outcomes. *Psychology in the Schools*, 13, 348-349.
- ERICKSON, M. R., & CROMACK, T. (1972). Evaluating a tutoring program. *Journal of Experimental Education*, 41, 23-31.
- GREENWOOD, C. R., SLOANE, H. N., & BASKIN, A. (1974). Training elementary aged peer behavior managers to control small group programmed mathematics. *Journal of Applied Behavior Analysis*, 7, 103-114.
- HAMBLIN, R. L., BUCKHOLDT, D., FERRITOR, D., KOZZLOFF, M., & BLACKWELL, L. (1971). *The humanization process*. New York: Wiley.
- HAMBLIN, R. L., HATHAWAY, C., & WODARSKI, J. (1971). Group contingencies, peer tutoring, and accelerating academic achievement. In E. A. Kamp & B. I. Hopkins (Eds.), *A new direction for education: Behavior analysis*. Lawrence, KS: University of Kansas Support and Development Center for Follow Through, Department of Human Development, 1, 41-53.
- HARRIS, V. W., & SHERMAN, J. A. (1973). Effects of peer tutoring and consequences on the math performance of elementary classroom students. *Journal of Applied Behavior Analysis*, 6, 587-597.

- HUNT, B. B. (1971). Some effects of peer tutoring on self-esteem and racial attitude. *Dissertation Abstracts International*, 32(1-A), 92-93.
- JENKINS, J. R., MAYHALL, W. F., PESCHKA, C. M., & JENKINS, L. M. (1974). Comparing small group and tutorial instruction in resource groups. *Exceptional Children*, 40, 245-256.
- JOHNSON, D. W., & JOHNSON, R. T. (1974). Instructional goal structure: Cooperative, competitive, or individualistic. *Review of Educational Research*, 44, 213-240.
- JOHNSON, M., & BAILEY, J. S. (1974). Cross-age tutoring: Fifth graders as arithmetic tutors for kindergarten children. *Journal of Applied Behavior Analysis*, 7, 223-232.
- KELLEY, H. H., & THIBAUT, J. W. (1969). Group problem solving. In G. Lindzey & E. Aronson (Eds.), *The handbook of social psychology*, Vol. 4. Reading, MA: Addison-Wesley.
- KELLEY, M. R. (1972). Pupil tutoring in reading of low achieving second-grade pupils by low achieving fourth-grade pupils. *Dissertation Abstracts International*, 32(9-A), 4881.
- KLANN, H., KINSMAN, H., & EGNER, A. (1972). The effects of utilizing teen tutors in a fourth and fifth grade individualized reading program. *ED102792*.
- McMONAGLE, L. (1972). An investigation of attitude change in college tutors toward black children as a function of required tutoring. *Dissertation Abstracts International*, 33(4-A), 1521.
- MYERS, K., TRAVERS, R., & SANFORD, M. (1965). Learning and reinforcement in student pairs. *Journal of Educational Psychology*, 56, 67-72.
- NEIDERMEYER, F. C., & ELLIS, P. A. (1971). Remedial reading instruction by trained pupil tutors. *The Elementary School Journal*, 71, 400-405.
- PATTERSON, G. R., & ANDERSON, D. (1964). Peers as social reinforcers. *Child Development*, 35, 951-960.
- RICHER, H. M. (1973). Peer teaching as a facilitator of learning: Using conservation of substance as a measure. *Dissertation Abstracts International*, 34(2-A), 641-642.
- ROBERTSON, D. J. (1971). The effects of inter-grade tutoring experience on tutor attitudes and reading achievements. *Dissertation Abstracts International*, 32(6-A), 3010.
- ROSEN, S., POWELL, E. R., & SCHUBOT, D. B. (1977). Peer tutoring outcomes as influenced by the equality and type of role assignment. *Journal of Educational Psychology*, 69, 244-252.
- RYAN, B. A. (1979). A case against behavior modification in the "ordinary" classroom. *Journal of School Psychology*, 17, 131-136.
- SMELSER, W. T. (1961). Dominance as a factor in achievement and perception in cooperative problem solving interactions. *Journal of Abnormal and Social Psychology*, 62, 535-542.
- SNAPP, M., OAKLAND, T., & WILLIAMS, C. A. (1972). A study of individualizing instruction by using elementary school children as tutors. *Journal of Social Psychology*, 10, 1-8.
- SOLOMON, L. (1960). The influence of some types of power relationships and game strategies upon the development of interpersonal trust. *Journal of Abnormal and Social Psychology*, 61, 223-230.
- SURATT, P. R., ULRICH, R. E., & HAWKINS, R. P. (1969). An elementary student as a behavioral engineer. *Journal of Applied Behavior Analysis*, 2, 85-92.
- SUTTER, E. G., & REID, J. B. (1969). Learner variables and interpersonal conditions in computer-assisted instruction. *Journal of Educational Psychology*, 60, 153-157.
- TORRANCE, E. P. (1970). Influence of dyadic interaction on creative functioning. *Psychological Reports*, 26, 391-394.
- TOWSON, S. M. J. (1972). Tutor role enactment in the peer teaching dyad: The effects of tutor-initiated tutee evaluation and reward. *ED065491*.
- TROVATO, J., & BUCHER, B. (1980). Peer tutoring with or without home-based reinforcement for reading remediation. *Journal of Applied Behavior Analysis*, 13, 129-141.
- WEINER, B. (1979). A theory of motivation for some classroom experiences. *Journal of Educational Psychology*, 71, 3-25.
- WEINER, B. (1980). A cognitive (attribution)-emotion-action model of motivated behavior: An analysis of judgments of help-giving. *Journal of Personality and Social Psychology*, 39, 186-200. (a)
- WEINER, B. (1980). May I borrow your class notes? An attributional analysis of judgments of help-giving in an achievement-related context. *Journal of Educational Psychology*, 72, 678-681. (b)
- WILLIS, J., MORRIS, B., & CROWDER, J. (1972). A remedial technique for disabled readers that employs students as behavioral engineers. *Psychology in the Schools*, 9, 67-70.
- WITTE, P. H. (1972). *The effects of group reward structure on interracial acceptance, peer tutoring and academic performance*. Unpublished doctoral dissertation, Washington University.
- ZAJONC, R. B. (1966). *Social psychology: An experimental approach*. Belmont, CA: Wadsworth Publishing Co.