

Social Competence and Observational Learning
in Preschoolers

Christine O'Rourke

A Thesis
in
The Department
of
Psychology

Presented in Partial Fulfillment of the Requirements
for the degree of Master of Arts at
Concordia University
Montréal, Québec, Canada

October 1979

© Christine O'Rourke, 1979

Abstract

Social Competence and Observational Learning in Preschoolers

Christine O'Rourke

Cognitive developmental theory suggests that children's recall is related to their assimilation schemata. The present study related observational learning of social events to current social functioning. Current social competence levels were considered a reflection of preschoolers' cognitive schemata for social interaction. Both quantitative and qualitative effects were hypothesized to be correlated with social competence. Social competence of 44 preschoolers between four and five years of age was obtained using sociometric and teacher popularity rankings, and teacher ratings and event sampling of social behavior in the preschool. Observational learning was assessed by a cued recall task consisting of 16 social events, eight positive events and eight negative. Results supported the hypothesis of both quantitative and qualitative differences as a function of social competence status on a number of measures. However, the direction of these relationships was generally contrary to those hypothesized. Peer popularity status was negatively correlated with amount of recall. Similarly, the use of Positive Tone in social interactions was negatively correlated with the proportion of Positive Events recalled and positively correlated with the proportion of Negative Events recalled. Results are discussed in terms of various cognitive mechanisms potentially maintaining social competence levels.

Acknowledgments

I wish to express my appreciation to Dr. Dorothy Haccoun for her helpful comments and guidance throughout this study.

I would also like to thank Drs. Anna⁴Beth Doyle and Jane Ledingham whose suggestions were appreciated. I wish to express my appreciation to Jennifer Connolly, Flavia Ceschin, Annie Lee, Harry Potasznik, Kapri Rabin and Vera Tobis for their help in various aspects of the data collection.

Table of Contents

Introduction	1
Social Competence	2
Popularity Measures	5
Behavioral Measures	8
Observational Learning	14
Imitation Research	14
Observational Learning Theories	15
Acquisition Research	17
Observational Learning and Social Competence	19
Cognitive Development and Observational Learning	21
The Present Study	25
Method	28
Subjects	28
Apparatus	28
Social Competence Measures	29
Peer Status Measures	29
Social behavior measures	30
Observational Learning Task	32
Procedure	36
Results	37
Reliability	37
Demographic Variables	40
Intercorrelation of Social Competence Measures	40
Popularity Measures	40
Behavioral Measures	46

Table of Contents (Cont'd)

Results (Cont'd)

Popularity Measures and Observational Learning	48
Behavioral Measures and Observational Learning	50
Correlations with Observational Learning Raw Scores	51

Discussion	55
------------	----

Social Competence and Quantity of Observational Learning	56
--	----

Social Competence and Quality of Observational Learning	59
---	----

Social Competence Measures	63
----------------------------	----

Observational Learning Measures	65
---------------------------------	----

Summary	67
---------	----

Reference Notes	69
-----------------	----

References	70
------------	----

Appendix A. Playmate Popularity Ranking	78
---	----

Appendix B. Social Behavior Checklist	80
---------------------------------------	----

Appendix C. Observational Learning Task	81
---	----

Appendix D. Sample Photograph - Observational Learning Task	84
---	----

Appendix E. Family Biography Form	85
-----------------------------------	----

Appendix F. Breakdown of Centre Means and Analysis of Variance F-ratios for Centre	86
---	----

Appendix G. Analysis of Variance F-ratios for Order of Presentation	89
--	----

List of Tables and Figures

Table

1. Means and Standard Deviations for Social Competence Data	39
2. Means and Standard Deviations for Observational Learning Task (raw scores)	41
3. Pearson Correlations of Social Competence Measures with Demographic Variables	42
4. Pearson Correlations of Observational Learning (raw scores) with Demographic Variables	43
5. Pearson Correlations of Observational Learning (proportion scores) with Demographic Variables	44
6. Intercorrelation Matrix of Social Competence Measures	45
7. Pearson Correlations between Social Competence and Observational Learning (proportion scores)	49

Figure

1. Means of Positive and Negative Events recalled by low, middle and high groups on Peer Popularity	53
2. Means of Positive and Negative Events recalled by low, middle and high groups on Positive Tone	54

Social Competence and Observational Learning in Preschoolers

During the last decade, developmental psychologists and educators have begun examining social competence in preschoolers in the realization that intellectual competence was too narrow an objective of early childhood education programs (Anderson & Messick, 1974; White & Watts, 1973). Attention has therefore been directed to conceptualization and assessment of social competence (Anderson & Messick, 1974; O'Malley, 1977), its early development (Lewis & Rosenblum, 1975), processes associated with its development (Shantz, 1975), and its stability (Kohn & Rosman, 1973a, 1973b).

One of the most significant mechanisms of social learning is observational learning. It is clear that a substantial portion of a child's behavior, values and attitudes is acquired through observation of adult and peer behaviors. This capacity of the human organism to learn through observation and to defer reproduction of what has been learned is an extremely adaptive mechanism.

To date, research has dealt with many of the variables influencing immediate performance of matching responses (imitation). However, the role of observer characteristics in the acquisition processes underlying deferred learning has received very little attention in child observational learning research (Akamatsu & Thelen, 1974; Kuhn, 1973). Examination of the variables affecting acquisition would seem to be of primary importance since what is

reproduced at a later date is extracted from a pool of previous observations. The question arises as to whether individuals exposed to the same models retain the same content or whether they selectively retain certain observed events. This question is particularly relevant in the study of the acquisition and maintenance of social competence or incompetence. Whether observational learning operates in such a way as to perpetuate differential social skills given exposure to the same models is not clear.

Investigation of this question would not only be of epistemological value but is an essential prerequisite to improved intervention strategies.

Social Competence

Early peer interaction and experience are rapidly gaining the attention of developmental psychologists. As part of the analysis of the nature of such early peer interaction, developmental psychologists have addressed themselves to the question of what constitutes healthy, optimal, early social functioning. In view of the relative recency of the area, there is no universally accepted definition of what constitutes social competence. The difficulty in arriving at a consensus in defining social competence is presented by Anderson & Messick (1974). They summarized 29 items felt to be essential facets of social competence by a panel of psychologists and educators. These items cover a range of skills in the cognitive, affective and physical domains, such as language and categorizing skills, expression of affect, inhibition of antisocial behavior, and fine and gross motor skills. One aspect

where virtually all psychologists in the area are in agreement is the desire to differentiate social competence from intellectual competence. The consensus seems to be that although intellectual ability may facilitate social skills and adjustment, it is not necessarily a predictor of social ability.

In a review of various research perspectives on social competence in preschoolers, O'Malley (1977) broadly defined social competence as "productive and mutually satisfying interactions between a child and peers or adults" (p. 29). This definition was adopted for purposes of this investigation since it briefly summarizes the important elements of successful goal-directed behavior together with positive social behavior.

Research on social competence is important for a number of reasons. More and more evidence is accumulating that demonstrates continuity of individual adaptation from infancy to kindergarten (Arend, Gove & Sroufe, Note 1), from the preschool to middle childhood (Halverson & Waldrop, 1976; Kohn, 1977) and from middle childhood to adolescence and adulthood (Roff, Sells & Golden, 1972).

Enduring correlates of poor childhood peer relations have also been documented. Roff (1961) reported that in a sample of servicemen, all of whom were patients in a child guidance clinic, those receiving bad conduct discharges were significantly more likely to have been rated by childhood counselors as having poor peer adjustment than those with successful service records. Roff & Sells (1968) found that a higher delinquency rate at adolescence

was related to peer rejection scores during middle childhood.

Rolf (1972) obtained peer acceptance and teacher ratings as measures of social competence in boys. Peer ratings were better predictors than teacher ratings for identifying sons of schizophrenic mothers. These children were rated as equally disliked as two other classes of boys already identified by clinic personnel and school authorities as emotionally disturbed or maladjusted. Roff et al (1972) conclude that poor peer adjustment during childhood is predictive of a variety of adult maladjustments (neurosis, schizophrenia, personality disorders, severe bad conduct problems). In a long-term follow-up study, Cowen, Pederson, Babikian, Izzo & Trost (1973) found negative peer judgments at age 8 and 9 best predicted later psychiatric difficulty relative to school records, teacher judgments, intellectual tests and self-report data.

The primate literature also considers early social interaction to be a sensitive index of current and usually enduring social difficulties, serving as a useful diagnostic measure of "monkey psychopathology" (Suomi, Note 2, p. 22).

This data not only reflect the stability and significance of disturbed peer relations as predictive of later difficulties, but it becomes clear that a young child is consistently identified by peers as an interesting playmate or labelled as undesirable at a very young age. In the latter case, a process is set in motion whereby early difficulties may be exacerbated and increased isolation, aggression, or other maladaptiveness may be fostered.

Although this does not mean that all poorly accepted children are threatened with later pathology, the significance of early peer adjustment is nevertheless demonstrated.

Paralleling the diversity in arriving at a conceptualization of social competence (Anderson & Messick, 1974) is the diversity in assessment procedures developed to measure it. These can be categorized into the two broad categories of popularity assessments by peers and teachers, and behavioral assessments by teachers and independent observers.

Popularity Measures. Peer sociometric nominations are considered to be related to a preschooler's general social adjustment (Hartup, 1970). Although consistent significant differences between popular and unpopular children's behaviors are reported, there remain in the literature some inconsistencies concerning the nature of the peer interactions on which such peer judgments are based (Greenwood, Walker, Todd & Hops, Note 3). Peer acceptance has been reported to be related to both frequency and positive quality of interactions (Marshall & McCandless, 1957; Hartup, Glazer & Charlesworth, 1967; Gottman, Gonso & Rasmussen, 1975). Peer rejection scores have been positively correlated to negative quality of interactions (Hartup et al, 1967). One recent study has reported a relationship between peer acceptance and the distribution of interactions to a larger number of children in the peer group (Gottman, Gonso & Schuler, 1976). A validity study of peer acceptance found it to be significantly related to

rate of interactions (Greenwood et al, Note 3). Explanations offered for the divergence in these data are based on the differences in observational methodologies across studies (Greenwood et al, Note 3).

It therefore seems that peer acceptance measures provide some measure of peer adjustment and that this may be a function of both the quality and quantity of peer directed interactions. Because sociometric status has been shown to be the best predictor of later maladjustment and pathology, some researchers emphasize the importance of changes in sociometric ratings as a criterion measure for remedial intervention (Gottman et al, 1975; Gottman et al, 1976; Oden & Asher, 1977).

Stability coefficients of peer nominations in the preschool age group have also been shown to vary across studies. McCandless & Marshall (1957) report stability coefficients ranging from .22 to .85 for subgroups tested at three ten-day intervals. Hartup et al (1967) report a test-retest correlation for peer acceptance of .68 for one group of preschoolers after a five-month period (fall-spring). The stability of peer rejection scores was much lower at .29. Moore & Updegraff (1964) reported the most consistent correlations of .62, .51 and .78 for three subgroups tested one to two weeks apart. Although they obtained both positive and negative peer nominations, the above correlations are reported for total sociometric scores which consisted of the difference between positive and negative choices received. Greenwood et al (Note 3)

report a range of correlations of $-.28$ to $.71$ with a significant mean correlation of $.35$ for 20 groups of preschoolers tested at a one month interval for peer acceptance only. Despite the inconsistencies in stability coefficients within and across studies, the value of sociometric status as a measure of current and later adjustment warrants the inclusion of such a measure as one of a number of social competence assessment tools.

Less use has been made of teacher judgments of popularity than peer judgments. Teacher popularity ratings have been shown to be significantly correlated to peer nominations and to behavioral observations. McCandless & Marshall (1957) reported correlations ranging from $.16$ to $.63$ between teacher judgments and peer judgments. Marshall & McCandless (1957) reported a range of $.34$ to $.69$ for correlations between teacher and peer judgments, of $.34$ to $.58$ between peer judgments and observed play interaction scores, and of $.43$ to $.64$ between teacher judgments and observed play interaction scores.

In their validity study of sociometric choices, Greenwood et al (Note 3) found peer nominations correlated best ($.57$) with a measure of teacher popularity ranks relative to other teacher evaluations (frequency rank, positive and negative rating). This correlation remained unchanged at retest one month later. Test-retest correlation for teacher popularity ranks was significant at $.79$. This measure was also significantly correlated at both test times with observational measures of rate of interaction,

interactions shared, interactions initiated and number of peers interacted with. The teacher popularity rank measure was also more reliable at retest than the peer sociometric which did not correlate as much as the teacher measure with observational measures. In summary, teacher judgments appear to be a reliable source of information on peer status and interaction level. Teacher judgments also appear superior to peer judgments in reliability and validity at the preschool age level.

Behavioral Measures. Two teacher rating scales for social competence for preschoolers have been developed, the California Preschool Social Competency Scale (Levine, Elzey & Lewis, 1969) and the Kohn Social Competence Scale (Kohn & Rosman, 1972; Kohn, Parnes & Rosman, 1976). Both scales were designed with the intent of assessing the preschool child's social functioning as observed in the preschool setting. The scales cover a wide range of behaviors such as response to routine, following instructions, helping others, sharing, initiating activities, reaction to frustration, limit setting.

The California Preschool Social Competency Scale provides norms for children ages 2½ to 5½. No validation studies have been carried out with the scale. The Kohn Social Competence Scale has been more rigorously tested. This scale measures two bipolar dimensions of socio-emotional functioning: Interest-Participation vs. Apathy-Withdrawal (Factor I) and Cooperation-Compliance vs. Anger-Defiance (Factor II) (Kohn & Rosman, 1972).

These two dimensions are interpreted by the authors as reflecting the child's ability to meet the demands of the preschool setting through measurement of his use of opportunity for learning, play and interaction with peers, and of his adjustment to classroom rules and regulations (Kohn, 1977). The scale has been shown to be stable over time and situation (from preschool to early elementary school) (Kohn & Rosman, 1972). Both factors also differentiate between normal and emotionally-disturbed children in therapeutic day nurseries or mental hospitals and between varying levels of disturbance in children enrolled in the normal preschool (Kohn & Rosman, 1973b). Inter-rater reliabilities of .77 to .80 for Factor I and Factor II respectively are reported (Kohn & Rosman, 1972).

Observational techniques of measuring peer interaction have generally consisted of recording behaviors each researcher felt appropriate and had some face validity for his specific research interest. For example, Charlesworth & Hartup (1967), following a social reinforcement model, developed an observational measure that differentiated younger from older children, popular from unpopular children (Hartup et al, 1967) and different patterns of imitation for children with a history of receiving high levels of reinforcement versus those with a history of receiving low levels of reinforcement (Hartup & Coates, 1967). O'Connor (1969, 1974) used observed rates of peer interactions as the measure for discriminating social isolates from non-isolates.

Jakibchuk & Smeriglio (1976) combined observations of rate of interaction with giving and receiving of positive social behaviors as their measure for discriminating social isolates from non-isolates.

A more systematic and comprehensive analysis of socially competent children's behaviors was reported by White & Watts (1973). These efforts led to the development of an event sampling instrument. A novel feature of this instrument is that it represents not only a count of children's qualitative behaviors but also the effectiveness (success, failure) of these interactions. Two categories of competent behaviors are differentiated: adult-directed and peer-directed. Examples of adult-oriented social abilities are obtaining adult attention, using adult as resource, expressing both affection and hostility, showing pride in one's work, adult role-playing. Peer-directed categories include leading and following peer, expressing affection or hostility, and competing with peer. Two independent dimensions are reported from a factor analysis of scores for 34 preschoolers aged 3 to 6 (O'Malley, 1977). The first dimension is Peer-Interaction and Ego Strength (affection, hostility and competing) versus Ego Weakness (unsuccessful attention seeking, imitating female peers, compliance). The second dimension is Adult Orientation and Pride (successful attention seeking, pride in product or attributes) versus Self-Doubt and Hostility to Adults (imitating male peers, verbal and physical hostility).

The potential usefulness of the White & Watts (1973) observational instrument has generated validity studies by several other researchers (Connolly & Doyle, Note 4; Wright, Note 5).

Wright (Note 5) modified the White & Watts (1973) instrument by focusing on specific interaction events rather than on categories of behavior and by eliminating the use of a weighted scoring system. As well, equal importance was given to peer interactions as to adult-child interactions by adding two peer interaction events to the existing three events. Children aged three to four years were observed for a total of 50 minutes during free play. Results indicated that the social interactions most consistently associated with preschoolers' performance on a number of general cognitive measures and teacher ratings of social behaviors were the positive, and successful instances of leading peers, seeking their attention, using them as an instrumental resource and expressing affection. The scores for these four events were additively combined to form the Peer Interaction, Quality-Effectiveness Score (PI,Q-ES). This combined score was found to be stable over time (fall to spring testing) and to correlate significantly at both test times with a General Cognitive score.

Adult-child interactions were not stable over time (fall to spring testing) and were not related to the General Cognitive Factor scores at either test time. As well, behaviors of a negative quality did not occur frequently enough to be included in the analysis. Wright concludes that social competence in preschoolers is reflected primarily in the successfulness of their peer

interactions and secondly, in the quality of these interactions.

In an attempt to arrive at behavioral components of social competence, Connolly & Doyle (Note 4) conducted a validation study of peer social behaviors with more common measures of social competence. Modification of the White & Watts instrument resulted in observation of nine peer-directed behaviors. These consisted of incidences of attention-seeking behavior, using peer as a resource, leading peer in activities in positive or negative ways, competing for equipment, as well as following peer's direction, refusing to follow, and expressions of affection and hostility towards peers. The successfulness or unsuccessfulness of these events was also recorded. Additional measures of language use and frequency of interaction were introduced. The more common measures of social competence selected were peer popularity nominations, teacher popularity rankings, teacher ratings of social competence using the Kohn Social Competence Scale, a mental age estimate and, finally, chronological age.

Canonical correlation of the factors derived from a factor analysis of the behavioral measures with factors derived from factor analysis of the global measures indicated that primarily successful and positive verbal peer interactions were associated with maturity and with teacher assessments of social competence. These peer interactions were attention-seeking, using peer as a resource, leading peer, and competing successfully with peer.

The authors point out that both the quality and frequency of peer interactions contribute independently to the variance. They further suggest that a multi-dimensional approach appears fruitful in understanding social competence in preschoolers.

In summary, it seems that the question of what constitutes social competence in preschoolers cannot be clearly nor simply answered. The various methods and instruments developed to assess peer competence seem to be tapping different aspects of the concept although there appears to be some commonality and consistency within methods used. Peer popularity relates to both the quality and rate of interaction, but perhaps a truer measure of popularity is the distribution of qualitatively positive behaviors to a large number of peers. Teacher popularity rankings correlate significantly with sociometric nominations, but are reported as more reliable than the latter in the preschool age group and correlate more reliably with observational measures. Teacher ratings of children's social competence measure the child's integration into his peer group and classroom structure. Observations of peer interactions have shown that first, the successfulness and second, the quality of a child's behaviors are related to peer nominations, teacher popularity rankings and teacher ratings of social competence. Finally, evidence for the usefulness of a multivariate view of social competence in the preschool is provided by Connolly & Doyle (Note 4).

Observational Learning

Imitation Research. Observational learning has generally been investigated by social learning theorists under the rubric of imitation. The focus of the imitation literature has been on variables that influence the functional relationship between a given set of stimulus events and matching responses (performance) in children (Akamatsu & Thelen, 1974; Hartup & Coates, 1970; Kuhn, 1973).

A distinction must be made, however, between learning and performance. Since the bulk of this research has consisted of experimental laboratory investigations, learning has generally been assessed by examining immediate performance of matching responses. These responses have generally consisted of imitation of model's choice preferences or repetition of a number of simple motor acts whose components were already in the child's repertoire (Kuhn, 1973). Acquisition of events which are not necessarily immediately reproduced is not assessed by these studies. These performance studies therefore represent a very narrow picture of observational learning processes. Caution should be exercised in assuming that they represent an overall picture of learning processes and in generalizing to acquisition in everyday situations.

The lack of attention to observers themselves and particularly

to the role which certain developmental characteristics, other than age, may play in imitation seems particularly striking.

Imitation research has been extensively concerned with the nature and extent of behaviors susceptible to modeling (Hartup & Coates, 1972), with reinforcement contingencies (Flanders, 1968) and with a limited number of observer characteristics, one of the most common being dependence (Bandura & Huston, 1961; Ross, 1966).

Despite highly significant experimental effects, imitation research is reported by Akamatsu & Thelen (1974) to demonstrate extensive individual variability in the amount of imitation engaged in by different subjects within groups. These authors suggest that observer characteristics have been underestimated and unattended to in almost all theorizing and research. Early imitation theories (e.g., Miller & Dollard (1941) secondary drive theory) and more recent instrumental theories (Baer, Peterson & Sherman, 1965; Gewirtz, 1969) have focused on performance contingencies external to the observer. Those theorists who have recognized the possible influence of observer characteristics have given this only very limited research attention (Aronfreed, 1969; Bandura, 1969). Nevertheless, it seems logical to view the observer himself as a potential variable whose influence on observational learning will extend from initial acquisition to an understanding of the parameters determining appropriate performance.

Observational Learning Theories. Two theorists have given consideration to the observer's role in the observational learning

process although each emphasizes different levels of involvement.

Bandura (1969) proposes a contiguity theory of observational learning taking into account the observer's mediational processes. Piaget focuses entirely on the observer's cognitive developmental level in his analysis of imitation and acquisition in early development (Piaget, 1951; Piaget & Inhelder, 1973).

Bandura (1969) has been a leading theorist and one of the most prolific researchers in the area of imitation. He has criticized previous theorists for failing to account for the acquisition of new response patterns, particularly under conditions where an observer does not overtly perform the model's responses during the acquisition phase, reinforcers are not administered either to the model or to the observer, and the acquired responses may be delayed for extensive periods of time. Bandura hypothesizes internal representational processes in the form of images or verbal representations as mediators of subsequent behavioral reproduction. Stimulus contiguity and repeated exposure are necessary but not sufficient conditions for acquisition and performance of matching responses. Since acquisition is centrally mediated, it can occur in the absence of motoric responding.

Bandura (1969) has outlined a number of subprocesses, each with its own set of controlling variables, which influence the degree and content of learning. Both acquisition and performance are governed by a different set of these subprocesses. Performance of learned behaviors will be influenced by motivational and

motor reproduction subprocesses. The motivational subprocesses of external, vicarious and self-reinforcement have been amply investigated (Flanders, 1968) and constitute a major focus of the imitation literature.

Involved in acquisition are attentional and retentional subprocesses. These have not played a prominent role in imitation research. Retentional subprocesses are a function of the adoption of appropriate strategies by the observer, for example, symbolic coding, cognitive organization and rehearsal. Intent to learn per se has no significant effects on learning unless accompanied by appropriate adoption of these learning mechanisms (Brown, 1975). Similarly, instructions to learn facilitate performance only to the extent that they induce appropriate learning strategies in subjects (Brown, 1975). Instructing preschoolers to learn has been shown to have little effect on their retention (Brown, 1975; Flavell, 1970; Hagen, Jongeward & Kail, 1975). Attentional subprocesses are the second main mechanism involved in acquisition through observation at the preschool age level. Attention is hypothesized to be a function of observer characteristics, stimulus characteristics and incentive conditions (Bandura, 1972).

Acquisition Research. Only a handful of studies have been undertaken to verify some of these hypothesized mechanisms underlying acquisition processes in preschoolers.

The role of mediational strategies in retention has received some attention. Coates & Hartup (1969) found induced verbalization

(subjects repeated experimenter's description of model's ongoing behavior) during presentation of a modeling film led to significantly more recall by 4 year olds than free verbalization (subjects were instructed to verbalize model's ongoing behavior). The latter condition also resulted in significantly more recall than the passive observer condition.

A similar study by Wolf (1976) found no significant effects for verbalization conditions in 4 year olds. Wolf (1976) suggests that his middle class subject sample may have been more advanced with respect to mediational processes than Coates' et al (1969) lower-middle class subjects.

Examination of the role of vicarious incentives on acquisition processes has resulted in equivocal findings. Bandura (1965) found that varying model's reinforcement had a significant effect on 3-6 to 5-11 year olds' performance of imitative responses. However, when positive incentives for recall were provided, differential responding was eliminated. This study is considered prototypic in demonstrating the powerful discriminatory function of vicarious reinforcement on performance of matching responses since no parallel effect was found on the acquisition process. Further analysis of vicarious reinforcement on attention and recall has offered both confirming (Liebert & Fernandez, 1970; Yussen, 1974) and disconfirming results (Peed & Forehand, 1973). Comparison across studies, however, is unreliable since methodological differences appear to account for some of the inconsistencies.

Observational Learning and Social Competence. One of the important derivatives of imitation theory and research has been its application to treatment situations. The use of observational learning as a vehicle for training preschoolers deficient in socially competent behaviors has met with varied success in terms of both immediate and lasting effects (Asher, Gottman & Oden, 1977).

O'Connor (1969) found that exposure of isolated nursery school children to a narrated social interaction modeling film significantly increased their rate of interaction in the peer group relative to controls. A follow-up using teacher ratings of social withdrawal demonstrated lasting effects of acquisition through modeling in five of the six experimental children. Interval to follow-up was not specified. These findings have been replicated a number of times with follow-ups of one month after posttest (O'Connor, 1972; Evers & Schwarz, 1973).

Jakibchuk & Smeriglio (1976) manipulated the nature of the narrative accompanying a social interaction modeling film. In the self-speech condition, the film was accompanied by a narrative in the first-person grammatical format in which the model described his thoughts, feelings and behavior prior to, and after, his initiation of a social interaction with peers. In the narrative condition, the film was accompanied by statements similar in content to the self-speech condition but were presented in the third-person grammatical format, i.e., by an observer describing

the model's experience. Results indicated significant differences resulting from the self-speech condition relative to the narrative condition and control condition (viewing nature films) at posttest and at three week follow-up. Subjects in the narrative condition did not differ significantly from controls.

A final study of this kind by Gottman (1977) failed to find any significant effects on socially withdrawn children in a Headstart program who had viewed the O'Connor (1969) film. It may be that these discrepant results are due to cognitive developmental differences in the subject samples, i.e., Headstart versus nursery school children. For example, inferior use of retention strategies may be accounting for the failure of the Headstart subjects to benefit from the narrated film.

As well, generalization of imitative behaviors manifested in the lab to the natural setting has been shown to be quite limited. Yarrow, Scott & Waxler (1973) examined modeling conditions most likely to lead to acquisition and generalization of prosocial behaviors in preschoolers. Significant transfer of training was found in only one treatment condition, that is, in the condition most similar to the naturalistic testing situation. This treatment condition provided high nurturance and live modeling of prosocial acts in a setting designed to simulate spontaneous everyday occurrences. Children exposed to a symbolic modeling condition increased their prosocial behaviors in the test on symbolic prosocial behavior but did not significantly increase

prosocial behavior in the naturalistic test situation.

A question that remains unanswered by this research is why isolated children who demonstrate learning from modeling films have not learned from observing children in their peer group (Asher et al, 1977). Asher et al (1977) suggest as a possible explanation that, in the natural setting, these children fail to attend to significant elements of peer interactions. The narratives accompanying the modeling films may serve to draw the child's attention to social details they generally miss.

Cognitive developmental theories of observational learning provide alternative explanations for these phenomena. Narration accompanying observational learning provides labels which children this age have difficulty producing spontaneously and, in this way, may be operating to facilitate retention. Also of most significance is the suggestion that observers retain most easily those events which they comprehend and which bear some relationship to their own behavior schemes (Kuhn, 1973).

Cognitive Development and Observational Learning. Directly related to the question of the role of observer characteristics in observational learning is Piaget's developmental analysis of imitation and memory emphasizing the ongoing role of cognitive development (Piaget, 1951; Piaget & Inhelder, 1973). Both imitation and memory are intimately linked to intelligence, that is, to the balance of assimilation and accommodation processes in adaptation to new situations.

In Piaget's view, imitation does not occur at random but is clearly linked to developmental phenomena such as psychomotor coordination and the capacity for behavioral and/or mental schemata (Piaget, 1951). Piaget (1951) describes the development of imitation during the sensorimotor period in six stages which are governed by the child's organization of schemas and by the growth of representational processes.

Two basic premises of the social learning theorists' views of imitation are questioned by Piaget. The first is that all imitation involves the same underlying mechanisms. The second is that any behavior is potentially acquired through imitation given appropriate modeling and reinforcement contingencies (Kuhn, 1973). Piaget's theory asserts that the nature of imitative acts varies and parallels the cognitive structure of the observer.

With respect to assimilation and accommodation, imitation occurs when accommodation becomes an end in itself, that is, predominates over assimilation. Imitation can become the source of mental representation or schemata and in this way contribute to acquisition of new behaviors (Piaget & Inhelder, 1973). Similar to the social learning theorists, imitation in this sense seems to be a subcategory of observational learning referring to the performance of matching responses, that is, where accommodation is an end in itself. In contrast to social learning theorists, the observer's own cognitive structure and developmental level act as important variables in both the capacity to imitate and the

nature of events imitated.

In Piagetian theory, however, imitation is clearly a distinct event from observational learning: Observational learning is the result of the interplay of assimilation and accommodation processes. As in imitation, observational learning also reflects the child's cognitive level of structuring. The organization and retention of events is a function of the developmental level of the structural activities of the intelligence (Brown, 1975). In Piagetian theory, memory is not a copy of events but a reflection of the subject's current assimilation schemata which are a result of his unique experience with his environment (Brown, 1975). According to Brown and in line with Piaget's reasoning, "the depth of understanding and strength of subsequent retention must be intimately related to what is already known. Knowledge (and interest) determines what is perceived and what is retained" (Brown, 1975, p. 115). Observational learning of new behaviors is a very slow gradual process whereby those events least discrepant from current mental representations or structures will be most easily recalled (Kuhn, 1973).

The observer's own cognitive structures and developmental level would seem to constitute an important observer/characteristic. This may play a significant role in a child's attempts to grasp and comprehend, through observation, details of the complex social skills necessary for competent social interaction. In combination with limited attentional and retentional abilities, the child's current cognitive structuring of social information may constitute

a major variable influencing the extent and rate of acquisition of social behaviors.

The finding that levels of social adaptation maintain themselves may in part be due to this difficulty for a child, who comprehends and exhibits one set of social knowledge and skills, to comprehend another set of skills sufficiently to spontaneously perform the new behaviors appropriately. The child's current cognitive structuring facilitates recall of social events most similar to those already in his experience thereby making acquisition of novel events a slower and more difficult process (Kuhn, 1973).

In summary, two leading theorists have pointed to the important role of mediational structures, one emphasizing environmental contingencies on the organism's acquisition processes (Bandura, 1969), and the other examining the role of cognitive developmental variables within the organism on imitation and recall (Piaget, 1951; Piaget & Inhelder, 1973). An important gap in the social learning literature has been the failure to consider relationships between an observer's assimilation schemata, which are a function of his developmental level and past experience, and the demands of the task. Researchers have generally ignored the possibility of this individual variation assuming homogeneity within age groups. The present study was intended as a preliminary analysis of whether the child's current status on the dimension of social competence, taken as a reflection of his organization of schemata

for social events, would be related to his observational learning of social events. This may shed some light on processes that serve to maintain current levels of social competence or incompetence in the early years, thereby setting in motion patterns of interaction that acquire stability and continuity throughout the individual's life.

The Present Study

Cognitive developmental theory suggests that observational learning is restricted by the relationship between the observer's level of cognitive maturity and the nature of the task (Brown, 1975; Kuhn, 1973; Piaget & Inhelder, 1973). In combination with the limitations reported in preschoolers' use of retention strategies (Brown, 1975; Hagen, Jongeward & Kail, 1975), it would seem that development of competent social skills through observational learning may be a more complex undertaking for the young child than previously believed by social learning theorists.

The purpose of this study was to explore the relationship between preschoolers' schemas of social behaviors and the nature of their retention of social stimuli. Whether the meaningfulness of social events in terms of their relatedness to a child's behavioral schemas is contributing to a perpetuation or maintenance of a child's social competence levels is as yet unknown. This study was intended to reduce this gap in our knowledge of acquisition processes by shedding some light on the issue of the impact of the individual's current psychological functioning, as

manifested in his behavior, on his acquisition of observed events. As well, relating poor levels of social competence and adaptation to recall of behaviors that would perpetuate this level of social functioning would provide some insight into mechanisms operating to maintain these levels of functioning despite apparent opportunity for change. Preschoolers exposed to behaviors ranging in degree of competence may be recalling events most similar to those already in their behavior repertoire. This would lead to maintenance of competent interactions in the socially competent child and of incompetent interactions in the less competent child.

By virtue of the cognitive effort involved in comprehending and retaining modeled social stimuli not currently in the individual's cognitive experience, it was proposed that the child would most easily retain those events with which he has the most experience. Current level of social competence was felt to be a reflection of the child's current behavioral schemas, that is, those behaviors with which he has the most experience and which would require the least processing in a modeling situation. The study was therefore a correlational study where preschoolers' social competence was related to recall of events considered socially acceptable and competent and of others, considered socially unacceptable and less competent.

Differences in both amount of recall (quantity) and the nature of events (quality) recalled were hypothesized to be related to social competence levels. Several other studies present

correlates of social competence which also suggest the likelihood of differences in quantity of recall. A study by Jennings (1975) reports a positive relationship between effectiveness of social functioning, social knowledge and sociometric popularity. Deutsch (1974) reports a negative relationship between popularity and communicative egocentrism. Rubin (1976) found a positive relationship between popularity and dramatic play, whereas popularity was negatively related to functional play. It seems, therefore, that the popular and socially effective child is superior in social knowledge and in symbolic functioning relative to his less competent peer.

Total correct recall on an observational learning task consisting of 16 social events, eight positive and eight negative, was hypothesized to be positively related to social competence. With respect to the nature of events recalled, it was hypothesized that the proportion of correct recall of positive events (possibility of eight events) to total events recalled would be positively related to social competence scores whereas the proportion of negative events (also eight events) to total events recalled would be inversely related to social competence. Similarly, recall of pairs of events (two events composing a scene) was hypothesized to be positively related to social competence with the proportion of positive pairs to total pairs recalled being positively related to social competence, and the inverse for the proportion of negative pairs to total pairs recalled. Results have been examined for possible patterns in recall of proportion of antecedent and consequence events and in recall of pairs composed of a positive and

negative event. Preschoolers who are successful at initiating social interactions may be found to recall positive antecedent events more readily than negative antecedents whereas the inverse may be true for the unsuccessful child. Similarly, the child who responds negatively to his peers may recall more negative consequences than positive relative to the child who responds positively. This may result in a relationship between social competence and recall of pairs composed of a positive and negative event.

Method

Subjects

Subjects were 44 children, 28 males and 16 females, obtained from three daycare centres in the Greater Montreal area. Subjects were between the age of four and five years ($\bar{X} = 4.5$ years, $SD = 3.7$) at time of testing on the observational learning task. In view of the verbal demands of the task, it was decided to restrict the age range to between four and five years rather than include younger ages where more varied levels of verbal functioning might be expected.

All subjects had been attending their current daycare centre for a minimum of four months prior to testing. These subjects were part of a larger sample involved in ongoing research in the Department of Psychology at Concordia University.

Apparatus

A Sony videotape recorder Model No. 3600 and a ten inch Sony

video monitor Model No. CVM-960 were used to present the observational learning task.

Toho Minicassette tape recorders with earplugs were used by observers to indicate one-minute observation periods and 15-second scoring intervals. The time subjects spent in social interaction was monitored with a JMC stopwatch.

Social Competence Measures

Social competence does not seem to be a unidimensional concept which can be clearly defined. Assessment of social competence seems best represented by a multivariate approach (Connolly & Doyle, Note 4). On this basis, it was decided to obtain a composite score for social competence based on scores from several sources. Four measures of social competence were used in this study, two assessing peer status and two assessing social behaviors.

Peer status measures. A modified version of the picture nomination technique developed by McCandless & Marshall (1957) was used as the sociometric measure of popularity. Since group sizes varied across centres, a constant proportion of nominations was obtained to avoid upward bias of nominations in smaller groups (Kane & Lawler, 1978). Therefore, three nominations were requested of each subject in groups of 30 children, two in the group of 20 children, and 1 in the group of 10 children. Subjects were seated before a board (45 x 54 cm) with black and white photographs (9 x 11 cm) of each child in the class. Subjects

were asked to find their own picture. All subjects were then requested to name the other children as the experimenter pointed to each photograph. Names of children with which subjects had difficulty were provided. The experimenter then engaged subjects in a pretend game saying "Let's pretend your school has a new game that only two children can play with together. Show me who you would pick to play with." A second choice was elicited by saying "Now let's pretend (subject's choice) is sick today and stayed home. Who would you play with if (subject's choice) was not in school?" This question was again repeated to obtain a third choice in the larger classes. Final score for each subject was the proportion of nominations received over potential nominations (class size minus one).

Teacher rankings of peer popularity were obtained by requesting teachers to rank each child in their class in relation to all the other children (Appendix A). A low rank represented a subject with which other children most liked to play, and the highest rank represented the least preferred playmate (Greenwood et al, Note 3). Final scores consisted of the proportion of the subject's rank over subject's class size.

Social behavior measures. A modified version of the Social Behavior Checklist (White & Watts, 1973) developed by Connolly (Note 6) recorded the occurrence of 11 behavioral events during 40 separate one-minute observation periods for each subject. Behavioral events included successful and unsuccessful attempts at attention seeking, using peer as an instrumental resource,

leading peer in activities, competing with peer over equipment, and following, refusing to follow and expressing affection to peer. The affective tone of interactions was recorded as either positive, neutral or negative for each one-minute period. As well, time spent in peer interaction was recorded for each one-minute interval. A Social Behavior Checklist was used to record subjects' ongoing social interactions (Appendix B). Details of category definitions can be found in Connolly (Note 6).

Each subject obtained a frequency score for each behavior category by summing across each category for the 40 one-minute periods. A total Time in Interaction score was also obtained for each subject by summing the seconds recorded in each one-minute interval. Scores for positive, neutral and negative tone of interaction represent the number of intervals in which each occurred.

One of three trained observers recorded the incidence of these events as they occurred during one-minute observations of each subject during free play periods. Not more than four minutes per day were obtained on any one child. Observations were carried out on consecutive days (except for holidays) until 40 minutes were obtained for each child. Observers met a criterion of 75% agreement in order to be considered reliable for actual data collection. Ongoing observer reliability checks were carried out on a random basis.

Internal consistency of the Social Behavior Checklist over the 40-minute observation period was analyzed for a subsample of 29 subjects from the larger study. This was assessed through a

split-half reliability procedure (odd and even days) and corrected by means of the Spearman-Brown formula. The average of the correlations obtained for the 12 social behavior categories examined (excluding Tone of Interaction, see Appendix B) was .60.

Teacher ratings of social competence were obtained using the 73-item form of the Kohn Social Competence Scale (Kohn & Rosman, 1972). As previously discussed, this measure provides two factor scores, Factor I called Interest-Participation versus Apathy-Withdrawal, and Factor II, Cooperation-Compliance versus Anger-Defiance.

Observational Learning Task

The observational learning task consisted of a cued recall task designed for the purposes of this study. Eighteen social stimulus events designed to be replications of social interactions observed in the daycare setting were developed for videotape presentation. Nine of these events represented positive social interactions and nine represented interactions of a negative nature. These positive and negative events were paired so as to provide two scenes each of positive-positive social interactions, negative-negative social interactions, positive-negative interactions and negative-positive interactions. The ninth scene consisted of a positive-negative interaction and was used as a practice scene for all subjects (Appendix C).

These interactions occurred while the actors were involved in table-top activities common to the daycare setting. Care was

taken to avoid strongly sex-stereotyped activities. Eighteen hand puppets were used as actors. These were varied in appearance to avoid any carry-over or familiarization from scene to scene.

Puppets were also designed to appear masculine in order to avoid model sex differences (Flanders, 1968).

Videotaped T.V. presentation of the task was considered the most suitable presentation format for this study. This medium has been extensively used in the observational learning literature. It eliminates variability in task presentation and ensures high levels of attending in the preschool age group (Bandura, 1965). The average length of each scene was 33 seconds, with a range of 25 to 40 seconds. A five-second interval separated each scene.

Pilot work was carried out to assess the clarity of the items and appropriateness of this measure for this age group, attending to the task, and a suitable procedure for presentation and recall. Since the positive and negative nature of the events was the stimulus variable of importance, it was critical that this dimension be unambiguous. To assess this, the 18 events composing the scenes were presented, one at a time, in random order, to nine three to four year old children. If this age group could correctly identify the positive and negative nature of the events, then four to five year olds should also be able to do so. Positive events were correctly identified 96% of the time and negative events, 95% of the time. As well, no patterns of errors were found.

To ensure that attending was consistent across subjects, subjects were instructed to watch carefully and that discussion of what they saw would follow.

Based on pilot work with eleven four to five year olds, it was decided that a practice trial followed by presentation of the eight scenes in two sets of four was the most suitable testing procedure. The practice trial ensured that the procedure was clear. The number of scenes presented resulted in a varied range of responses. Order of presentation was controlled by a Latin square design within sets of four scenes, counterbalanced for the two sets, resulting in eight orders.

Questioning for recall occurred following the first practice scene, and following the fourth and eighth test scene. During recall, subjects were cued with black and white photographs (10 x 12½ cm) of each scene consisting of both puppets and the toy involved (Appendix D). Subjects' responses were recorded verbatim by assistants who also scored responses immediately after each subject completed the task. The experimenter and all assistants were blind as to the subjects' social competence level.

Each subject was brought to a quiet room in the daycare centre where the television monitor and videotape recorder were placed on a table. Chairs for the experimenter and subject were placed side by side in front of the monitor. Assistants sat a few feet to one side out of the child's direct range of vision but within hearing. After establishing rapport with the child,

the experimenter introduced the task by saying "I have some puppets to show you on T.V. I want you to watch carefully because we're going to talk about them when they're finished."

Questioning was introduced by presenting the child with a simple scene recall task intended to serve as a warming-up exercise prior to specific questioning for each scene. Subjects were requested to point to the photographs of the scenes just viewed. These four photographs were embedded with four additional photographs of scenes and puppets not used in the study.

Testing for recall of each scene consisted of showing the child a binder (21 x 28 cm) in which a photograph of each scene was presented singly on a black background. Scenes were presented in the same order as subject had viewed on the T.V. Questioning proceeded as follows: "What are the puppets playing with?" "What did this puppet do and say?" while the experimenter pointed to each puppet in its order of appearance in the scene. If subjects responded correctly, experimenter moved onto the next puppet or scene. If subjects failed to respond, the question was repeated once or experimenter said "Anything else" for incorrect responses.

Responses were scored as correct or incorrect. Correct responses were summed to provide a total score, a score for recall of positive events, a score for recall of negative events, for total pairs recalled, for each pair combination (positive-positive, positive-negative, etc.) for antecedent events, for consequences

recalled, antecedent positive events, antecedent negative events, consequence positive events and consequence negative events.

Procedure

All subjects were tested individually in an office provided by the daycare centre. Only subjects for whom parental authorization was obtained and who had been in the current daycare centre for a minimum of four months were retained in the study. Observations of social behavior interactions were carried out over a five to six week period by three trained observers who observed the children during morning free play periods. Concurrently, teachers were requested to complete the Kohn Social Competence Scale and the Teacher Popularity Rank scale for each child in the study.

I.Q. was assessed using the Peabody Picture Vocabulary Test (Dunn, 1959). Parental occupations were obtained from a questionnaire (Appendix E) distributed to parents by the teachers at the same time as the parental authorization forms. The Pineo & Porter (1967) scales for occupational prestige were used to obtain socio-economic status scores for parental occupations.

I.Q. and observational learning assessments overlapped with social competence assessments in two of the three daycare centres. In the third centre, observational learning assessment was carried out six weeks after termination of the other assessments but within the same school semester.

Results

Reliability

Interobserver reliability for categories on the Social Behavior Checklist was obtained by the Pearson correlation formula for Time in Interaction and by the Percentage of Agreements/(Agreements plus Disagreements) formula for the remainder of the categories for minutes where two observers were present. With the exception of Time in Interaction, this was obtained for 448 (9.3%) of the 4,800 one-minute periods observed in the larger sample of subjects from which subjects in this study were taken. Reliability for Time in Interaction was obtained on 7.3% of total one-minute periods.

The Pearson correlation coefficient for Time in Interaction was .91. The average of Percentage of Agreements calculated on only those instances where one or both of the observers recorded the occurrence of a behavior was 71.5% for all categories with a range of 33% to 92.3%. The average of Percentage of Agreements calculated on all observations where two observers were present, that is, including those instances where neither observer recorded an occurrence of behavior, was 85.8%, with a range of 66.5% to 96.25%.

Computation of interscorer reliability for the observational learning data, using the Percentage of Agreements/(Agreements plus Disagreements) formula, was obtained for 84% of the 44 subjects in the study. Percentage of Agreements was 97%, with the range

for the 16 events being 91% to 100% agreement.

In comparing the data collected from the three daycare centres, analysis of variance indicated no significant centre differences on either measures of social competence or observational learning. A significant difference in the demographic variable of socioeconomic status (SES) was found ($F(2,41) = 3.9, p < .05$) (Appendix F). Results from the three centres were combined for the remainder of the analyses.

Possible effects of order of presentation of the eight scenes on the observational learning task were examined by an analysis of variance across orders. A significant order effect was found for the category of Negative-Negative Pairs ($F(7,36) = 3.20, p < .01$) (Appendix G). This order effect was kept in mind when interpreting results.

The average length of time in the present daycare centre across the 44 subjects was 19.05 months ($S.D. = 11.26$) with a range of four to 42 months. This variable was not significantly correlated with any of the measures in the study.

Means and standard deviations for the social competence measures are presented in Table 1. Examination of the frequency distribution and means for the events recorded on the Social Behavior Checklist indicated that the behavior categories of Uses Peer as Resource - unsuccessful, Competes with Peer - successful, Competes with Peer - unsuccessful, and Negative Tone of interactions occurred very infrequently. These categories were consequently

Table 1

Means and Standard Deviations for Social Competence Data^a

	<u>Mean</u>	<u>S.D.</u>
Seeks Peer's Attention - successful	8.8	4.1
Seeks Peer's Attention - unsuccessful	6.8	5.0
Uses Peer as Resource - successful	5.5	3.9
Uses Peer as Resource - unsuccessful	1.7	1.9
Leads Peer - successful	27.1	11.2
Leads Peer - unsuccessful	10.0	6.1
Follows Peer's Lead	38.4	13.2
Refuses to Follow Peer's Lead	6.0	3.1
Shows Affection to Peer	15.3	9.0
Competes with Peer - successful	1.2	1.2
Competes with Peer - unsuccessful	2.0	1.3
Time in Interaction (minutes)	19.8	7.2
Positive Tone (No. of intervals)	11.9	5.6
Neutral Tone (No. of intervals)	16.0	5.1
Negative Tone (No. of intervals)	1.8	1.6
Kohn Factor I	14.3	37.5
* Kohn Factor II	155.6	27.4
Peer Popularity	.12	.09
Teacher Popularity Rank	.49	.29

^aEach subject's score on the Social Behavior Checklist categories represents the sum of scores over 40 minutes in which subject was observed.

dropped from further analyses.

Table 2 displays the means and standard deviations of raw scores for the categories of recall on the observational learning task.

Demographic Variables

In order to assess possible relationships of chronological age, I.Q. and SES with social competence, demographic variables were correlated with measures of social competence (Table 3).

Possible sex differences in social competence were examined with analysis of variance procedure. Sex differences were found for Leads Peer - unsuccessful ($F(1, 42) = 5.36, p < .05$) with boys demonstrating more of these behaviors than girls ($\bar{X}_{\text{boys}} = 11.25, \bar{X}_{\text{girls}} = 6.6; \bar{X}_{\text{boys}} = 6.7, \bar{X}_{\text{girls}} = 4.56$, respectively).

Correlational analysis of the demographic variables with raw scores on the observational learning task are presented in Table 4, and with proportion scores (score per category relative to total recall) in Table 5. Analysis of variance revealed no sex differences in performance on the task.

Intercorrelation of Social Competence Measures

In order to assess the suitability of the social competence data for formation of a composite score, these behavioral and global categories were submitted to correlational analysis (Table 6).

Popularity Measures. As expected, Peer Popularity was negatively related to Teacher Popularity Rank ($r(42) = -.50$,

Table 2
Means and Standard Deviations
for Observational Learning Task (raw scores)

	<u>Mean</u>	<u>S.D.</u>
Total Events (16) ^a	9.4	3.9
Positive Events (8)	3.9	2.3
Negative Events (8)	5.5	1.9
Total Pairs (8)	3.3	2.1
Positive-Positive Pairs (2)	.75	.81
Negative-Negative Pairs (2)	1.0	.74
Antecedent Events (8)	4.7	2.1
Consequence Events (8)	4.7	2.1
Positive Antecedents (4)	1.8	1.3
Negative Antecedents (4)	2.8	1.0
Positive Consequences (4)	2.0	1.3
Negative Consequences (4)	2.7	1.1
Positive-Negative Pairs (2)	.84	.83
Negative-Positive Pairs (2)	.70	.73

^aNumber in parenthesis indicates maximum score possible.

Table 3
Pearson Correlations of Social Competence Measures
with Demographic Variables

	<u>Age</u>	<u>I.Q.</u>	<u>SES</u>
Seeks Peer's Attention - successful	.32*	-.10	-.15
Seeks Peer's Attention - unsuccessful	-.22	-.20	-.05
Uses Peer as Resource - successful	.19	.06	-.13
Leads Peer - successful	.45**	.04	-.15
Leads Peer - unsuccessful	.16	.01	0
Follows Peer's Lead	-.08	-.23	-.12
Refuses to Follow Peer's Lead	.12	-.09	-.03
Shows Affection to Peer	-.25	-.34*	-.30*
Time in Interaction	.23	-.07	.22
Positive Tone	-.23	-.35*	-.24
Neutral Tone	.36*	.09	-.06
Kohn Factor I	.15	.10	.13
Kohn Factor II	.19	-.23	0
Peer Popularity	.19	.06	.01
Teacher Popularity Rank	-.30*	-.05	0

* $p < .05$ (df = 42)

** $p < .01$

Table 4
 Pearson Correlations of Observational Learning (raw scores)
 with Demographic Variables

	<u>Age</u>	<u>I.Q.</u>	<u>SES</u>
Total Events	.27	.42**	.17
Positive Events	.33**	.41**	.15
Negative Events	.15	.35**	.15
Total Pairs	.28	.36**	.23
Positive-Positive Pairs	.28	.25	.19
Negative-Negative Pairs	.14	.01	.14
Antecedent Events	.35**	.39**	.11
Consequence Events	.15	.38**	.21
Positive Antecedents	.32*	.25	.03
Negative Antecedents	.31*	.46**	.17
Positive Consequences	.26	.46**	.25
Negative Consequences	-.02	.18	.11
Positive-Negative Pairs	.09	.22	-.09
Negative-Positive Pairs	.22	.51***	.41**

* $p < .05$ (df = 42)

** $p < .01$

*** $p < .001$

Table 5
 Pearson Correlations of Observational Learning (proportion scores)
 with Demographic Variables

	<u>Age</u>	<u>I.Q.</u>	<u>SES</u>
Positive Events	.35*	.27	.04
Negative Events	-.24	-.16	0
Positive-Positive Pairs	.30*	.04	-.04
Negative-Negative Pairs	-.07	-.28	.17
Antecedent Events	.32*	.04	-.12
Consequence Events	-.19	.06	.17
Positive Antecedents	.33*	.09	-.08
Negative Antecedents	.06	-.04	-.06
Positive Consequences	.18	.33*	.15
Negative Consequences	-.38**	-.18	.07
Positive-Negative Pairs	-.06	.08	-.29
Negative-Positive Pairs	-.21	.39**	.36*

* $p < .05$ (df = 42)

** $p < .01$

Table 6
Intercorrelation Matrix of Social Competence Measures

	Attention successful	Attention unsuccessful	Resource successful	Leads Peer successful	Leads Peer unsuccessful	Follows Peer's Lead	Refuses to Follow Peer	Shows Affec- tion to Peer	Positive Tone	Neutral Tone	Kohn Factor I	Kohn Factor II	Peer Popularity
Attention successful	.50***												
Attention unsuccessful	.13	.31*											
Resource successful	.44**	.27	-.17										
Leads Peer successful	.69***	.46**	.10	.40**									
Leads Peer unsuccessful	.67***	.37*	.37*	.11	.52***								
Follows Peer's Lead	.40**	.11	-.02	.06	.06	.22							
Refuses to Follow Peer	.60***	.33*	.26	.05	.52***	.43**	.16						
Shows Affec- tion to Peer	.55***	.03	-.04	.13	.08	.18	.59***	.21					
Positive Tone	.66***	.24	.06	.23	.28	.27	.63***	.30*	.83***				
Neutral Tone	.53***	.58***	.37*	.29	.58***	.50***	.14	.38*	-.14	-.02			
Kohn Factor I	.38*	.29*	-.13	.19	.26	.13	.15	.427	.26	.23	.15		
Kohn Factor II	.07	.18	.08	.01	-.17	-.14	.16	0	.28	.22	-.09	.59***	
Peer Popularity	.44**	.25	.09	.34**	.55***	.22	-.02	.17	.06	.16	.41**	.34**	.15
Teacher Popu- larity Rank	-.65***	-.43**	-.08	-.27	-.63***	-.48***	-.08	-.54***	-.21	-.26	-.41**	-.73***	-.50***

*p < .05
**p < .01
***p < .001
(df = 42)

$p < .001$) (low teacher rank reflects high popularity status) indicating satisfactory agreement between these measures. Significant positive relationships were found between Peer Popularity and Time in Interaction ($r(42) = .44$, $p < .01$) and the successful categories of Uses Peer as a Resource ($r(42) = .34$, $p < .01$) and Leads Peer ($r(42) = .55$, $p < .001$). These relationships support previous findings (Greenwood et al, Note 5) of Peer Popularity as a valid measure of social competence including both the quantity of peer interactions and the effective nature of these interactions.

Teacher Popularity Rank was also highly significantly correlated with successful categories of Seeks Peer's Attention ($r(42) = -.43$, $p < .01$) and Leads Peer ($r(42) = -.63$, $p < .001$), with Leads Peer -- unsuccessful ($r(42) = -.48$, $p < .01$), and Refuses to Follow Peer ($r(42) = -.54$, $p < .001$). The stronger magnitude of the relationships for Teacher Popularity Rank with observational behavior categories than of Peer Popularity with the same observational measures is also in agreement with previous findings (Greenwood et al, Note 5).

Behavioral Measures. Teacher ratings of social behavior (Kohn Social Competence Factors I and II) were significantly correlated with only one observational category. Kohn Factor I, Interest-Participation versus Apathy-Withdrawal, was significantly positively correlated with Time in Interaction ($r(42) = .38$, $p < .05$). Significant correlations for Kohn Factor I with both

popularity measures, Peer Popularity (\underline{r} (42) = .34, $p < .01$) and Teacher Popularity Rank (\underline{r} (42) = -.73, $p < .001$), were also present. Finally, Kohn Factor I was significantly positively related to Kohn Factor II; Cooperation-Compliance-versus Anger-Defiance (\underline{r} (42) = .59, $p < .001$).

Observational categories using the modified Social Behavior Checklist did not differentiate socially competent behaviors from the incompetent behaviors. Contrary to expectation, successful and unsuccessful behavioral events were significantly positively correlated with each other. For example, Seeks Peer's Attention - successful was significantly positively correlated with Seeks Peer's Attention - unsuccessful (\underline{r} (42) = .31, $p < .05$), Leads Peer - successful (\underline{r} (42) = .46, $p < .01$), Leads Peer - unsuccessful (\underline{r} (42) = .37, $p < .05$) and Refuses to Follow Peer's Lead (\underline{r} (42) = .33, $p < .05$) (see Table 6). Leads Peer - successful was also significantly positively correlated with Leads Peer - unsuccessful (\underline{r} (42) = .52, $p < .001$) and with Refuses to Follow Peer's Lead (\underline{r} (42) = .52, $p < .001$), with the latter two being significantly intercorrelated (\underline{r} (42) = .43, $p < .01$). As well, Time in Interaction was correlated with all but two of the behavior categories indicating a similar lack of discrimination of this measure.

No clear qualitative dimensions were found on this measure. Rather, an activity dimension appeared to be present. Controlling for this activity factor, by dividing each subject's scores for

the Social Behavior Checklist categories by his Time in Interaction, did not produce more meaningful results in either a Pearson correlation or a principal components factor analysis with varimax rotation.

In view of the lack of clustering of successful behaviors separately from unsuccessful behaviors in the observational measure of social behaviors as demonstrated in previous research using similar measures (Connolly & Doyle, Note 4), the use of a composite social competence score did not seem justified. Social competence measures were, therefore, individually correlated with Total Events and Total Pairs recalled, with proportion scores of subcategory scores relative to Total Events, and with pair combinations relative to Total Pairs. These results are presented in Table 7.

Popularity Measures and Observational Learning

Contrary to the hypothesis of the study, Peer Popularity was significantly negatively correlated with Total Events ($r(42) = -.28, p < .05$) and Total Pairs ($r(42) = -.27, p < .05$). For the proportions recalled in each subcategory, Peer Popularity was negatively correlated with proportion of Consequences recalled ($r(42) = -.32, p < .05$). These correlations indicate that as Peer Popularity status increased, total amount of recall and attention to Consequences decreased.

A significant negative correlation was found between Teacher Popularity Rank and proportion of Antecedent Events recalled.

Table 7
Pearson Correlations between Social Competence and Observational Learning (proportion scores)

	0	-.08	.12	-.09	.08	-.07	.27*	-.02	.22	.11	-.11	.06	-.01	.06
Attention successful														
Attention unsuccessful	.12	.04	.03	.15	.13	.15	.07	0	.16	-.05	-.11	.10	.05	-.11
Resource successful	-.27*	-.17	.27*	-.32*	-.16	-.07	-.02	.15	-.22	.16	-.03	.20	-.15	-.12
Lead Peer successful	-.01	-.06	.14	-.07	-.03	0	.20	-.09	0	.22	-.09	-.04	.05	-.03
Lead Peer unsuccessful	0	.02	.11	0	.03	-.06	.33*	-.17	.16	.22	-.16	-.08	.09	-.24
Follows Peer's Lead	-.12	-.16	.20*	-.14	.02	-.09	.20	-.06	.04	.18	-.29*	.17	.02	-.10
Refuses to Follow Peer	.23	.24	-.06	.16	.16	.07	-.01	.20	.26*	-.22	.09	.17	.26*	-.04
Shows Affection to Peer	-.24	-.22	.22	-.26*	-.01	-.12	.09	-.07	-.06	.15	-.28*	.14	.15	-.26*
Positive Tone	-.23	-.28*	.30*	-.23	-.14	.09	0	.05	-.19	.15	-.24	.25	.05	-.20
Neutral Tone	-.08	-.12	.14	-.15	0	-.15	.26*	-.23	.11	.19	-.32*	-.02	0	-.09
Kohn Factor I	0	.05	.04	-.06	0	-.09	.17	-.07	.06	.13	.01	-.09	.09	.19
Kohn Factor II	-.09	-.07	.09	-.13	-.21	-.09	-.02	.04	-.02	0	0	-.13	.05	.10
Peer Popularity	-.28*	-.12	-.01	-.27*	.10	-.12	.17	-.32*	.02	.16	-.21	-.20	-.13	.07
Teacher Popularity Rank	-.09	-.19	0	-.06	-.10	.09	-.26*	.07	-.24	-.08	-.03	.10	-.24	0
Time in Interaction	.14	.08	.23	-.21	.01	-.18	.24	-.06	.08	.19	-.23	.11	.14	-.24
Total Events		Positive Events	Negative Events	Total Pairs	Positive Pairs	Negative Pairs	Antecedent Events	Consequence Events	Positive Antecedents	Negative Antecedents	Positive Consequences	Negative Consequences	Positive Pairs	Negative Pairs

*p < .05

**p < .01

***p < .001
(df = 42)

However, partial correlation controlling for the covariant of Age (Tables 3 and 5) eliminated the significance of this relationship.

Behavioral Measures and Observational Learning

Teacher ratings on the Kohn Social Competence scale showed no relationships with any of the categories of recall on the observational learning task.

The relationships between the observational measure of social competence (Social Behavior Checklist) and recall were few in number. Of significant interest is the negative correlation between Positive Tone of interaction and the proportion of Positive Events recalled ($r(42) = -.28, p < .05$), and the positive correlation between Positive Tone and the proportion of Negative Events recalled ($r(42) = .30, p < .05$). Again, contrary to expectation, as preschoolers increased in positively valenced behaviors, they recalled a larger proportion of negatively valenced stimulus events and a smaller proportion of positively valenced events.

A number of partial correlations controlling for I.Q. and Age revealed that these were main contributors to the significance of relationships with observational measures where they acted as covariates. Shows Affection to Peer and the proportion of Negative-Positive Pairs were no longer significantly correlated when controlling for I.Q. When Age was controlled, the proportion of Antecedent Events recalled was no longer significantly related

to Seeks Peer's Attention - successful and Neutral Tone.

A number of other statistically significant correlations were present (see Table 7). However, no meaningful interpretations are readily apparent.

Correlations with Observational Learning Raw Scores

Correlational analysis was also carried out between the individual social competence measures and the raw scores for Positive and Negative Events, Antecedents, Consequences and pair combinations to assess patterns in absolute recall.

Patterns found in this analysis supported the correlations found for proportion of Positive Events and for proportion of Consequences. Both Peer Popularity and Positive Tone were significantly negatively correlated with the absolute amount of Positive Events recalled ($r(42) = -.26, p < .05$; $r(42) = -.30, p < .05$, respectively). Peer Popularity was also negatively correlated with Consequence Events ($r(42) = -.35, p < .01$) and with the subcategories of Positive Consequences ($r(42) = -.27, p < .05$) and Negative Consequences ($r(42) = -.36, p < .01$).

On the whole, Peer Popularity was the social competence measure which correlated with the most categories of recall in absolute values. As Peer Popularity decreased, the number of events recalled, pairs, positive events and both positive and negative consequences increased.

In order to further explore the relationship between Positive and Negative Events recalled, it was decided to form low, middle and high groups for Peer Popularity and Positive Tone of interaction.

Post hoc t-tests examined differences in recall of Positive and Negative Events by each group. The means for Positive and Negative Events recalled by the low, middle and high groups for Peer Popularity are shown in Figure 1. The low group's recall of Positive Events did not differ significantly from their recall of Negative Events. For the middle group, however, these means were significantly different ($t(30) = -3.21, p < .001$). Means for the high group were not significantly different.

The means for Positive and Negative Events recalled by the low, middle and high groups on the Positive Tone measure are shown in Figure 2. Post hoc t-tests indicated significant differences between means of Positive Events and Negative Events for both the middle ($t(28) = -2.75, p < .05$) and high groups ($t(28) = -2.20, p < .05$) but not for the low group. These results indicate significantly less recall of Positive Events relative to Negative Events as use of Positive Tone increases.

These findings for recall of Positive and Negative Events are interesting since Positive Tone did not correlate significantly with Peer Popularity (see Table 6). To assess whether any relationships were present between Peer Popularity and Positive Tone for low, middle or high groups, a Chi-square analysis was carried out on these groups. However, this failed to find any significant relationships between Peer Popularity status and use of Positive Tone.

A final analysis for possible non-linear relationships

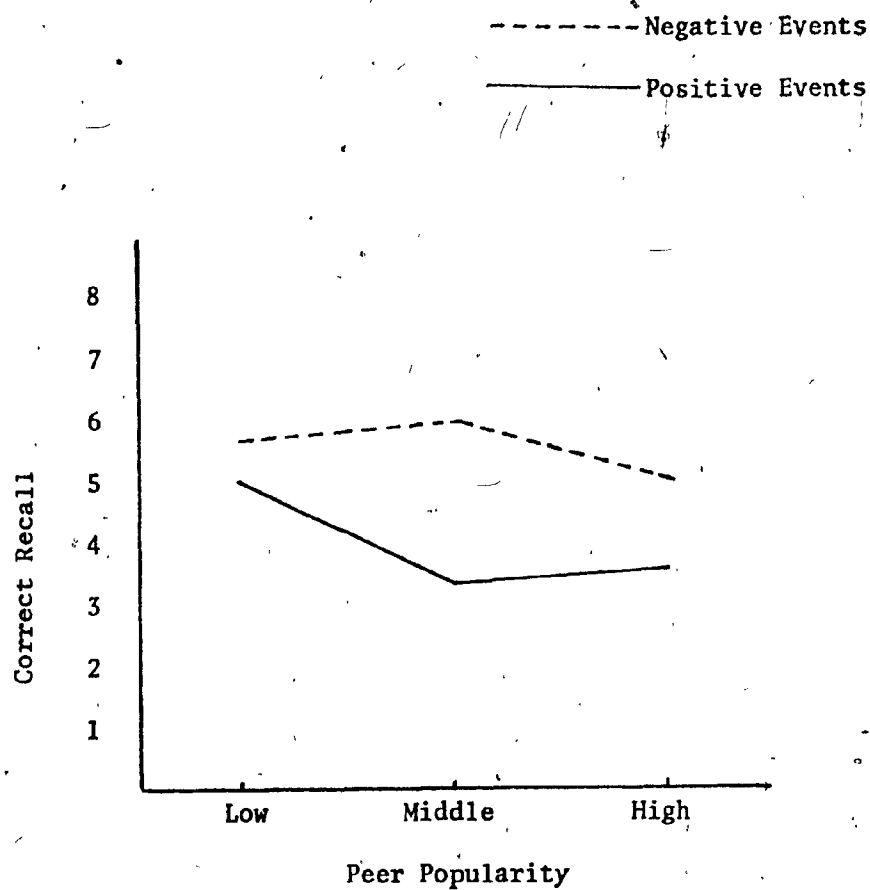


Figure 1. Means of Positive and Negative Events/recalled by low, middle and high groups on Peer Popularity.

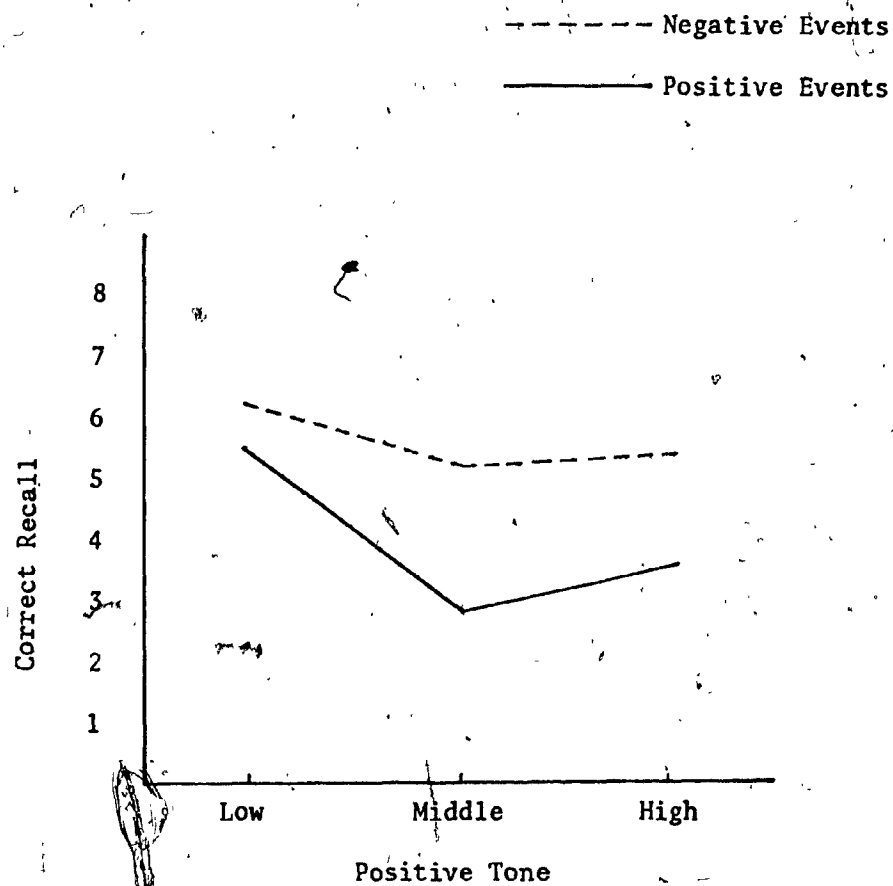


Figure 2. Means of Positive and Negative Events recalled by low, middle and high groups on Positive Tone.

between proportion scores on observational learning and Peer Popularity, Teacher Popularity Rank, Kohn Factors I and II, and Positive Tone was conducted using the Eta squares (η^2) correlation ratio. This test provides a measure of relationship in general, both linear and non-linear. Results of this analysis did not reveal any meaningful relationships beyond those previously reported.

Discussion

The relationship found between social competence measures and observational learning of social interactions supported the hypotheses of quantitative and qualitative differences. However, the hypothesized direction of these differences was generally not supported. Only a few isolated relationships were in the hypothesized direction.

The hypothesis that total correct recall would be positively related to social competence was not supported. Results indicated that amount of recall decreased as status on Peer Popularity increased. The hypothesized direction with respect to the nature of events recalled was also not supported by the data. Again results contrary to those hypothesized were obtained with proportion of Positive Events recalled being inversely related to the social competence measure of Positive Tone and proportion of Negative Events recalled being positively related to this measure.

Post hoc analysis of differences in recall of Positive and Negative Events within groups (low, middle and

high) indicated no significant differences for low groups, but significantly more recall of Negative Events than Positive Events by subjects in the middle groups on Peer Popularity and Positive Tone and in the high group on Positive Tone.

Support for predicted pattern effects was found in the negative relationship between the proportion of Consequence Events recalled and Peer Popularity indicating a decrease in the specific salience of Consequences as popularity increased.

Despite failure to support the predictions concerning total recall and proportion of Positive and Negative Events, the presence of differences in both quantity and quality of events recalled suggests that differential assimilation schemata may be operating in these preschoolers. Examination of these differences provide an indication as to what may be meaningful social events to preschoolers of varying social competence levels and, thus, some understanding of cognitive processes affecting acquisition.

Analysis of the social competence measures in this study supports the findings by previous researchers that social competence is not a unitary concept (Connolly & Doyle, Note 4). Although the nonobservational measures were intercorrelated providing an indication of their validity, they were not uniformly related to categories of recall on the observational learning task.

Social Competence and Quantity of Observational Learning

This study demonstrated that less popular children recalled more social interactions than the more popular children. This

would seem to argue against inadequate acquisition of social skills and/or social knowledge per se as underlying performance deficits. Rather, it seems that less popular children demonstrate more awareness of their social environment. Whether this interest is a response to low popularity status or reflects a predisposition for more passive versus active interaction with the environment cannot be determined by this study.

An examination of differences in subcategories of recall revealed that popularity status was negatively related to both proportion of Consequence Events and to the absolute number of consequences, both positive and negative, recalled. These results suggest that concern with one's impact on others may be accounting for part of this heightened generalized social awareness. In addition, and more important, is the possibility that this concern may be maintaining low popularity status. Cognitive social learning theory suggests that mediating cognitions regarding uncertainty of consequences may serve as inhibitory processes affecting performance (Bandura, 1977). Sensitivity to consequences may be a major source of both greater attention to social interactions and low rates of interaction.

As well, attention to consequences may be the result of repeated poor social interactions. Since high popularity status has been associated with higher levels of giving and receiving of positive reinforcement (Hartup et al, 1967), the more popular preschoolers may have positive expectations and, on the whole,

be less concerned with their social interactions. Less popular children, whose interactions are fewer and less successful may not only be more concerned with consequences of initiations but also have more opportunity to engage in observation of others. The importance of consequences to these preschoolers may therefore be a result of poor interactions and, at the same time, serve to perpetuate further social difficulties.

Since low popular children remembered more social events than their more popular peers, one should be cautious in formulating conclusions concerning social skills acquisition based solely on observations of childrens' social performance in a free play situation.

Behavior ratings by teachers using the Kohn Social Competence Scale were least related to observational learning. Since this measure was designed to assess classroom behavior in terms of the child's interpersonal relationships (Kohn, 1977), it may have been too global a measure to be representative of a child's level of cognitive representation of social events. As well, the negative end of the Kohn Factor II, Cooperation-Compliance versus Anger-Defiance, reflects classroom disobedience and hostile interactions with peers. The very low frequency of hostile events observed in this sample of preschoolers provides some explanation for its lack of correlation with the social competence measures.

Teacher Popularity Rank was also not related to observational learning. The significant correlation between this measure and

age indicates that maturity was associated with teachers' rankings. The only significant relationship for Teacher Popularity Rank with observational learning was one where age was a significant covariate.

Social Competence and Quality of Observational Learning

Differential responding with respect to the qualitative dimension of the stimulus events was found as a function of low status versus middle status on Peer Popularity and low versus middle and high status on Positive Tone. Amount of recall of Positive Events was not significantly different from recall of Negative Events for subjects in the low groups. Middle and high groups recalled significantly more Negative Events than Positive, with the exception of high Peer Popularity subjects. This differential recall may be critical in understanding perpetuation of poor quality of behaviors exhibited by low competent preschoolers as assessed by each of these measures, and of mechanisms underlying superior social competence. A number of processes may be operating either independently or in combination to explain this.

Recall of approximately equivalent amounts of Positive and Negative Events by children low in Peer Popularity and Positive Tone may simply be a correlate of their heightened attention to social stimuli in general. An alternative interpretation is that low competent subjects were not responding to the qualitative dimension of the social stimuli in the same way as the more competent subjects. If recall is a reflection of the child's

current assimilation schemata (Brown, 1975), differential recall in this study suggests differential cognitive schemata for the qualitative dimension of social stimuli. Cognitive schemata provide a framework for structuring of experience (Piaget & Inhelder, 1973). Selectivity in retention is, therefore, a function of the organizational transformations based on the child's current level of understanding. It appears that the child low on Peer Popularity and Positive Tone was indiscriminantly recalling as many events as possible. The child high on these measures seems to have engaged in some selectivity in recall. This suggests cognitive organization of experience on the qualitative dimension by the high competent child but not by the low competent child.

It is clear, however, that preschoolers in this age range do differentiate between positive and negative social events. Pilot testing demonstrated ability to label the stimuli as positive or negative when these were presented individually and when the experimenter specifically asked whether they were positive or negative. As well, salience of negative events in general can be seen in the larger group means for Negative versus Positive Events across all groups.

Differential responding on the recall task may therefore be indicating that although preschoolers do demonstrate cognitive schemata for positive and negative events when this structure is provided by others (for example, experimenter questioning), low popular preschoolers and those who rarely demonstrate positive

affect in interactions may not be spontaneously generating this structure when observing "ongoing" social interaction. This seems to indicate a lack of salience for the qualitative dimension of social events for these low groups. Socially competent preschoolers as assessed by Peer Popularity and Positive Tone do respond to this qualitative dimension and, in so doing, indicate as well that negative events are particularly meaningful to them.

This latter finding is most psychologically significant in understanding motivating factors for social competence. If preschoolers who are well liked by their peers or who exhibit a large number of positively valenced interactions are particularly responsive to negative social stimuli, it may be that strong inhibitory mechanisms are operating to maintain positive social interaction. Performance of positive and successful social behaviors may be a function of first, cognitive schemata for positive and negative social events which are sufficiently developed to be operative when observing ongoing daily activities as well as behavior in one's own repertoire, and second, inhibition of the negative forms of social interaction.

These results also indicate a strong interest on the part of less popular groups of preschoolers in their social environment in spite of their poor performance in the peer group. Perhaps this interest is too extreme and is motivated by performance and social anxiety as suggested by the higher recall of proportion of Consequence Events. Anxious over-attention may be impeding

development of cognitive structuring of experience which would then provide some framework for selectivity in observational learning. Assuming that observational learning is limited by current assimilation schemata, this study provides some indication that the more popular preschoolers and those who have a higher incidence of positive tone have developed superior schemata for the qualitative dimension of social behaviors. Further testing is needed, however, to verify this interpretation. As well, it is important to assess whether similar patterns of recall are present at various age levels. This would give some indication of the stability of these processes.

Understanding the role of these cognitive processes has significant implications for treatment of social competence. Increasing social competence through observational learning will be most effective to the extent that the child's cognitive schemata are developed. Children may indeed learn overt individual behaviors which were absent from their repertoire but until they attain a schematic representation of the significance of these behaviors, training may not provide the child with a basis for further development through observational learning beyond the training situation. Perhaps consistency in labelling of positive and negative behaviors by parents and preschool teachers would facilitate development of cognitive schemata for the quality of events. The literature on role-taking also suggests potentially suitable intervention strategies. Through stories and games, a link

may be made salient between behavior and consequences in others such that the preschooler can learn to label and associate a happy or a sad feeling in himself or a story character with a preceding positive or negative behavior by a real or fictitious peer.

Social Competence Measures

It is of significant interest that, of the social competence measures in this study, peer popularity was most consistently associated with observational learning. Sociometric ratings have been shown to be the best predictors of later maladjustment and pathology (Cowen et al, 1973; Rolf, 1972). Despite inconsistent findings on stability of sociometric ratings at the preschool age level (McCandless & Marshall, 1957; Hartup et al, 1967; Moore & Updegraff, 1964), it is interesting that peer choices in this study reflected differences that went beyond subjects' behaviors. These differences in acquisition argue in favor of sociometric ratings as stable predictors of social adjustment.

Low Peer Popularity subjects were found to be significantly different from the middle group of subjects on the qualitative dimension of events. No differences in recall of these events were found between low and high Peer Popularity groups nor between middle and high groups. The similarity between low and high peer popular groups may be a function of the hypothetical testing situation. It may be that, during testing, children select as most preferred playmates, those children who are boisterous, impulsive, attention seeking, and on the whole, very active and

salient in the classroom (Connolly & Doyle, Note 4). These children may not be selected as high in competence by the measures obtained from teachers since they are more likely to be considered disruptive of classroom activity. The middle group in Peer Popularity may, in fact, represent the children who actually are the preferred playmates and be the group most capable of socially competent interactions.

Similar group differences were found for Positive Tone. The low group was significantly different from the middle group but not from the high group. Examination of the relationship of Positive Tone with other observed categories of social behaviors indicates that it was highly significantly correlated with Follows Peer's Lead and with Shows Affection to Peer. It may be that subjects scoring extremely high in following behaviors, in sharing, helping, smiling and laughing are in fact overly submissive in their social interactions. If this is the case, a high score for Positive Tone associated with these behaviors would not necessarily always be representative of social competence. The high groups on both Peer Popularity and Positive Tone may therefore be more heterogeneous than initially assumed.

The finding that Peer Popularity was not correlated with Positive Tone poses interesting questions. Although these two measures assessed similar relationships in recall of the qualitative dimensions of social events, they may be reflecting different aspects of social competence. This appears to be substantiated by the data. Significant correlations (see Table 6)

between Peer Popularity and measures reflecting frequency and participation (Time in Interaction, Kohn Factor I), successful goal-directed behaviors (Uses Peer as Resource and Leads Peer - successful), and Neutral Tone of interaction indicate that Peer Popularity represents active and successful participation in the peer group. In contrast, Positive Tone showed an absence of associations with goal-directed peer interactions but was highly correlated with following and affectionate behaviors.

The observational measure of social competence (Social Behavior Checklist) did not differentiate socially competent behaviors from the incompetent behaviors either before or after activity level was controlled. The data provides no clear explanation for these findings. One may speculate, however, that sample size differences between this study and previous studies may be an operating factor. Wright (Note 5) reports data on 57 subjects. Connolly & Doyle (Note 4) studied a group of 66 preschoolers. Increasing sample size would increase degrees of freedom and may increase the stability of the factors.

Observational Learning Measure

The observational learning task seemed of reasonable difficulty with no floor or ceiling effects for any category of recall. As well, only a few modest correlations were found with I.Q. As could be reasonably expected for a learning task, Total Event recall and Total Pairs recalled were positively related with I.Q. Proportion of Positive Consequences recalled and of the

related category of Negative-Positive pair combinations was also related to I.Q. indicating that recall of these incongruous pairs may have been more difficult. Since negative-positive sequences are more uncommon in everyday experience, acquisition may have been limited by the absence of adequate mental representations for these events in the preschooler but facilitated by superior symbolic processes (for example, verbal coding) in the more intelligent child.

The pattern of relationships of observational learning with age are of interest since maturity has been related to social competence (Connolly & Doyle, Note 4). As age increases, the proportion of Positive Events, Positive-Positive pairs, Positive Antecedents, and Antecedents recalled increased whereas the proportion of Negative Consequences recalled decreases. If we assume that observational learning is, in large part, a reflection of the child's current mental representations, then it would seem that at a younger age, the preschooler's schemata of social interactions concern negative consequences, whereas, with further development, cognitions of more positive social events predominate. These results correspond with previous reports that older preschoolers (ages 4-1 to 4-9) demonstrate higher rates of positive social behaviors than younger preschoolers (3 to 4 years old) (Charlesworth & Hartup, 1967). However, the present study did not find such a relationship (see Table 3). Methodological differences may account for these discrepancies.

The relationship of age with socially competent behavior in other studies and with an increase in proportion of Positive Events recalled in this study seems to contradict the negative relationship found between Positive Tone and proportion of Positive Events recalled. Examination of the correlation between Positive Tone and Age found a very low, negative and non-significant correlation ($r(42) = -.23$). This may account for the differences in correlations with proportion of Positive Events.

Some agreement between Age and Peer Popularity was found in the decline in recall of consequences as age and popularity status increased.

Summary

Relationships in the study were few and in large part of low magnitude. In view of the large number of analyses conducted, reliability of these may appear questionable. Of the 709 individual correlations conducted, 17.2% were significant. This percentage, substantially greater than the 5% expected by chance, combined with the consistency of those results obtained across analyses, argues in favor of reliability.

Relationships between a number of measures of social competence and observational learning of social interactions generally did not support the predictions of the study. Nevertheless, the data provides support for the operation of assimilation schemata in observational learning. Patterns of differential recall for the low versus middle and high groups on Peer Popularity

and Positive Tone suggested that the more competent preschooler may have superior cognitive schemata for the quality of social events. This observer characteristic facilitates more spontaneous structuring of everyday experience.

The selective nature of recall by the more competent preschoolers on these two measures indicated that negative events were very meaningful social stimuli for these subjects. This suggested the functioning of inhibitory mechanisms underlying socially competent behavior in this age group.

Overall greater amount of recall in low popular subjects may in large part be a function of a number of inter-related characteristics of these children. Low popular children may be more socially anxious resulting in higher levels of attending and/or motivation to do well. As well, they may not be spontaneously structuring their social experiences.

Low group status on Peer Popularity and use of Positive Tone may, therefore, be a function of poor discrimination of the quality of social behavior as well as over-sensitivity to consequences. These findings are clinically significant in understanding the stability of incompetent behaviors despite apparent opportunity in the peer group for learning competent behaviors. These cognitive processes should, therefore, be taken into consideration when planning remedial measures. Assessment of behavioral deficiencies and training of new overt social skills may be necessary but not sufficient to ensure generalization across situations and over time.

Reference Notes

1. Arend, R., Gove, F.L., & Sroufe, A. Continuity of early adaptation: From attachment in infancy to resiliency and curiosity at age five. Paper presented at the Bi-annual Meeting of the Society for Research in Child Development, San Francisco, February, 1979.
2. Suomi, S.J. Peers, play, and primary prevention in primates. Paper presented at the Vermont Conference for Primary Prevention of Psychopathology, Vermont, 1977.
3. Greenwood, C.R., Walker, H.M., Todd, N.M., & Hops, H. The utility of the peer nomination sociometric as a predictive variable in preschool social withdrawal. (Report No. 30). Oregon: University of Oregon, Center at Oregon for Research in the Behavioral Education of the Handicapped, September, 1978.
4. Connolly, J.A., & Doyle, A.B. Social competence in the preschool: a multivariate view. Paper presented at the Bi-annual Meeting of the Society for Research in Child Development, San Francisco, February, 1979.
5. Wright, M.J. Assessing the social competence of preschoolers aged three to six years. Paper presented at the 38th Annual Meeting of the Canadian Psychological Association, Vancouver, June, 1977.
6. Connolly, J.A. Manual for the Social Competence Checklist - modified. Unpublished manuscript, Concordia University, Montreal, 1978.

References

- Akamatsu, T.J., & Thelen, M.H. "A review of the literature on observer characteristics and imitation. Developmental Psychology, 1974, 10, 38-47.
- Anderson, S., & Messick, S. "Social competency in young children. Developmental Psychology, 1974, 10, 282-293.
- Aronfreed, J. The concept of internalization. In D.A. Goslin (Ed.), Handbook of socialization theory and research. Chicago: Rand McNally, 1969.
- Asher, S.R., Gottman, J.M., & Oden, S.L. Children's friendships in school settings. In L.G. Katz (Ed.), Current topics in early childhood education (Vol. 1). Hillsdale, N.J.: Erlbaum, 1977.
- Baer, D.M., Peterson, R.F., & Sherman, J.A. The development of imitation by reinforcing behavioral similarity to a model. Journal of the Experimental Analysis of Behavior, 1967, 10, 405-416.
- Bandura, A. Influence of models' reinforcement contingencies on the acquisition of imitative responses. Journal of Personality and Social Psychology, 1965, 1, 589-595.
- Bandura, A. Social learning theory of identificatory processes. In D.A. Goslin (Ed.), Handbook of socialization theory and research. Chicago: Rand McNally, 1969.
- Bandura, A. Self-efficacy: Toward a unifying theory of behavioral change. Psychological Review, 1977, 84, 191-215.

Bandura, A. Modeling theory. In R.D. Parke (Ed.), Recent trends in social learning theory. New York: Academic Press, 1972.

Bandura, A., & Huston, A.C. Identification as a process of incidental learning. Journal of Abnormal and Social Psychology, 1961, 63, 311-318.

Brown, A.L. The development of memory: knowing, knowing about knowing, and knowing how to know. In H.W. Reese (Ed.), Advances in child development and behavior (Vol. 10). New York: Academic Press, 1975.

Charlesworth, R., & Hartup, W.W. Positive social reinforcement in the nursery school peer group. Child Development, 1967, 38, 993-1002.

Coates, B., & Hartup, W.W. Age and verbalization in observational learning. Developmental Psychology, 1969, 1, 556-562.

Cowen, E.L., Pederson, A., Babikian, H., Izzo, L.D., & Trost, N.A. Long-term follow-up of early detected vulnerable children. Journal of Consulting and Clinical Psychology, 1973, 41, 438-446.

Deutsch, F. Female preschoolers' perceptions of affective responses and interpersonal behavior in videotaped episodes. Developmental Psychology, 1973, 10, 733-740.

Dunn, L.M. Peabody Picture Vocabulary Test. Minnesota: American Guidance Service, Inc., 1959.

Evers, W.L., & Schwartz, J.C. Modifying social withdrawal in preschoolers: The effects of filmed modeling and teacher praise. Journal of Abnormal Child Psychology, 1973, 1, 248-256.

Flanders, J.P. A review of research on imitation. Psychological Bulletin, 1968, 69, 316-337.

Flavell, J.H. Developmental studies of mediated memory. In H.W. Reese & L.P. Lipsitt (Eds.), Advances in child development and behavior. New York: Academic Press, 1970.

Flavell, J.H., Beach, D.R., & Chinsky, J.M. Spontaneous verbal rehearsal in a memory task as a function of age. Child Development, 1966, 37, 283-299.

Gewirtz, J.L. Mechanisms of social learning. In D.A. Goslin (Ed.), Handbook of socialization theory and research. Chicago: Rand McNally, 1969.

Gottman, J. The effects of a modeling film on social isolation in preschool children. Journal of Abnormal Child Psychology, 1977, 5, 69-78.

Gottman, J., Gonso, J., & Rasmussen, B. Social interaction, social competence, and friendship in children. Child Development, 1975, 46, 709-718.

Gottman, J., Gonso, J., & Schuler, P. Teaching social skills to isolated children. Journal of Abnormal Child Psychology, 1976, 4, 179-197.

- Hagen, J.W., Hargrave, S., & Ross, W. Prompting and rehearsal in short-term memory. Child Development, 1973, 44, 201-204.
- Hagen, J.W., Jongeward, R.H., & Kail, R.V. Cognitive perspectives on the development of memory. In H.W. Reese (Ed.), Advances in child development and behavior, 1975, 10, 57-103.
- Hälverson, C.F., & Waldrop, M.F. Relations between preschool activity and aspects of intellectual and social behavior at 7½. Developmental Psychology, 1976, 12, 107-112.
- Hartup, W.W. Peer interaction and social organization. In L. Carmichael (Ed.), Manual of child psychology. New York: Wiley, 1970.
- Hartup, W.W., & Coates, B. The role of imitation in childhood socialization. In R.A. Hoppe, G.A. Milton, & E.C. Simmel (Eds.), Early experience and the process of socialization. New York: Academic Press, 1970.
- Hartup, W.W., & Coates, B. Imitation: arguments for a developmental approach. In R. Parke (Ed.), Recent trends in social learning theory. New York: Academic Press, 1972.
- Hartup, W.W., Glazer, J.A., & Charlesworth, R. Peer reinforcement and sociometric status. Child Development, 1967, 38, 1017-1024.
- Jakibchuk, Z., & Smeriglio, V.L. The influence of symbolic modeling on the social behavior of preschool children with low levels of social responsiveness. Child Development, 1976, 47, 838-841.

Jennings, K.D. People- versus object-orientation, social behavior and intellectual abilities in preschool children. Developmental Psychology, 1975, 11, 511-519.

Kane, J.S., & Lawler, E.E. Methods of peer assessment. Psychological Bulletin, 1978, 85, 555-586.

Kingsley, P.R., & Hagen, J.W. Induced versus spontaneous rehearsal in short-term memory in nursery school children. Developmental Psychology, 1969, 1, 40-46.

Kohn, M. The Kohn Social Competence Scale and Kohn Symptom Checklist for the preschool child: A follow-up report. Journal of Abnormal Child Psychology, 1977, 5, 249-263.

Kohn, M., Parnes, B., & Rosman, B.L. A rating and scoring manual for the Kohn Problem Checklist and Kohn Social Competence Scale (revised edition). New York: The William Alanson White Institute of Psychiatry, Psychoanalysis & Psychology, 1976.

Kohn, M., & Rosman, B.L. A Social Competence Scale and Symptom Checklist for the preschool child: Factor dimensions, their cross-instrument generality, and longitudinal persistence. Developmental Psychology, 1972, 6, 430-444.

Kohn, M., & Rosman, B.L. Cognitive functioning in five-year old boys as related to social-emotional and background demographic variables. Developmental Psychology, 1973, 8, 277-294. (a)

Kohn, M., & Rosman, B.L. A two-factor model of emotional disturbance

in the young child: validity and screening efficiency. Journal of Child Psychology and Psychiatry and Allied Disciplines, 1973, 14, 31-56. (b)

Kuhn, D. Imitation theory and research from a cognitive perspective. Human Development, 1973, 16, 157-180.

Levine, S., Elzey, F.F., & Lewis, M. California Preschool Social Competency Scale Manual. California: Consulting Psychologists Press, Inc., 1969.

Lewis, M., & Rosenblum, L.A. (Eds.) Friendship and peer relations. New York: John Wiley & Sons, 1975.

Liebert, R.M., & Fernandez, L.F. Effects of vicarious consequences on imitative performance. Child Development, 1970, 41, 847-852.

Marshall, H.R., & McCandless, B.R. A study in prediction of social behavior of preschool children. Child Development, 1957, 28, 149-159.

McCandless, B.R., & Marshall, H.R. A picture sociometric technique for preschool children and its relationship to teacher judgments of friendship. Child Development, 1957, 28, 139-148.

Miller, N.E., & Dollard, J. Social learning and imitation. New Haven: Yale University Press, 1941.

Moore, S., & Updegraff, R. Sociometric status of preschool children related to age, sex, nurturance-giving, and dependency. Child Development, 1964, 35, 519-524.

O'Connor, R.D. Modification of social withdrawal through symbolic

- modeling. Journal of Applied Behavior Analysis, 1969, 2, 15-22.
- O'Connor, R.D. The relative efficacy of modeling, shaping, and the combined procedures for the modification of social withdrawal. Journal of Abnormal Psychology, 1972, 79, 327-334.
- Oden, S.L., & Asher, S.R. Coaching children in social skills for friendship making. Child Development, 1977, 48, 495-506.
- O'Malley, M.J. Research perspective on social competence. Merrill-Palmer Quarterly, 1977, 23, 29-44.
- Peed, S., & Forehand, R. Effects of different amounts and types of vicarious consequences upon imitative performance. Journal of Experimental Child Psychology, 1973, 16, 508-520.
- Perlmutter, M., & Myers, N.A. Development of recall in 2 to 4 year old children. Developmental Psychology, 1979, 15, 73-83.
- Piaget, J. Play, dreams and imitation in childhood. New York: Norton, 1951.
- Piaget, J., & Inhelder, B. Memory and intelligence. New York: Basic Books, 1973.
- Pineo, P.C., & Porter, J. Occupational prestige in Canada. Canadian Review of Sociology and Anthropology, 1967, 4, 24-40.
- Roff, M. Childhood social interactions and young adult bad behavior. Journal of Abnormal and Social Psychology, 1961, 63, 333-337.
- Roff, M., & Sells, S.B. Juvenile delinquency in relation to peer acceptance-rejection and socioeconomic status. Psychology in

the Schools, 1968, 5, 3-18.

Roff, M., Sells, S.B., & Golden, M.M. Social adjustment and personality development in childhood. Minneapolis: University of Minnesota Press, 1972.

Rolf, J. The social and academic competence of children vulnerable to schizophrenia and other behavior pathologies. Journal of Abnormal Psychology, 1972, 80, 225-243.

Ross, D. Relationship between dependency, intentional learning, and incidental learning in preschool children. Journal of Personality and Social Psychology, 1966, 4, 374-381.

Rubin, K.H. Social interaction and communicative egocentrism in preschoolers. Journal of Genetic Psychology, 1976, 129, 121-124.

Shantz, C.U. The development of social cognition. In E.M. Hetherington (Ed.), Review of child development research (Vol. 5). Chicago: University of Chicago Press, 1975.

White, B.L., & Watts, J.C. Experience and environment (Vol. 1). New Jersey: Prentice Hall, 1973.

Wolf, T.M. A developmental investigation of verbalization in observational learning. The Journal of Psychology, 1976, 92, 249-256.

Yarrow, M.R., Scott, P., & Waxler, C.Z. Learning concern for others. Developmental Psychology, 1973, 8, 240-260.

Yussen, S.R. Determinants of visual attention and recall in observational learning: preschoolers and second graders. Developmental Psychology, 1974, 10, 93-100.

Appendix A

Playmate Popularity Ranking

To the Teacher:

We are interested in how popular the children in your class are with their classmates. By popular, we mean being selected often as the preferred playmate by many of the other children.

Please help us by using the spaces below to rank all the children in your class in terms of how much they are preferred as playmates by their classmates. In other words, give the rank of #1 to the child who is most often chosen as a playmate by the greatest number of other children, give the rank #2 to the one who is next most preferred and so on until you reach the last place which is given to the child who is least often chosen as a playmate by his classmates.

We have attached a list of the children in your class. Please use this list in ranking the children to ensure that all children are ranked.

When you have finished, please return this list to the yellow envelope along with the completed Social Competence Scales. We will pick up the envelope on

Thank you very much.

Appendix A (Cont'd)

#1	_____	#19	_____
#2	_____	#20	_____
#3	_____	#21	_____
#4	_____	#22	_____
#5	_____	#23	_____
#6	_____	#24	_____
#7	_____	#25	_____
#8	_____	#26	_____
#9	_____	#27	_____
#10	_____	#28	_____
#11	_____	#29	_____
#12	_____	#30	_____
#13	_____	#31	_____
#14	_____	#32	_____
#15	_____	#33	_____
#16	_____	#34	_____
#17	_____	#35	_____
#18	_____	#36	_____

Appendix B

Child _____ Date _____ Coding # _____

Observer _____ Ob # _____ Rtt _____

Successful/Unsuccessful		Successful/Unsuccessful			
Attention	<input type="text"/>	<input type="text"/>	Attention	<input type="text"/>	<input type="text"/>
Resource	<input type="text"/>	<input type="text"/>	Resource	<input type="text"/>	<input type="text"/>
Leads	<input type="text"/>	<input type="text"/>	Leads	<input type="text"/>	<input type="text"/>
Follows	<input type="text"/>		Follows	<input type="text"/>	
Refuses	<input type="text"/>		Refuses	<input type="text"/>	
Affection	<input type="text"/>		Affection	<input type="text"/>	
Competes	<input type="text"/>	<input type="text"/>	Competes	<input type="text"/>	<input type="text"/>
Time _____			Time _____		
Tone: Neg. Neut. Pos.			Tone: Neg. Neut. Pos.		

Appendix C

Observational Learning Task

The following nine scenes were videotaped using 18 hand puppets, each different in appearance and dress. The first eight scenes are the test scenes, The ninth scene is the practice scene.

Scene 1 - Positive-Positive Social Interaction

Puppet 1 is painting at an easel. Puppet 2 comes over, looks at the painting, and says "Oh, that's beautiful. I Like it."

Puppet 1 then takes the painting from the easel and gives it to Puppet 2 saying "Here, now its for you"..

Scene 2 - Positive-Negative Social Interaction

Two puppets are playing with lettered blocks. Puppet 1 turns toward Puppet 2 with a block in his hands, offers it to Puppet 2 and says "Here, you can have this block". Puppet 2 looks at Puppet 1 and proceeds to knock the block out of his hand saying in an unfriendly tone "I don't want your block".

Scene 3 - Negative-Negative Social Interaction

Both puppets are building with odd-shaped blocks. Puppet 1 notices what Puppet 2 has built and says in a derogatory tone "Oh, what a stupid looking house" and demolishes the structure. Puppet 2, appearing quite upset, says "Hey, you broke my house" and begins to throw blocks at Puppet 1 saying "Here, here, and here" with each throw.

Scene 4 - Negative-Positive Social Interaction

Two puppets are playing with a doctor's kit. Puppet 1 has a

Appendix C (Cont'd)

stethoscope around his neck and is listening to Puppet 2's heart.

Puppet 2 abruptly grabs the stethoscope and says "Hey! Gimme that".

A short tug-of-war ensues over the stethoscope. Puppet 1 then gives it over to Puppet 2 saying "Well, O.K., it's your turn now".

He also proceeds to give Puppet 2 the remainder of the doctor's kit.

Scene 5 - Positive-Positive Social Interaction

Two puppets are eating cookies and drinking juice. Puppet 1 says "Oh, I finished all my cookies". Puppet 2 gives him a cookie saying "Here, you can have mine". Puppet 1 pours some juice and gives a cup to Puppet 2 saying "Here, have some juice". Puppets then munch their cookies and drink their juice.

Scene 6 - Positive-Negative Social Interaction

Puppet 1 is playing with a puzzle. Puppet 2 comes over and says "I can fix puzzles. I'll help you". Puppet 1 looks up at him and says nastily "I don't want your help. Go away." and returns to his puzzle while Puppet 2 slowly backs out of the picture.

Scene 7 - Negative-Negative Social Interaction

Puppet 1 is playing with farm animals. Puppet 2 comes over and also begins to play with the animals. Puppet 1 pushes him away and says "Go away, you can't play with me". Puppet 2 looks very upset and forcefully knocks all the farm animals off the table.

Scene 8 - Negative-Positive Social Interaction

Two puppets are playing with Playdoh. Puppet 1 picks up

Appendix C (Cont'd)

Puppet 2's figurine and throws it back down on the table saying "Yuk, that's ugly! I don't like it". Puppet 2 then says "That's O.K. I don't mind. You're still my friend anyway" and hugs Puppet 1.

Scene 9 - Positive-Negative Social Interaction

Puppet 1 is making a paper airplane. Puppet 2 comes over with a completed airplane, puts it down and says "I can make airplanes. I'll make one for you". Puppet 1 responds by moving towards Puppet 2 but without pushing him and says "No. I don't want your help. Go away. Go away!!".

Appendix D



Sample photograph used in test for recall on the Observational Learning Task.

Appendix E

Family Biography Form

1. Name of child _____
2. Age of child _____
3. Date of birth _____
4. Date of entry at this day care centre (month and year) _____
5. Did your child attend another day care or nursery school
before this one? _____
6. What is mother's occupation? _____
7. What is father's occupation? _____
8. What days of the week and hours of the day does your child
attend the centre? _____

Parent's name _____

Address _____

Appendix F

Breakdown of Centre Means and Analysis of Variance F-ratios for Centre

<u>Social Competence Data</u>	<u>Centre 1</u>	<u>Centre 2</u>	<u>Centre 3</u>	<u>F-ratio</u>
Seeks Peer's Attention - successful	8.5	11.3	8.3	1.46
Seeks Peer's Attention - unsuccessful	8.3	9.0	5.4	2.28
Uses Peer as Resource - successful	5.5	7.1	5.1	.74
Leads Peer - successful	28.8	28.1	26.1	.25
Leads Peer - unsuccessful	9.1	9.6	9.8	.05
Follows Peer's Lead	39.7	31.1	39.8	1.29
Refuses to Follow Peer's Lead	5.7	6.7	5.8	.26
Shows Affection to Peer	16.9	19	13.7	1.22
Time in Interaction (minutes)	19.9	22.8	18.9	.80
Positive Tone	13.8	11.7	11.2	.85
Neutral Tone	14.5	18.7	15.8	1.47
Kohn Factor I	12.5	22.9	12.8	.21
Kohn Factor II	171.2	158.9	148.2	3.04
Peer Popularity	.147	.113	.11	.63
Teacher Popularity Rank	.44	.45	.53	.40

Appendix F (Cont'd)

<u>Observational Learning Data</u>	<u>Centre 1</u>	<u>Centre 2</u>	<u>Centre 3</u>	<u>F-ratio</u>
Total Events	8.5	9.7	9.6	.32
Positive Events	3.4	4.0	4.1	.36
Negative Events	5.2	5.7	5.5	.20
Total Pairs	3.0	2.8	3.5	.42
Positive-Positive Pairs	.5	.9	.8	.47
Negative-Negative Pairs	1.0	.6	1.1	1.50
Antecedent Events	3.9	5.4	4.8	.126
Consequence Events	4.6	4.3	4.8	.19
Positive Antecedents	1.5	2.1	1.9	.67
Negative Antecedents	2.5	3.3	2.5	1.56
Positive Consequences	1.9	1.9	2.2	.20
Negative Consequences	2.7	2.4	2.7	.18
Positive-Negative Pairs	.73	.86	.88	.13
Negative-Positive Pairs	.73	.57	.73	.13

Appendix F (Cont'd)

<u>Demographic Variables</u>	<u>Centre 1</u>	<u>Centre 2</u>	<u>Centre 3</u>	<u>F-ratio</u>
Age	52.5	54.3	54.8	1.5
I.Q.	92.6	103.7	102.1	1.9
SES	44.3	38.2	55.3	3.9*
Length of Time in Current Daycare Centre	13.4	25.6	19.7	2.84

* $p < .05$ (df = 2, 41)

Appendix G
Analysis of Variance F-ratios for
Order of Presentation

<u>Observational Learning Data</u>	<u>F</u>
Total Events	1.01
Positive Events	1.04
Negative Events	1.49
Total Pairs	1.46
Positive-Positive Pairs	1.29
Negative-Negative Pairs	3.20**
Antecedent Events	1.23
Consequence Events	.74
Positive Antecedents	1.17
Negative Antecedents	1.58
Positive Consequences	.94
Negative Consequences	1.16
Positive-Negative Pairs	1.90
Negative-Positive Pairs	.97

** $p < .01$ (df = 7, 36)