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Parent-Child Interaction: Development of Measure for a Naturalistic Setting

A thesis

presented to

the faculty of the Department of Psychology

East Tennessee State University

In partial fulfillment

of the requirements for the degree

Master of Arts in Clinical Psychology

by

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Keywords: Parent-child interaction, daycare, academic achievement, parent ratings, elementary age

ABSTRACT

Parent-Child Interaction: Development of Measure for a Naturalistic Setting

By

Valarie N. Holzwarth

Parent-child interaction could arguably be the most important factor in child development, including academic achievement, behavior, and personality. This study suggests that the quantity of parent-child interaction is just as important as quality, and we test the reliability and validity of our instrument developed to quantitatively measure parent-child interaction in the home under realistic conditions. Twenty-eight children's parents participated in the study over four days. Eight families had two research observers complete the instrument simultaneously with them, and reliability measures were taken between the two parents (74%), one parent and one research-observer (78%), and the two research observers (97%). Validity measures yielded scores of 78% for parents and 77% for colleagues. This study's instrument was shown to be a simple and strongly reliable instrument for measuring children's after-school activities and a reliable way to measure parent-child interactions indirectly, avoiding a social desirability response set.

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CHAPTER 1

INTRODUCTION

Parent-child interaction has long been considered a crucial influence on a child's functioning. Some of these influences include such things as a child's personality formation, academic achievement, behavior, and empathy. In fact, it could be argued that the parent-child relationship is the most important factor in child behavior and development. "Parent-child interaction is increasingly recognized as an important focus of early intervention programs, as research has shown that the interaction between a parent and child is important to optimal child development" (Barnard & Kelly, 1990, p. 278). Unfortunately, assessment tools for studying such interaction have often been rejected for reasons ranging from poor reliability to ease of administration.

Parent-child interaction has been defined in many, yet similar, ways. Parent-child interaction has been variously defined as: communication between a parent and a child; the combined reciprocal action of a parent and a child that has an effect on each other; and "two or more people engaging in a mutual exchange of thoughts and ideas in which both participants are contributing and responding to each other (Russo & Owens, 1982, p.166)." The study of parent-child interaction involves a greater dilemma than agreeing on an appropriate definition. Rather, the bigger dilemma lies in finding an appropriate assessment tool. Mahoney, Spiker, and Boyce (1996) stated:

Current approaches to assessing family dynamics, as well as parent-child interaction, are principally research methods or are dependent on highly skilled clinical professionals.

Approaches that can be used in more settings by a wider range of individuals should be developed (p. 27).

There are a number of critical issues relating to the assessment of parent-child interactions that need to be addressed if reliable conclusions are to be made regarding its influence on child behavior and activity. These include assessing children in more than one setting and context to determine the influence of situational factors on their behavior, using valid developmental frameworks to assess the interaction,

and using procedures that can be centered upon the individual dynamics of the child and family (Mahoney et al., 1996). Parent-child interaction assessment tools range in complexity, reliability, and methodology, and the need for better assessment tools continues to be at the forefront of child studies.

The interaction between parent and child has received an increasing amount of attention in past years. This attention may be because: in the majority of homes, all parents or guardians involved in raising the children also carry full-time jobs; the number of extra-curricular activities children are involved in continues to increase; and, the rate of youth violence and drug use seemingly continues to worsen. The issues that could be addressed by having a reliable and comprehensible parent-child interaction measure are countless and seemingly quite significant. If a tool were developed that was not only reliable but also easily implemented, it could be used in a wide range of research relating parent-child interaction to many aspects of a child's life. Parent-child interaction could be related to socio-economic status, the number of parents in the home, behavioral disorders or problems, academic achievement, social skills, and measures of empathy. Dowdney, Mrazek, Quinton, and Rutter (1982) mention, "There is an increase of interest in the relevance of parent-child relationships for social and emotional development, as well as for the emergence of language and of cognitive skills" (p. 379).

Regardless of the direction, the fact remains that there continues to be a desire for an assessment tool to measure parent-child interaction so to be able to relate the importance of parent-child interaction with concern to child development. The purpose of this study is to do just that, test the reliability and validity of an instrument developed to measure parent-child interaction in the home. If the proposed instrument proves reliable and valid over time, it can then be used to relate child development with the interaction of a parent and the child.

Theoretical Perspectives of Parent-Child Interaction

The importance of parent-child relationships and interactions has long been considered in theories of child development. Freud and Jung placed emphasis on family dyadic interaction as related to unconscious development throughout the stages of development and life (Freud, 1966). Freud's

psychosexual stages of development emphasize the interaction of the parent and child in terms of its influence on the child's personality development. Skinner argued the importance of the parent-child relationship behaviorally implying that the interaction of the parent and child throughout development produces positive and negative reinforcement, which in turn shapes the child's behavior (Skinner, 1953). Skinner's theory suggests that because the parent-child relationship is typically the longest and most constant, this interaction is possibly the most influential on behavior and development.

It is not just psychoanalytic or behavioral theories that deem the parent-child relationship as one of the most crucial elements of healthy child development. Maslow suggested that the quality of the relationship, i.e. whether or not the parent created a safe but exploratory environment, determined the healthy growth of the child (Maslow, 1999). Rogers also argued that the quality of the relationship between parent and child, whether there was unconditional positive regard, was a determining factor in developing into a healthy individual (1961). Erikson argued that the child's interaction and relationship with its parents created the setting for the successful or unsuccessful completion of the stages of development beginning with basic trust vs. mistrust (1959). Adler continued the emphasis on the parent-child relationship in his discussions on the crucial influences of parents on child behavior, especially that of the pampered child (1979). And, Bandura theorized that the interaction between the parent and the child created the environment and elements of the social-learning process in which the child would model behavior and develop their personalities based upon those interactions (Bandura & Walters, 1963).

Regardless of the theory or the year of research, there has never been a question that the interaction between the parent and the child is essential for a child's positive and healthy development, and is one of the most, if not the most, important elements in that development. There are few topics or issues that could show an agreement within all theoretical perspectives the way the issue of parent-child interaction does.

Since the dawn of Freudian psychology, parent-child interaction has been discussed with relevance to healthy child development. "Predominantly in the 1960's and 1970's, classical and operant learning theories were the basis behind the dominant theoretical models for both intervention and

treatment models for children with disabilities” (Mahoney, et al., 1996, p.29). These theories tended to take the focus off the nature of the parent-child relationship and place it on the structural elements involved (Mahoney et al). With these theories, most intervention lacked clinical procedures and modification.

Since then, a more transactional model of development has gained importance in these child development processes in mainly three ways: (1) it views parents as the most direct influence on children’s development and mediates through the parent-child relationship; (2) it views the role of the parents in terms of their availability to their children and the amount and quality of the support they provide; and, (3) it acknowledges that there are economic, social, and familial influences involved in the ability of parents to effectively relate to their children (Mahoney et al., 1996). This transactional model combined with Bandura’s Social Learning Theory of behavior and modeling guided this current project and assessment tool.

Empirical Findings of Parent-Child Interaction

Due to the theoretical importance of the parent-child interaction research, having a reliable assessment and measure of this interaction is crucial for establishing connections and relationships to the many aspects of child development. With this in mind, the first step is obviously to search for existing assessments of the parent-child interaction. From there, a determination of both the advantages and disadvantages, and strengths and weaknesses of these existing assessments should be done. Researchers have found multiple links between certain aspects of child development and the parent-child interaction, but the majority concede that there needs to be a more reliable, and “complete” measure of parent-child interaction for the results to be valid and usable (Mahoney et al., 1996).

Dowdney et al. (1984) developed a two-session home observational scheme that is applicable for studying mother-child interactions, particularly for 2 and 3-year old children. Their main interest involved socio-emotional development of the child, and they assessed parent sensitivity, affect, social communication and control within the amount and type of verbal and non-verbal interactions during a 4-

hour observation. They tested the reliability of their measure in several ways and concluded that that reliability of the coding sequences within the design was satisfactorily high, having an average of 80% agreement between measures. Even though their assessment tool was designed to obtain a more reliable measure of the parent-child interaction by doing assessments in the different homes of the participating mothers, there were still disadvantages and weaknesses involved. First, it required a trained professional to observe multiple hours in the different homes of the participating mothers, each housing all of the children at chosen intervals. Second, the assessment tool included a multitude of codes and recording strategies necessary to complete the assessment. And, third, though it was the researchers' intent to gain a more naturalistic assessment of the mother-child interaction, there were controlled tasks and games the participants were asked to do while the observations and assessments took place.

Within the *Handbook of Early Childhood Intervention* (1990), Barnard and Kelly outline some of the most reliable and valid measures of the parent-child interaction. Two of these include the Nursing Child Assessment Satellite Training (NCAST) Teaching and Feeding Scales and the Parent/Caregiver Involvement Scale (PCIS).

The NCAST Teaching and Feeding Scales occur in the clinical setting, and are intended for individual intervention strategies. These scales measure the amount of deliberate and responsive behavior to a given stimuli between the parent and child and include feeding and asking the parent to teach a specific task. Though reliable, the disadvantages to the measure are that it is highly structured, requiring strict clinical settings and trained professionals to implement, limited to infants and very young children, and focuses on the parent interactive behavior rather than the child's. (Barnard & Kelly, 1990)

The PCIS involves interactive play with the parent and infant or toddler, assesses caregiver behavior, focuses on families with children with or at high risk for disabilities, and is used particularly for intervention programs. The assessment tool is highly structured within a controlled setting, requires a trained observer to score and type the observed behaviors, and allows for ratings of the interactions. The major disadvantage to this tool described to assess the parent-child interaction is that it does not focus on the child's contribution to the parent-child interaction; rather, it assesses the parent's behavior only.

Making inferences about the nature of the interaction would be quite difficult with this tool. (Barnard & Kelly, 1990)

Russo and Owens (1982) developed a 42-item taxonomy rating system reflecting parent child interactional behaviors common to child development. The rating system involved four judges, and the results were analyzed to determine which interactional behaviors were most highly related by the four judges in terms of the quality of the interactions. The purpose of their taxonomy was for future clinical use, and to “define objective interactional strategies eliciting highly rated relationships to be used as an assessment aid to objectively evaluate the quality of the parent-child interactions” (Russo & Owens 1982, p.169).

The limitations and disadvantages of their assessment tool include the involvement of only children with disabilities and preverbal children, the use of only structured activity in the clinical setting, and the complex system of rating the limited interactions.

Within *Play Diagnosis and Assessment* (2000), Smith described one of the many Parent-Child Interaction Play Assessment (P-CIPA) tools and how it was developed from the response-class matrix, requiring only one observer. This assessment includes anything from interviews, parent-teacher-child behavior and personality scales, cognitive measures, and intervention techniques. The tool requires an observer to watch and assess, through a one-way mirror, the child and parent involved in play activity. It also requires parents to interact with their children in ways set out by the examiner, and their behaviors and interactions are recorded and categorized. Though reliable, there are many disadvantages with this tool. First, “the scale cannot reliably capture the intricate and reciprocal nature of each person’s influence on the other, and the evaluator is encouraged to avoid a linear view of analyzing the causal relationship between the interactions (Smith, 2000, p.345).” Second, the scale is not continuous or inclusive of a variety of settings. It takes place in a controlled environment in which there are chosen activities for the parent and child to participate in. Third, the child’s developmental age is not accounted for. Children and parents interact differently and within different contexts as the child develops, but the measure does not

account for that. And fourth, the assessment tool requires a trained professional to do observations and make assessments, in a highly restricted environment, and within non-naturalistic settings (Smith, 2000).

Marschak (1960) developed the Marschak Interaction Method (MIM) for evaluating child-parent interactions under controlled conditions, which is currently used as a primary assessment of parent-child interaction prior to intervention and other diagnostic assessments. The MIM requires the parent and child to complete videotaped MIM interactions consisting of several 30-40 minute (on average) sessions. These sessions involve an analysis of the behaviors and interactions through dimensions of Structure, Engagement, Nurture, and Challenge, and following with a feedback session with the parents in which conclusions and assessments are discussed, along with any concerns or comments the parents want to share (Lindaman, Booth, & Chambers, 2000). The MIM has been used for measuring the interactions between mother and infant, pre-school to adolescent children and a parent, husband and wife, and for diagnostic and intervention purposes involving high-risk situations and clinical situations, especially those concerning attachment disturbances (Lindaman et al., 2000). Though highly reliable and frequently used as a preliminary measure of the parent-child relationship, there are disadvantages and shortcomings within the method. The biggest disadvantage would be the lack of naturalistic observations (Marschak, 1960). The method involves controlled situations, in both the home and in a controlled environment, in which the parent and the child are instructed to interact within a structured setting. The other disadvantage to this method is that it involves a complex and difficult coding system, also requiring videotaped interactions. The videotaping of the interactions also becomes a disadvantage when implementing and finding participants.

This is certainly not an exhaustive search of the devised assessment measures of parent-child interaction, because it would be understandably difficult to report on all existing measures, but this does reflect a highly representative sample, concentrating on the most reliable and most frequently used assessment tools.

Statement of the Problem

Most of the existing measures of parent-child interaction are observation tools that are used within a clinical setting, require highly skilled clinicians or trained professionals to assess and measure the interaction, involve highly complex assessment tools, some being quite costly, and do not account for the differences in behavior displayed in both parent and child when being observed in a controlled or clinical setting as compared to that of a naturalistic setting, such as the home. And, because it could be argued that some of the most crucial learning and development of a child occurs within the home setting, it is essential to reliably assess the typical parent-child interaction that occurs most frequently in order to relate it to child behavior and personality.

The current study will attempt to develop a reliable, easy to administer, cost-effective, and naturalistic tool for measuring direct parent-child interaction.

Instrument Description

Before devising an instrument for measuring a behavior, it is necessary to clearly define the interaction that will be measured and assessed. Direct parent-child interaction will be defined as an intentional, interpersonal, communicative (both verbal and nonverbal) involvement, within close proximity (3-5 feet maximum), between a parent and a child, and directed at a common goal. In order to obtain a naturalistic measure of the typical parent-child interaction, all measurements will take place in the child's home and during typical routines. No guidelines will be set on the activities of either the parent or the child.

All assessment measures of parent-child interaction to date have included complex coding and observational strategies to assess the quality of the parent-child interaction. No assessments with regard to the quality of the parent-child interaction will be made at this time with this observation measure. However, the quantity of the typical parent-child interaction will be assessed using children in the 1st, 2nd, 3rd, and 4th grades with this observation measure. With the vast majority of parents currently holding full-

time jobs, it is necessary to research whether the quantity of time spent involved in parent-child interaction is related to child development and behavior; no current measurement tools assess just that.

The current instrument will measure the time the child spends involved in a listed number of activities, the number of interactions involved in each activity and with whom, the time the child spends in day care and in school each day, and, it will address any comments regarding the child's activities, as expressed by the parents. The instrument will be in questionnaire form, easily and clearly laid out, and will allow for the parent to check off the activity the child participated in and for how long that particular day. Also, an assessment of time spent in day care each day will be measured for possible use in the future.

The reliability of this instrument will be tested through inter-rater reliability as well as inter-observer reliability. After discussing the measure with each parent, the questionnaire will be sent home for both parents to fill out separately. The parental accounts of the child's activities on the same day will be tested for reliability. Knowing that not all homes contain two parents, inter-observer reliability will also occur. For every two questionnaires the parent or parents are asked to fill out, an observer will come into the home and silently observe and rate the routine activity of the child for the same period of time the parent or parents are observing the child. The ratings of these observations will be tested for reliability. Also, because the activity of children and families is not always parallel from day to day, a total of four questionnaires will be given, one per participation day, spaced throughout two weeks. For example, one week, the parent(s) are asked to observe and rate the child's activities on Monday and Wednesday. The next week, the parents are to fill out questionnaires on Tuesday and Thursday, in order to receive a more accurate representation of the parent-child interaction.

The validity of such an instrument is illustrated in research regarding past assessment tools of parent-child interaction and the developments in intervention for the child that have emerged over the past several years.

The purpose of this instrument is to provide an easy, non-taxing, useful, and reliable measure of the typical parent-child interaction under naturalistic conditions. The need for being able to relate this

interaction to such things as empathy, aggressive behavior, academic performance, etc. has been repeatedly mentioned in the literature, yet such an accessible and reliable instrument has yet to be developed. Reliability will be defined as inter-observer agreement of at least 80% or greater across all participants on all three measures. Validity will be defined as positive ratings of 70% or greater on the Likert Scale questionnaires. It is hypothesized that there will be less than 80% reliability for parent vs. parent rating agreement (hypothesis #1). It is also hypothesized that there will be at least 80% reliability for parent vs. research-observer rating agreement (hypothesis #2) as well as for research-observer vs. research-observer rating agreement (hypothesis #3). And, it is hypothesized that there will be at least 70% validity scores for the parent validity ratings (hypothesis #4) and the colleague validity ratings (hypothesis #5).

CHAPTER 2

METHOD

Participants

Participants included volunteer parents in two-parent homes of children actively enrolled in the first through fourth grades of schools in small and mid-sized rural cities in Northeast Tennessee. The parents of 10 girls and 18 boys made up the 28 total participants, with 25 of those families of Caucasian ethnicity and 3 of Hispanic origin. The parent's ages ranged from 22 to 50 years, and the children's ages ranged from 5 to 11 years. After receiving approval from the Institutional Review Board by means of a short review, approval was obtained from the necessary individuals of each school to contact the parents of the first through fourth grade children by means of a consent form explaining the details of the study. Signed consent forms from the school administrators approving the release of the parents' names and contact information of children in the first through fourth grades, lead to the final approval of the participating parents. An informed consent document was signed by each participating parent agreeing to fully participate in the study requirements and consenting to allow a researcher to come into their home to make observations of their child's activities from the time he/she arrived home until the time he/she went to bed that evening (Appendix G).

Measures

For the purposes of this study, "direct interaction" was defined as an intentional, interpersonal, communicative (both verbal and nonverbal) involvement, within close proximity (three to five feet maximum distance) between two or more people, and directed at a common goal. The intention of this study was to design an instrument to measure the time spent in direct parent-child interaction following a typical school day, and to evaluate inter-rater reliability of the instrument.

The checklist instrument developed for this study was to be assessed in terms of its reliability and validity. Reliability was assessed in three ways: a) Parent vs. Parent, b) Parent vs. Research Observer,

and c) Research Observer vs. Research Observer. Validity was assessed in three ways: a) how the categories of the instrument correlate to past research on observations of parent-child interaction, b) the extent to which the parents of children in the first through fourth grades evaluate the checklist to be representative of their child's typical activities, and c) whether five colleagues in the fields of psychology or education doing research on parents and children find the checklist to be representative of the typical child in the first through fourth grades.

The three assessments of reliability were measured by having both parents observe and complete the checklist for their child during four different days. To minimize the burden of having to participate in the study, the four days of observation occurred within two weeks with the possibility of a research observer having been randomly chosen to observe in the home concurrently during one or two of those days. The first day each parent participant was asked to observe and complete the checklist was a Monday or a Tuesday of the first week. The second observation was conducted two days later. For example, if the participant completed the first observation on a Monday, the second day of observation was Wednesday of that same week. If the first day of observation was Tuesday, the second day of observation was Thursday of that same week. During the second week, observations were the opposite days of the first week.

The time, in minutes, that the participant's child spent in each activity and with whom was measured using a 17-item checklist developed by the researchers (Appendix A). Observation with the checklist extended from the time that the participant's child arrived home that day until their child went to bed that evening. The parents were asked to fill out the checklist according to the activities in which their child participated during that time frame. The independent observers used the same checklist to categorize the subject child's behavior. The activity categories of the checklist and their definitions are listed below:

IN DAYCARE TODAY: How many hours and minutes the child is being supervised by anyone other than a parent. (Not including time spends in school)

WATCHING T.V.: How much time the child is sitting in front of the television, engaged, and actively listening to the T.V. while in the same room. (Depending on whether alone or with another person, score time accordingly)

STRUCTURED PLAY OUTSIDE: How much time the child spends in organized and/or structured outdoor play. (I.e. organized sport or adult directed outside game/activity, such as soccer, etc.)

NON-STRUCTURED PLAY OUTSIDE: How much time the child spends in non-organized outdoor play. (I.e. running, on the swing set, playing by him/herself, etc.)

STRUCTURED PLAY INSIDE: How much time the child spends in organized and/or structured indoor play. (I.e. Parent directed inside art activity, etc.)

NON-STRUCTURED PLAY INSIDE: How much time the child spends in non-organized indoor play. (I.e. Building a fort, playing leggos, putting together a puzzle, etc.)

EATING DINNER: How much time the child spends sitting down in front of a plate of food and actively and directly eating the food.

HAVING SNACKS: How much time the child spends actively eating a snack. (Score both snack time and T.V. time if snacking while watching T.V., but make a note of interaction in comments section)

FIGHTING/ARGUING: How much time the child spends in direct argumentation and/or either physical or verbal fighting with another.

BEING PUNISHED OR IN TIME-OUT: How much time the child is being punished or in time-out as a consequence of his/her behavior. Scoring time here constitutes having no other activities able to be scored at the same time. (Comment on location)

DOING HOMEWORK: How much time the child is actively engaged in homework activity, having no other activities occurring at the same time, and while in a specific room, sitting down, with work in front of him/her. (Comment if this time is with a tutor or at a tutorial setting.)

READING: How much time the child spends actively engaged in a book, paper, etc. without any other activities occurring at the same time.

COMPUTER TIME: How much time the child is sitting in front of the computer, actively engaged, with no other activities occurring at the same time. (Comment whether fun/play related or educational/school related computer time)

VIDEO GAME PLAY: How much time the child is actively involved in video game play, with no other activities occurring at the same time.

TEMPER TANTRUMS: How much time the child is behaviorally out of control, stomping, yelling, kicking, screaming, hitting, violently crying, etc.

NAPPING: How much time the child is laying down, quiet, eyes closed, actively sleeping.

In addition to the observation checklist, a parent of each participating child completed a questionnaire in which he/she recorded the day's date, the child's name, age, and gender, the name of the person filling out the checklist, the time the checklist was filled out, the time the child arrived home and went to bed that day, and any comments regarding the child's activities or necessary activities that might be missing from the checklist (Appendix B). This questionnaire was to be completed each day the observation checklist was completed.

Validity data were collected using two questionnaires, in the form of Likert Scales, for both the parents and other researchers to complete. Each parent completed a questionnaire indicating whether or not he/she thought the checklist included the necessary categories to be able to represent the activities of the child, whether or not the checklist was easy to fill out, and whether or not he/she believed he/she could give an accurate account of their child's activities using the checklist (Appendix C). Each outside observer also completed a questionnaire obtaining information on such ideas as whether or not he/she thought the checklist included the necessary categories to be able to represent the activities of the average child in the first through fourth grades, whether or not he/she thought a parent would be able to give an accurate score of time their child spent in each activity, and whether or not he/she thought the checklist would be a feasible way to get an accurate assessment of the time parents and children spend in direct interaction (Appendix D).

Procedure

Each participant was given a packet containing five pages before the initial date of observation. The first page was the definition of “direct interaction” so that each observer clearly understood the guidelines for indicating on the checklist if his/her child was with a parent, sibling or friend or alone while engaged in an activity (Appendix E). The second page contained the definitions of each category listed in the checklist (Appendix F). These definitions were included so that each observer clearly understood the guidelines for scoring each activity listed in the checklist. The third page was the questionnaire obtaining information on their child, that day’s date, and any comments. The fourth and fifth pages were the checklists, one for each observer in the two-parent homes, to be used to indicate the length of time their child spent engaged in any activity. On the fourth and last day of participation, the packet contained a sixth and seventh page, the questionnaires for each observer, assessing the participant’s opinions and ideas about the validity of the checklist in terms of his/her child’s daily activities. As the packets were given out, the researcher read out loud all definitions to each participant, described the observation procedure, and addressed any questions the participants may have had before beginning the procedure on the first Monday or Tuesday of participation.

The participants in each two-parent home were asked to complete the checklists separately and independently. The participants were informed of the importance of completing the checklists separately in efforts to maximize the reliability of the measure for the study. Prior to starting, to verify that the participants understood how to complete the checklist, both parents were given an example of a specific scenario in which their child was participating in an activity for a specific length of time with a friend, and were asked exactly how they would score such an event. The researcher did not proceed until both parents were able to correctly describe how to score the checklist.

The participants were informed that they could complete the checklist as their child participated in an activity, or they could complete the checklist at the end of the day after their child went to bed that evening. If the participants chose to complete the checklist after their child went to bed that evening, they

were asked to make frequent observations regarding the length of time their child spent engaged in an activity. The participants were asked to record time in each activity as indicated by checking inclusive minutes (I.e. check the 1-10, 11-20, and 21-30 boxes if the child is engaged in the activity for 30 total minutes).

The participants were informed that it was necessary for them to send the completed packet with their child to school the following day for the investigator to exchange the completed packet for a new packet to be taken home with the child and used for the next intended observation day. The participants were also informed that in the case of illness or absence, if the days of observation could not follow the intended plan, they were to inform the investigator by phone and complete the observation and checklist the next possible school day, continuing with the four total days of participation.

Five to ten of the participants' names that agreed, via a consent form prior to beginning participation, to allow an outside observer into their homes, were chosen through random selection. The investigator and another research observer were chosen on one to two days of participation in which they concurrently observed in the homes, from the time the child arrived home that day until he/she went to bed that evening. The same checklist as the one given to the participant was completed by each research observer during the time that child spent engaged in an activity. The participants were informed that all observers would not be able to talk or participate in any activity, and that all observers would attempt to be minimally distracting to the home. The participants were asked to tell their child, prior to the visit, that the visitor was coming to watch them, the parents or guardians, that the visitor would not be able to talk to anyone or participate in any activity, and that it was extremely important for the visitor to be able to work and not be interrupted. All researchers who observed in the homes of the participants were informed of all guidelines, asked not to talk or participate in any activity, and were required to wear clothing and shoes that were not distracting, flashy, colorful, loud, or seemingly appealing to small children.

The participants completed each of the four checklists in the sequence determined by both participant family and the researcher from the time the child arrived home that day until he/she went to

bed that evening. The packets were sent to school with the child the following day. The chief researcher picked up the completed packet at the participants' child's school and sent home another packet with each child for the next scheduled day of participation. This sequence of events continued until all four packets were completed. Based upon the random selection of participants, a research observer concurrently completed one to two in-home observations in five to ten participant homes. Upon participant completion of four observations and checklists, the chief researcher contacted each participant by phone, email, or visitation regarding any questions or concerns he/she had. The participants were thanked for their participation in the study.

Research Analysis

Inter-observer reliability was established in three total possible ways by two independent observers concurrently completing the same checklist on the activities of the same child on each of the four given days. Inter-observer reliability measures were established between two parents or guardians, one parent or guardian and a research observer, and two research observers.

Each of the three reliability measures was computed based upon the total time recorded for each activity on the checklist. For each reliability measure, points were determined for total-instrument reliability for each observation day. For every check made on the checklist indicating 1-10 minutes spent actively engaged in one activity, one point was scored. An index of percentage reliability for each observation day was derived by dividing the total number of agreements, the number of checks mutually scored, by the total possible points. The maximum numbers of checks recorded for the observation day were the total possible points. For example, if mom scored 30 checks, dad scored 20 checks, and the outside observer scored 33 checks, the total possible points was 33. The total reliability percentages for each of the three inter-observer measures were averaged to determine the average percentage of reliability for the instrument in those three categories. Formulas used for figuring instrument reliability by this method are as follows:

1) Total possible points = Maximum # of checks scored on the observation day

a) Parent vs. Parent reliability:

$$\% \text{ reliability} = \frac{\text{Agreements}}{\text{Total possible points}} \times 100$$

b) Parent vs. Research Observer reliability:

$$\% \text{ reliability} = \frac{\text{Agreements}}{\text{Total possible points}} \times 100$$

c) Research Observer vs. Research Observer reliability:

$$\% \text{ reliability} = \frac{\text{Agreements}}{\text{Total possible points}} \times 100$$

$$\text{A) Average Parent vs. Parent \% reliability} = \frac{\text{Sum of reliability percentages}}{\text{Total \# of percentages taken}} \times 100$$

$$\text{B) Average Parent vs. Research Observer \% reliability} = \frac{\text{Sum of reliability percentages}}{\text{Total \# of percentages taken}} \times 100$$

$$\text{C) Average Research Observer vs. Research Observer \% reliability} = \frac{\text{Sum of reliability percentages}}{\text{Total \# of percentages taken}} \times 100$$

Two of the three measures of validity: 1) whether the participating parents found the checklist to be representative of their child's typical activities, and 2) whether five colleagues in the fields of psychology or education doing research on parents and children found the checklist to be representative of the typical child in the first through fourth grades was assessed using a 10-item questionnaire in the form of a five level Likert scale. The 10 questions assessing the validity of the checklist instrument measuring parent-child interaction for both the parent and research colleague questionnaires were rated on

a five-category measure, and scored on a 1 to 5 point scale. For each question, the rater was asked to answer each as: 1) Strongly Disagree, 2) Disagree, 3) Neither Agree nor Disagree, 4) Agree, or 5) Strongly Agree. The questions were each scored according to whether they would be phrased positively or negatively, with the positively stated questions requiring a 5 point-Strongly Agree answer and the negatively stated questions requiring a 5-point-Strongly Disagree answer to receive the highest validity rating. Questions 1, 3, 5, 6, 9 were positively stated and questions 2, 4, 7, 8, 10 were negatively stated on both rating scales. The validity percentage for each question was computed using all completed questionnaires, and was derived by dividing the total points scored by the maximum points possible. Multiplying the highest rating (5) by the number of questionnaires completed derived the maximum points possible for each question. For example, if 5 questionnaires were completed, the maximum points possible would be $5 \times 5 = 25$. The total average validity was then figured for both the parent and the research colleague's questionnaires by summing all ten validity percentages and dividing by 10 for both sets. Formulas used for figuring total-instrument validity by this method are as follows:

1) Positively stated questions 1, 3, 5, 6, 9:

Strongly Agree = 5 ; Agree = 4 ; Neither = 3 ; Disagree = 2 ; Strongly Disagree = 1

2) Negatively stated questions 2, 4, 7, 8, 10:

Strongly Agree = 1 ; Agree = 2 ; Neither = 3 ; Disagree = 4 ; Strongly Disagree = 5

3) Maximum points possible = 10 questions x 5 points maximum x # of completed questionnaires

a) Average % Validity:

$$\text{Average \% Validity} = \frac{\text{Total points scored}}{\text{Maximum points possible}} \times 100$$

b) Total Average % Validity:

$$\text{Total Average \% Validity} = \frac{\text{Sum of 10 validity percentages}}{10} \times 100$$

The third issue of validity was assessed by comparing the activities found in past research done on parent-child interaction with the activities listed in this study's checklist. This validity assessment was not measured or put into a percentage, rather used in drawing conclusions and discussing any future applications this instrument of measure, checklist, had.

CHAPTER 3

RESULTS

Research-Observer vs. Research-Observer (RO-RO) Reliability

Checklist assessment percentages for research-observer vs. research-observer reliability are reported in column three of Table 1. The eight research-observer vs. research-observer reliability measures were taken in the same eight participating families' homes as the parent vs. research-observer measures were taken. Eight assessments were completed, with no missing values. The research-observer vs. research-observer reliability assessments ranged from 94%-100% with a mean reliability of 97%. Hypothesis 3 was supported, as there was 80% or greater reliability for research-observer vs. research-observer ratings (TABLE 1).

Parent vs. Research-Observer (P-RO) Reliability

Checklist assessment percentages for parent vs. research-observer reliability are reported in column two of TABLE 1. Of the 28 participating families, eight were chosen to have a research-observer come into their home to complete the checklist concurrently with them on one of the four days. Eight assessments were completed, with no missing values. The parent vs. research-observer reliability assessments ranged from 69%-89% with a mean reliability of 78%. Hypothesis 2 was not supported, as there was not 80% or greater reliability for parent vs. research-observer ratings (TABLE 1).

Parent vs. Parent (P-P) Reliability

Checklist assessment percentages for parent vs. parent reliability are reported in column one of TABLE 1. Of the 28 participating families, at least one parent/guardian completed the checklist for each of the four participation days. Both parents/guardians in each of the 28 participation families agreed to complete the checklist on all four days. However, this occurred on only 49 of the 112 days, allowing parent vs. parent reliability to be assessed only 49 times, with 63 reported missing values. The parent vs.

parent reliability assessments ranged from 27%-100% with a mean reliability of 74%. Hypothesis 1 was supported, as there was not 80% or greater reliability for parent vs. parent ratings (TABLE 1).

Table 1.

Instrument Reliability Percentages

	Parent - Parent (P-P) Reliability	Parent – Research-Observer (P-RO) Reliability	Research-Observer - Research-Observer (RO-RO) Reliability
Total # of P-P reliability scores	49		
# of missing P-P Reliability scores	63		
Range of P-P reliability scores	27%-100%		
Average P-P Reliability %	74%		
Total # of P-RO reliability scores		8	
# of missing P-RO reliability scores		0	
Range of P-RO reliability scores		69%-89%	
Average P-RO reliability %		78%	
Total # of RO-RO reliability scores			8
# of missing RO-RO reliability scores			0
Range of RO-RO reliability scores			94%-100%
Average RO-RO reliability %			97%

Instrument Validity

The first measure of validity was to be determined by how the categories of the instrument correlate to past research on observations of parent-child interaction. The categories of the checklist were in fact derived from reported children’s activities in the chosen culture and within the designated age group. See supporting research in Chapters 1 and 4.

Parent Ratings of Validity

Checklist assessment percentages for parent ratings of validity are reported in Table 2. From the 28 participating families, at least one parent/guardian from 26 of the 28 families completed the validity

assessment. Parent validity assessments determined the extent to which they, as parents of the participants, thought the checklist could give an accurate representation of their child’s activities. Both parents/guardians in each of the 28 participation families agreed to complete the assessment scale at the end of the fourth day, though on average, only the mom/female guardian from 26 of the 28 families did so. Because of this, we only used the assessment ratings from the mom or female guardian from each of the participant’s families. The parent ratings of validity ranged from 42%-86% with a mean validity score of 74%. Hypothesis 4 was supported, as there was at least a 70% positive score for parent validity ratings (Table 2.).

Table 2.

Parent Validity Ratings

Question	N	Points scored	Maximum possible points	% Validity	Confirmation of Validity?
This checklist was representative of my child’s daily activities.	26	106	130	82%	Yes
This checklist did not include many of my child’s daily activities.	26	95	130	73%	Yes
This checklist was easy to fill out.	26	112	130	86%	Yes
I do not think my child’s activities could be identified using this checklist.	26	99	130	76%	Yes
I was able to better identify my child’s activities using this checklist.	26	97	130	75%	Yes
I think this checklist was helpful.	26	103	130	79%	Yes
I would add more activities to this checklist.	26	54	130	42%	No
I found filling out this checklist to be too time-consuming.	26	93	130	72%	Yes
I think I was accurate in filling out this checklist.	26	107	130	82%	Yes
I do not think it is possible to be accurate in filling out this checklist.	26	93	130	72%	Yes
TOTAL				74%	YES

** Ratings determined by the direction of each question

(I.e. If negatively stated question, all negative answers given positive ratings)

Colleague Ratings of Validity

Checklist assessment percentages for colleague ratings of validity are reported in Table 3. Colleague validity assessments determined the extent to which they, as research professionals in the fields of psychology or education, thought the checklist could give an accurate representation of a child's activities in the first through fourth grades. Five colleagues in these two fields completed the 10-item Likert Scale questionnaire. All colleague validity assessments were completed after each read over the study and its procedure, and after a detailed discussion regarding the procedure and its purpose occurred with the author. The colleague ratings of validity ranged from 60%-92% with a mean validity score of 77%. Hypothesis 5 was supported, as there was at least a 70% positive score for colleague validity ratings (Table 3.).

Table 3.

Colleague Validity Ratings

Question	N	Points scored	Maximum possible points	% Validity	Confirmation of Validity?
This checklist is seemingly representative of a typical child's activities in the 1 st through 4 th grades.	5	23	25	92%	Yes
This checklist does not include many activities of most children in this age group.	5	23	25	92%	Yes
This checklist appears easy and not time-consuming to complete.	5	19	25	76%	Yes
I do not think most children's activities could be identified using this checklist.	5	20	25	80%	Yes
I think this checklist would allow a parent to gain a better understanding of their child.	5	15	25	60%	No
I think this checklist could be helpful in examining the parent-child relationship at home.	5	18	25	72%	Yes
I do not think this measure would benefit future research on parent-child interaction.	5	21	25	84%	Yes
I think parents would not be willing to complete such an instrument of measure such as this checklist.	5	18	25	72%	Yes
I think parents could be accurate in filling out the checklist.	5	17	25	68%	No
I do not think this instrument would be feasible for obtaining an accurate measure of the time parents and children spend in direct interaction in the home.	5	19	25	76%	Yes
TOTAL				77%	YES

** Ratings determined by the direction of each question

(I.e. If negatively stated question, all negative answers given positive ratings)

Correlation of Activities

The number of minutes per day the participating children spent involved in each after-school activity, over the four days, was averaged according to age, gender, or overall means (Table 4.). There was only one 5-year old participant and one 11-year old participant, so these two age-category groups did

not yield reliable statistical averages. Pearson's Correlation matrix was performed on the data to determine whether there were any significant correlations of activities. Using a two-tailed, significant at the .05 or below level statistical analysis, there were several activities found to be significantly ($p \leq .05$) correlated (Table 5.).

Table 4.

Average Number of Minutes/Day spent in each activity.

	Day-care	TV	S.P.O.	N.S.P.O.	S.P.I.	N.S.P.I.	Dinner	Snacks	Fighting	Punished/T.O.	Homework	Reading	Computer	Videogames	Tantrums	Napping	Other	P-C Interaction
OVERALL AVERAGE	26.1	54.7	29.0	26.5	18.8	21.3	30.4	9.5	6.3	1.8	31.2	25.5	1.3	8.1	0.1	1.4	21.3	129.4
FEMALE AVERAGE	32.8	49.3	23.0	26.0	24.0	26.0	30.3	8.0	4.3	1.5	27.0	27.5	2.3	1.5	0.0	0.8	25.8	158.3
MALE AVERAGE	22.4	57.8	32.4	26.8	16.0	18.6	30.4	10.3	7.4	1.9	33.5	24.4	0.8	11.8	0.1	1.8	18.8	113.3
*AGE 5 AVERAGE	95.0	42.5	30.0	0.0	37.5	7.5	30.0	7.5	5.0	2.5	15.0	35.0	0.0	7.5	2.5	0.0	0.0	167.5
AGE 6 AVERAGE	0.0	58.3	10.8	49.2	13.3	23.3	34.2	6.7	5.0	0.8	16.7	19.2	0.0	3.3	0.0	0.0	10.8	113.3
AGE 7 AVERAGE	25.8	68.8	6.3	32.1	14.6	31.3	30.8	12.5	10.0	2.9	34.6	30.0	0.0	7.9	0.0	0.0	20.4	115.8
AGE 8 AVERAGE	5.4	52.5	32.5	28.9	11.1	19.3	30.0	11.1	6.1	3.2	32.5	21.8	3.9	8.6	0.0	0.4	22.1	127.1
AGE 9 AVERAGE	41.8	51.4	54.3	20.4	18.2	13.9	30.2	6.8	6.8	0.7	34.3	23.2	0.0	10.7	0.0	4.6	14.3	106.4
AGE 10 AVERAGE	50.0	42.5	35.0	14.2	39.2	25.8	25.0	6.7	1.7	0.0	32.5	35.8	3.3	6.7	0.0	1.7	55.0	217.5
*AGE 11 AVERAGE	0.0	47.5	0.0	15.0	40.0	20.0	32.5	17.5	0.0	0.0	35.0	20.0	0.0	7.5	0.0	0.0	20.0	132.5

* Age categories 5 and 11 have one participant each; not reliable statistical averages

Table 5.

Significant Correlations of Activities

Categories	Pearson Correlation	Significance (2-tailed)	N
Non-structured play outside & in daycare	-.399	.035	28
Non-structured play outside & watching T.V	.457	.015	28
Structured play inside & in daycare	.457	.014	28
Structured play inside & non-structured play outside	-.482	.009	28
Non-structured play inside & watching T.V.	.559	.002	28
Non-structured play inside & non-structured play outside	.405	.033	28
Having dinner & watching T.V.	.507	.006	28
Having dinner & structured play inside	-.401	.035	28
Having snacks & watching T.V.	.537	.003	28
Being punished/time out & watching T.V.	.442	.019	28
Being punished/in time out & non-structured play inside	.602	.001	28
Being punished/in time out & fighting/arguing	.419	.027	28
Homework & structured play outside	.390	.040	28
Reading & in daycare	.447	.017	28
Reading & structured play inside	.390	.040	28
Playing videogames & gender	.411	.030	28
Tantrumming & age	-.417	.027	28
Parent-child interaction & gender	-.404	.033	28
Parent-child interaction & non-structured play inside	.384	.044	28
Parent-child interaction & fighting/arguing	-.436	.020	28

* Significance at the .05 or below level

Pearson correlation matrix analysis revealed several negative and many positive correlations of activities. The statistical analysis suggests that the more time spent in daycare, the less time will be spent in non-structured play outside; the more time spent in structured play inside, the less time will be spent in non-structured play outside; the less time spent in structured play inside, the less time will be spent having dinner; the younger the age, the more time will be spent having temper-tantrums; girls will spend more time in direct parent-child interaction than boys; and the less time spent fighting or arguing, the more time will be spent in parent-child interaction.

The positive correlations suggest that the more time spent in non-structured play outside, the more time will be spent watching television; the more time in structured play inside, the more time is spent in daycare; the more time spent watching television, the more time will be spent in non-structured play inside; the more time spent in non-structured play outside, the more time will be spent in non-structured play inside; the more time spent having dinner, the more time will be spent watching television; the more time spent watching television, the more time will be spent having snacks; the more time spent watching television, the more time will be spent being punished or in time-out; the more time spent arguing or fighting, the more time will be spent be punished or in time-out; the more time spent in structured play outside, the more time will be spent doing homework; the more time spent in daycare, the more time will be spent reading; the more time spent reading, the more time will be spent in structured play inside; more videogames will be played by boys than girls; the more time spent in non-structured play inside, the more time will be spent in parent-child interaction.

CHAPTER 4

DISCUSSION

The purpose of this study was to develop a reliable, easy to use, and naturalistic tool for measuring direct parent-child interaction with children in the first through fourth grades. Data analysis supported the hypotheses for research-observer vs. research-observer and parent vs. parent reliability measures but not for parent vs. research-observer reliability. Data analysis supported all three validity measures concerning the instrument tool.

Most of the research on parent-child interaction focuses on the quality of the interaction and the nature of the parent-child dyad, rather than the quantity. The suggestion of this author is that quantity of parent-child interaction is just as important as quality, especially when taking into account the increased usage of child daycare today, the prevalence of two working parents, as well as the vast number of single-parent families as compared to 15 years ago. This idea is shared in other research, most of which has been on child daycare and the family.

Belsky (2001) asserts that quantity of child care is just as important of a research construct as quality of child care and argues that more research using this construct is “needed to gain insight into the developmental mechanisms that give rise to the aggressive and noncompliant behavior so often found to be related to continuous nonmaternal child care.” In his research, he finds that extensive nonmaternal care of a child at an early age is directly associated with less harmonious parent-child relations as well as increased levels of aggression and noncompliance, suggesting that concerns raised about early and extensive child care 15 years ago remain valid. The increase in child aggressive behavior, poor academic performance, and antisocial behavior seen in today’s children, along with the changing lifestyles of today’s parents away from quantity of parent-child interaction all provoked the undertaking of this study.

Interpretations

The results of this study supported the hypothesis that parent vs. parent ratings of the child activity checklist would not produce a reliability score of 80% or greater. Not only did the calculations lead to unreliable scores, but also, the actual number of checklists completed by both parental figures was minimal. Though both parents/guardians of the 28 participating families agreed to cooperatively participate, the female caretaker in each family was, on the whole, the only one of the two who completed the checklist, making the number of reliability scores for parent vs. parent minimal (49 of 112). The lowest score of reliability was 27%, while the highest was 100%. It should be noted that the checklists with parent vs. parent reliability of 100% were most likely completed by one parent and copied on the other paper. This assumption is supported by the exact same handwriting on both checklists, as well as the unlikelihood that two people can agree on every 10-minute interval of a child's activities for four to eight hours.

Based upon this study's findings, the calculated 74% overall parent vs. parent reliability for the checklist is not a reliable estimate, when considering the number of missing values and potentially forged checklists, and needs to have more supportive data. The lack of participation of the male caretaker in the household was a factor in hypothesizing an unreliable parent vs. parent reliability. It was the assumption of this author that the female caretaker was going to be much more proactive and prudent in completing the checklist as compared to the male caretaker. This assumption proved to be supported, as reliability of parent vs. parent scoring was not founded. The lack of dual participation from the parents was frequently due to both having full-time jobs, which brings to mind a contradictory poll result of a recent report from the U.S. indicating that "American parents of children under 5 remain convinced that having a full-time parental presence at home is what's best for very young children – and would most prefer that for their family" (Farkas, Duffet, & Johnson, 2000 as cited in Belsky, 2001, p. 845).

The paucity of dual parent involvement in the labeled "two-parent homes" in this study was particularly noticeable in the second measure of reliability. This study found 78% reliability for parent vs. research-observer ratings of the checklist, not supporting hypothesis #2 requiring at least 80% or

greater reliability. All eight of the families chosen to have the researchers come into their home fully participated, but not without a personal phone call with both parents, a personal meeting with at least one of the caretakers, a detailed explanation of the purpose of this aspect of the study and their role as parents, as well as a battery of questions and answers, all with intentions of building a little rapport before entering their home. The ratings of reliability ranged from 69-89%, and most likely captured a valid sample of scores.

Though the desirable 80% reliability between parent ratings and research-observer ratings was not found for children's after-school activities, there could be several reasons for this, two of which may include too few calculations taken (only eight parent vs. research-observer comparisons), and the ease of the researcher to be prudent in observing and recording the activities in comparison to the caretakers who were concurrently involved in other parenting activities. Based on these two potential reasons for the failure of hypothesis #2, the 78% reliability result found in this study is actually still strong and potentially indicative of the ability of caretakers to give useful feedback about the activities of their children. Because the parent was completing the checklist at the end of the day, unlike the research-observers who were recording as each child activity occurred, the fact that the female parent's estimations of their child's activities after several hours were 78% the same as the researcher is strongly telling of a parent's accuracy, and should give hope that a parent's report can be fairly accurate and a reliable way to gather information on a child. More calculations using this checklist would be needed to test this idea, but based upon the results of this study, it should be noted that 78% reliability under the study circumstances is excellent and may allow for parent reporting of children's activities to be reliably used in future research.

Not only was going into the homes of eight families a difficult task for the researcher, but also, it was a difficult request of the families. In fact, there were many families that did not want to participate until this in-home aspect was explained to them in detail, and it is quite possible that this was the reason there were only 28 families willing to participate at all in this study of the more than 500 families presented with the study's informed consents. Many families verbalized concern that the researcher was

coming into their home to judge them, judge their home, or judge their parenting styles. Coming into these families' homes was extremely intrusive, but it was explained to them that this was the only way, besides videotaping, to get another rater of the child activity checklist. It did help for the researcher to make personal contact with the families before coming into their homes, as the anxiety and concerns of the families were noticeably lessened after some rapport was established. This element of the study posed the most concern to both the researchers and the participants and ultimately remains a strong encouragement to find strong reliability using methods such as this study did so that researchers may eventually have enough supportive evidence to feel confident in using parent reports as a reliable measure in a multitude of research arenas concerning children and families.

The third element of reliability measured was between research-observers. These scores were taken every time the parent vs. research-observer ratings were taken, and elicited very little variability, supporting the third hypothesis of greater than 80% reliability for this measure. Even the lowest score of reliability was above the hypothesized 80% reliability score with the mean reliability for research-observer vs. research-observer 97%. This high reliability measure was confidently expected, and we were able to use this as the baseline measure to test the probability for two people to individually rate children's activities using the developed instrument reliably, and we achieved it. We found that two people can in fact individually rate the activities of children using the checklist developed in this study to get highly congruent ratings. This should allow for this instrument, after more reliability testing, to be used in future research to rate children's after-school activities, with slight modifications of course. Validity scores were measured much more simplistically, using Likert Scales, and although both hypotheses on validity were supported, the percentages were not noticeably high, and in fact, slightly disappointing. Parents tended to rate the checklist less supportively than did colleagues in the fields of psychology and/or education. The parents' lowest score of validity was 42% while the highest was 86%, with a mean validity score of 74%. This satisfies the study's validity minimum but indicates that parents on the whole were not fully satisfied with the checklist. A few parents provided feedback, with most of the negative comments including a lack of a specific activity (church, family share time, etc.), time spent

in transport from activities in which families reported quality-sharing time (driving home from school or baseball practice, etc.), and their dissatisfaction with using a checklist to represent their child's activities. This last reason is subjective and was represented by the parents' Likert Scale ratings. It is the opinion of this author that most negative ratings of validity by the parents for this instrument was in part due to a lack of understanding of the categories (even though an extensive description of the categories were personally explained to each participating family), and also due to a resentment about how this checklist pointed out the little time they were spending with their children and the number of undesirable activities their children were engaging in on a daily basis. Because the parents were asked to complete the validity ratings after all four participation days, it is entirely possible that their ratings of validity were the result of their own dissatisfaction rather than that of the checklist.

Many parents shared their thoughts about how they did not understand how their ratings of their child's after-school activities could relate to anything at school. Ketsetzis, Ryan, and Adams (1998) have found that particular parent-child interactions in the home are a strong indicator of a child's behavior both in and out of the home and also may be influential in children's success in the classroom. This idea is supported by the feedback provided by the colleagues in the fields of psychology and education. Though the mean colleague Likert Scale ratings of validity were only 77%, this does support the fifth hypothesis of at least 70% colleague ratings of validity. This validity score actually shows little variance in that there were only five colleagues who completed the Likert Scale ratings allowing for potential variation to be greatly reflected. Feedback provided from these raters suggested that more activities could be added to the checklist, but overall, they were not totally confident that parents would be accurate in filling out the checklist or believe in its usefulness. Overall, the colleagues did rate the actual concept of the checklist and its dimensions positively, and there have been many supportive comments shared about the importance of being able to use something like the developed instrument in future research.

These ideas are also supported in recent research suggesting the great importance of being able to measure parent-child interaction because of its proven direct effects on child development and behavior, in both the home and school. In fact, research has found that parent-child interactions, specifically, a

positive and non-critical or controlling mother-child interaction has been associated with greater school achievement, performance, and prosocial behavior (Connell & Prinz, 2002; Estrada, Arsenio, Hess, & Holloway, 1987; Pianta, Nimetz, & Bennett, 1997).

Franz and Gross (1996) and Hummel and Gross (2001) have found that a child's social competence and compliance are significantly characterized by the parent-child interaction. Wahler (1996) provided some foundation and support to this suggestion in that he asserted that problematic child behavior is a direct result of disjointed parent-child interactions, where parental inattentiveness was a predictor for aversive child behavior. We attempted to get a measure of this parent-child interaction quantity in efforts of being able to identify potential problematic behavior, lack of social competence, and noncompliance in our youngsters. Better yet though, these measures of interaction are calculated by the parents indirectly and are measured by their child's activities and activity partners.

Several of the descriptive statistics found in this study merited some thought and discussion as well, one in particular was time spent in daycare. The small number of participants in this study made these descriptives somewhat difficult to interpret, but when each individual case was examined in comparison to each other, there were several outliers. For instance, time spent in daycare for the children in this study did not raise attention when averaged across participants, but when looking at the individual child the numbers were discerning. It should be noted that the majority of the participating families did not use outside daycare, but the ones who did skewed the descriptive statistics for this measure greatly. For example, there were three 10-year old children used in this study and only one of the three spent significant time in daycare, but the descriptive statistics for this category shows a mean of close to an hour per day, though it is the one child that spent over two hours per day in daycare that deserves the attention.

The same goes for the seven 9-year olds and the one 5-year old. As Table 4 shows, the mean number of minutes spent in daycare for the 5-year old category was over an hour and a half per day, though there is a caption at the bottom notifying the reader that there is only one child in this age group. This length of time spent in daycare at the early age of 5 years certainly grabbed our attention, and there

exists curiosity as to the effects this length of time spent in childcare has had on the child's behavior and academic performance. There is a great emphasis put on daycare in current research on children and families, and although there are many reasons to suggest that significant amounts of time spent in daycare take away from the parent-child relationship, there is the possibility that structured and quality daycare can be a positive alternative. In fact, Connell and Prinz (2002) found that "children enrolled in out-of-home childcare for more years prior to kindergarten demonstrated higher levels of social skills and receptive communication skills performance, and children who spent more times per week in childcare involvement demonstrated higher levels of cognitive abilities performance (p. 188)." Moreover, they also concluded that parent-child interactions characterized as structured and responsive to the child's needs and emotions were positively related to school readiness, social skills, cognitive skills, and receptive communication skills development.

Although there is a potential for childcare to be a positive contributor to a child's social development, there will continue to be a necessity for positive parent-child interactions and the need for children to spend more time in the home with the parents. This ideal daycare situation just happened to be the case for the 5-year old in the study, although not the norm. This child was enrolled in a structured, academically-based after-school program in which academics and prosocial activities were the focus, and then carried on through with the parents in the home. If only all children had such care, there would probably not be such a push for research on the damaging effects of childcare on child development.

The other descriptive statistic that gained the attention of this researcher, and of course was the specific intention of this study, was that of parent-child interaction. There was a significant difference ($-.404, p \leq .05$) between the amount of time boys and girls spent involved in parent-child interaction, and on the whole, both spent just over two hours per day in direct parent-child interaction. Boys in this study spent less than two hours per day in direct parent-child interaction while the girls in this study spent over two and a half hours per day. This certainly was the presumption of the author, and the results of this study were able to find and support this. These differences in parent-child interaction in genders may lead

to the differences in academic performance between boys and girls in this age group, and lend to the research thought that child development, behavior, and academic performance are strongly influenced by parent-child interaction.

This influence is widely supported in the literature, and Ketsetzis et al. (1998) found that through indirect influences on specific school-related parent-child interactions, general family processes were connected with children's school adjustment. Also, they assert that the association between family cohesion and pressure put on the child has a continuing influence on the child's social adjustment, and, as family cohesion improves, this pressure is diminished, leading to improved frustration tolerance and intellectual effectiveness. High use of pressure diminished both child characteristics of assertiveness and intellectual effectiveness that are associated with internalizing and externalizing problem behaviors, and in sum, the more cohesive the family the better the child's intellectual effectiveness, frustration tolerance, and assertiveness, ergo, less probability for problem behaviors (Ketsetzis et al., 1988). Their findings offer preliminary evidence for developmental differences in the relationship between family and parental interaction processes and children's school adjustment and give merit to this study's purpose of trying to measure this interaction and children's activities so to be able to evaluate such outcomes.

There are other significant correlations found in this study that may be used in future research like being punished or in time-out and watching television, as well as non-structured play in- and outside and watching television. These two correlations have certainly been mentioned in past literature on the damaging effects of television on children and the contributor of television to physical inactivity, and although they were not the focus of this study, they and the 18 other significant correlations of activities found in this study's results certainly support the ability to use the instrument developed in this study to gather useful data on children's activities in the home.

This instrument checklist has proved to be a simple and strongly reliable instrument for measuring children's after-school activities and has shown to be able to measure parent-child interactions indirectly, avoiding a social desirability response set. Although there need to be slight revisions to the checklist, more reliability testing and greater samples tested, this study did result in stronger ratings of

reliability as compared to validity, which may imply that the checklist itself can be a reliable means to measure the interactions and activities, with minor revisions to the categories and additional activities. More work should be done with this idea since the developed instrument is a much more simple and efficient way of gathering and collecting data than having families come into clinical settings.

There were several limitations to this study, but these tend to add to the need to test this instrument further rather than to disregard the results. The small number of participants in this study does not allow for us to make vast conclusions in regard to validity and reliability, but it does test as a pilot study and should encourage other researchers in the field of psychology or education to further test this instrument to measure parent-child interaction and children's activities. Another limitation was the need to have a researcher observe in the home with the parents. This became a limitation in that we are not sure if the parents gave more accurate ratings of their child's activities and interactions while knowing the researcher was rating as well, but it is the assumption of this author that because the parents did not complete their checklist while the research-observers did, the ratings were most likely the same as their ratings on all other days. Overall, with further testing of reliability and validity with more children and with a slightly modified checklist, it is certainly possible for this study's instrument to be used to gather data on the time spent in direct parent-child interaction and on children's after-school activities.

Future Research

The results of this study demonstrate the need for additional research on parent-child interaction in the home setting using a reliable and non-intrusive measure. The researchers in this study are considering many avenues in which to use and take these findings, and are greatly satisfied with the first results using this developed instrument. The instrument developed for this project has provided us with a way to obtain quantitative data on the amount of time spent in parent-child interaction, as well as in normative children's activities, in comparison to other research methods measuring the quality of such interactions. This study allows for future research to examine the differences between clinical and naturalistic home setting measures of interactions and activities of children and their parents. Although

the idea of measuring older children's interactions with their parents and their activities is an excellent avenue to explore, it is unlikely that as pre-adolescence and adolescence take course that these interactions and activities will hold as much merit as they do in young children. Ultimately, the primary researcher plans to use this study's results to potentially examine the necessity for children to spend the quantity and quality of time with their parents for healthy development mentally, behaviorally, and emotionally.

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APPENDIX A

Informed Consent Document

East Tennessee State University

INFORMED CONSENT

INFORMATION ABOUT: Parent-Child Interaction: Development Of Measure for a Naturalistic Setting.

PRINCIPLE INVESTIGATOR: Valarie N. Holzwarth

This Informed Consent will explain the research study in which you are being invited to participate. It is important that you read this material carefully and then decide if you wish to participate.

PURPOSE

The purpose of this study is to develop a beneficial and easy to use instrument to measure the amount of time a child spends involved in daily activities and their interactions with others. This study will also test the reliability and validity of this instrument to determine whether it is an accurate measure of a child's activities and interactions. Ultimately, the purpose of this study is to provide an easy and beneficial instrument to be used in future research relating the interaction between a child and a parent with other important elements of childhood development as empathy, aggressive behavior, and academic performance.

DURATION

Participants in this study can expect to be required to make observations in their natural home setting, from the time the participant's child has arrived home from school until their child goes to bed that evening, over a period of eight days. Participants will be required to observe during a total of four of those eight days, two different days per week for two weeks. For example, the days of required observation participation will be a Monday and a Wednesday of the first week and a Tuesday and a Thursday of the second week, while the remaining days of participation will include the day after each

observation in which participants will be required to send the observation packets to school with their child for the principle investigator to collect. Estimated time of participation in this study will be between four to six hours for each of the four observations, approximately one hour for an introductory meeting with the principle investigator, and one total hour for completion of all accompanying material, making the total estimated hours of participation 22. Participants can also expect to have one of the researchers in this study set up a day or two in advance to come into their home and mutually score their child's activities as they are doing so. All observation dates will be agreed upon and set up in advance between the participant and the researcher.

PROCEDURES

As a participant you will agree to participate in the completion of four checklists concerning your child's activities, from the time he/she arrives home from school until going to bed on a chosen day, as well as answering a few important questions about the family and the child's activities. Prior to making observations of the child's activities, the principal investigator will formally introduce the guidelines of the project to both participants. The definition of direct interaction to be used in this study will be read as well as the formal definitions of each activity category to be scored. Each checklist requires you, the participant, to make appropriate marks in specific boxes indicating any activity in which your child engages, about how long your child is engaged, with whom your child is with for that activity, and any further comments you may want to express. As a participant you will agree to complete a form along with each of the four checklists including your name, your child's name, the date the checklist is being filled out, and other important questions concerning your child's activities that day. After completing a total of four checklists, each participant in this study will agree to complete a questionnaire concerning their opinions and ideas about the checklist and this study. Each participant will have the option of setting up a meeting with the research team to discuss the study and any questions they may have after completion of the four checklists and questionnaires.

POSSIBLE RISKS/DISCOMFORTS

There are no known risks or discomforts associated with this assessment. Since it is not necessary for your child to know that you, as a participant in this study, are observing their activities, there should be no known risks or discomforts for your child associated with your participation. It is possible that having an unknown person in the home for a few hours that you or child may experience some distress or discomfort from being observed. All attempts to minimize this discomfort will be made and any participant in this study will be informed that their behavior or actions are not of concern, only their child's, and no judgments or acknowledgements of their activities or behaviors will be commented on in this study. If any discomfort or distress occurs in the process of having a researcher in the home, I will attempt to modify the observation procedures to avoid such reactions. However, if these problems continue I will stop implementing the study with you. As a participant, you are not required to disclose any information that makes you feel uncomfortable, therefore, you may choose not to answer any questions that cause discomfort with no penalty to your participation. If at any time you feel uncomfortable and do not believe it can be resolved, you may withdraw your participation.

POSIBLE BENEFITS

The proposed study may provide a reliable, beneficial, and easy to use instrument for measuring a child's activities and interactions in the home setting, as previously unavailable. The proposed study may provide a starting point for future researchers studying the parent-child relationship, and may be a major factor in future research relating the interaction between the parent and the child with other important elements of childhood development as empathy, aggressive behavior, and academic performance.

FINANCIAL COSTS

There will be no cost for you to participate.

ALTERNATIVE PROCEDURES/TREATMENTS

No alternative procedures or treatments at this time.

VOLUNTARY PARTICIPATION

Giving your consent to participate in the study is entirely voluntary. You may choose to withdraw your consent at any time without any penalty whatsoever. If at any time you decide that you do not wish to participate in the study, contact the principle investigator, Valarie Holzwarth, at (423) 434-0816.

CONTACT FOR QUESTIONS

You can contact the principal investigator Valarie Holzwarth at (423) 434-0816 or the co-investigator Dr. Peggy Cantrell at (423) 439-6660 if you have questions or concerns about your child's participation in the study. If you have concerns that you do not feel comfortable discussing with Ms. Holzwarth or Dr. Cantrell you can contact the Chair of the East Tennessee State University Institutional Review Board at (423) 439-6134.

COMPENSATION FOR MEDICAL TREATMENT

East Tennessee State University (ETSU) will pay the cost of emergency first aid for any injury, which may happen as a result of you being in this study. They will not pay for any other medical treatment. Claims against ETSU or any of its agents or employees may be submitted to the Tennessee Claims Commission. These claims will be settled to the extent allowable as provided under TCA Section 9-8-307. For more information about claims call the Chairman of the Institutional Review Board of ETSU at (423) 439-6134.

CONFIDENTIALITY

Every attempt will be made to see that my study results are kept confidential. A copy of the records from this study will be stored in the ETSU Clinical Psychology office, Rogers-Stout 424 for at least 10 years after the end of this research. The results of this study may be published and/or presented at meetings without naming you or your child as a subject. The ETSU IRB, U.S. Department of Health and Human Services and staff of the ETSU Clinical Psychology Graduate Department have access to the study records. My study records will be kept confidential according to current legal requirements. They will not be revealed unless required by law, or as noted above.

CONSENT

By signing below, I certify that I have read this document or had this document read to me. I will be given a signed copy. I have been given a chance to ask questions and to discuss my participation with the investigator. I freely and voluntarily choose to participate in this research project.

SIGNATURE OF PARENT OR LEGAL GUARDIAN OF PARTICIPANT DATE

SIGNATURE OF INVESTIGATOR DATE

SIGNATURE OF WITNESS DATE

APPENDIX B

Information Questionnaire

Today's Date:

Name of child:

Age of child:

Gender of child:

Name and age of person filling out data sheet:

Time(s) Filling Out:

What time did your child get home from school today?

What time did your child go to bed tonight?

Do you have any comments regarding the data sheet or the child's activities that day?

Any other categories of activities that you think should be included?

APPENDIX C

Definition of Direct Interaction

Direct Interaction:

Reflects intentional, interpersonal, communicative (both verbal and non-verbal) involvement, within close proximity (3-5 feet maximum distance) between two people and directed at a common goal.

APPENDIX D

Definitions of Checklist Activities/Categories

Definitions:

In daycare today: How many hours and minutes your child was being supervised by anyone other than a parent. (Not including school time)

Watching T.V.: How much time your child was sitting in front of the television, engaged, and actively listening to the T.V while in the same room. (Depending on whether or not some time was spent alone and some time was spent with another person, please score time spent watching T.V. accordingly)

Structured play outside: How much time your child spent in organized and/or structured outdoor play. (i.e. Organized sport or adult directed outside game/activity such as soccer, etc.)

Non-structured play outside: How much time your child spent in non-organized outdoor play. (i.e. Running, swingset, playing by themselves, etc.)

Structured play inside: How much time your child spent in organized and/or structured indoor play. (i.e. Parent directed inside art activity, etc.)

Non-structured play inside: How much time your child spent in non-organized indoor play. (i.e. Running around, building a fort, playing leggos, putting together a puzzle, etc.)

Eating dinner: How much time your child spent sitting down in front of a plate of food and actively and directly eating the food.

Having snacks: How much time your child spent actively eating a snack. (Score both snack time and T.V. time if snacking while watching T.V., but make a note of interaction in comments section)

Fighting/Arguing: How much time your child spent in direct argumentation and/or either physical or verbal fighting with another.

Being punished or In time-out: How much time your child was being punished or in time-out as a consequence of his/her behavior. Scoring time here constitutes having no other activities able to be scored at the same time. (**Comment location**)

Doing homework: How much time your child is actively engaged in homework activity, having no other activities occurring at the same time, and while in a specific room, sitting down, with work in front of the child. (Comment if this time is with a tutor or at a tutorial setting.)

Reading: How much time your child spent actively engaged in a book, paper, etc. without any other activities occurring at the same time.

Computer time: How much time your child is sitting in front of the computer, actively engaged, with no other activities occurring at the same time.

Video game play: How much time your child is actively involved in video game play, with no other activities occurring at the same time.

Temper-tantrums: How much time your child is behaviorally out of control, stomping, yelling, kicking, screaming, hitting, violently crying, etc.

Napping: How much time your child is laying down, quiet, eyes closed, actively sleeping.

APPENDIX E

Parent Rating Validity Assessment

Parent Ratings of Checklist and Validity Assessment:

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
1. This checklist was representative of my child's daily activities.	_____	_____	_____	_____	_____
2. This checklist did not include many of my child's daily activities.	_____	_____	_____	_____	_____
3. This checklist was easy to fill out.	_____	_____	_____	_____	_____
4. I do not think my child's activities could be identified using this checklist.	_____	_____	_____	_____	_____
5. I was able to better identify my child's activities using this checklist.	_____	_____	_____	_____	_____
6. I think this checklist was helpful.	_____	_____	_____	_____	_____
7. I would add more activities to this checklist.	_____	_____	_____	_____	_____
8. I found filling out this checklist to be too time-consuming.	_____	_____	_____	_____	_____
9. I think I was accurate in filling out the checklist. (I.e. the times indicated for each activity were precise)	_____	_____	_____	_____	_____
10. I do not think it is possible to be accurate in filling out this checklist.	_____	_____	_____	_____	_____

APPENDIX F

Colleague Rating Validity Assessment

Colleague Ratings of Checklist and Validity Assessment:

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
1. This checklist is seemingly representative of a typical child's activities in the first or second grade.	_____	_____	_____	_____	_____
2. This checklist does not include many activities of most children in this age group.	_____	_____	_____	_____	_____
3. This checklist appears easy and not time-consuming to complete.	_____	_____	_____	_____	_____
4. I do not think most children's activities could be identified using this checklist.	_____	_____	_____	_____	_____
5. I think this checklist would allow a parent to gain a better understanding of their child.	_____	_____	_____	_____	_____
6. I think this checklist could be helpful in examining the parent-child relationship at home.	_____	_____	_____	_____	_____
7. I do not think this measure would benefit future research on parent-child interaction.	_____	_____	_____	_____	_____
8. I think parents would not be willing to complete such an instrument of measure such as this checklist.	_____	_____	_____	_____	_____
9. I think parents could be accurate in filling out the checklist (I.e. accurate and precise times recorded)	_____	_____	_____	_____	_____
10. I do not think this instrument would be feasible for obtaining an accurate measure of the time parents and children spend in direct interaction in the home.	_____	_____	_____	_____	_____

APPENDIX G

Checklist / Instrument of Measure

<u>Activity</u>	0-10 min.	11-20 min.	21-30 min.	31-40 min.	41-50 min.	51-60 min.	Alone	With a parent	With a friend or Sibling	Location of Child	Comments
In daycare today											
Watching T.V.											
Watching T.V.											
Structured play outside											
Non-structured play outside											
Structured play inside											
Non-structured Play inside											
Eating dinner											
Having snacks											
Fighting/arguing											
Being punished or in time-out											
Doing homework											
Reading											
Computer time											
Video game play											
Temper-tantrums											
Napping											
Other: Please Explain											

VITA

VALARIE N. HOLZWARTH

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 Place of Birth: Kalamazoo, Michigan
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- Education: Hackett Catholic Central, Kalamazoo, Michigan; Diploma, 1996
 Hofstra University, Hempstead, New York
 East Tennessee State University, Johnson City, Tennessee;
 Psychology, B.S., 2001
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 Clinical Psychology, M.A., 2003
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 Research Assistant, East Tennessee State University- Martha J. Couinho, Ph.D.,
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 Mental Health Practicum, Counseling and Consultation Services for convicted sex
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 Mental Health Practicum, Southwest Virginia Mental Health Institute; Marion,
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 Research Assistant, East Tennessee State University “Make a Difference Project;”
 Johnson City, Tennessee, 2001-2002
 Discrete Trial Therapist, William Allen, Ph.D.; Johnson City, Tennessee, 2001-2002
 Psychiatric Technician, Woodridge Hospital; Johnson City, Tennessee, 2001
- Publications: Johnson, J.W., McDonnell, J.J., & Holzwarth, V.N. (In press). The efficacy of
 embedded instruction for students with developmental disabilities enrolled in
 general education classes. *The Journal of Positive Behavioral Interventions*.
- Kilgus, M.D., Pumariaga, A.J., Wade, P., Moser, M., & Holzwarth, V. (2003).
 CALOCUS: Correlation to Child Welfare Outcomes [Abstract]. In R. Findling,
 P.A. Davidson, T. Enright, K. Figge, & N. Dade (Eds.), *Scientific Proceedings
 of the American Academy of Child & Adolescent Psychiatry: 50th Anniversary
 Meeting*, Washington, D.C., 174.
- Submitted for
Publication: Cox, D.E., Holzwarth, V.N., & Cantrell, P.J. (2001). *Tracking the Cognitive,
 Affective, and Behavioral Components of Empathy Across the Age Continuum*.
 Manuscript submitted for publication.

Johnson, J.W., McDonnell, J., & Holzwarth, V.N. (2002). *A comparison of system of least prompts and constant time-delay in the context of embedded instruction delivered by general education teachers and paraprofessionals in general education classes*. Manuscript submitted for publication.

Honors and
Awards:

Phi Kappa Phi, Honor Society member, chapter 112
Psi Chi, The National Honor Society in Psychology, member
National Honor Society member
Full-scholarship recipient as a Division-I volleyball athlete.
Scholar Athlete Award three of three years at Hofstra University
Student Athlete Academic Honors three of three years at Hofstra University
President of Residential Student Association
American Psychological Association (APA) member
Southeastern Psychological Association (SEPA) member