Modeling Emotional, Cognitive, and Behavioral Predictors of Peer Acceptance

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Integrating principles of differential emotions theory and social information-processing theory, this study examined a model of emotional, cognitive, and behavioral predictors of peer acceptance in a sample of 201 early elementary school-age children (mean age = 7 years, 5 months). A path analytic model showed that social skills mediated the effect of emotion knowledge on both same- and opposite-sex social preference, but social skills and verbal ability were more strongly related to opposite-sex peer acceptance. These findings suggest that adaptive social skills constitute a mechanism through which children express their emotion knowledge and achieve peer acceptance. Results also supported findings of previous studies that showed that emotion knowledge mediated the effect of verbal ability on social skills. Findings from the present study have specific implications for emotion-centered prevention programs that aim to improve children’s socioemotional competence and enhance the likelihood of peer acceptance.

INTRODUCTION

Social scientists have long considered positive peer relationships and acceptance among one’s peers as important developmental achievements. Sullivan (1953) suggested that childhood and preadolescent peer experiences provide important opportunities for learning such skills as cooperation, empathy, and altruism. Children and adolescents who are liked by their peers have more close friends, are more academically successful, and participate in more extracurricular activities than those who have lower status (Franzoi, Davis, & Vasquez-Suson, 1994; Wentzell & Caldwell, 1997). When children begin formal schooling, peer relationships become particularly salient. In the past 3 decades, researchers have identified a number of factors that predict peer acceptance in early and middle childhood, including cognitive and social problem-solving ability, prosocial behavior, emotion regulation, and emotion knowledge (Denham, McKinley, Couchoud, & Holt 1990; Eisenberg et al., 1997; Hubbard & Coie, 1994; Parke et al., 1997; Rubin & Daniels-Beirness, 1983; Rubin, Daniels-Beirness, & Hayvren, 1982). However, few researchers have examined the complex relations among these predictors of peer acceptance in middle childhood and evaluated their simultaneous effects. The present study investigated the direct and indirect contributions of verbal ability, emotion knowledge, and social skills in an integrated model of peer acceptance in first and second graders during the course of a school year.

Principles of differential emotions theory (DET; Izard, 1991, 1993) and social information-processing theory (Crick & Dodge, 1994) guide the conceptualization of peer acceptance and its predictors in middle childhood. Differential emotions theory posits that the formation of adaptive intersystem connections between emotions and cognitions enables appropriate activation, modulation, and utilization of emotions, which are essential to healthy social transactions and the development of social bonds (Izard, 2001). Principles of DET can be integrated into existing models of social information processing that predict social adjustment but often do not explicitly incorporate emotion processes (Lemerise & Arsenio, 2000). For example, one could extend Crick and Dodge’s (1994) model of social information processing. In such an extension, emotion memories and emotion-related skills are assumed as a part of the child’s functioning database of social information (Lemerise & Arsenio, 2000). In this integrated social information-processing model, emotion memories provide information about past experiences, and emotion–cognition connections enable the activation of emotions pertinent to the situation. Skills in recognizing and labeling emotions contribute to accuracy in the encoding and interpretation of social cues (Lemerise & Arsenio, 2000). Emotion modulation and constructive utilization of emotion motivation contribute to prosocial responses during clarification of goals and response generation and evaluation, as well as during behavior enactment.

In early childhood, emotions and cognitions begin to form connections at a rapid rate. Language serves as the chief means for the formation of these intersystem connections, providing children with the ability...
to label and communicate about emotions. By the end of early childhood, most children have a functional emotion vocabulary and the ability to identify basic emotions in themselves and others on the basis of situational, behavioral, and facial cues (Fabes, Eisenberg, Nyman, & Michaliev, 1991; Waern, 1977). These emotion–cognition connections become part of the child’s working database, automatically accessed every time the child encodes and interprets social cues (Izard, 2002; Lemerise & Arsenio, 2000).

Empirical evidence supports the connection between emotion knowledge—which includes such skills as accurately perceiving and understanding emotion signals in oneself, others, and various contexts (Izard, 2001)—and verbal ability, an important component of cognitive ability (Izard et al., 2001; Schultz, Izard, & Ackerman, 2000). In three studies that used a sample of Head Start children, preschool and first grade verbal ability predicted several facets of emotion knowledge (Izard et al., 2001; Izard, Schultz, Fine, Youngstrom, & Ackerman, 2000; Schultz et al., 2000). Children high in verbal ability are more able to use emotion vocabulary, discuss emotions, and handle negative emotions effectively (Cook, Greenberg, & Kusche, 1994; Cutting & Dunn, 1999; Smith & Walden, 1998). These emotion-related skills facilitate children’s ability to harness the inherently adaptive motivational qualities of emotions (Izard, 2002) and effectively utilize them in social interactions with peers. For example, when interacting with a peer who is sad, one must be able to correctly recognize and label the child’s sadness, effectively modulate one’s own vicarious emotions, and respond appropriately with socially adaptive comforting behavior. Thus, verbal ability is a key contributor to emotion knowledge, which in turn enables children to maneuver successfully in their social environment.

Because emotion knowledge may represent the proximal process through which verbal ability predicts social skills, emotion knowledge was examined as a mediator of the relation between verbal ability and social skills. Children high in verbal ability may be more able to learn emotion cues and communicate emotion information verbally, and this may facilitate positive social interactions. In contrast, children low in verbal ability may have difficulty learning and incorporating emotion vocabulary into their speech, and their social interactions may suffer as a result. In a previous study, emotion knowledge mediated the effect of cognitive ability on adaptive social behavior (Izard, Schultz, et al., 2000). Thus, we expected findings in the present study to parallel previous research in showing that emotion knowledge mediates the effect of verbal ability on social skills.

Emotion knowledge facilitates adaptive social behavior by increasing the likelihood that accurately perceived social cues will activate emotions appropriate to the ongoing transaction (Izard, 1991, 1993). Ability to access appropriate emotion memories, recognize and label emotion cues in facial expressions and emotion-eliciting situations, and encode one’s own emotions predicted parent and teacher ratings of adaptive social behavior and social judgment (Cusmariu & Feldman, 1989; Garner, 1996; Izard et al., 2001; Izard, Schultz, et al., 2000; Nowicki & Duke, 1994). Once children accurately perceive a peer’s emotion, they must adaptively modulate their own emotional response to it. Efficient modulation or regulation of on-line emotion enables response generation and evaluation of multiple solutions to social situations (Lemerise & Arsenio, 2000), and has been shown to predict social competence from early to late childhood (Eisenberg et al., 1997; Rubin, Coplan, Fox, & Calkins, 1995).

During social interactions, emotion knowledge also promotes appropriate utilization of salient emotions that contribute to prosocial behaviors (Izard, Ackerman, Fine, & Schoff, 2000). The construct of empathy typifies this link between emotion knowledge and subsequent adaptive social behavior. Empathy requires emotion knowledge because one must be able to decode and label the other person’s emotion experience to share and articulate it vicariously (Eisenberg & Fabes, 1995; Saarni, 1997). The ability to perceive emotional content in faces, abstract designs, and colors correlated highly with the ability to empathize (Mayer, DiPaolo, & Salovey, 1990). Empathy can play a role in the response decision stage of social information processing, allowing children to consider others’ feelings and perspectives when choosing a socially appropriate response to a peer. Thus, emotion knowledge and related emotional processes directly influence social behavior. This study examined the relation between emotion knowledge and social skills, a construct that likely represents some of the behavioral features of children’s ability to modulate their emotions and empathize with others.

As children age and spend more time in school with other children, use of emotion knowledge in appropriate social behavior may become increasingly important to peer relationships. Facets of emotion knowledge, such as accuracy in perceiving emotion cues in provocative situations, ability to recognize and label emotion expressions, and ability to identify causes and logical responses to emotions, predicted peer acceptance in past studies (Cassidy, Parke, Bukovsksky, & Braungart, 1992; Denham et al., 1990; Edwards, Manstead, & Macdonald, 1984; Garner, Jones,
& Miner, 1994; Walden & Field, 1990). However, in the path from emotion knowledge to social preference, social behavior may represent the proximal process through which emotion knowledge affects social preference (Arsenio, Cooperman, & Lover, 2000). The present study examined social skills as a mediator in the relation between emotion knowledge and peer acceptance.

Peer acceptance may provide the best index of children’s social functioning. Children who are accepted by their peers tend to show better school adjustment, have higher quality friendships, and generally exist in a richer social environment than their low-status classmates (Franzoi et al., 1994; Ladd, Kochenderfer, & Coleman, 1997; Parker & Asher, 1993). Socially accepted children are friendlier, more cooperative, more helpful, more sociable, and more able to initiate and maintain social interactions and coherent discourse than their low-status classmates (Coe, Dodge, & Kupersmidt, 1990; Dekovic & Gerris, 1994; Denham & Holt, 1993; Hartup, 1992; Kemple, Speranza, & Hazen, 1992; Parke et al., 1997). Furthermore, although popular children may be assertive, these children do not interfere with others’ goals and actions (Rubin, Bukowski, & Parker, 1998).

Evidence suggests a strong connection between children’s social skills and peer status (e.g., Denham et al., 1990; for a review, see Newcomb, Bukowski, & Pattee, 1993). Effective social information processing, including skills that require emotion knowledge, likely contributes to children’s social skills. Dodge and Price (1994) found that in middle childhood, particular patterns of social information processing (e.g., accurately encoding and interpreting nonhostile and hostile cues, generating nonaggressive responses, and evaluating and enacting responses competently) predicted behavioral competence. Furthermore, socially cooperative children displayed more prosocial problem-solving skills—an aspect of social information processing—when compared with anxious-withdrawn children (Stewart & Rubin, 1995). Children who were adept at social problem solving tended to be more accepted by their peers (Rubin & Daniels-Beirness, 1983; Rubin et al., 1982).

Verbal ability and social problem solving are related constructs (Coy, Speltz, DeKlyen, & Jones, 2001), and both are connected to emotion processes and adaptive social behavior. Utilization of appropriate words enables interpretation and communication of emotion and social cues and implementation of appropriate social information-processing strategies, thus facilitating positive social interactions. Previous researchers have established relations between cognitive factors and peer acceptance. Intelligent and academically competent children tended to have higher sociometric status than did less intelligent children (Bellanti & Bierman, 2000; Field & Walden, 1982; Roff, Sells, & Golden, 1972). These considerations led us to hypothesize that verbal ability, the facet of cognitive ability used in the present study, affects peer acceptance.

The current study also evaluated the effects of age and sex on the links among children’s verbal ability, emotion knowledge, social skills, and peer acceptance. Evidence suggests that age and sex indirectly affect peer acceptance through their direct influence on other variables in the model. The ability to understand one’s own and others’ emotions increases with age (Denham, 1998; Denham et al., 1990; Schultz et al., 2000; Walden & Field, 1990). For example, children first learn to differentiate happy from “not happy” situations, and then they learn to distinguish between sad, angry, and fear situations (Denham, 1998).

Previous research suggests that females are more skilled in many facets of emotion knowledge than are males (Casey, 1993; Hall, 1984; Schultz et al., 2000). Studies using self-reports and others’ reports have shown that girls consistently behave at least somewhat more prosocially than do boys. Gender differences are especially large for behaviors that relate to kindness and consideration (Eisenberg & Fabes, 1998). Teachers consistently rate girls as more prosocial than boys (Denham et al., 1990). Thus, in the current study, girls were expected to have a higher emotion knowledge and to be rated as more socially skilled than boys.

When examining correlates of peer status, researchers should account for sex biases involved in peer nominations (e.g., Chimienti, 1997). In kindergarten through third grade, children rated same-sex peers as more liked than opposite-sex peers, and girls demonstrated more “cross-sex negativity” than boys when rating their opposite-sex peers (Hayden-Thomson, Rubin, & Hymel, 1987). Throughout elementary school grades, negative evaluations of opposite-sex peers appeared to intensify for both boys and girls (Hayden-Thomson et al., 1987). These findings suggest the importance of including two measures of peer acceptance in the present sample of early elementary school-age children: one that accounted for acceptance by same-sex peers, and one that accounted for acceptance by opposite-sex peers. Incorporating these two measures in models of peer acceptance made it possible to investigate differences in relations among constructs when predicting same- and opposite-sex social preference.

The foregoing considerations illustrate the value of peer acceptance to children’s social adjustment and outline the connections between various predictors of
peer acceptance. Still absent from the literature is an integrated model of how these factors operate in the formation of peer acceptance. The current study used path analysis to evaluate emotional, cognitive, and behavioral predictors of peer acceptance. We expected our integrated model to clarify the complex relations among the various predictors of peer acceptance, elucidate how predictors are the same or different for same- and opposite-sex peer nominations, and show that the roles of emotion knowledge and social skills may have specific implications for preventive intervention programs.

We hypothesized that age would predict emotion knowledge, and sex would predict both emotion knowledge and social skills. We also expected to demonstrate that emotion knowledge would mediate the relation between verbal ability and social skills, verbal ability would predict peer acceptance, and social skills would mediate the relation between emotion knowledge and peer acceptance.

Because children’s ability to accurately perceive emotions should enable them to behave prosocially, we expected to find that emotion knowledge measured at the beginning of the school year would predict social skills measured at the end of the school year. However, an alternate hypothesis exists. As the school year progresses, socially skilled children may engage in more productive social transactions than do their less socially skilled classmates. The resulting social transactions may provide children with more opportunities to learn how to detect and decode their own and others’ emotions. Thus, in establishing our integrated model, it was necessary to evaluate the potential bidirectionality of the relation between emotion knowledge and social skills.

In the same vein, we expected to demonstrate that social skills would predict peer acceptance. An alternative hypothesis is that social preference predicts children’s social skills. Children who are accepted by their peers may have more opportunities to engage in healthy social transactions and to learn and practice appropriate social behaviors. Therefore, the potential bidirectionality of social skills and peer acceptance was examined in formulating our model of emotional, cognitive, and behavioral predictors of peer acceptance.

**METHOD**

**Participants**

The sample included 201 first and second graders. All of these children attended elementary school in a rural Delaware school district, received permission from their parents to participate in the study, and remained in the schools from fall (Time 1; T1) to spring (Time 2; T2). The consent rate for the initial sample was 67%. Three hundred twenty-four students were invited to participate in the study, and 216 students received permission from their parents. Throughout the school year, 10 children (less than 5% of the initial sample) attrited from the sample. Of the 216 children who were tested in the T1 evaluation, 206 remained in the school and participated in the T2 evaluation. Independent samples t tests revealed no differences on T1 measures of verbal ability, emotion knowledge, social skills, and same- and opposite-sex social preference between those students who remained in the sample and those who left throughout the year.

For the present study, 5 children from the remaining total sample of 206 children were omitted: 2 students’ scores were extreme outliers, and 3 children’s responses showed a strong response bias. Of the 201 children in the present sample, 53% were male, and 47% were female. Eighty-five percent of the children were European American, 13% were African American, and the remaining 2% were Hispanic American. The mean age at T1 was approximately 7 years, 5 months. One hundred thirty-nine students were in second grade, and 62 were in prefirst or first grade.

Children who participated in the study came from a rural school district that serves two small towns. School administrators and town officials characterized both towns as rural, middle-class communities, where parents were commonly employed as farmers and industry workers. Thirty percent of the student enrollment received free or reduced-price meals. For example, a family of four earning less than or equal to $30,895 qualified.

**Procedure**

Data were collected as part of a pilot project designed to evaluate a preliminary form of a preventive intervention program (Izard & Bear, 1999). Measures administered in the fall served as the pretest (T1) data. Measures administered in the spring, after half of the students received the intervention, served as the posttest (T2) data. Analyses revealed no significant overall changes in children’s emotion knowledge, social behavior, or peer acceptance. Because no differences between treatment and control participants were found, both groups were included in the analyses for the present study.

Fifteen undergraduates administered the assessment battery in the fall and spring of the 1999–2000 school year. Undergraduate examiners were trained on standardized procedures to ensure that the measures were administered in the same manner to each child. The
testing sessions occurred in empty classrooms or in quiet areas of the hallways of the schools. Each evaluation session lasted about 45 min, which included time for the examiner to establish rapport with the child. In addition, teachers completed various measures to evaluate each student in the fall and in the spring. Teachers were paid $40 for each child they evaluated.

Child Measures

Verbal ability. The Stanford-Binet vocabulary subtest (Thorndike, Hagen, & Sattler, 1986) was used to assess children’s verbal ability. Specifically, this subtest measures expressive vocabulary. In this subtest, examiners asked children to describe a picture or define a particular word, and items increased in difficulty as the test progressed. Two undergraduate researchers independently rated each child’s answers. If there was a discrepancy between coders, a graduate student coded the response. Coders gave each correct response 1 point, and all points were added to attain a raw score. Raw scores were then converted into Standard Age Scores using the manual’s conversion score table. Standard Age Scores are normalized standard scores, with a mean of 50 for each age group and a standard deviation of 8 (Thorndike et al., 1986). This subtest demonstrates adequate internal consistency, \( \alpha = .78 \), for 6-year-olds. The Stanford-Binet vocabulary subtest was administered in the fall.

Assessment of Children’s Emotion Skills. Examiners administered the three Assessment of Children’s Emotion Skills (ACES; Schultz, Izard, & Bear, 2002) subscales to all children to assess emotion perception skills. The first subscale, facial expression, assessed children’s ability to understand other children’s facial expressions. Examiners showed each child 26 color photographs of children’s faces conveying different emotion expressions. The children in the pictures were of multiple races and were all of elementary school age. The examiner showed each picture and asked the participant if the child in the picture was feeling happy, sad, mad, scared, or had no feeling.

The second and third subscales, emotion behaviors and emotion situations, each contained 15 vignettes. Participants reported whether the child in these vignettes felt happy, sad, mad, scared, or had no feeling. Vignettes for these two subscales describe behaviors or situations that reflect the functions of emotions, according to DET (Izard, 1991, 1993). For example, one vignette in the emotion behaviors subscale that conveys happiness describes a girl skipping down the hallway and whistling. One vignette in the emotion situation subscale that relates to sadness describes a boy who drops his ice cream cone after one lick.

For each of the three subscales, a total subscale score was calculated by adding the correct answers on the unambiguous joy, sadness, anger, and fear items. Each of the three subscale scores were then standardized and added together to attain a total emotion perception accuracy score. The items used to calculate the total emotion perception accuracy score had moderate internal reliability, \( \alpha = .68 \). The “no feeling” items and ambiguous items were not included in the emotion perception accuracy score. The emotion perception accuracy score from the T1 administration of ACES served as the current study’s measure of emotion knowledge.

Sociometric status. An interview based on the one developed by Coie, Dodge, and Coppotelli (1982) was used to measure peer sociometric status. Examiners asked children to report the children in their class whom they “like a lot” and the children in their class whom they “don’t like very much.” Unlike the original interview developed by Coie et al. (1982) in which children were asked to nominate only three classmates, children in the current study nominated an unlimited number of classmates whom they liked and disliked. Examiners reminded the children before and after that their answers would not be shared with anyone.

The same-sex nominations for being liked and the same-sex nominations for being disliked that each child received were summed and then standardized within sex and class. Likewise, the opposite-sex nominations for being liked and the opposite-sex nominations for being disliked that each child received were summed and then standardized within sex and class at each time period.

At each time point, two social preference scores were calculated for each child. The first one, same-sex social preference, was computed by subtracting the standardized number of same-sex nominations each child received for being disliked from the same-sex nominations the child received for being liked. These same-sex social preference scores were then standardized within sex and class. The second score, opposite-sex social preference, was computed by subtracting the standardized number of opposite-sex nominations each child received for being disliked from the opposite-sex nominations the child received for being liked. Opposite-sex social preference scores were also standardized within sex and class. According to Terry (1999), if 40% of the children in each classroom participate in the peer nomination measure, the unlimited approach to peer nomination can produce reliable and valid data. In the current study, 95% of the 201 children included in the analyses were in classes in which there was at least 40% participation in their sex group. For the remaining 5% of the sample, children
came from classrooms in which 38.5% of children in their sex group participated. The current study used the same-sex and opposite-sex social preference scores from the spring (T2) to determine peer acceptance.

Teacher Measure

Teachers completed the Social Skills Rating System (SSRS; Gresham & Elliott, 1990) to evaluate children on the following broad dimensions: social skills, problem behaviors, and academic competence. The social skills scale contains three subscales: cooperation, assertion, and self-control. The cooperation subscale evaluates behaviors such as sharing with peers and helping others, following directions at school, transitioning easily between classroom activities, and finishing work on time. The assertion subscale measures how well children are able to initiate behaviors such as introducing themselves to others, making friends, inviting peers to join in, and responding appropriately to others’ actions. The self-control subscale evaluates how children react in conflict situations with peers and adults. Items measure how well children can accept others’ ideas during group activities, control their temper in peer and teacher conflict situations, and respond to teasing or peer pressure appropriately.

The problem behavior scale consists of three subscales: externalizing, internalizing, and hyperactivity. Lastly, an academic competence scale measured each child’s success and motivation in the classroom. The published α coefficients for the SSRS scales are as follows: .94 for the 30-item social skills scale, .88 for the 18-item problem behaviors scale, and .95 for the 9-item academic competence scale (Gresham & Elliott, 1990). The current study used the social skills scale from the T2 administration of the SSRS to determine children’s social skills.

RESULTS

Descriptive Statistics

Table 1 displays descriptive statistics and Table 2 displays intercorrelations between all of the variables in the models. Verbal ability was significantly related to T1 emotion knowledge, T2 social skills, and T2 same- and opposite-sex peer acceptance. T1 emotion knowledge was significantly related to T2 social skills and both T2 same-sex peer acceptance and T2 opposite-sex peer acceptance. In addition, the concurrent relations between T2 social skills and T2 same-sex peer acceptance and T2 social skills and T2 opposite-sex peer acceptance were significant.

Model Estimation

The relation between emotion knowledge and social skills. To investigate potential bidirectionality of influence...
between emotion knowledge and social skills, a cross-lag path analysis that included T1 and T2 measures of these two constructs was performed. This cross-lag path analysis, Model 1 (presented in Figure 1), examined the relation between T1 emotion knowledge and T2 social skills and the relation between T1 social skills and T2 emotion knowledge. The model controlled for the effects of T1 emotion knowledge on T2 emotion knowledge and T1 social skills on T2 social skills. The model indicated that T1 emotion knowledge predicted T2 social skills, $\beta = .12, p < .01$, but T1 social skills did not predict T2 emotion knowledge, $\beta = .07, p > .05$. Table 3 provides fit indices for all models.

Integrated models of relations among predictors of peer acceptance. The second analysis, Model 2, investigated the complex relations among emotional, cognitive, and behavioral predictors of same-sex peer acceptance. Emotion knowledge was investigated as a mediator of the relation between verbal ability and social skills, and social skills was investigated as a mediator of the relation between emotion knowledge and same-sex peer acceptance. This model included verbal ability, the T1 measurement of emotion knowledge and T2 social skills on T2 social skills. The model indicated that T1 emotion knowledge predicted T2 social skills, $\beta = .12, p < .01$, but T1 social skills did not predict T2 emotion knowledge, $\beta = .07, p > .05$. Table 3 provides fit indices for all models.

### Table 2: Intercorrelations between All Variables in Models

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*p < .05; **p < .01; *p < .10.

![Figure 1](image.png)  
**Figure 1** Model 1: Cross-lagged model of emotion knowledge and social skills. T1 = Time 1; T2 = Time 2. **p < .01.

### Table 3: Fit Indices for All Models

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<th>$\chi^2$</th>
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<th>CFI</th>
<th>TLI</th>
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Note: RMSEA = root mean square error of approximation; CFI = comparative fit index; TLI = Tucker-Lewis index.

*p < .05.
Table 4 Path Coefficients for Models 2 and 4

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<th>Model 4</th>
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Note: T1 = Time 1; T2 = Time 2.
*p < .05; **p < .01.

Verbal ability predicted T1 emotion knowledge, and both T1 emotion knowledge and T1 social skills predicted T2 social skills. In addition, age predicted T1 emotion knowledge, and sex predicted T2 social skills. Both T1 same-sex peer acceptance and T2 social skills predicted T2 same-sex peer acceptance. Several paths had nonsignificant effects. T2 same-sex peer acceptance did not predict T2 social skills, β = −.04, p > .10. Sex did not predict T1 emotion knowledge. Verbal ability did not predict T2 same-sex peer acceptance. The model showed evidence of two mediational relations: T1 emotion knowledge mediated the relation between verbal ability and T2 social skills, and T2 social skills mediated the relation between T1 emotion knowledge and T2 same-sex peer acceptance.

To increase the model’s parsimony, nonsignificant effects were removed, including the path from sex to T1 emotion knowledge, the path from T2 same-sex peer acceptance to T2 social skills, and the path from verbal ability to T2 same-sex peer acceptance. The more parsimonious model, Model 3 (depicted in Figure 2), showed that effects were significant for all remaining pathways. In this final integrated model which predicted same-sex peer acceptance, predictors accounted for 21% of the variance in T1 emotion knowledge, 64% of the variance in T2 social skills, and 20% of the variance in T2 same-sex peer acceptance. The model demonstrated good fit with the data.

The emotional, behavioral, and cognitive predictors of opposite-sex peer acceptance were investigated in Model 4. Model 4 was identical to Model 2, the originally hypothesized model, except that the final outcome was opposite-sex peer acceptance instead of same-sex peer acceptance. As in Model 2, verbal ability predicted T1 emotion knowledge, and both T1 emotion knowledge and T1 social skills predicted T2 social skills. Age predicted T1 emotion knowledge, and sex predicted T2 social skills. Both T1 opposite-sex peer acceptance and T2 social skills predicted T2 opposite-sex peer acceptance. The path from T2 opposite-sex peer acceptance to T2 social skills and the path from sex to T1 emotion knowledge were not significant. Contrary to the model that investigated predictors of same-sex peer acceptance, verbal ability predicted T2 opposite-sex peer acceptance. Model 4 replicated the findings of T1 emotion knowledge as a mediator of the relation between verbal ability and T2 social skills and T2 social skills as a mediator of the relation between T1 emotion knowledge and T2 opposite-sex peer acceptance.

Model 5, shown in Figure 3, presents the final integrated model of the predictors of opposite-sex peer acceptance. To increase the model’s parsimony, the two nonsignificant effects were removed: the path...
from sex to T1 emotion knowledge and the path from T2 opposite-sex peer acceptance to T2 social skills. Effects were significant for all remaining pathways in Model 5, and predictors accounted for 21% of the variance in T1 emotion knowledge, 64% of the variance in T2 social skills, and 30% of the variance in T2 opposite-sex peer acceptance. This model also demonstrated fit with the data.

DISCUSSION

Principles of DET and social information-processing theory guided this study of peer acceptance in middle childhood. Results from the current study provide a useful model for integrating previously unconnected findings on how emotional, cognitive, and behavioral factors lead to peer acceptance in early elementary school children. The findings also support the notion that emotion knowledge mediates the relation between verbal ability and social skills and shows for the first time that social skills mediate the relation between emotion knowledge and both same- and opposite-sex peer acceptance. This model also demonstrated fit with the data.

Mediational Models and Sex Differences

The current study supported the hypothesis that emotion knowledge mediates the effect of verbal ability on social skills. This finding parallels several previous studies that found emotion perception and labeling to be the proximal processes through which cognitive ability affects behavioral outcomes (Izard et al., 2001; Izard, Schultz, et al., 2000). This mediational relation suggests that verbal ability alone does not enable one to process emotion information and respond appropriately and prosocially. Although verbal ability may facilitate the acquisition of emotion knowledge, the findings suggest that accurate emotion perception may help in the processing of emotion and social information necessary for adaptive behavior (Izard, Schultz, et al., 2000). Throughout the stages of social information processing, emotions and cognitions work together to enable children to accurately perceive and interpret social cues, clarify social goals, and decide on and implement socially appropriate responses. Interpreting, modulating, and utilizing emotions enable children to respond prosocially in social situations.

As hypothesized, social skills mediated the effect of emotion knowledge on both same- and opposite-sex peer acceptance. The present study extends earlier research by showing that in early elementary school—where social behavior probably becomes increasingly relevant and important to peer acceptance—social skills mediated the effect of emotion knowledge on peer acceptance. This mediational relation suggests that emotion knowledge plays an important role in both same- and opposite-sex peer acceptance because of its role in motivating social skills.

The current study indexed emotion knowledge as the ability to recognize and correctly label situations that elicit specific emotions, behaviors characteristic of someone who is experiencing a specific emotion, and faces expressing certain emotions. These emotion recognition skills are an important component of the broad construct of emotion knowledge. However, these skills alone do not represent children’s ability to utilize emotion motivation in developing and using social skills. Utilizing emotion information and emotion motivation and appropriately regulating one’s emotions to behave prosocially goes a step beyond accurate perception and emotion labeling. Because prosocial behavior builds social bonds and friendships, this step proves to be crucial in explaining peer acceptance.

Overall, results from the same- and opposite-sex integrated models of peer acceptance were remarkably similar. However, two interesting differences were found. First, results indicated that although social skills predicted peer acceptance for both same- and opposite-sex peer nominations, social skills were more strongly related to acceptance among opposite-sex peers. Second, verbal ability predicted opposite-sex peer acceptance but not same-sex peer acceptance. One possible explanation for both of these findings is
that in middle childhood, opposite-sex peers have fewer common interests and play habits than do same-sex peers, making social skills and cognitive ability more pertinent to acceptance by the opposite sex. Chimienti (1997) found a similar pattern of findings in a sample of Turkish youngsters in middle to late childhood.

Direct Effects

Results from the present study further explain directionality of influence for independent and dependent variables in the models and reveal a number of direct connections between variables. As hypothesized, the results suggest that the relation between emotion knowledge and social skills is primarily unidirectional. The emotion knowledge that children brought to school in the fall appeared to influence their social behavior during the school year, but their social skills in the fall did not significantly predict their emotion knowledge in the spring. Results also showed a unidirectional relation for the concurrent measurement of social skills and both same- and opposite-sex peer acceptance. After spending many months in school, teachers’ beliefs about their students’ behavior and children’s beliefs about their peers’ likability were well established. At the year’s end, children’s peer acceptance did not appear to influence their social skills. However, the children’s social skills influenced their acceptance by both same- and opposite-sex peers.

In addition, a significant direct path was found from age to emotion knowledge. Overall, older children had higher emotion knowledge. This finding is consistent with the theory that emotion perception skills and knowledge of certain emotion-eliciting situations tend to develop in a particular sequence as children grow older (Denham, 1998; Izard, 1971). Finally, results supported the hypothesis that sex directly relates to social skills. As in previous studies, teachers tended to rate girls as more prosocial than boys. Contrary to the hypothesis, however, a significant direct path was not found between sex and emotion knowledge.

Implications

Findings from the present study have specific implications for preventive intervention programs that try to improve children’s social adjustment. The present findings suggest two specific targets for intervention: emotion knowledge and social skills. The emotion knowledge component of a preventive intervention program should include practice at recognizing and understanding one’s own and others’ emotions. The social-skills component should stem from techniques that foster appropriate modulation and utilization of emotion feelings (Izard, 2002). For example, intervention programs could provide children with opportunities to practice empathic responding through role play. Children could be encouraged to use the motivation of vicarious sadness and knowledge of the effects of sadness to respond appropriately to a distressed child with social support and comforting behavior. Training in the utilization of emotion knowledge and emotion motivation in the application of social skills may enhance the likelihood of acceptance by a child’s peer group (Izard, 2002).

Limitations and Directions for Additional Research

A limitation of the present study was the homogeneous, relatively low-risk sample. The sample was primarily European American, middle class, and 6, 7, and 8 years of age. It is not known whether these findings generalize to children of different socioeconomic levels, ethnic groups, or age groups, yet the children living in and around the rural towns where the study occurred may be representative of many middle-class, European American children. In addition to investigating how these findings may apply to children of different levels of socioeconomic status (SES) and racial diversity, long-term longitudinal research that focuses on different age groups could provide valuable information about developmental changes in relations among variables.

Another limitation was the inability to include a number of important constructs in the models that predicted peer acceptance. Relations between variables may have been influenced by distal predictors of peer acceptance not included in the model, such as temperament, emotion regulation, family environment, or relationships with caregivers (for a review, see Rubin et al., 1998). Future path analyses that model behavioral, cognitive, and emotional predictors of peer acceptance may benefit from including indexes of these variables. In addition, future models should include measures of SES, because researchers have previously demonstrated a connection between SES and peer acceptance (Pettit, Clawson, Dodge, & Bates, 1996).

Although the pitfall of method variance was avoided in the models by using different informants for emotion knowledge, social skills, and peer acceptance, each construct was assessed with only one method. Using a multimethod approach to obtain a more robust index of adaptive social behavior and its predictors could strengthen the methodologies of
ACKNOWLEDGMENTS

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ADDRESSES AND AFFILIATIONS

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REFERENCES


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