THE EFFECTIVENESS OF A PUPPETRY INTERVENTION STRATEGY ON THE ACCEPTANCE OF SPECIAL CHILDREN IN A MAINSTREAM PHYSICAL EDUCATION SETTING

by

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ABSTRACT

The purpose of this study was to examine the effectiveness of an intervention strategy on the attitude and behavior of normal children toward special children in a mainstream physical education setting.

The intervention strategy was the independent variable and was implemented in an attempt to promote positive attitudes and behaviors toward special children. The intervention strategy was in the form of a puppet presentation. Each class received two puppet shows. For Class A the scripts of both shows were related to ordinary life situations. Class B received a different format of shows. The first show was the same as Class A, however, the second show had a script which involved physical activity.

Two elementary school physical education classes were selected to participate in the study. Each of these classes contained two special needs children. All four children were diagnosed as being trainable mentally handicapped.

A multiple baseline design, across classes, was used to examine the experimental effectiveness of the intervention strategy. Stable baselines were achieved before the

implementation of the intervention with either class. Mean inter-observer agreement scores of 91.8% and 88.4% were calculated, by two methods of reliability, in the use of the coding procedure.

A live recording method of data collection was used for the observation of social behaviors during the physical education lessons. Lessons were observed over a six week period. A total of 12 lessons for Class A and 13 lessons for Class B were used in the data analyses.

The results indicated that the two interventions for each class were successful in changing the behavioral dependent variables. Increases in positive physical, positive verbal, neutral physical, and neutral verbal interactions were found during the post intervention stages of the study. Decreases were observed in negative physical, and negative verbal interactions during the post intervention phase for both classes.

The Singleton and Asher (1977) sociometric instrument was administered to the normal children for the collection of the attitudinal data. The questionnaire was administered to the children at the onset of the study, and again at the conclusion.

The attitude questionnaire indicated that throughout the study the special children were not rejected by their normal peers. The high acceptance of the special children during the pre intervention phase of the study limited the effect

of the intervention. Significant changes were not found during the post intervention phase.

A follow-up study was also performed six weeks after the conclusion of the main phase of the study, to determine whether the attitude and behavior toward the special children had been maintained.

The follow-up phase of the study indicated that the attitudes and the behaviors of the normal children toward the special child had been maintained. This suggests that the intervention strategy did not change the already positive attitude of the normal children, but did increase the positive behavior toward the special child.

The physical activity related intervention strategy provided differing results than the ordinary life related intervention. While the post second intervention number of positive and neutral interactions increased, and remained constant for negative interactions for both classes, the effects of the intervention were most pronounced with Class B.

Class B received the physical activity related second intervention. Therefore, this suggests that the behavior of normal children in a physical education setting is best provided by a physical activity related intervention strategy.

The study suggests that educators must attend to the promotion of both attitude and behavior to obtain the most beneficial mainstreamed environment for special children.

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CHAPTER 1

INTRODUCTION

In recent years, schools have intensified their efforts to mainstream children with special educational needs into regular classroom situations (Bureau of Education for the Handicapped, 1979; Canadian Constitution Act, Section 15, 1981; Nicholls, 1980). These efforts have provided "special children" with the opportunity to interact with their "normal" peers. Such interaction has been shown to benefit both the special and the normal child (Briker, 1978; Haring, 1978; Stainback & Stainback, 1980).

For the inclusion of special children into mainstream schooling to be successful, it is essential that normal peers hold a favorable attitude and display a positive behavior toward the special child. Research has, however, indicated that mainstreamed special children may be faced with problems concerning their social acceptance (Grossman, 1977; Sherill, 1985). Social acceptance is not enhanced by mere placement of special children into regular schools (Semmel, Gottlieb, & Robinson, 1979). To become a naturally accepted member of the school environment requires positive adjustments and attitudes by all members of the school community (Hodgson, 1984).

Any educational endeavor to help the special child to become a socially accepted individual must include the

promotion of better understanding among the children with whom the special child comes in daily contact (Fait, 1972). Awareness programs attempt to provide normal children with a greater knowledge of special children and their needs. Such programs are given in a variety of forms, such as films, discussions, or lectures.

Puppetry can be used as a dynamic medium in the field of education (Currell, 1980). Social interaction may be promoted by the use of puppetry (Lindeman & Powell, 1983). Latshaw (1978) further suggested that fear of the unknown can be lessened by the use of puppetry. Therefore, the use of puppetry to promote positive attitudes toward special children could be an appropriate intervention strategy.

Studies conducted on the effectiveness of intervention strategies have mainly concentrated on the classroom setting, rather than other environments (Levy & Gottlieb, 1984). One such environment that is limited in research data is the school gymnasium. It is possible that differential outcomes result in the effectiveness of intervention strategies in different environments, and that a physical activity related intervention is required to modify interaction in the physical education setting.

The positive influence of attitudes and behaviors of normal children toward special children is a prerequisite for effective mainstreaming. The reception of special children by normal children requires that methods and procedures be designed to facilitate the acceptance process.

With direct, effective measures for positively modifying attitudes and behavior of normal children, special children may experience acceptance rather than rejection (Simpson, 1980).

Purpose of the Study

The purpose of this study is two-fold. First, to examine the effectiveness of an intervention strategy on the physical and verbal interaction patterns between normal and special children in a mainstream physical education lesson. Second, to examine whether an intervention strategy can promote a more positive attitude of normal children towards special children.

Research Questions

1) Can an intervention strategy change normal childrens' physical and verbal interaction patterns with special children in the physical education lesson?

2) Can a physical activity related intervention have a different effect than an ordinary life related intervention?

3) Can an intervention strategy significantly change normal childrens' attitude toward special children?

4) Can an intervention strategy have a long term effect on normal childrens' physical and verbal interaction patterns with special children?

5) Can an intervention strategy have a long term effect on normal childrens' attitude toward special children?

Definitions

Attitude. An attitude is a learned predisposition to respond to an object or concept in a consistent or predictable manner (Fishbein, 1967).

Behavior. Behavior is a directly observable action (McDavid & Harari, 1974; Siedentop, 1976).

Interactions. Interactions are directly visible actions and verbal responses made by the normal child to the special child in the physical education lesson.

Intervention. Intervention is the application of an independent variable to the subjects in a natural setting, in an attempt to change or modify interaction patterns and attitudes.

Mainstream. The integration of normal and special children into the same classroom.

Naturalistic Environment. The observation of the dependent variables in the natural setting that they occur.

Normal Child. A normal child is a child who does not have any special educational needs.

Observer. An observer studies classroom events and records specific interaction occurrences on the coding instrument.

Single-Subject Design. A single-subject design is an experiment in which the effect of the independent variable is assessed using data from a single subject.

Special Child. A special child is a child with special educational needs, as diagnosed by an educational

psychologist, or medical practitioner (possessing a learning deficit as opposed to giftedness).

Special Educational Needs. A child who requires additional educational assistance, over and above the needs of normal children.

Stable Baseline. A stable baseline exists when little variation of the behavior is evident (Johnston and Pennypacker, 1980).

Delimitations

The following are delimitations of the study:

1) The children who were observed were selected from the middle grade range at the elementary school level, specifically grade four.

2) The interaction behavior categories observed and coded were positive, neutral, and negative physical interaction, and positive, neutral, and negative verbal interaction.

3) Each class had two special children within the physical education class.

4) The special children were trainable mentally handicapped.

Limitations

The following are limitations of the study:

1) The ability of the researcher to minimize pupil reactivity to the observers during the physical education lessons.

2) The capacity of the observer to interpret the definitions of the interactions and to code them correctly.

3) The implementation of the intervention is dependent upon the cooperation of the teachers.

4) The effect of the intervention may be influenced by the type of lesson being taught at the time of observation.

5) Past experiences, acceptance level, and understanding of the two teachers involved in the study.

CHAPTER 2

REVIEW OF RELATED LITERATURE

The purpose of this study was to investigate the effectiveness of an intervention strategy on the attitude and behavior of normal children toward special children in a mainstream physical education setting. Owing to the many dimensions of this study related research was reviewed and divided into the following sections: Social interaction; attitudes and behavior toward special children; attitude and behavior change; research findings in physical education; and, puppetry.

Social Interaction

Guralnick and Weinhouse (1983) found that special children are susceptible to problems in forming peer relationships. This is of concern to educators, since research has indicated that the ability to establish peer relationships constitutes a crucial dimension of a child's social competence (Hartup, 1978).

Difficulties in peer relationships, according to Guralnick (1982) exist for special children who are entering mainstreamed settings, since peer relationships play a prominent role in the mainstreaming process. The child's inclusion in positive and frequent social interaction is important to social interactive development. Social isolation throughout childhood is a pattern related to marginal

adult adjustment, and to social and personality maladjustment (Cowen, Penderson, Babigan, Izzo, & Trost, 1973).

Attitudes and Behavior Toward Special Children

Social acceptance and rejection of special children in educational environments has been an area of research interest for more than 30 years (Sabornie, 1985). The consensus of this research is that special children are perceived differently than their normal peers. Researchers using both empirical data and subjective reports have concluded that special children are received less favorably than their normal peers (Simpson, 1980).

Several factors may be responsible for the attitudes displayed by normal children toward special children. Simpson (1980) discussed the view that young normal children demonstrate discriminatory attitudes towards special children as relatively normal patterns of behavior. The discriminatory attitude may be due to fear of the characteristics displayed by the special child. The view that normal children are afraid of their special peers has been supported by various research investigations (Daniels & Davies, 1975; McCann, Semmel, & Nevin, 1985; Stainback, Stainback, & Jaben, 1981).

Simpson (1980) suggested that children are influenced by the attitudes expressed by those with whom they come into daily contact. Parents, teachers, and peer groups all have the potential to influence attitudes of an individual toward

a special child (Auxter & Pyfer, 1985; Fait, 1972; Fallen & McGovern, 1978; Hodgson, 1984).

The attitudes expressed by normal children contrast considerably, and are influenced by a variety of social, physical, and experiential factors. Lazar, Haughton, and Orpet (1977) declared that normal children with a positive social adjustment have more accepting attitudes toward special children than normal children with a lower social adjustment.

It has been suggested that females are more accepting of their special peers, whether male or female, than are males (Goodman, Gottlieb, & Harrison, 1972; Newman, 1978/1979). However, although differences in attitude between male and females are evident (Rapier, Adelson, Carey, & Croke, 1972), the responses do not indicate a positive or negative difference but rather a disagreement of attributes and concerns.

The literature presents conflicting theories concerning the relationship of age with the attitude displayed by the normal child. One theory is that younger children are more accepting in their attitudes toward special children than are older children (Billings, 1963, Hegarty, Pocklington, & Lucas, 1984; Newman, 1978/1979). Whereas, another theory is that younger children are more critical and cruel toward their special peers, whilst their older counterparts tend to be more realistic and understanding (Clunies-Ross, 1984; Ottman, 1981; Rapier et al., 1972).

In consideration of the divergence of theories relating to age and attitude, it is more feasible to attempt a change of the discriminatory immature attitudes of the young child rather than to try to change the already strongly formed attitudes of older children.

Positive and accepting attitudes are demonstrated by children who have experienced previous positive interactions with special children (Bateman, 1962, Jaffee, 1966). This has prompted the suggestion that normal children should be exposed to special children in order to gain positive attitudes (Fallen & McGovern, 1978; Stainback et al., 1981; Stein, 1976).

Currently used indices of social integration of special children tend to rely heavily on research which utilizes sociometric measures of social acceptance (Levy & Gottlieb, 1984). This type of data reflects the attitude of children rather than their actual behavior. Levy and Gottlieb claim that although research studies acknowledge the importance of observing special children in a natural setting, in order to gain an understanding of social behavior toward the special child, few rarely do.

Studies that have assessed the behaviors of normal children toward special children suggest that the normal child tends to favor interaction with other normal children, rather than with the special child (Guralnick, 1980). Watkinson and Titus (1985) agreed with this view, reporting

infrequent social interactions between normal and special children.

Educators must not only assess the attitude of normal children but also their behavior. If a child has a positive attitude toward special children it does not necessarily follow that the behavior will also be positive. Therefore, any intervention strategies should contend with both of these aspects.

Attitude and Behavior Change

Golightly and Bryne (1964) defined an attitude as "a construct which refers to an enduring learned readiness to behave in a consistent way along an effective dimension toward a given object or class of objects" (p. 377). Fishbein (1967) similarly described an attitude as a learned predisposition to respond to an object or concept in a consistent or predictable manner.

Gans (1985), in support of previous research concerning the study of attitude, described attitude as:

> Attitudes, ideas that are emotionally charged lend predictability to our personalities, helping us to adjust to our environment. An evaluation of a person's feelings, knowledge and beliefs, and statements of intent about an issue can provide strong indications of his or her orientation toward that issue (p. 188).

Although attitudes are consistent, they can be changed. Changes in attitude occur, according to Fishbein (1967), when the beliefs of an individual concerning an object

change, or the evaluation aspects of beliefs about an object change. Attempts to change attitude rely on the ability to change an individual's concept or belief system (Gans, 1985). Simpson (1980) concluded that beliefs about an attitude can be changed or altered only when new beliefs have been learned, or with the introduction of positive or negative feedback concerning a particular belief.

Therefore, to obtain positive change of normal childrens' attitudes toward their special peers requires the presentation of positive information, and/or the gaining of positive experiences.

A behavior is a directly observable action (McDavid & Harari, 1974; Siedentop, 1976), whereas attitude is a more hypothetical construct, which cannot itself be directly observed (McDavid & Harari, 1974).

Much has been written concerning the relationship between behavior and attitude. Many researchers have suggested that attitude and behavior are related. However, the consistency of attitude and behavior is one of great debate (Oskamp, 1979; Wrightsman, 1977). Wicker (1971) suggested that attitudes were only slightly related, or were even unrelated to expected behaviors. Wicker concluded that it was a risk to conceptualize attitudes as a latent process underlying behavior, and, to attempt to predict behavior responses from verbal attitude measures.

To gain complete social acceptance of special children it is necessary for educators to promote or change not only attitude, but behavior.

In order to change behavior, the researcher manipulates reinforcers to produce or maintain desired responses. Catania (1973) declared that behavior involved a relationship among stimuli and responses. A change in behavior can be enhanced by altering stimuli, or by reinforcing or punishing the response (Catania, 1973). Therefore, when considering the discriminatory normal childrens' behavior toward the special child, educators need to intervene in a reinforcing manner to gain a more desirable behavior. Without the development of intervention strategies desired interactive behaviors in mainstreamed settings are unlikely to develop (Watkinson & Titus, 1985).

A variety of intervention models have been found to be successful in developing positive behaviors in normal children. They range from joint play and cooperative projects to teacher mediation, manipulation, and reinforcement of interactive behaviors.

Facilitating changes in peer acceptance, understanding, and support for special children cannot be approached as a short-term endeavor. Simpson (1980) suggested that the changing of attitude and behavior normally required a long period of time.

Ottman (1981) suggested that the presentation of information to normal children "will help to prepare them for their

new classmates and answer any questions or calm any anxieties they might have" (p. 42). Stainback et al. (1981) likewise claimed that normal children should be provided with information concerning their special peers. However, the information should not only provide knowledge regarding human differences but also similarities, in the hope of promoting a greater understanding, and also increasing interaction between normal and special children.

Although the provision of information may seem to be delivered more expediently through a lecture format, children should be given the chance to discuss and question the material and their own reactions to the material (Simpson, 1980).

However, unstructured discussions may only serve to reinforce any previously held existing attitudes and behavior (Moscovici & Zavalloni, 1969; Myers & Lamm, 1975). An intervention strategy should, therefore, provide information and stimuli for constructive discussion rather than an opportunity to express opinions without guidance or structure (Simpson, 1980).

Research Findings in Physical Education

Many studies have investigated the social outcomes of integrating special children into mainstream settings (Watkinson & Titus, 1985). However, Levy and Gottlieb (1984) indicated that the majority of research has focused on the classroom environment and that few studies have

examined other environments. Watkinson and Titus (1985) declared that the effects of mainstreaming in physical education are difficult to assess due to a lack of research. Few studies have been conducted in the physical education environment concerning the social acceptance of special children, or the social interactions between normal and special children.

Of the few studies conducted in a physical education setting Kopczuk (1980) found that teacher praise and intervention, given to the normal child, can increase the social acceptance of the special child, both in terms of behavior and attitude. Sinclair (1978) found that the pairing of normal children with special children in physical activity did not have a significant change in the attitudes expressed by the normal children.

In light of so few research investigations Watkinson and Titus (1985) claimed that physical educators "must research social interactions in physical activity to determine the factors that combine to improve interactions in integrated settings" (p. 49). Watkinson and Titus further recommended that physical educators should determine which "specific intervention techniques result in improved social interactions in physical activity settings" (p. 49).

Puppetry

A puppet is an inanimate figure that is directly controlled and made to move by human effort (Baird, 1965; The

New Book of Knowledge, 1985). Bates and Lowes (1976) extended the definition of a puppet to be neither a toy nor a doll but a unique aid to communication, with a message inspired and controlled by the puppeteer.

The origins of puppetry are vague (Taryan, 1981). However, puppet shows have existed in nearly all civilizations, and in almost all periods (The New Encyclopedia Britannica, 1985; Ross, 1978). In Europe, written records have been traced back to 500 BC, whilst in China, India, and elsewhere in Asia there are ancient traditions of puppet theatre, the origins of which are difficult to determine (The New Encyclopedia Britannica, 1985; Taryan, 1981).

During the 20th century there has been a tendency to regard the puppet theatre as an entertainment for children (The New Encyclopedia Britannica, 1985). However, McKay 1980) suggested that puppetry is by no means restricted to the amusement of children. Voluntary agencies, governmental departments, educators, and others with a "message" for adults and children have frequently used puppets to promote themes and ideas.

The Government of the United States of America has made films with puppets as the program stars to teach better farming techniques to illiterate farmers in South America. UNESCO, A United Nations organization, established puppet shows in Mexico, Egypt, and Thailand. While the crowds laughed at the puppets' antics, the puppets also helped to

introduce sound ideas for health, cleanliness, and community development (Compton's Encyclopedia, 1972).

Since the Second World War, the countries of Eastern Europe have recognized the educational and attitude-forming power of the performing arts. Puppetry in these countries, is considered an integral part of the performing arts and has become an established component of the curricular system. Productions are made in line with governmental policy, thereby providing children with their first introduction to communist ideology (Baird, 1965).

The educational potential of the puppet has not been disregarded by the "Western" countries of the world either. The United States of America was one of the first countries to include puppetry within their educational programs. For many years puppets have been used as an instrument for learning and for life adjustment (Collier's Encyclopedia, 1975). The use of puppetry has become a valuable creative form of expression in schools (Currell, 1969; Latshaw, 1978). Currell further suggested that although the educational power and appeal of puppetry has been recognized, the true potential is seldom realized. It has been the work of volunteer groups rather than teaching staff who have "adopted the puppet as their...educational messenger" (Latshaw, 1978, p. 22).

The utilization of puppetry in Canadian classrooms has increased during recent years. Puppets are used to aid children to learn certain curricular concepts, promote

acceptance of psychologically difficult situations, and develop feelings and awareness (McKay, 1980). Table 1 indicates the various educational puppet programs that have been used in Canada during the last 20 years, and their themes.

Children of different ages respond differently to puppets. Bates and Lowes (1976) suggested that elementary schools are the ideal place for the incorporation of puppetry, with children between 8 and 11 years of age benefitting most. Szilagyi (1967) agreed with this perspective that children of a younger age tend to show a greater acceptance of puppetry, but also included children of an even younger age, from 4 to 11 years. To children of these ages, puppets can, through their actions and words, demonstrate appropriate attitudes and reinforce desirable behaviors (Bates and Lowes, 1976).

Research has indicated that normal children may be afraid of special children (Daniel & Davies, 1975; McCann et al., 1985; Stainback et al., 1981). The use of puppetry can lessen a child's fear of the unknown (Latshaw, 1978; McKay, 1980). Latshaw (1978) suggested that when a child watched a puppet that had the courage to face difficult situations, then the child may also be encouraged to try the same behavior when faced with a similar situation. From these claims puppetry would be a suitable means for the easing of normal childrens' fears of their special peers.

Table 1

Canadian Puppet Shows and their Educational Use

Year	Name of Show	Theme
1966	Clarence the Worm	Basic mathematics
1971	Thomas Toad, Arts 100	Adult course in communication
1972	Merrytime Clown and Puppet Company	Work in hospitals to ease childrens' fear by providing information of operations
	Rare Junk	Creative language-arts program
1973	Brinkley and Doinkel Earth Show	Commissioned by the Federal Department of Consumer and Corporate Affairs in Ontario to demonstrate the hazards of commercial products
	Une Fleur M'a Dit	Peace, work, play, freedom awareness program
1974	Ecologee	Ontario Ministry of the Environment sponsored anti pollution awareness program
1975	Bixby and Me	Nova Scotia Department of Education sponsored physical education program
	Magic Shadows	Ontario Educational Communication Authority mathematics series
	Math Patrol	Ontario Educational Communication Authority mathematics series
	Readalong	Ontario Educational Communication Authority reading series
1976	Little Red Hen Story Theatre	Elimination of violence theme

Table 1 (con't.)

Year	Name of Show	Theme
1977	Marionetter Magic	Aiding gifted and special children to learn
	Punchinello	Social issues or moral plays
1978	Echo-logical	National and Provincial Parks Association of Canada sponsored program to encourage the proper use of national parks
	Hydro Puppets	Ontario Hydro sponsored program to communicate the need for power conservation
	Music to See	Music series
1979	Turtle Soup, Sheldon the Turtle	Nutrition awareness series
1987	Lifestyles of the Fit and Famous	Health awareness program sponsored by Vancouver Childrens' Hospital

In the attempt to promote positive attitudes toward special children, normal children should not be left in ignorance of the needs and capabilities of special children (Adey, 1983; Auxter & Pyfer, 1985; Hodgson, 1984). The provision of information in the form of a puppet show could provide normal children with knowledge of their special peers. Puppetry may, therefore, be an appropriate intervention to aid social interaction between the normal and special children (Lindeman & Powell, 1983).

From the reviewed literature puppetry is shown as a dynamic medium in the field of education. The use of

puppets has many possibilities and great potential in the school. One such use might be the promotion of an awareness of the capabilities of the special child to the normal child. Should this awareness be fostered then the socialization and integration of special children in a mainstreamed setting might be less difficult.

The idea of puppetry promoting a greater understanding of the abilities of special children was adopted by the "Kids on the Block" organization. The organization originates from Washington, D.C. in the United States of America.

The Victoria branch of the Kids on the Block organization is sponsored by community interest groups. The troupe consists of a number of almost life-sized puppets. The puppets are the creation of special educator, Barbara Aiello, and professional puppeteer, Ingrid Crepeau. The puppets depict special children as potential playmates and friends of normal children. The show is specifically aimed toward children at the grade three to grade five level. It attempts to help normal children to deal positively with any misconceptions that they might have concerning the abilities of special children. Each show consists of two "skits" after which the children are encouraged to ask the puppets any questions that they have.

CHAPTER 3

RESEARCH METHODOLOGY

The research method employed a single-subject design utilizing the "naturalistic" setting of an elementary school physical education class. Data was collected on the attitude and interaction patterns of normal children toward special children.

This chapter is structured to describe: the subjects; procedures; dependent variables; coding and data analysis; training of observers; inter-observer agreement; single subject design; and, the independent variable.

Subjects

Two elementary school physical education classes were selected to participate in the study. The selected classes were a grade three/four split level and a grade four level. Each class had two integrated special children within their respective class lists for physical education lessons. The special children were all diagnosed as being trainable mentally handicapped. Permission to conduct the study was initially gained from the Supervisor of Special Support Services for the Victoria School Board. The school principal, the regular education classroom teachers, and the special education classroom teachers were then approached concerning their willingness to participate in the study. Finally, consent from the parents or guardians of all the

children participating in the study was obtained by the return of signed consent letters (see Appendix A).

Procedures

A live recording method of data collection was used for the observation of social interactions during the physical education lessons. Three observations for each class, immediately prior to the study, were conducted in order to reduce pupil reactivity to the presence of the researcher observing the lesson. Data was collected during the school spring term. At the commencement of the study, stable baselines (4 lessons for Class A and 5 lessons for Class B) were achieved before the implementation of the first intervention strategy. Four lessons were observed before the introduction of the second intervention strategy. Four lessons were also observed for collection of data after the second intervention (see Table 2).

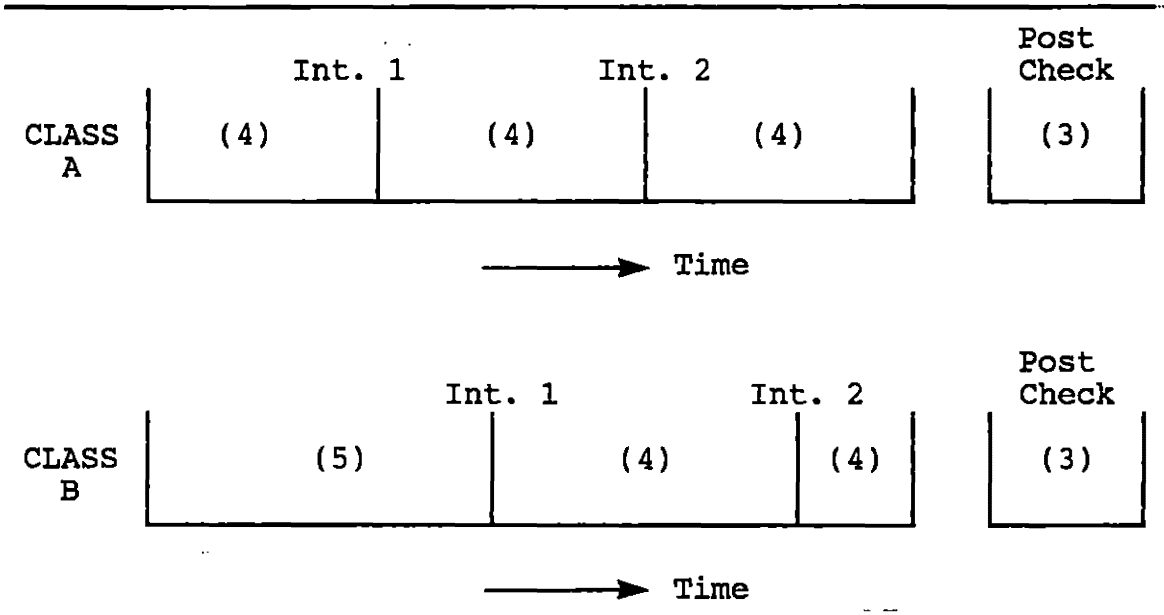
In addition to the observation data, a sociometric questionnaire, developed by Singleton and Asher (1977), was administered to the children at both the onset and concluding phases of the study.

A follow-up study was also performed involving the same classes and schools, six weeks later. Immediately prior to the follow-up data collection, three observations were made to lessen reactivity to the observer. Three lessons were examined to assess the patterns of social interaction during

the follow-up period. The attitude questionnaire was also re-administered at the conclusion of this phase.

Table 2

Multiple Baseline Design of the Study



Int. 1 = First intervention

Int. 2 = Second intervention

Numerals in parentheses correspond to the number of lessons observed during each stage of the study.

Dependent Variables

Seven dependent variables were monitored in the study pertaining to the social interactions and the attitudes displayed by the normal children toward special children.

1) POSITIVE PHYSICAL INTERACTION: A positive physical reaction by the normal child towards the special child (e.g., a hug or a pat on the back).

2) POSITIVE VERBAL INTERACTION: A positive verbal response by the normal child towards the special child (e.g., a cheer or a congratulatory response).

3) NEUTRAL PHYSICAL INTERACTION: A physical reaction that has neither positive nor negative characteristics (e.g., the pointing of a direction to the child).

4) NEUTRAL VERBAL INTERACTION: A verbal response that has neither positive nor negative characteristics (e.g., verbal directions).

5) NEGATIVE PHYSICAL INTERACTION: A negative physical reaction by the normal child towards the special child (e.g., a push, pulling a face, or striking).

6) NEGATIVE VERBAL INTERACTION: A negative verbal response by the normal child towards the special child (e.g., name calling or ridicule).

7) ATTITUDE: Expressed attitudes by the normal child toward the special child.

Coding and Data Analysis

The dependent variables numbered one to six (listed on previous page) concerning interaction analysis, were monitored by the observer. Interactions from the normal child towards the special child were recorded during the entire lesson. The frequency and type of interaction were recorded

by observing each special child and the normal children. One special child was observed for a period of three minutes, then the observer changed observation to the other special child. This rotation system was continued throughout the lesson, with each special child being observed for three, three minute time periods. Any interaction made during this interval was categorized and recorded on the coding sheet (see Appendix B).

The social interactions between normal and special children were recorded on the coding sheets. Stable baselines for each class were achieved before implementation of the first intervention. The multiple baseline design was used to examine the experimental effectiveness of the intervention strategy.

The dependent variable, numbered seven, was determined by the use of the rate and roster sociometric instrument developed by Singleton and Asher (1977). The pencil and paper inventory was utilized to measure the normal childrens' attitude towards special children. This measure is believed to be a significant determinant of the social acceptance of the special child. Oden and Asher (1977) examined the test-retest reliability of the test battery. Reliability over a six week period for third and fourth grade children was .82.

In the rate and roster sociometric method the child gives a rating on a numerical scale to all the members of a class who are listed on a class roster (Roistacher, 1974). The

rate and roster method has two important advantages over other sociometric measures. First, the class roster decreases the likelihood of a child not being chosen because he or she was momentarily forgotten or because a child could not spell or write his or her name. Second, the technique provides an indication of the child's acceptance by all the group members, thus producing more reliable scores (Oden and Asher, 1977).

For the purposes of this investigation, children were asked to respond to one sociometric criteria, that being how much they liked each other in their physical education lesson (see Appendix C). The children were asked to circle a number from 1 to 5 that best described how they liked each person being in their physical education lesson. A low rating indicated that they "disliked a lot" and a high rating indicated that they "liked a lot." Faces ranging from a smile to a frown accompanied the scale to help communicate the meaning of each of the numbers. The child's score on this type of sociometric measure is the mean rating received from classmates (Asher and Hymel, 1981).

Tests of significant difference from the data collected by the questionnaire were calculated by the use of the "z" score statistical procedure. The level of significance was set **a priori** at $p < .05$.

Training of Observers

This study used human observation for the collection of interaction data. In order to record both physical and verbal interactions, the observer recorded observations in the live setting of the physical education lesson. Investigators have indicated that the use of videotaping techniques has allowed for greater coding reliability (Kopczuk, 1980). However, an initial pilot study determined that for reasons of practicality and feasibility a live method of data collection was preferable. The need for observer mobility and unobtrusive recording meant that human observation was thought to be a more suitable method of data collection. The reliability of the data collected was determined by the observer's ability to correctly record the specified interactions.

The researcher served as the primary observer. An independent observer was trained to use the coding procedure for reliability purposes. Verbal instruction, case study examples, and practice in realistic situations was given to the independent observer in the training period. Competence of coding was achieved by an 80% or above inter-observer agreement before the collection of data began. To ensure the reliability of the data, throughout the entire study, simultaneous recordings by the primary and independent observer were made during each stage of the study.

Inter-Observer Reliability

Inter-observer reliability was established by the comparison of scores recorded by the observers. Inter-observer checks were conducted to ensure the reliability of the data during each stage of the study. Inter-observer reliability was calculated by the analysis of the observational decisions made by the observers. Figure 1 illustrates the basic formula used to calculate reliability.

$$\frac{\text{AGREEMENTS}}{\text{AGREEMENTS + DISAGREEMENTS}} \times 100 = \% \text{ OF AGREEMENTS}$$

Figure 1. Basic Formula for Computing Reliability

Agreements occur when observers record the same or no activity taking place during a specific time interval. Disagreements occur when only one observer records an activity, or when observers define an activity differently (Hawkins and Dotson, 1975). Two methods of determining inter-observer agreement were used:

1) The interval by interval method (I-I),
2) The mean of the scored interval (S-I) and unscored interval (U-I) method.

The calculation of inter-observer reliability ensures that any changes noted in behaviors are due to the children and not the observer, and that the changes noted in the

observations do reflect what is going on in the class (Siedentop, 1976).

Single-Subject Design

Single-subject design research originated from the science areas of physiology and psychology. With the development of inferential statistics and the move toward establishing the generality of research findings, investigators in the social science areas were prompted to study groups and employ group design research rather than single-subject design research (Kratochwill, 1978). However, Hersen and Barlow (1977) suggested that the concept of average is meaningless when attempting to analyze the individual. Kratochwill supported this view and further suggested that educational research required a continuous mode measurement.

The most widely accepted methodology for studying individual change has been single-subject analysis, identified in the 1970's as the most effective technique for isolating causes in behavior change (Hersen & Barlow, 1976). Griffey (1981) declared that the single-subject design, featuring an intervention strategy, allowed the researcher to observe the immediate effect of the intervention procedure.

Multiple Baseline Design

Multiple baseline design has been used extensively in behavior modification research (Kratochwill, 1978). A

number of variables are selected for observation, which are recorded and graphed over a period of time. Kratochwill further suggested that an "intervention effect is demonstrated by showing that change in the data series accompanies introduction of the intervention" (p. 53-54).

The multiple baseline design utilized in this study enables the experimenter to achieve a time lagged control. The treatment variable is applied to succeeding environments, while the baseline for each environment also increases in length. Intervention was then provided to Class A while the baseline condition was maintained for Class B. The strength of the design was realized if, following intervention, behavior change was evidenced in Class A but not in Class B.

The issue of the number of baselines required before experimenters can establish confidence in the effects of the intervention treatment has been widely discussed. Hersen and Barlow (1976) suggest that theoretically only two baselines are needed to derive useful information. Wolf and Risley (1971) contend that studying two baselines can provide very suggestive results, however, a set of replications across three or four baselines may be completely convincing. Monette, Sullivan, and Dejong (1986) determined that although three baselines is an ideal number, researchers should not be deterred from using only two if conditions do not permit more. Due to reasons of practicality and feasibility, two baselines were used in this study.

Variability

Variability in human behavior is an area of concern for a single-subject research investigation. It is necessary to achieve a "steady state" in baseline to evaluate an individual's behavior in treatment and non-treatment conditions. A steady state in baseline is a period of time when little variation of the behavior is evident (Johnston & Pennypacker, 1980).

Generality

Hersen and Barlow (1976) suggested that random selection of subjects from a population enabled the generalization of experimental results in relation to that population. A criticism that arises from single-subject design is the inability to generalize experimental results (Hersen & Barlow, 1976). The replication of the experiment across similar settings enables the generalization base to increase, lending greater external validity to the design.

Generality of results within the present study was limited to the classes involved in the study. Such generality was assumed through replication of the experimental design across classes.

Independent Variable (Intervention Strategy)

A variety of differing attitude and behavior change models have been implemented in order to change or promote

attitudes and behavior displayed by normal children toward their special peers. The majority of research has concentrated on the effects of intervention in the classroom (Levy & Gottlieb, 1984). Few research studies have investigated whether an intervention can aid the social acceptance of the special child in the atmosphere of the physical education class (Watkinson & Titus, 1985). Table 3 illustrates the differing intervention models used in the classroom setting, and those used in a physical education setting.

Table 3

Intervention Models Used in Changing Normal Childrens' Attitudes and Behavior

Intervention Model	Investigators
Classroom Setting	
Awareness programs	Aloia, Beaver, & Pettin, 1978. Newman & Simpson, 1983 Pacer Center, 1979 Reinhardsten, 1980/1981 Sasso, 1983/1984 Siperstein, Bak, & Gottlieb, 1977
Choice of appropriate toys	Guralnick, 1976
Cooperative structured activity	Ryndres, Johnson, Johnson, & Schmidt, 1980
Director programming for generalized effects	Hill, Wehman, & Horst, 1980

Table 3 (con't.)

Intervention Model	Investigators
Peers as models and reinforcing agents	Apollini & Cooke, 1978 Apollini, Cooke, & Cooke, 1978. Coleman & Stedman, 1974 Egel, Richman, & Koegal, 1981 Noll, 1985/1986 Nordquist, 1978 Snyder, Apollini, & Cooke, 1978
Reverse mainstreaming	McCann, Semmel, & Nevin, 1981
Teaching appropriate skills to the special child	Knapczyk & Yoppi, 1975 Wasson & Watkinson, 1981
Teacher mediation of interaction	Drony, Guralnick, & Rubin, 1974 Nordquist, 1978 Peterson & Haralick, 1977
<u>Physical Education Setting</u>	
Film awareness program	Westervelt & McKinney, 1980
Pairing of Children	Sinclair, 1978
Teacher praise and intervention	Kopczuk, 1980

The intervention strategy chosen for use in the study was in the form of a puppet presentation. The puppets depicted normal children interacting with special children who displayed a variety of disabilities (see Appendix D). The

intervention strategy was chosen because of the potential of puppetry expressed by researchers and educators.

Each puppet presentation consisted of two skits. The scripts for the skits provided a realistic dialogue concerning the special child's life and abilities (see Appendix D). Each class participating in the study received two puppet shows (see Table 4). Class A received two shows, the scripts of both of these shows were related to ordinary life situations. Class B, however, received a different format of shows. The first show was the same as the first show that Class A received, however, the second show had a script which involved physical activity. All the scripts attempted to deal with many of the misconceptions that normal children may have of their special peers. However, the physical activity related intervention script attempted to illustrate that special children can participate in physical activity, and do enjoy playing those sports that are generally associated with normal children.

Table 4

Design of the Implementation of the Independent Variable

	1st Intervention	2nd Intervention
CLASS A:	Ordinary life puppet show	Ordinary life puppet show
CLASS B:	Ordinary life puppet show	Physical activity related puppet show

CHAPTER 4

RESULTS

The purpose of this study was to examine the effectiveness of an intervention strategy on the behavior and attitude of normal children, toward special children, in a mainstreamed physical education lesson.

The intervention was the independent variable. It consisted of a puppet show that depicted normal children interacting with special children.

The procedure involved observing two classes over a six week period. Class A was observed for 15 lessons and Class B 16 lessons. After allowing for the reaction of the children to the presence of the researcher, 12 lessons (Class A) and 13 lessons (Class B) were used in the data analyses. To determine whether the intervention strategy had a long term effect on the normal children a follow-up study was conducted. The follow-up phase of the study was conducted six weeks after the conclusion of the initial observation period. Both Class A and Class B were observed for six lessons. Three lessons were used for data analyses, after allowing for reaction to the researcher.

Seven dependent variables were monitored. Six variables were concerned with the behavioral interactions made by the normal child toward the special child, while the seventh variable concerned the attitudes of the normal children toward other children within their physical education lessons.

The reporting of the results include: inter-observer agreement; Class A data regarding all behavioral dependent variables monitored; Class B data regarding all behavioral dependent variables; Class A data regarding the attitudinal dependent variable; and, Class B data regarding the attitudinal dependent variable.

Inter-Observer Agreement

The researcher served as the primary observer. An independent observer was trained to use the coding procedure for reliability purposes. Inter-observer agreement scores of above 80% were attained before the commencement of the study. Two methods of reliability were used to calculate the agreement between observers:

1) The interval by interval method (I-I),
2) The mean of the scored interval (S-I) and unscored interval (U-I) method.

The average inter-observer agreement scores using the I-I method were 91.9% (Class A) and 91.7% (Class B). Scores of 88.9% (Class A) and 87.9% (Class B) were calculated using the mean of the (S-I) and (U-I) method (see Table 5).

Inter-observer agreement checks were made during each experimental phase and were plotted on the graphical presentation of the data for each class.

Table 5

Inter-Observer Agreement Scores (%)

Class		I-I	Mean of S-I + I-I	Lesson Number
Class A		89.8	83.3	2
		88.9	85.9	7
		97.2	95.9	9
		91.6	90.5	13
	Mean	91.9	88.9	
Class B		89.8	81.2	3
		91.7	90.0	6
		94.4	90.6	12
		90.7	89.9	15
	Mean	91.7	87.9	

CLASS A BEHAVIORAL DATA

Class A - Dependent Variable 1 - Positive Physical Interaction

Analysis of baseline data indicated that the mean number of positive physical interactions, given by the normal children to the special child, was .25 (SD = .29) per lesson (see Figure 2). All means and standard deviations for Class A are displayed in Appendix E.

The first intervention was implemented after four lessons. Following intervention the mean number of positive physical interactions increased to 2.00 (SD = .41) per lesson.

After the eighth lesson the second intervention was implemented. Following this intervention, the mean number of positive physical interactions, given by the normal children to the special child, increased to 3.25 (SD = .29) per lesson.

The follow-up phase of the study was conducted six weeks after the conclusion of the main section of the investigation. During this stage a mean of 3.50 (SD = .50) positive physical interactions were given, by the normal children to the special child, per lesson.

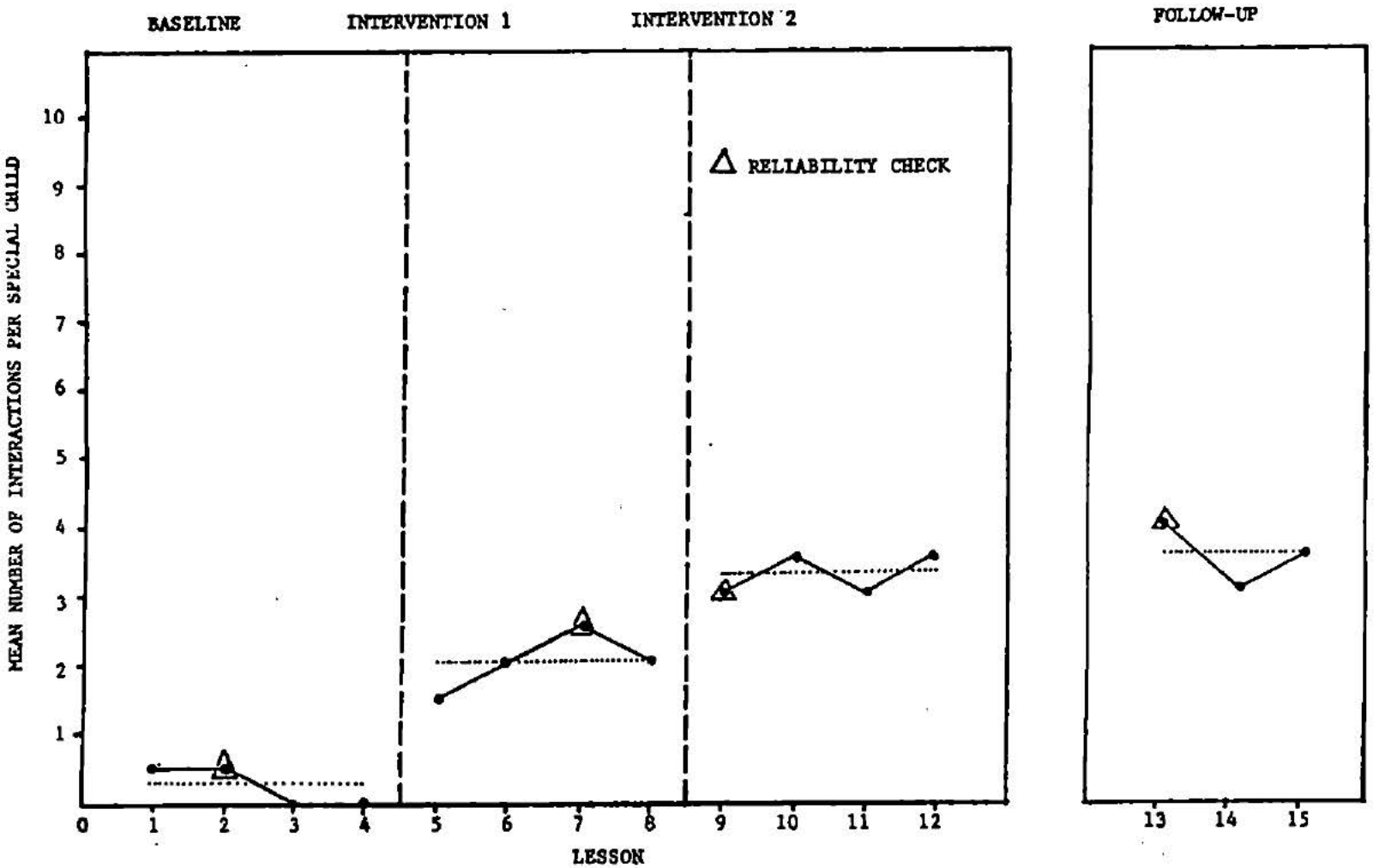


FIGURE 2. Class A : Mean Number of Positive Physical Interactions per Special Child.

Class A - Dependent Variable 2 - Positive Verbal Interaction

During baseline, a mean of .88 (SD = .48) positive verbal interactions per lesson was given by the normal children to the special child (see Figure 3).

After the first intervention, the normal children interacted a mean score of 2.00 (SD = .41) times per lesson with the special child. The second intervention was followed by an increase in the mean score to 3.38 (SD = .48) positive verbal interactions per lesson.

During the follow-up stage, 3.83 (SD = .76) positive verbal interactions were given to the special child per lesson.

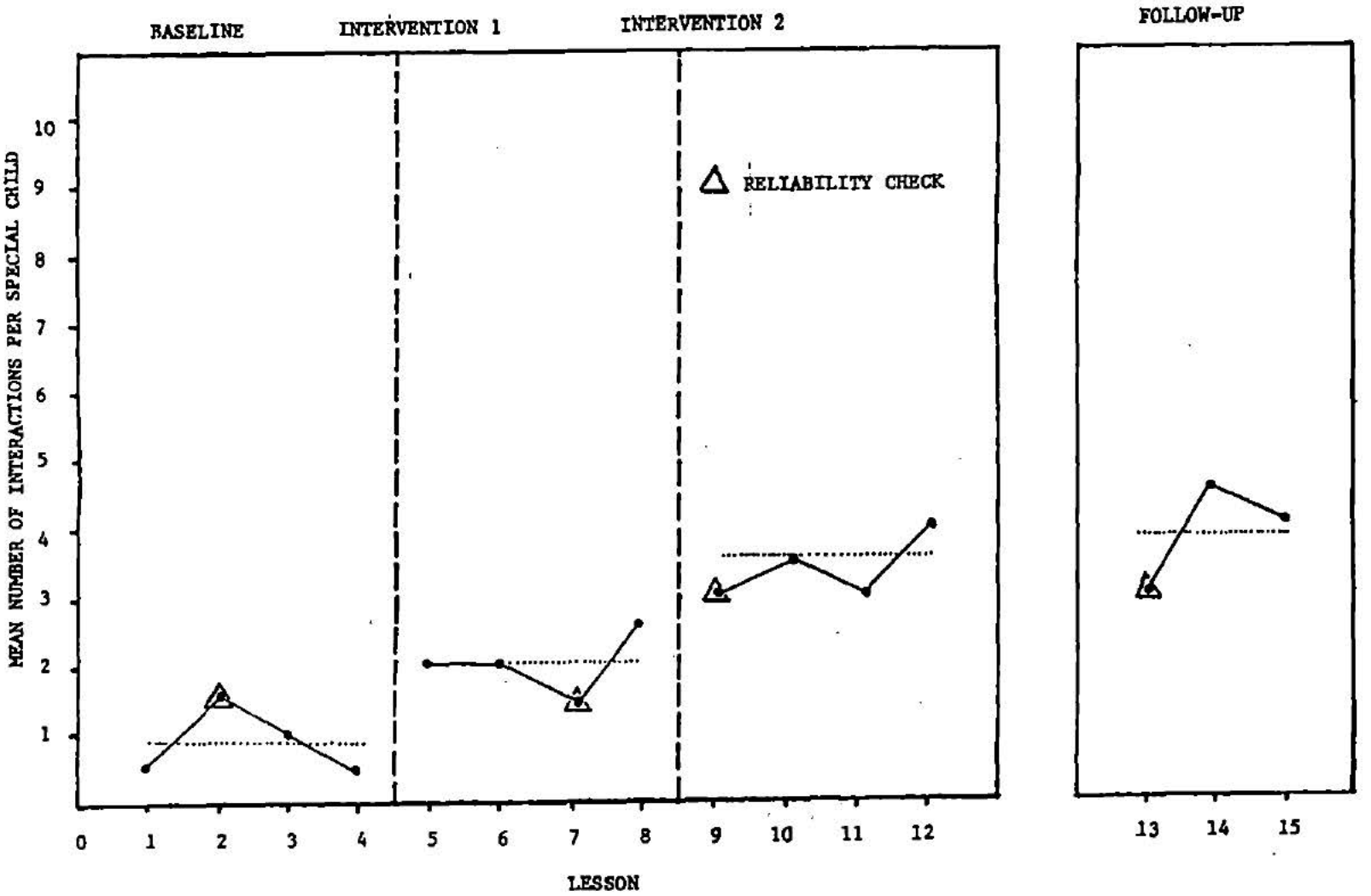


FIGURE 3. Class A : Mean Number of Positive Verbal Interactions per Special Child.

Class A - Dependent Variable 3 - Neutral Physical Interaction

A mean of 2.13 (SD = .48) neutral physical interactions was determined from data during the baseline phase of the study (see Figure 4).

After the first intervention the normal children interacted, in a neutral physical manner, 2.63 (SD = .25) times per lesson with the special child. The second intervention was followed by a mean of 3.63 (SD = .63) neutral physical interactions per special child. An average of 4.50 (SD = .50) neutral physical interactions occurred during the follow-up stage of the study.

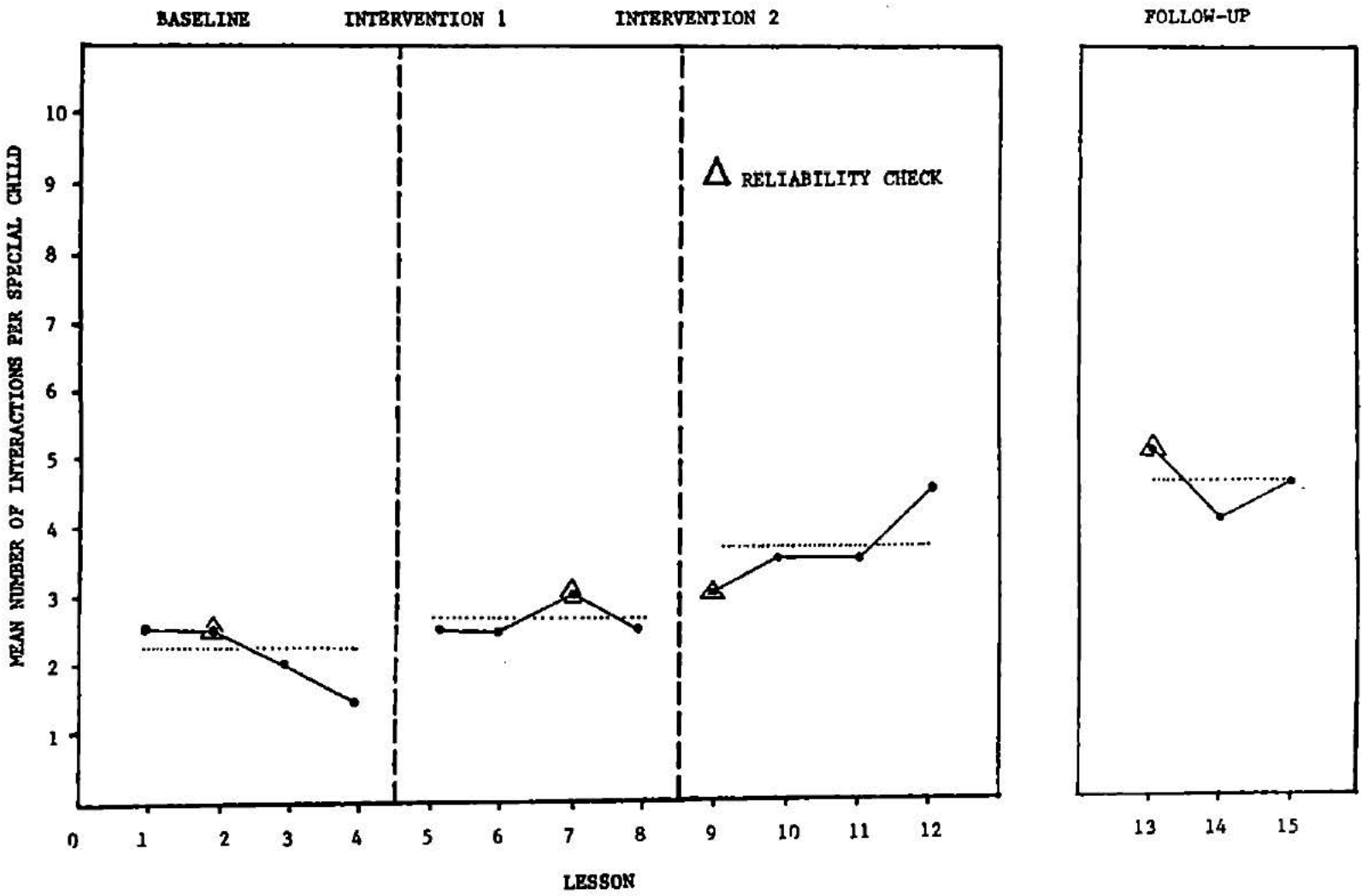


FIGURE 4. Class A : Mean Number of Neutral Physical Interactions per Special Child.

Class A - Dependent Variable 4 - Neutral Verbal Interaction

Analysis of the baseline data indicated that normal children interacted with the special child, in a neutral verbal manner, an average of 2.25 (SD = .50) times per lesson (see Figure 5).

After the first intervention the average number of interactions increased to 3.50 (SD = .41) per lesson. Following the second intervention the number of neutral verbal interactions, given by the normal children to the special child, increased to 3.63 (SD = .63) per lesson.

During the follow-up stage of the study, the normal children interacted, in a neutral verbal manner, an average of 4.50 (SD = .50) times per lesson with the special child.

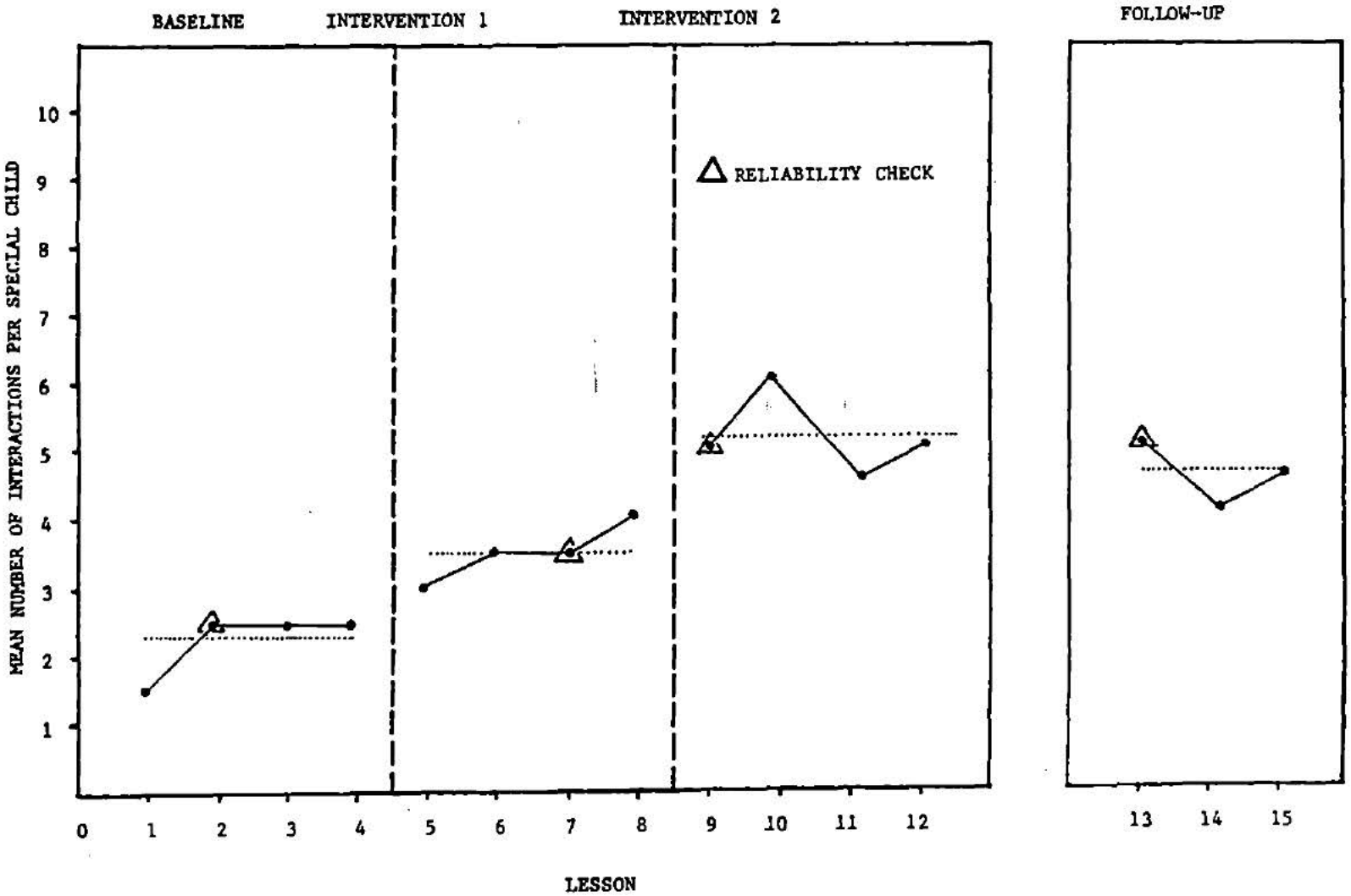


FIGURE 5. Class A : Mean Number of Neutral Verbal Interactions per Special Child.

Class A - Dependent Variable 5 - Negative Physical Interaction

During the baseline stage of the study, the normal children interacted with the special child, in a negative physical way, 1.63 (SD = 1.31) times per lesson (see Figure 6).

After the first intervention there was no evidence of any negative physical interactions by the normal children toward the special child. This trend continued after the second intervention. No negative physical interactions were observed during this stage of the study.

The follow-up phase of the study was also accompanied by an absence of any occurrence of negative physical interactions toward the special child.

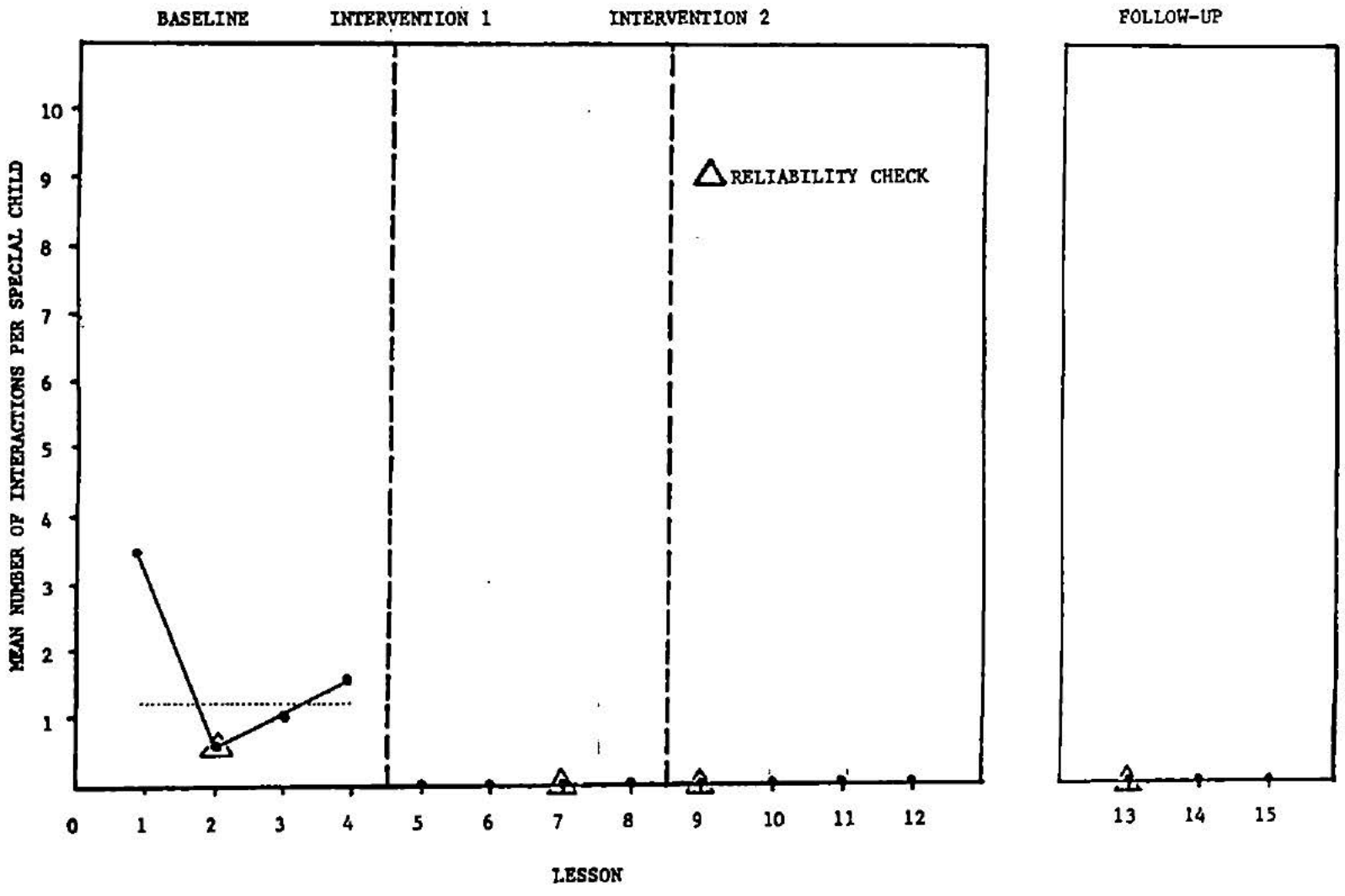


FIGURE 6. Class A : Mean Number of Negative Physical Interactions per Special Child.

Class A - Dependent Variable 6 - Negative Verbal Interaction

During the baseline phase of the study, a mean of .13 (SD = .25) negative verbal interactions, by the normal children toward the special child, were observed (see Figure 7).

After the first intervention there was no evidence of any negative verbal interactions occurring. The second intervention was followed by the same absence of any negative verbal interactions by the normal child toward the special child.

During the follow-up phase, normal children were not observed interacting with the special child in a negative verbal manner on any occasion.

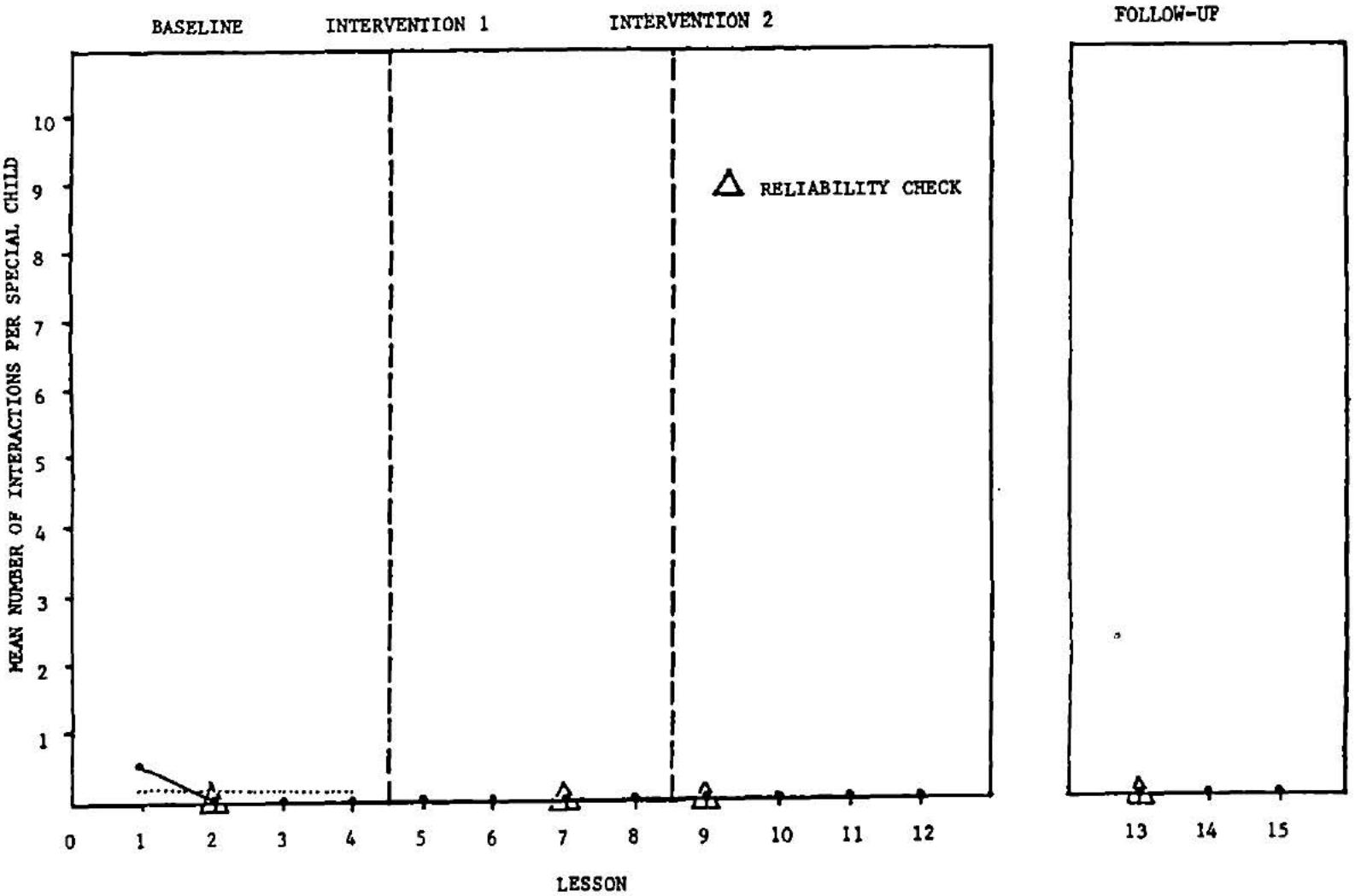


FIGURE 7. Class A : Mean Number of Negative Verbal Interactions per Special Child.

CLASS B BEHAVIORAL DATA

Class B - Dependent Variable 1 - Positive Physical Interaction

During baseline, the normal children gave a mean number of 1.00 (SD = .22) positive physical interactions per lesson to the special child (see Figure 8). All means and standard deviations for Class B are displayed in Appendix E.

The first intervention was implemented after five lessons. After intervention, the normal children interacted a mean of 2.38 (SD = .75) positive physical interactions with the special child per lesson.

The implementation of the second intervention was after nine lessons. During this stage of the study the mean number of positive physical interactions increased to 5.25 (SD = 1.50) per lesson.

The analysis of follow-up phase data indicated that the mean number of positive physical interactions, given by the normal children to the special child, was 5.66 (SD = .29) times per lesson.

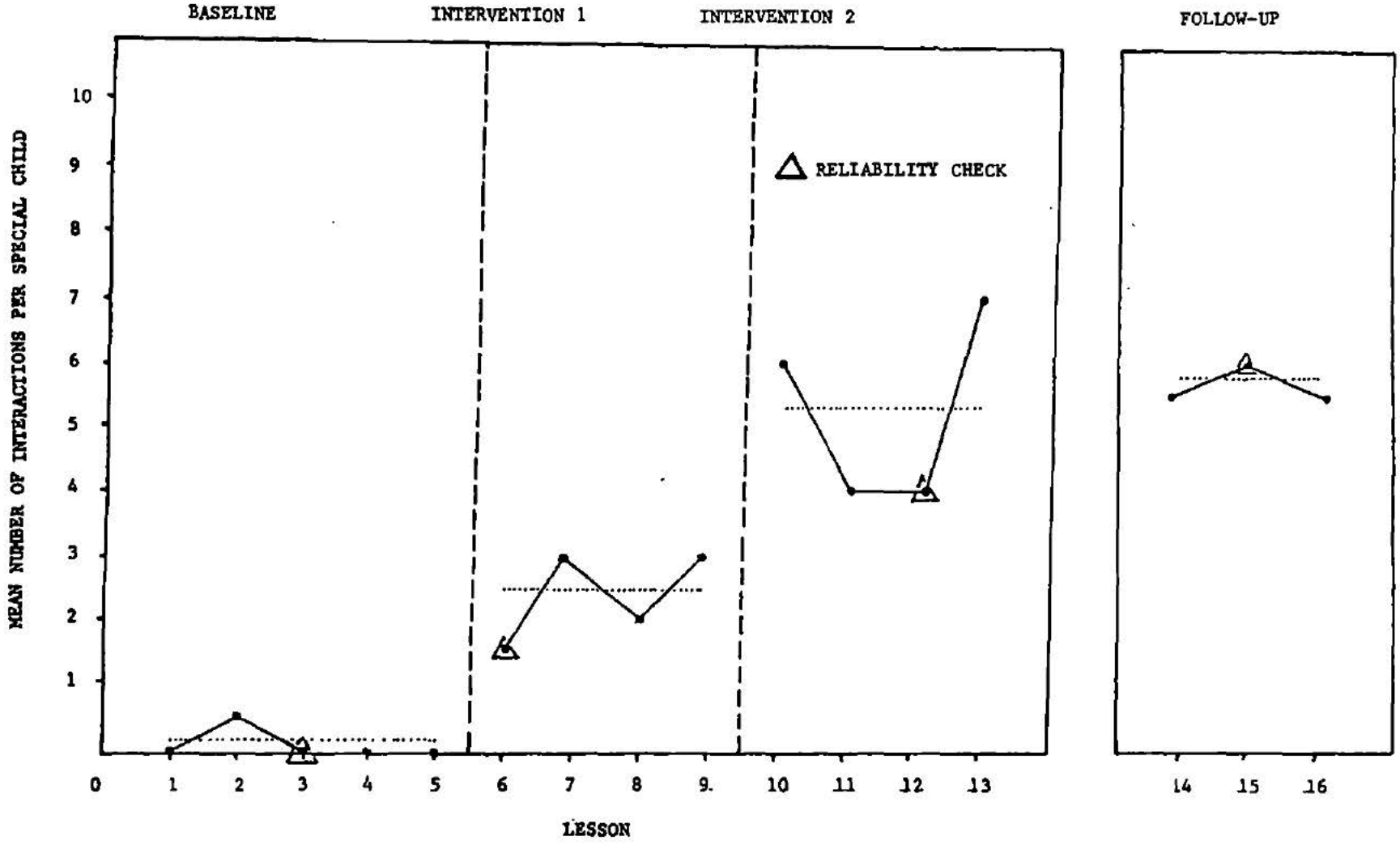


FIGURE 8. Class B : Mean Number of Positive Physical Interactions per Special Child.

Class B - Dependent Variable 2 - Positive Verbal Interaction

A mean of 1.00 (SD = 1.41) positive verbal interactions per lesson was determined during the baseline phase of the study (see Figure 9).

A mean of 3.75 (SD = .96) positive verbal interactions, given by the normal children to the special child, were observed after the implementation of the first intervention. After the second intervention the average number increased to 5.38 (SD = .75) per lesson.

The normal children, during the follow-up phase of the study, interacted with the special child, in a positive verbal manner, a mean of 5.50 (SD = .50) times per lesson.

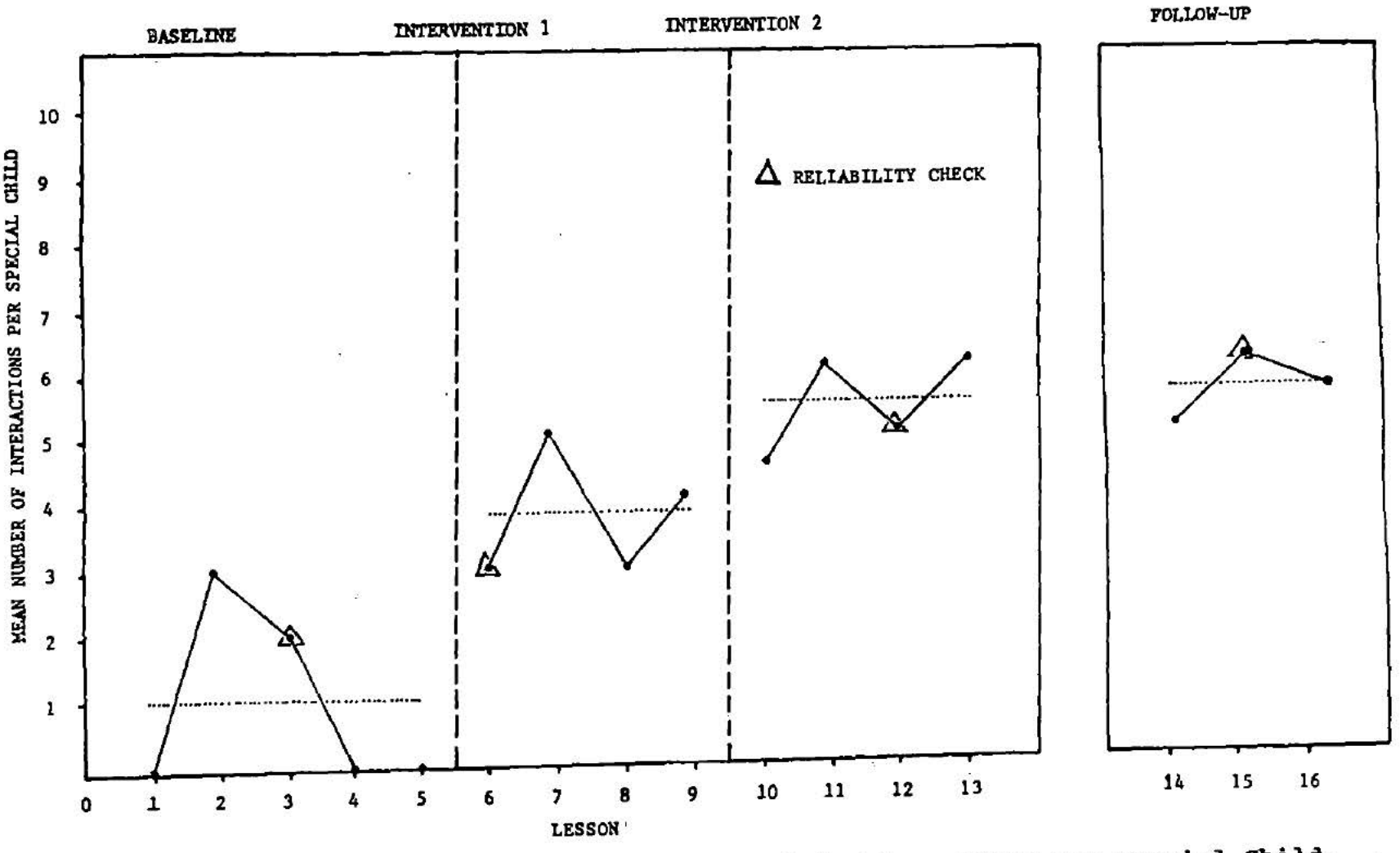


FIGURE 9. Class B : Mean Number of Positive Verbal Interactions per Special Child.

Class B - Dependent Variable 3 - Neutral Physical Interaction

During the baseline phase of the study a mean of .30 (SD = .45) neutral physical interactions per lesson were given to the special child (see Figure 10).

The first intervention was followed by an increase of mean to 2.50 (SD = .58) neutral physical interactions per lesson. After the second intervention the normal children interacted with the special child, in a neutral physical manner, 6.38 (SD = 1.89) times per lesson.

A mean of 5.66 (SD = .76) neutral physical interactions was obtained from the data collected during the follow-up stage of the study.

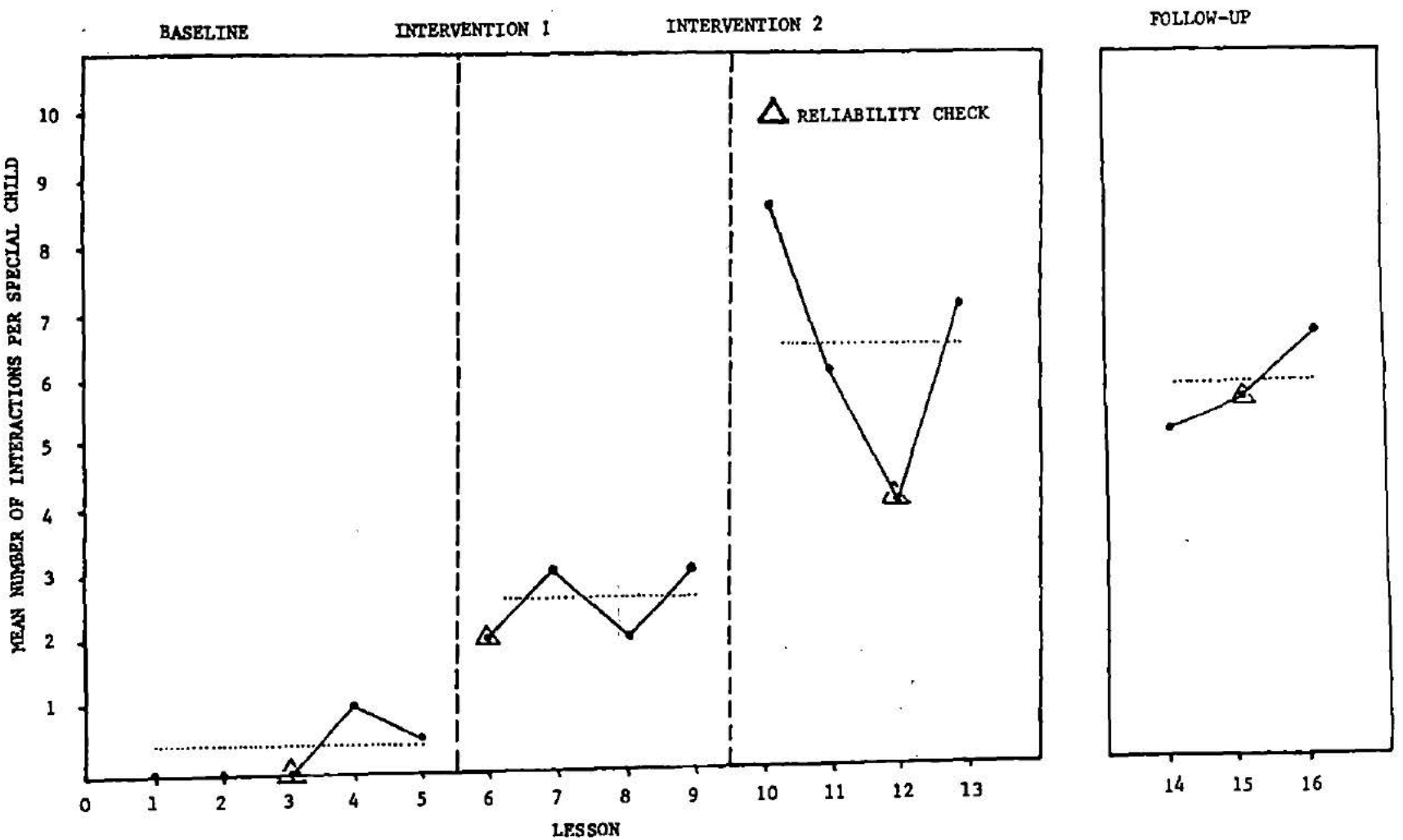


FIGURE 10. Class B : Mean Number of Neutral Physical Interactions per Special Child.

Class B - Dependent Variable 4 - Neutral Verbal Interaction

During baseline, the normal children interacted with the special child, in a neutral verbal manner, .20 (SD = .27) times per lesson (see Figure 11).

The number of neutral verbal interactions, after the first intervention, increased to 3.38 (SD = 1.11) per lesson. A mean of 7.63 (SD = 2.43) neutral verbal interactions per lesson followed the implementation of the second intervention.

During the follow-up, a mean of 6.16 (SD = .58) neutral verbal interactions per lesson were given by the normal children toward the special child.

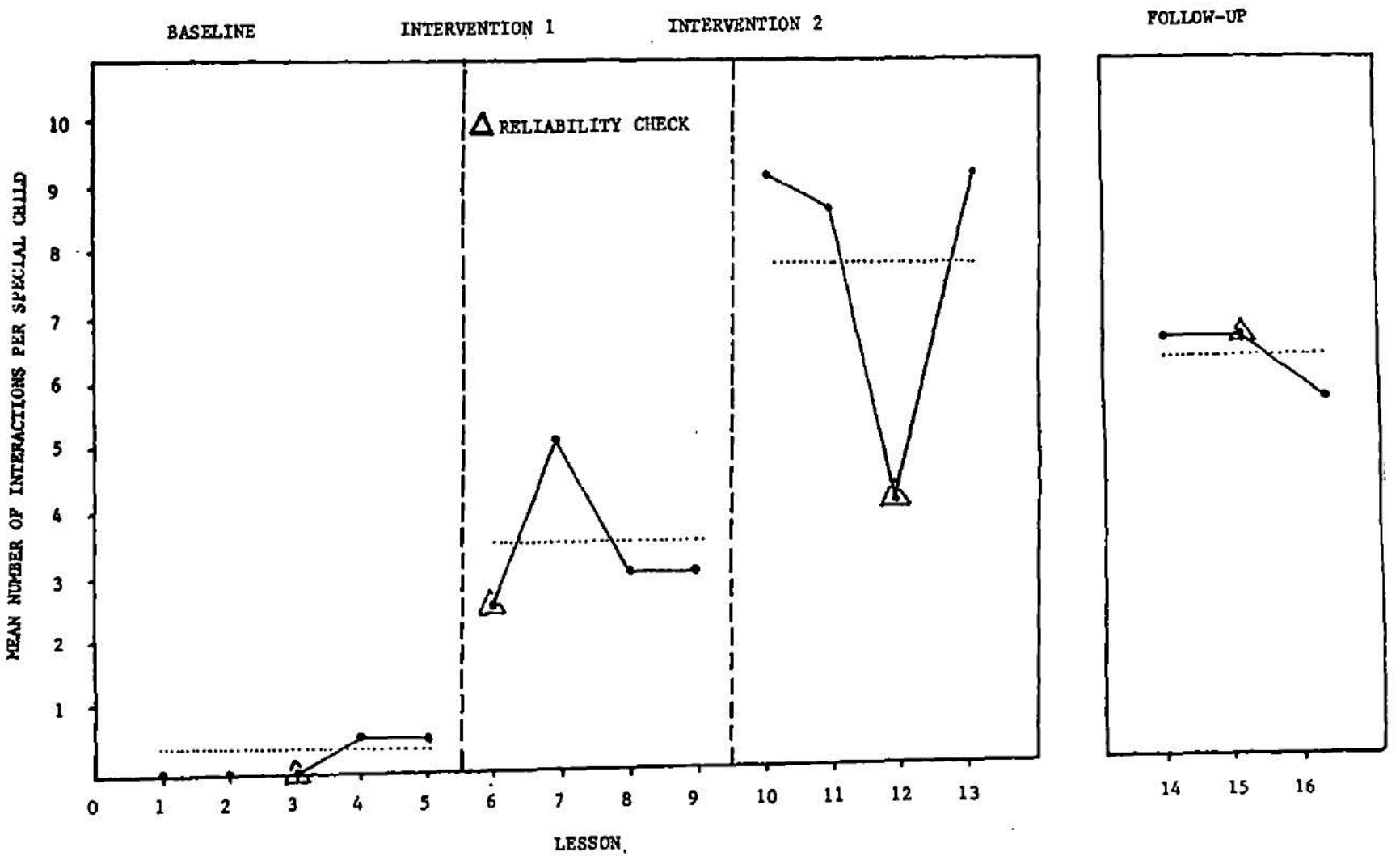


FIGURE 11. Class B : Mean Number of Neutral Verbal Interactions per Special Child.

Class B - Dependent Variable 5 - Negative Physical Interaction

A mean of 1.90 (SD = 1.14) negative physical interactions per lesson were given by the normal children to the special child during the baseline phase of the study (see Figure 12).

No evidence of any negative physical interactions were observed after the implementation of the first intervention. The second intervention was also followed by an absence of any negative physical interactions toward the special child.

The follow-up phase of the study also provided no evidence of any negative physical interactions occurring during the observed physical education lessons.

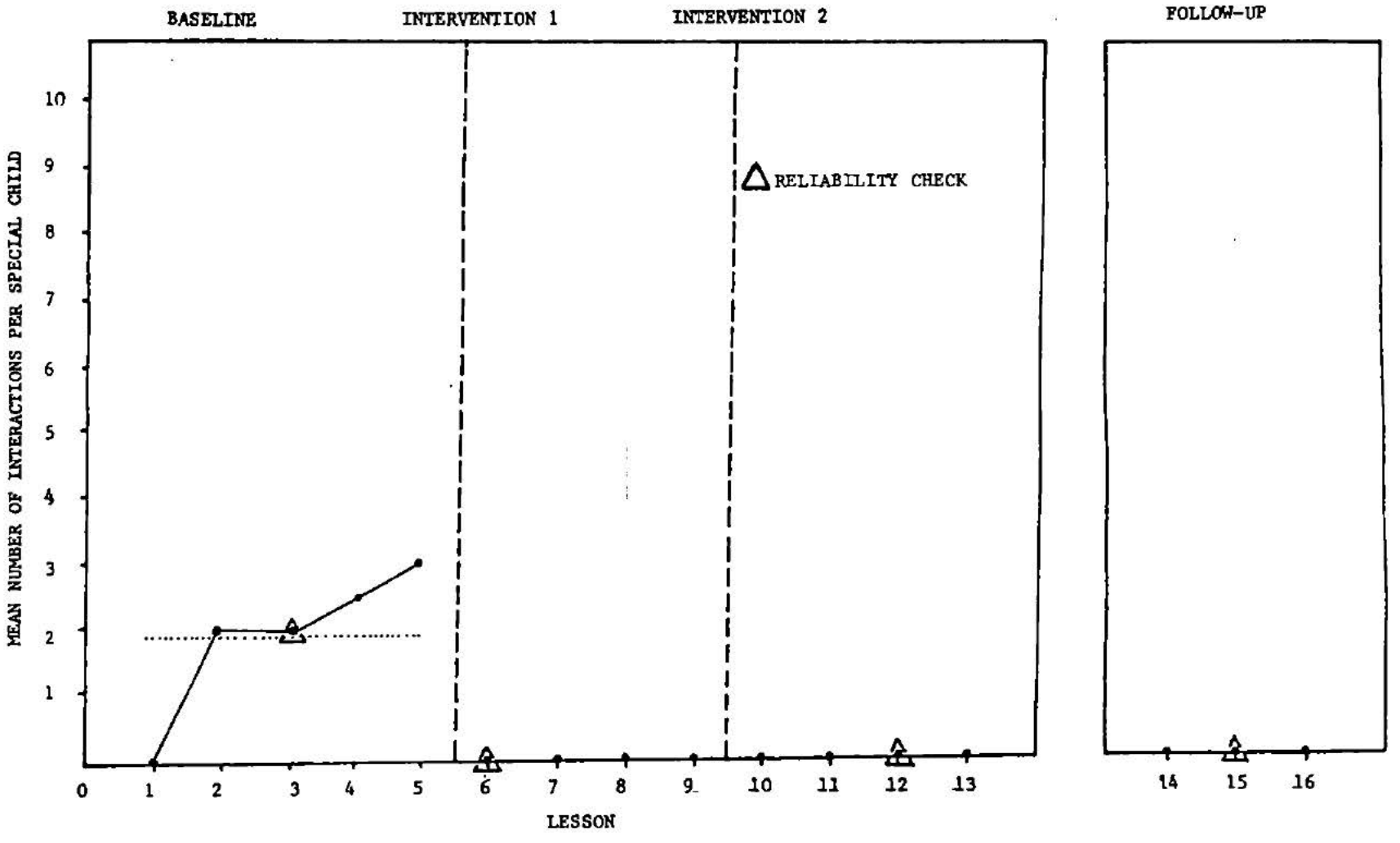


FIGURE 12. Class B : Mean Number of Negative Physical Interactions per Special Child.

Class B - Dependent Variable 6 - Negative Verbal Interaction

During the baseline phase of the study, a mean of .40 (SD = .55) negative verbal interactions by the normal children toward the special child were observed (see Figure 13).

After the first intervention there was no evidence of any negative physical interactions given by the normal children to the special child. The second intervention was also followed by an absence of any negative verbal interactions.

This trend was similarly observed during the follow-up phase of the study. No negative verbal interactions were observed during this stage.

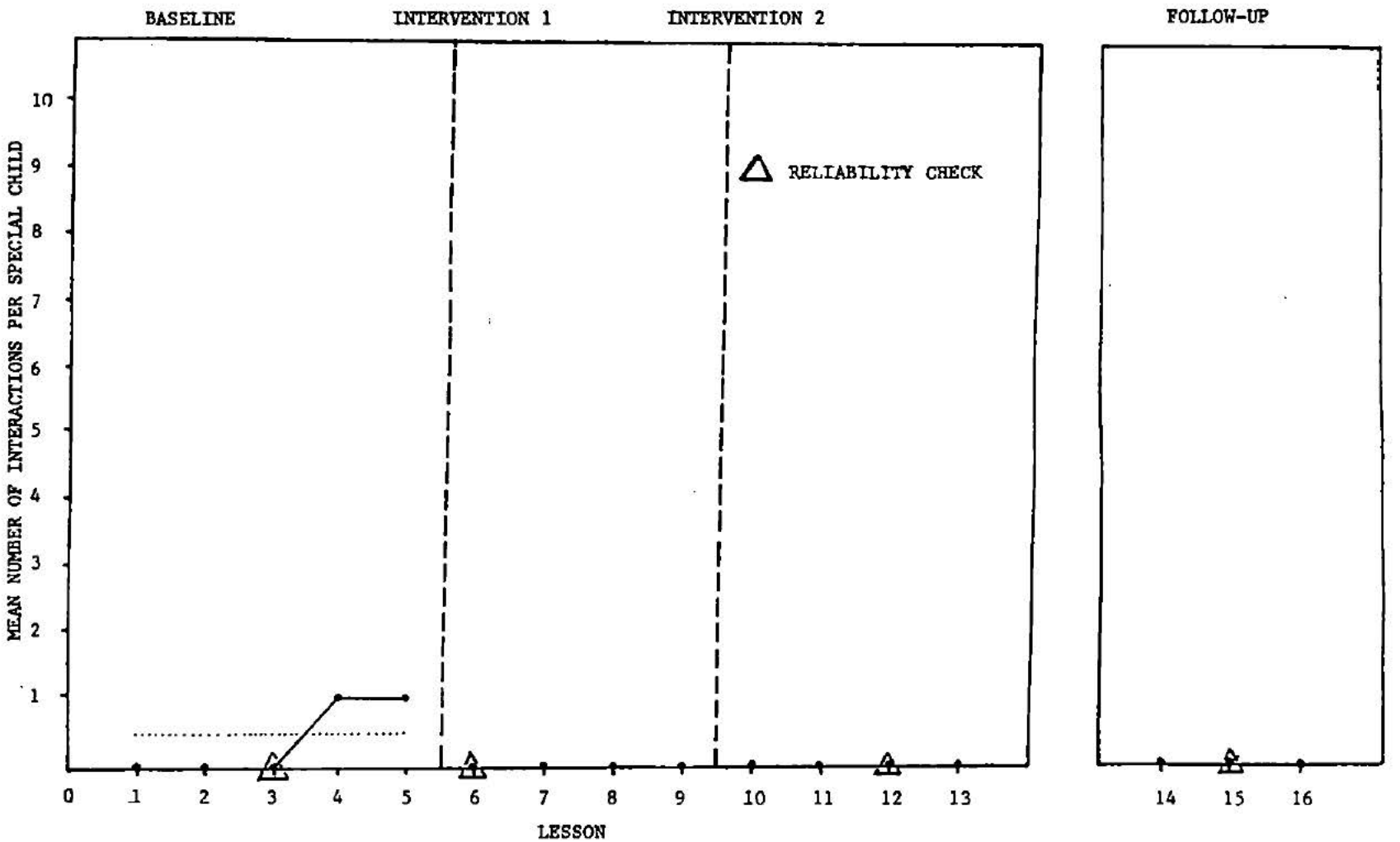


FIGURE 13. Class B : Mean Number of Negative Verbal Interactions per Special Child.

CLASS A ATTITUDINAL DATA

Class A - Dependent Variable 7 - Normal Childrens' Attitude

After three lessons, prior to the first intervention, the Singleton and Asher (1977) sociometric instrument was administered to the normal children of Class A.

The mean score for the normal class children was 2.17 (SD = .44). The mean scores for the two special children were 2.19 and 2.42. The mean scores, when converted to z-scores, rendered probability values of .48 and .28. Both z-scores were greater than the .05 significance level set **a priori**.

The sociometric instrument was readministered after 12 lessons. The mean score for the normal class children was determined to be 2.13 (SD = .37). The mean scores given to the two special children were 1.96 and 2.11. The converted z-scores provided probability scores of .32 and .37. Both of the z-scores for the two special children were greater than the .05 significance level.

At the conclusion of the follow-up phase of the study, the questionnaire was again readministered to the normal children. The mean scores for the special children were 2.26 and 2.22. The mean score for the normal children was 2.14 (SD = .51). When converted, the z-scores for the two special children rendered probability scores of .42 and .44. Both of these scores were greater than the .05 significance level.

The results from the administering of the sociometric instrument indicate that throughout the study the special children were not regarded differently from any other physical education class member. The data indicate that the normal children accepted the presence of the special children in the physical education lesson.

CLASS B ATTITUDINAL DATA

Class B - Dependent Variable 7 - Normal Childrens' Attitude

The Singleton and Asher (1977) Sociometric instrument was administered to the normal children of Class B after three lessons, and prior to the first intervention.

The mean score for the normal class children was 2.43 (SD = .50). The two special children received mean scores of 2.56 and 2.59. The corresponding z-scores of .39 and .37 were greater than the .05 significance level set **a priori**.

Class B was readministered with the questionnaire at the conclusion of the main phase of the study (after 13 lessons). The mean score for the normal class children was 2.35 (SD = .50). The mean scores obtained by the special children were both 2.36. A probability value of .49 was calculated, therefore greater than the .05 significance level.

The sociometric questionnaire was readministered to the normal children at the conclusion of the follow-up phase of the study.

The mean score for the normal children was 2.51 (SD = .52). The two special children received mean scores of 2.17 and 2.48. The converted z-scores of .48 and .49 were greater than the .05 significance level.

The results of the administering of the questionnaire to the children of Class B indicate that the special children were accepted members of the physical education class.

During the entire period that the study was conducted, the normal children held favorable attitudes toward the presence of the special children.

CHAPTER 5

DISCUSSION

In this chapter the results are discussed in relation to: inter-observer agreement; the five research questions; the impact of the intervention; and, the implications and recommendations of the study.

Inter-observer Agreement

Inter-observer agreement checks were made during all phases of the study. Two methods of reliability were used to calculate the agreement between the two observers.

The two methods of reliability provided mean overall inter-observer agreement scores that were above the 80% acceptable criterion level (Hersen & Barlow, 1976). At no point during the study did the inter-observer agreement score fall below the 80% criterion level.

Research Question One

Can an intervention strategy change normal childrens' physical and verbal interaction patterns with special children in the physical education class?

The intervention strategy attempted to change the behavior of the normal children toward the special child. Therefore, an important consideration in the study was to intervene upon those variables that represent behavioral interaction. Six behavioral variables were monitored: positive physical interaction; positive verbal interaction; neutral physical interaction; neutral verbal interaction; negative physical interaction; and, negative verbal interaction.

The results indicate that the intervention procedure was successful in increasing the positive physical interactions between the normal children and the special child. Examples of positive physical interaction would be a hug, or a pat on the back.

In the lessons following the first intervention, both Class A and Class B consistently maintained positive physical interactions well above the average baseline rates. After the implementation of the second intervention the number of positive physical interactions increased further for both classes. Class A had increases in the rate of positive physical interactions from means of .25 during baseline, 2.00 after the first intervention, to 3.25 after

the second intervention. Class B had increases in means from 0.10 during baseline, to 2.38 after the first intervention, and 5.25 after the second intervention.

The intervention strategy was also successful in increasing the number of positive verbal interactions between the normal children and the special child. Positive verbal interactions were regarded as a cheer, a congratulatory response, or other similar verbal responses.

During baseline, both classes gave minimal positive verbal interactions (Class A mean = .88, Class B mean = 1.00 interactions per lesson) to the special child.

Following the first intervention, the mean number of positive verbal interactions increased for both classes. Class A increased to a mean number of 2.00 interactions per lesson, and Class B increased to 3.75 per lesson. The second intervention was also followed by an increase in the number of positive verbal interactions. Both Class A and Class B data indicated increased means.

During baseline, both Class A and Class B normal children were reluctant to give positive verbal interaction to the special child. However, the post intervention data indicates that the normal children began to verbally interact in a positive manner much more frequently.

An increase in the number of neutral interactions, given by the normal children to the special child, was observed in both Class A and Class B. An example of a neutral physical

interaction would be the pointing of a direction to the special child.

During baseline, the normal children in Class A interacted with the special child, in a neutral physical manner a mean of 2.13 times per lesson. Subsequently, the mean number of neutral physical interactions increased to 2.63 and 3.63 for the two interventions respectively.

Increases were also found in the data for Class B. Baseline data provided a mean of .30 neutral physical interactions per lesson toward the special child. After the first intervention, the number increased to 2.50. The second intervention was followed by a further increase to 6.38 interactions per lesson.

Therefore, the normal children provided a low number of neutral physical behaviors at the onset of the study. However, the two interventions were accompanied by a clear increase in behavior.

The results suggest that the interventions were also successful in increasing neutral verbal interaction. Neutral verbal interaction was defined as a verbal response with neither positive nor negative characteristics, such as the giving of verbal directions or orders to the special child.

The first intervention was followed by an increased mean from 2.25 (during baseline) to 3.50 neutral verbal interactions per lesson. After the second intervention, the mean

number increased to 3.63 interactions per lesson toward the special child.

Post intervention data, for both classes, provided an increase in the mean number of neutral verbal interactions. Both Class A data and Class B data indicate that the increases in neutral verbal interaction clearly followed the introduction of the two interventions.

The intervention procedure was successful in eliminating the baseline rate of negative physical interactions (e.g. hitting). Prior to the first intervention the mean number of negative physical interactions for Class A and Class B was 1.63 and 1.90 respectively. However, following the first intervention there was a complete absence of such behavior occurring. This trend was also continued, for both classes, after the second intervention.

These results support the premise that the provision of information, regarding human differences and similarities, can help with the special child's integration with normal children (Stainback **et al.**, 1981). Without this provision though, special children in mainstream settings may be faced with unpleasant social integration (Sabornie, 1985).

Similar to the negative physical interaction data, the negative verbal interaction data (e.g. ridicule) also subsided during the post intervention phases of the study.

However, the intervention effect was not as marked with this dependent variable because the mean scores derived from

baseline data were both minimal (Class A mean = .13, Class B mean = .40).

The results indicate that the two interventions for each class were successful in changing the behavioral dependent variables. Positive physical, positive verbal, neutral physical, and neutral verbal interactions increased during the post intervention phases of the study. The interventions also decreased negative physical, and negative verbal interactions to a zero level of occurrence.

It is suggested that the independent variable, the puppet show, successfully changed the interaction patterns of the normal children. In both classes, the normal children displayed more acceptable interaction patterns with their special peers after the implementation of the intervention.

The results support the view that the use of puppetry, as an intervention strategy, can promote the social interaction between normal and special children (Lindeman & Powell, 1983).

The findings further support the theory that the presentation of information to normal children can promote interaction between the normal and special children (Ottman, 1981; Simpson, 1980; Stainback **et al.**, 1981).

Research Question Two

Can a physical activity related intervention have a different effect than an ordinary life related intervention?

Class A received two ordinary life related interventions. Class B was given the same first ordinary life intervention, but the second intervention was related to physical activity.

The data collected following the interventions for both classes were analyzed to determine whether the two different interventions provided a differing effect on the behavioral dependent variables.

The mean percentage change for the six behavioral variables after each intervention was clearly different between the two classes. Class A data provided a 103% mean change for the six variables. For Class B the average percentage change for the behavioral dependent variables was 141% (see Table 6).

While the post second intervention number of positive and neutral interactions increased, and remained constant for negative interaction for both classes, the effects of the second intervention were most pronounced with Class B.

The physical activity related second intervention was given to Class B. The results indicate that the effect of the intervention strategy was greater with Class B. Therefore, this suggests that the changing of behavior of normal children in a physical education setting was best provided

Table 6

Change in Behavioral Variables (%) after Second Intervention

Class	Behavioral Variable	Change after Intervention 2 (%)
Class A	Positive Physical	162
	Positive Verbal	169
	Neutral Physical	138
	Neutral Verbal	146
	Negative Physical	No change
	Negative Verbal	No change
	Mean	103
Class B	Positive Physical	221
	Positive Verbal	143
	Neutral Physical	255
	Neutral Verbal	226
	Negative Physical	No change
	Negative Verbal	No change
	Mean	141

by a physical activity related intervention. Figures 14-19 provide graphic illustration of the effects of the interventions for both Class A and Class B.

The difference in findings between Class A and Class B support the view of Watkinson and Titus (1985). Researchers need to investigate the specific intervention techniques that improve interactions in physical activity settings.

The attitudinal data following the second intervention for both classes were analyzed to determine whether the different interventions provided a differing effect on the attitudinal dependent variable.

The attitudinal data was collected by the administering of the Singleton and Asher (1977) sociometric instrument. The data indicated that the normal children in both classes accepted the presence of the special children, within their physical education lesson, throughout all the stages of the study.

This immediate acceptance meant that any improvement in the special child's acceptance, after intervention, was not possible. Therefore, the effect of the two different interventions could not be seen in the attitudinal data collected.

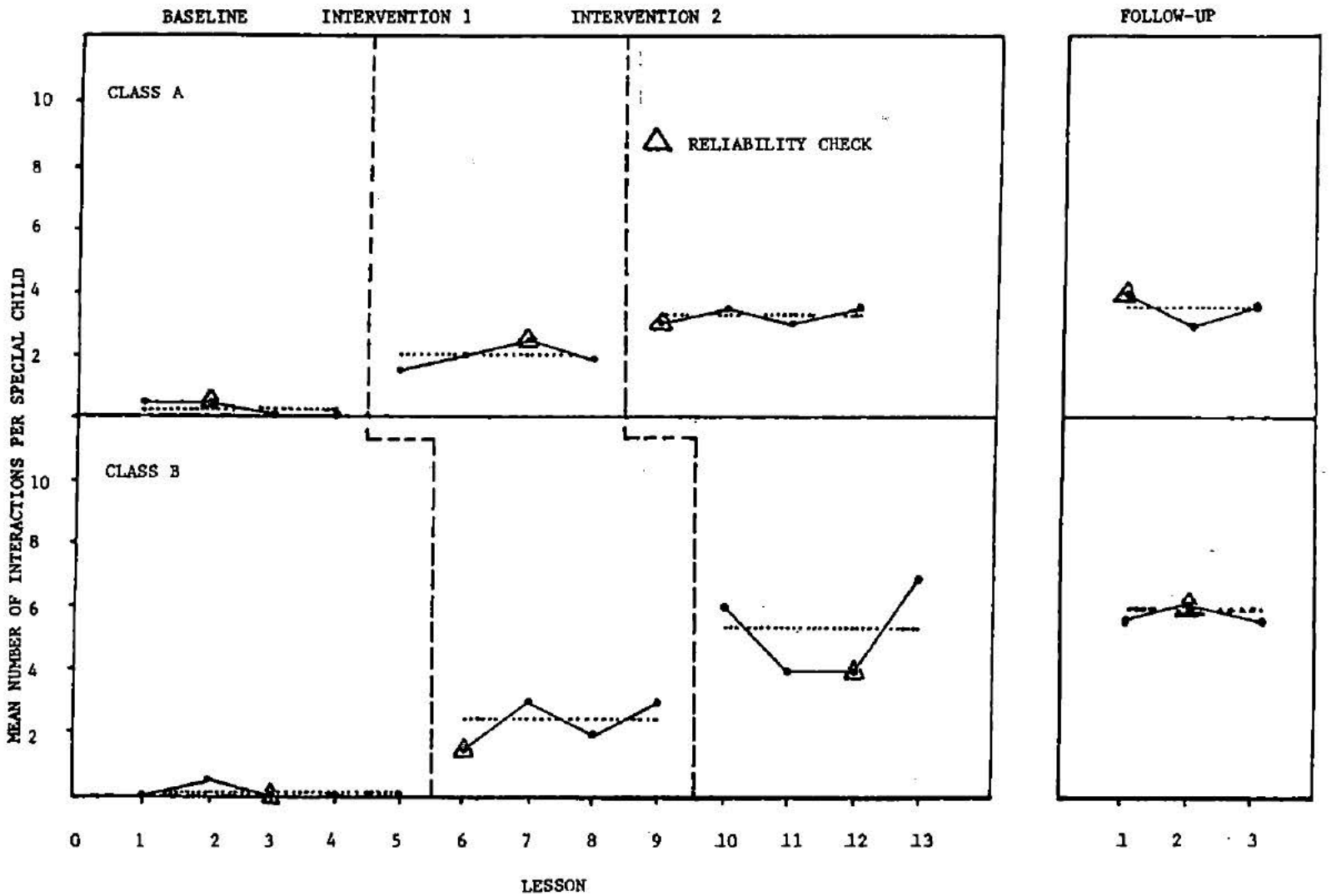


FIGURE 14. Positive Physical Interactions Across Multiple Baselines.

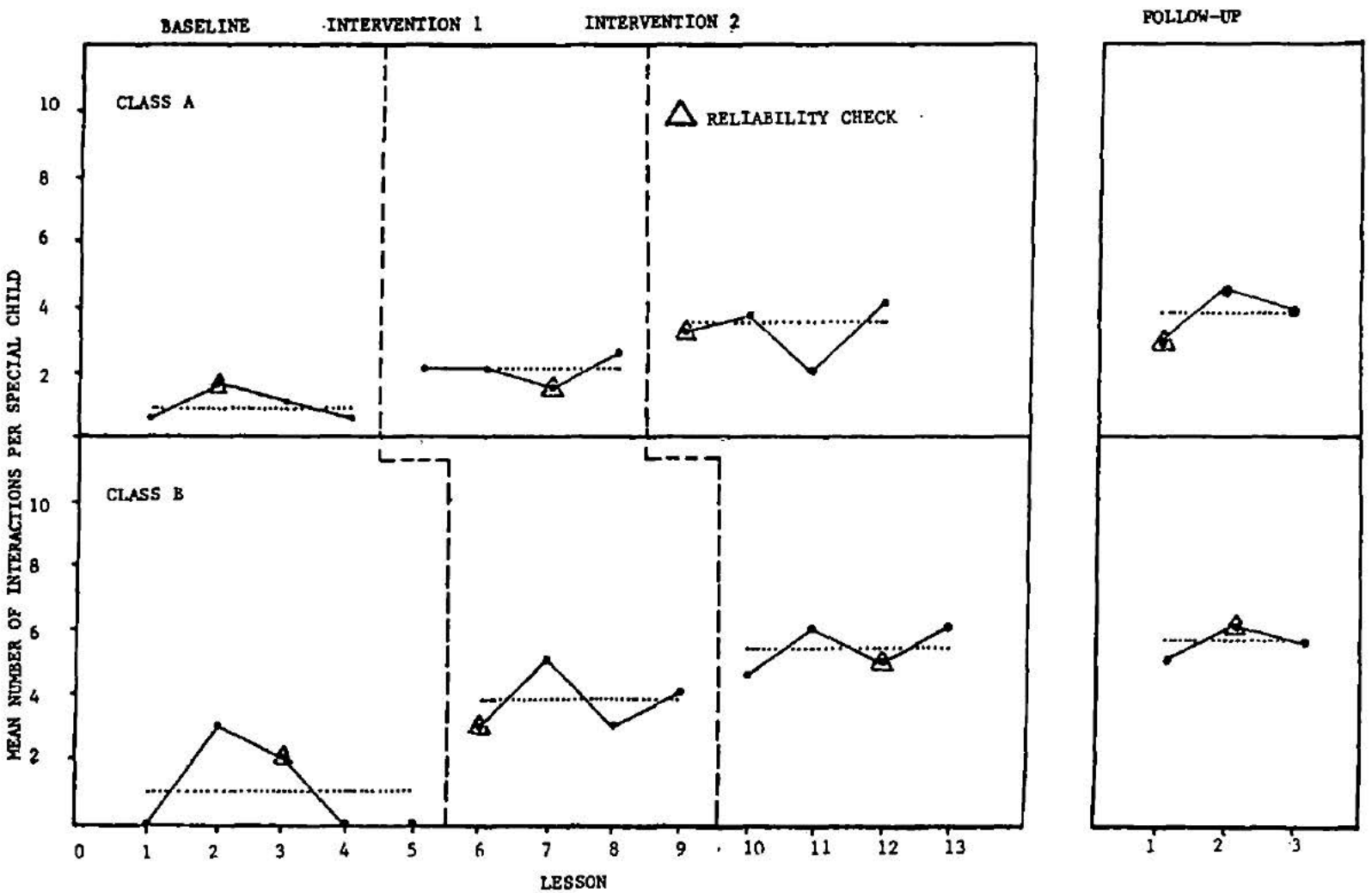


FIGURE 15. Positive Verbal Interactions Across Multiple Baselines.

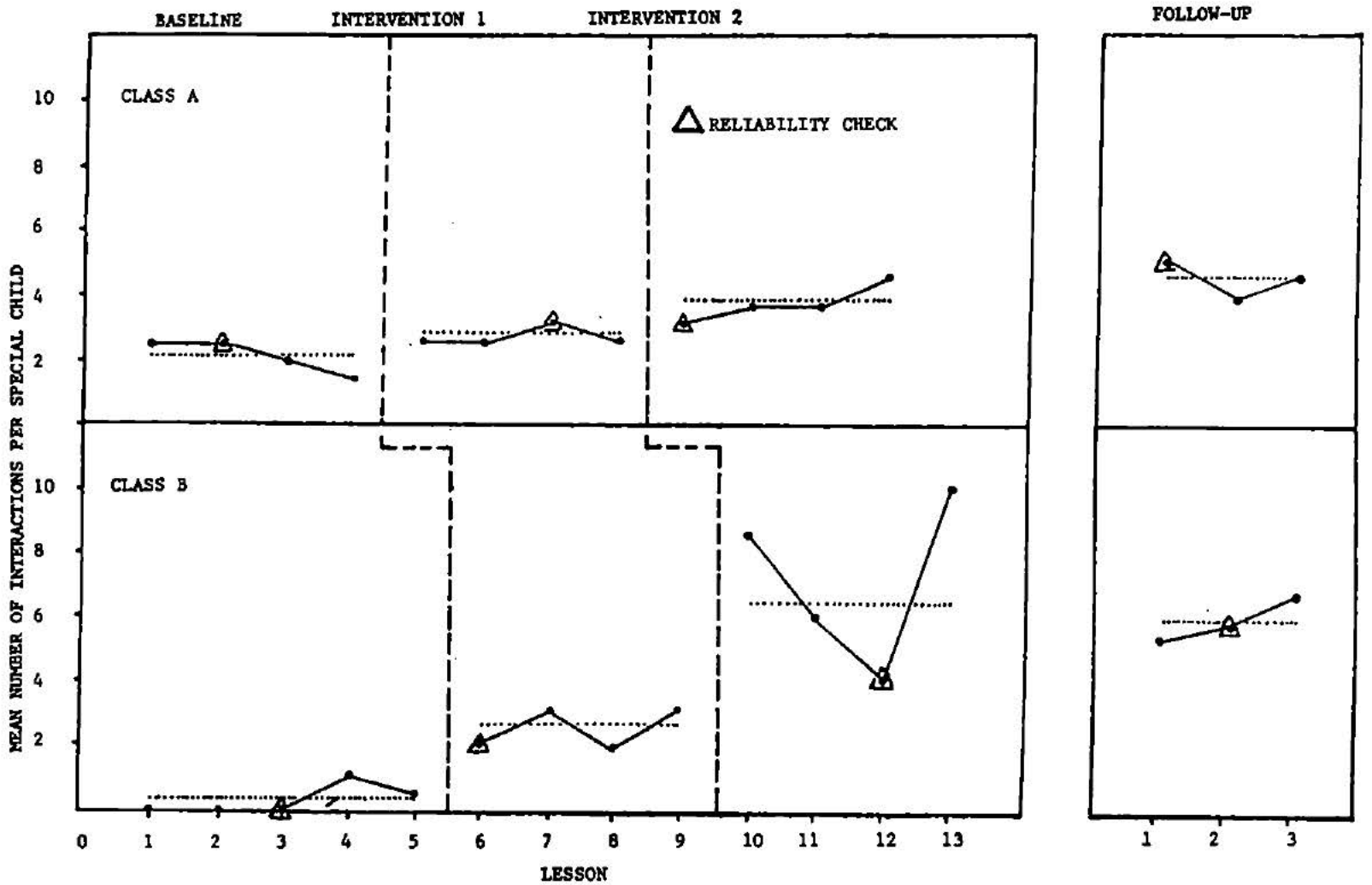


FIGURE 16. Neutral Physical Interactions Across Multiple Baselines.

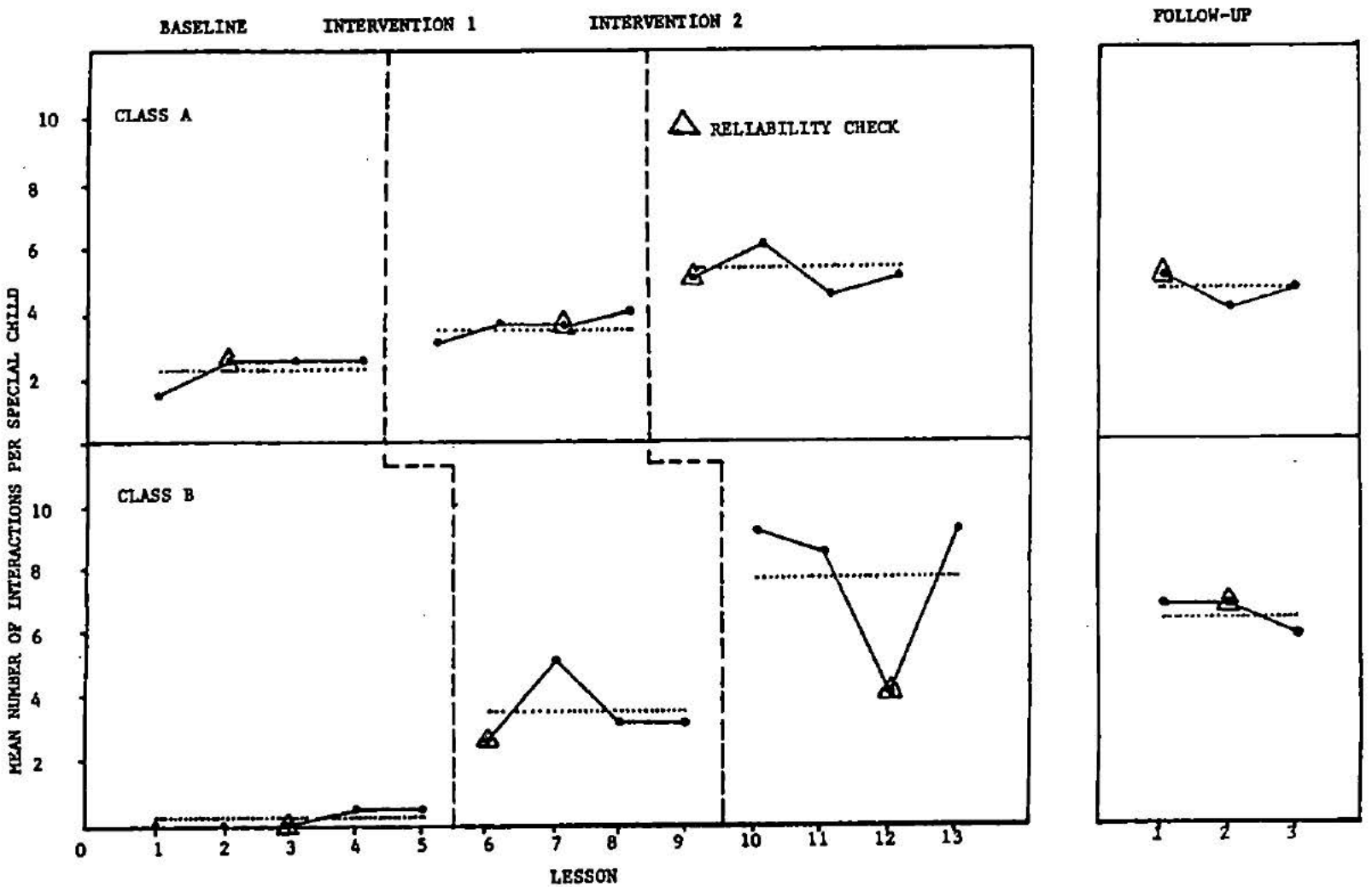


FIGURE 17. Neutral Verbal Interactions Across Multiple Baselines.

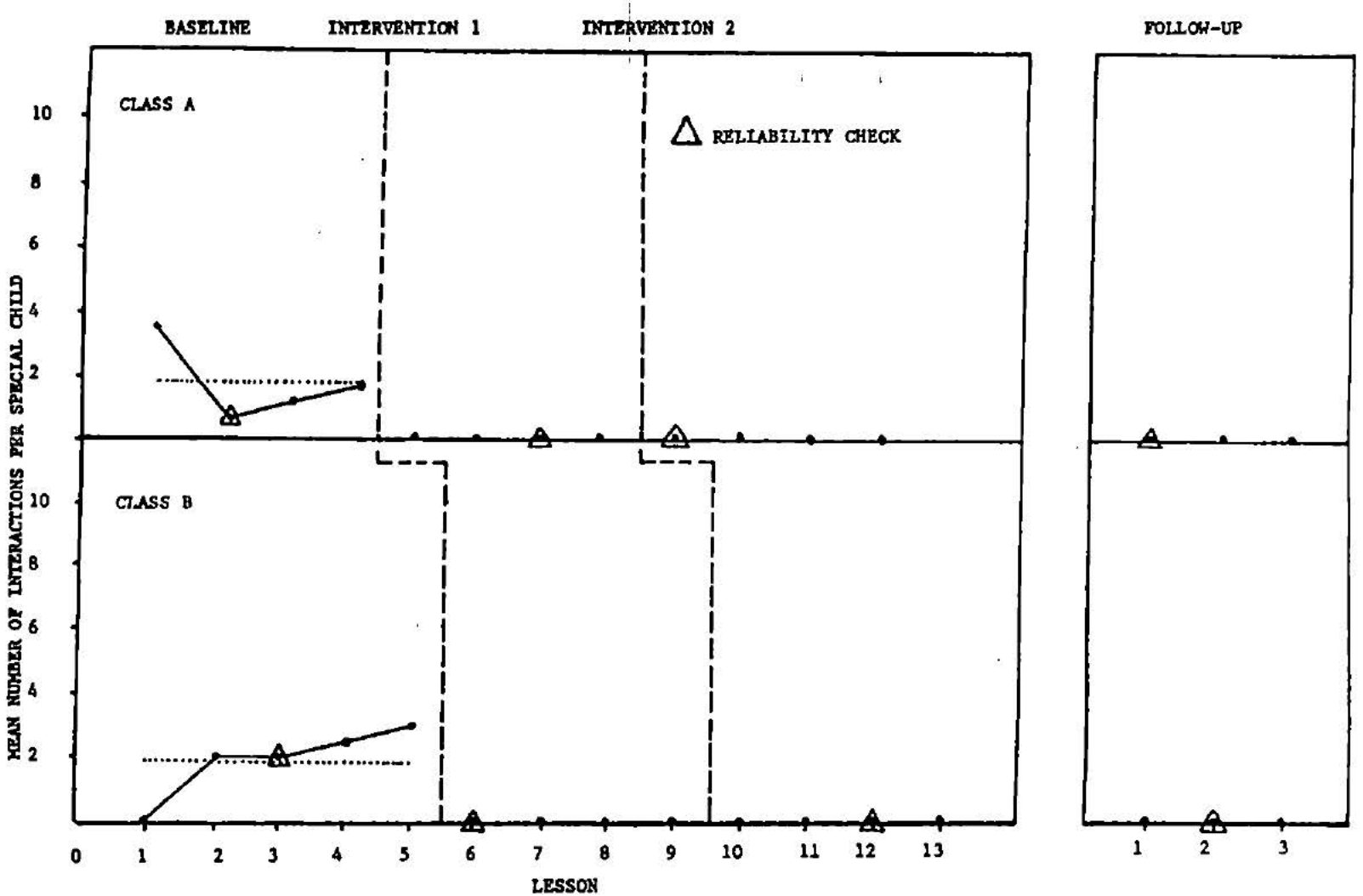


FIGURE 18. Negative Physical Interactions Across Multiple Baselines.

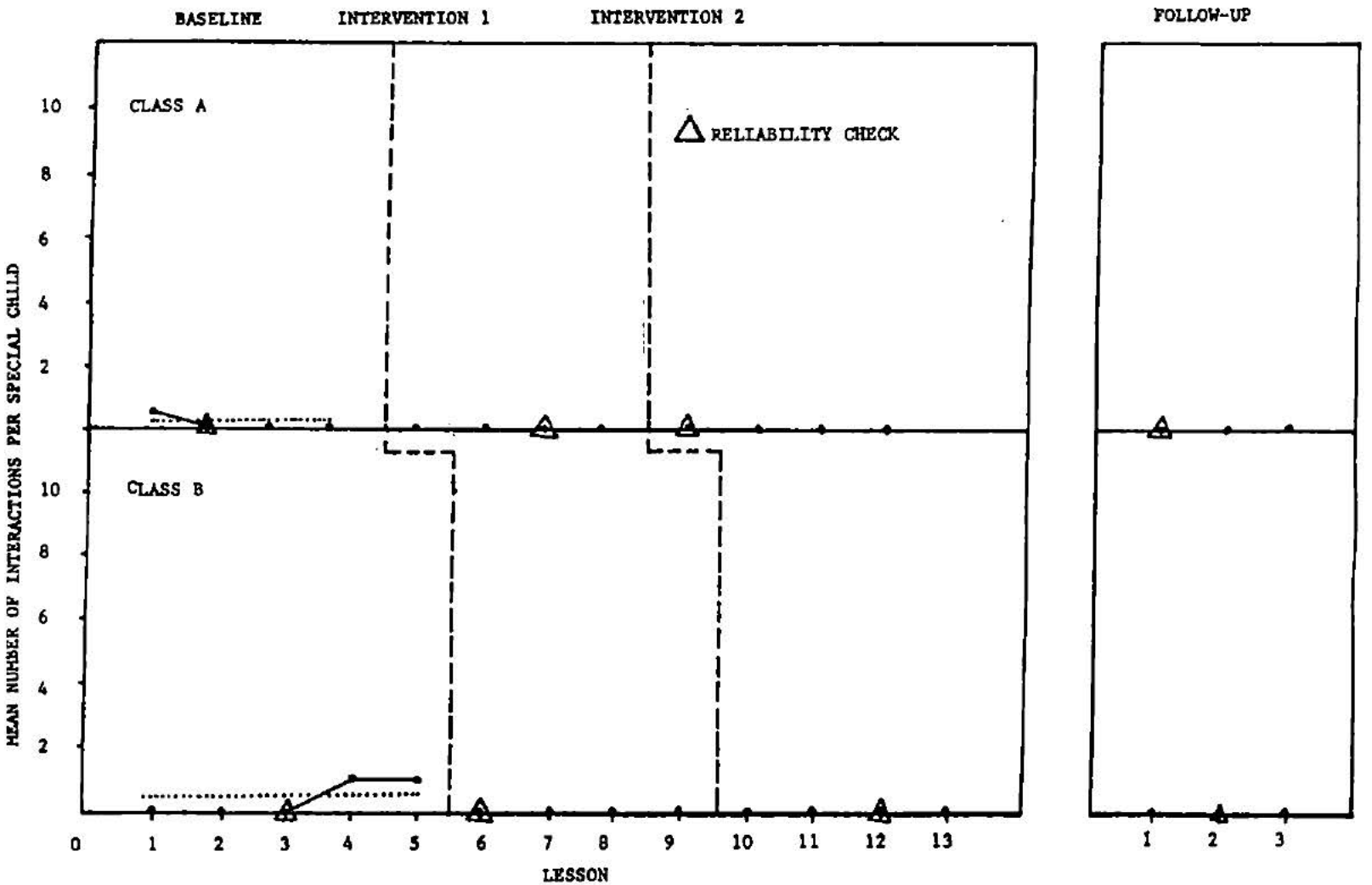


FIGURE 19. Negative Verbal Interactions Across Multiple Baselines.

Research Question Three

Can an intervention strategy significantly change normal childrens' attitude toward special children?

The attitudinal dependent variable was monitored with the Singleton and Asher (1977) sociometric instrument. The questionnaire was administered prior to the first intervention, at the conclusion of the main phase of the study, and at the conclusion of the follow-up phase.

The questionnaire provides a mean score for each child for their acceptance by their class peers. A score of 1 indicates very high acceptance, whilst a score of 5 indicates very low acceptance.

The results from the pre-intervention questionnaire data indicated that the special children were not regarded differently from their normal peers in terms of acceptance.

The mean scores of 2.19 and 2.42 for the special children in Class A suggest that, in a class where the normal childrens' average score was 2.17 (SD = .44), they were accepted members of the physical education class.

Class B normal children had a mean score of 2.43 (SD = .50) on the pre-intervention questionnaire. The two special children received mean scores of 2.56 and 2.59. These scores indicated that the special children were accepted by the normal children.

These results conflict with those researchers who have found that special children are not accepted by normal

children (Levy & Gottlieb, 1984; Ray, 1985; Scranton & Ryckman, 1979). However, many researchers have used peer nomination sociometric type instruments (Ray, 1985; Scranton & Ryckman, 1979). Norrison (1981) argued that the peer nomination instrument reflected friendship, rather than acceptance. Singleton and Asher (1977) further suggested that the rate and roster method provided a better indication of acceptance.

The results obtained at the conclusion of the main phase of the study provided similar results to the pre-intervention data. The normal children in both Class A and Class B accepted the special children within their physical education classes.

The two special children in Class A received mean scores of 1.96 and 2.11 from their normal peers. The class average for the normal children was 2.13 (SD = .37). Class B normal children had a mean score of 2.35 (SD = .50). Both of the special children received average scores of 2.36.

The results indicate that the special children, in Class A and in Class B, were not rejected by their normal peers. The mean scores suggest that the special children were accepted members of the class throughout the study. Therefore, the effect of the intervention strategy on the attitude of normal children was limited. Significant change was not noted because of the high acceptance during the pre-intervention phase of the study.

The difference in the results of the attitudinal data and the behavioral data deserve important consideration. There was inconsistency between the normal childrens' reported attitude from the sociometric instrument and their behavior in the gymnasium. Prior to the first intervention the normal children indicated that they accepted the special children in their class for physical education. However, the behavioral data indicated that the normal children were reluctant to interact with the special child, and when interaction did take place some of it was of a negative type.

The findings agree with the view of Wicker (1971), that there is a risk in conceptualizing attitudes as a latent process underlying behavior. Wicker suggested that attitudes were unrelated or only slightly related to expected behaviors. The results from this study support this theory, that there is an inconsistency between attitude and behavior.

Research Question Four

Can an intervention strategy have a long term effect on normal childrens' physical and verbal interaction patterns with special children?

The study attempted to intervene upon the variables that represent behavioral interaction. These variables were identified as: positive physical interaction; positive verbal interaction; neutral physical interaction; neutral verbal interaction; negative physical interaction; and, negative verbal interaction.

A follow-up phase was conducted in order to determine whether the intervention had a lasting effect. The follow-up phase was conducted six weeks after the conclusion of the main phase of the study.

Class A - Behavioral Data

During the follow-up phase, the mean number of positive physical interactions given to the special child per lesson increased slightly from 3.25 (SD = .29) at the conclusion of the main phase of the study to 3.50 (SD = .50). The data indicates that the intervention strategy was successful in effecting long term behavior change.

During the follow-up phase, the mean number of positive verbal interactions also rose. A mean of 3.83 (SD = .76) was obtained from the data collected. The continued rate of positive verbal interactions suggests that the intervention had a lasting influence on the normal childrens' behaviors.

A large increase was also found in the neutral physical interactions during the follow-up phase of the study. The mean number increased from 3.63 (at the conclusion of the main phase) to 4.50 (SD = .50).

The number of neutral verbal interactions given by the normal children to the special child decreased during the follow-up phase of the study. A mean of 4.50 (SD = .50) was observed compared to a mean of 5.13 at the conclusion of the main phase. However, despite this decrease the number of neutral verbal interactions was still twice the amount observed during baseline.

It could be argued that this decrease may be due to more positive interactions being given, instead of neutral interactions.

The intervention strategy was successful in eliminating negative physical interactions during the main phase of the study. This was also found during the follow-up phase. The presence of any negative physical interactions between the normal child and the special child was not observed.

The intervention strategy also had a lasting effect on negative verbal behaviors. The follow-up phase data indicated that the absence of negative verbal behavior had been continued from the main phase of the study.

Therefore, the influence of the intervention on eliminating such undesirable behaviors was successful over a long period of time.

Class B - Behavioral Data

The analysis of the data indicated that the mean number of positive physical interactions increased from a mean of 5.25 (SD = 1.50) at the conclusion of the main phase of the study to 5.66 (SD = .29) during the follow-up phase. This mean indicates that the intervention strategy had a lasting effect on the normal childrens' behavior.

The intervention also had a long lasting effect on the positive verbal interaction between normal children and special children. The mean number increased slightly from 5.38 (SD = .75) to 5.50 (SD = .50) during the follow-up phase.

During the follow-up phase of the study a decrease in the number of neutral physical and neutral verbal interactions was observed. The mean number of neutral physical interactions decreased during the follow-up phase. At the conclusion of the study, the mean number of neutral physical interactions was 6.38, during the follow-up it was 5.66 (SD = .76). However, this figure was still considerably larger than the baseline mean (.30).

The follow-up data also indicated a decrease in the mean of the number of neutral verbal interactions. Similar to neutral physical interaction, the follow-up mean of 6.16 (SD = .58) was greater than the baseline mean (.20). Therefore, although reduced, the mean score does indicate that the intervention does have a lasting effect.

Positive behaviors were found to have increased in comparison to main phase results. This increase could have been an underlying reason why the neutral behaviors had decreased. The experience of the normal children, during the six week break in the study, may have produced more positive feelings and so affected their positive and neutral behaviors.

The intervention strategy had a lasting effect on negative physical and negative verbal interaction. Analysis of follow-up data indicated that the elimination of negative behavior toward the special child had been continued.

Prior to the first intervention there were observed negative behaviors occurring in both Class A and in Class B. However, following the first intervention these behaviors were eliminated. This trend was continued throughout the rest of the period of the study.

The absence of any negative physical and verbal behaviors by the normal children toward the special child during the follow-up phase suggests that the intervention had a lasting effect on the normal childrens' behavior.

The analysis of the data provided by Class A and by Class B indicates that the intervention had a lasting effect on the behavior of the normal children.

The intervention strategy resulted in an increase of socially desirable behaviors and a decrease in non desirable behaviors. The findings indicate that this trend continued for the entire length of the main phase of the study and for

the duration of the follow-up phase. This suggests that the intervention provided a lasting effect on the behavior of normal children toward their special peers.

Research Question Five

Can an intervention strategy have a long term effect on normal childrens' attitude toward special children?

The questionnaire, when administered during the follow-up phase of the study, provided results that the special children were accepted members of the physical education class.

Class A normal children had a mean score of 2.14 (SD = .51). The special children received mean scores of 2.26 and 2.22. In Class B the mean score for the normal children was 2.51 (SD = .52). The mean scores for the two special children were 2.17 and 2.48.

The effect of the intervention strategy on the normal children's attitudes was limited. As discussed previously, the high initial acceptance displayed by the normal children meant that a change in attitude would be unlikely if the intervention was successful.

The findings support the suggestion that sociometric measures reflect only the attitude of children rather than their behavior (Levy and Gottlieb, 1984). Research that includes only attitudinal or only behavioral data collection may be severely limited.

The Impact of the Intervention

Analysis of the multiple baselines indicates that the observed behaviors changed with the implementation of the intervention strategy.

Both Class A and Class B displayed increases in positive and neutral behaviors and a decrease in negative behavior after the introduction of the intervention strategy.

The results illustrate that a puppetry intervention program can promote a change in behavior in normal children toward their special peers.

Implications and Recommendations

This study has indicated that the implementation of an intervention strategy can change the normal child's behavior toward the special child.

The puppetry intervention program provided the children with information concerning special children. This increase of understanding promoted interaction between the normal children and the special child.

The sociometric instrument indicated that the normal childrens' attitude was one of acceptance toward the special child prior to the implementation of the intervention. However, the attitudinal data was not consistent with the behavioral data. With regard to this inconsistency this study suggests that it is vital that educators intervene upon both attitude and behavior.

The findings also indicate that it is important that researchers not only use sociometric measures, but also observe children in a natural setting. The collection of attitudinal and behavioral data can provide the researcher with information concerning any inconsistency that may be occurring.

By investigating and intervening on both attitude and behavior of normal children, special children will experience the most beneficial mainstreamed environment. This study suggests that only when educators attend to the

promotion of both attitude and behavior will true integration between the normal and special child be fostered.

Finally, evidence from the study indicated that normal children can benefit from an intervention strategy that provides understanding of their special peers. The physical activity related intervention provided the more pronounced behavior change in the physical education setting. Therefore, this study suggests that educators should investigate the different intervention strategies that can promote positive integration in a variety of school curricular areas.

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APPENDIX A

Informed Consent

Dear Parent/Guardian,

A University Graduate Student will be conducting a project with our students, involving the process of integrating special needs children in the area of physical education.

The project involves the watching of two puppet shows. The shows are designed to develop an awareness of the capabilities of special needs children.

Information will be collected by the observation of physical education lessons, and by the administering of a questionnaire. All information gathered will be coded to ensure that the childrens' privacy will not be infringed upon.

Permission to conduct the project has been gained from the Victoria School Board, the Principal, the Classroom teachers, and the University Committee of Research Involving Human Subjects.

Your cooperation in this project would be greatly appreciated. Its completion could provide beneficial assistance to teachers in the school system. Please return the permission slip by Thursday, 11 December.

Yours sincerely,

Principal

I(do)/(do not) agree to allow _____ to participate in the project.

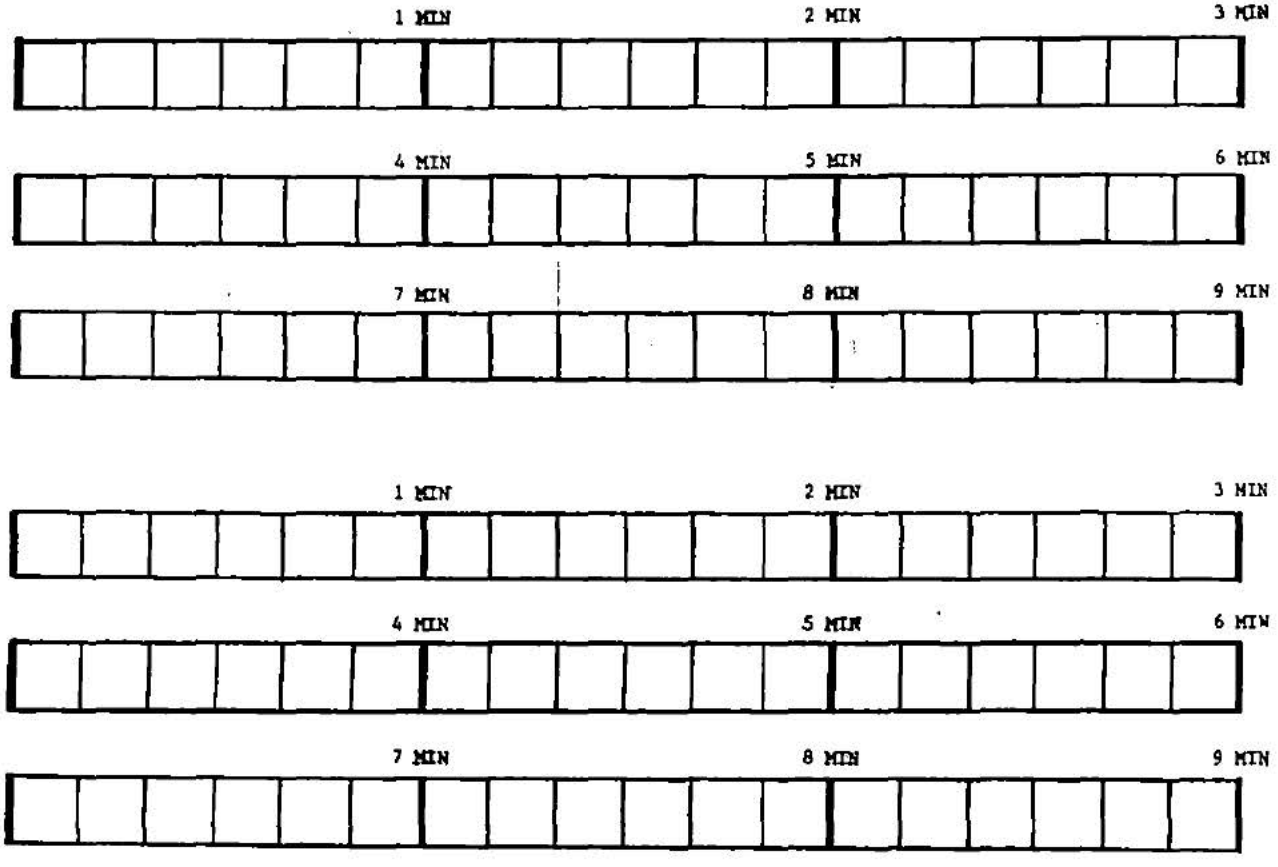
_____
Signature of Parent/Guardian

_____
Date

APPENDIX B

Coding Sheet

1. POSITIVE PHYSICAL
2. POSITIVE VERBAL
3. NEUTRAL PHYSICAL
4. NEUTRAL VERBAL
5. NEGATIVE PHYSICAL
6. NEGATIVE VERBAL

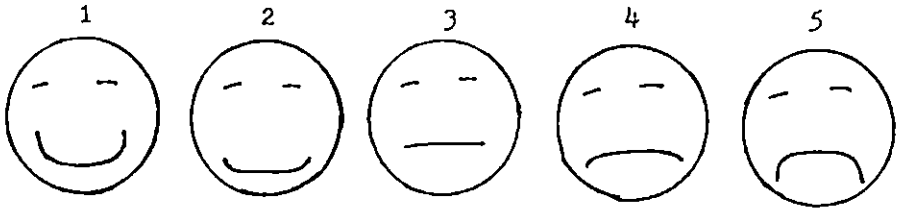


SUMMARY NOTES: 1) CLASSROOM MANAGEMENT
2) INTERACTION STRUCTURE

APPENDIX C

Sociometric Instrument

HOW MUCH DO YOU LIKE THIS PERSON BEING IN THE SAME PHYSICAL EDUCATION CLASS AS YOU?



1	2	3	4	5
LIKE A LOT	LIKE A LITTLE	DO NOT MIND	DISLIKE A LITTLE	DISLIKE A LOT

. . . . . 1 2 3 4 5

. . . . . 1 2 3 4 5

. . . . . 1 2 3 4 5

. . . . . 1 2 3 4 5

. . . . . 1 2 3 4 5

. . . . . 1 2 3 4 5

. . . . . 1 2 3 4 5

. . . . . 1 2 3 4 5

. . . . . 1 2 3 4 5

. . . . . 1 2 3 4 5

. . . . . 1 2 3 4 5

. . . . . 1 2 3 4 5

APPENDIX D

Independent Variable

The independent variable was in the form of a puppet show. Each class received two shows, which involved a total of four 'special puppets'. The puppets used in the shows depicted the following handicaps:

Mental handicap

Blindness

Deafness

Cerebral Palsy

Two different scripts were used for the intervention strategy. One script was related to ordinary life situations, while the other script was related to physical activity.

The ordinary life script outlined the special child's abilities to use a computer, to draw, to listen to a Walkman, and to watch television. The physical activity script concentrated on the special child's participation in physical activity, such as aerobics, swimming, horseback riding and baseball.

APPENDIX E

Means and Standard Deviations for Behavioral Variables

Table E-1

Class A : Means (M) and Standard Deviations (SD) for Behavioral Variables.

Variable		Baseline	Post First Intervention	Post Second Intervention	Follow-up
Pos. Phys.	M	.25	2.00	3.25	3.50
	SD	.29	.41	.29	.50
Pos. Verb.	M	.88	2.00	3.38	4.00
	SD	.48	.41	.48	.76
Neu. Phys.	M	2.13	2.63	3.63	4.50
	SD	.48	.25	.63	.50
Neu. Verb.	M	2.25	3.50	5.13	4.50
	SD	.50	.41	.63	.50
Neg. Phys.	M	1.63	0.00	0.00	0.00
	SD	1.31	0.00	0.00	0.00
Neg. Verb.	M	.13	0.00	0.00	0.00
	SD	.25	0.00	0.00	0.00

Pos. Phys. = Positive Physical Interaction

Pos. Verb. = Positive Verbal Interaction

Neu. Phys. = Neutral Physical Interaction

Neu. Verb. = Neutral Verbal Interaction

Neg. Phys. = Negative Physical Interaction

Neg. Verb. = Negative Verbal Interaction

Table E-2

Class B : Means (M) and Standard Deviations (SD) for Behavioral Variables.

Variable		Baseline	Post First Intervention	Post Second Intervention	Follow-up
Pos. Phys.	M	.10	2.38	5.25	5.66
	SD	.22	.75	1.50	.29
Pos. Verb.	M	1.00	3.75	5.38	5.50
	SD	1.41	.96	.75	.50
Neu. Phys.	M	.30	2.50	6.38	5.66
	SD	.45	.58	1.89	.76
Neu. Verb.	M	.20	3.38	7.63	6.16
	SD	.27	1.11	2.43	.58
Neg. Phys.	M	1.90	0.00	0.00	0.00
	SD	1.14	0.00	0.00	0.00
Neg. Verb.	M	.40	0.00	0.00	0.00
	SD	.55	0.00	0.00	0.00

Pos. Phys. = Positive Physical Interaction

Pos. Verb. = Positive Verbal Interaction

Neu. Phys. = Neutral Physical Interaction

Neu. Verb. = Neutral Verbal Interaction

Neg. Phys. = Negative Physical Interaction

Neg. Verb. = Negative Verbal Interaction

VITA

Surname: HICKSON **Given Names:** CLIVE NIGEL

Place of Birth: GILLINGHAM, ENGLAND

Date of Birth: 3rd OCTOBER 1959

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AVERY HILL COLLEGE, LONDON	1980	to	1984
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Honors and Awards:

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Publications and Presentations:

HICKSON, C.N, & PEAKE, L.H. (June 1987). The effectiveness of a puppetry intervention technique on the acceptance of the mentally disabled in a mainstream setting. Paper presented at the meeting of the 6th International Symposium of Adapted Physical Activity, Brisbane.

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Title of Thesis:

THE EFFECTIVENESS OF A PUPPETRY INTERVENTION STRATEGY ON THE ACCEPTANCE OF SPECIAL CHILDREN IN A MAINSTREAMED PHYSICAL EDUCATION SETTING.

Author [redacted]

CLIVE N. HICKSON

May 20, 1987