

Language Ability as a Mediator Between Emotion Regulation and Social Competence
in Second Grade Students

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Author Note

This research was funded by the Psi Chi Undergraduate Grant, awarded Spring 2011.

Abstract

Research suggests that language ability and emotion regulation are positively related to social competence in preschool children. This study examines how these relationships function in early elementary school, and explores the role of language ability as a partial mediator between emotion regulation and social competence. Second-grade students ($N = 67$) completed an assessment of receptive vocabulary, and classroom teachers completed ratings on emotion regulation and social skills. Results show strong relationships between emotion regulation skills and social competence and between language skills and aspects of social competence. There were gender differences in the strength of the relationships between these variables; the relationships were stronger for girls than boys. However, language did not mediate the relationship between emotion regulation and social competence. Additional research should contrast the changing role of language skills in the development and expression of social competence as children mature from preschoolers to early elementary school students and further investigate gender differences in the relationships between these constructs.

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Social competence has important implications for child development. Children with good social skills are better prepared for school, achieve at higher levels than their peers, and in general have more positive interactions (Ladd, 1990; Ladd, Kochenderfer, & Coleman, 1997). One measure of social competence is peer ratings. Kindergarten students who were preferred by their peers also enjoyed school more and had better attendance records than children who were not as well liked (Ladd et. al, 1997). Cavell (1990) proposed a three-tiered model of social competence that includes social adjustment (reaching age-appropriate landmarks), social performance (demonstrating characteristics in social situations that adults judge as socially skilled), and social skills (characteristics that enable a child to act appropriately). Cavell (1990) also identified peer acceptance as a product of social competence. Children who demonstrate the qualities in Cavell's (1990) model enjoy superior academic achievements and have more positive relationships that give rise to greater peer preference ratings. Considering those findings, the present study investigated the mechanisms involved in the development and execution of socially competent behavior in second grade students.

Language Ability and Social Competence

Language ability is essential for social competence because children must understand others and communicate in order to demonstrate their social skills (Gallagher, 1993). Through interaction with peers, children learn to ask questions, to listen, and to relate to others' situations. By practicing those skills, children develop friendships and become comfortable using their skills in any situation. Research suggests that receptive vocabulary in particular is more

important in nominations of peer status than age or intelligence, and children prefer to interact with peers with normal or above-average receptive vocabulary skills (Gertner, Rice, & Hadley, 1994). Among language-impaired children, those with better receptive vocabulary abilities score higher on peer preference tests than other children who are also language impaired (Gertner et al, 1994). Receptive language ability has also been linked to higher teacher ratings of social competence (Longoria, Page, Hubbs-Tait, & Kennison, 2009) and several prosocial behaviors, such as comforting or sympathizing with others, cooperating, and helping (Cassidy, Werner, Rourke, & Zubernis, 2003). In order to successfully demonstrate these behaviors, children must be able to recognize when to use them, or exemplify the social performance aspect of Cavell's (1990) model. Language is thus important in developing emotion expression knowledge, which is the ability to identify emotional expressions, and emotion situation knowledge, the ability to match emotional labels with context (Schultz, Izard, & Ackerman, 2001). In essence, language ability is necessary for both of these tasks.

Advanced language ability is not only related to positive behavior; research suggests that children with language deficits are not as socially skilled as their normally developing peers. Teachers were more likely to rate children with language difficulty as less socially mature and less intellectual than their peers (Rice, Hadley, & Alexander, 1993). Gertner et. al (1994) found that children with language or speech impairments were less accepted among their peers, and peer rejection has been linked to negative outcomes such as emotional maladjustment and juvenile delinquency (Denham & Holt, 1993; DeRosier, Kupersmidt, & Patterson, 1994). Deficits in comprehension lead to a lack of responsiveness when others initiate play, and as a result other children spend less time attempting to engage language delayed peers (Cohen & Mendez, 2009). Because those children receive less attention, they are perceived as less socially

competent, which leads to further decreases in opportunities to develop their social skills.

Language deficits have been linked to psychiatric issues in late childhood and adolescence, particularly ADHD (Cohen, Davine, & Meloche-Kelly, 1988; Beitchman, 1985). Children who are excessively hyperactive would fail to demonstrate the social performance component of Cavell's (1990) model, and as a result would likely lack in the model's social adjustment realm as well. In addition, children who are language delayed also show more behavioral problems than their normally developing and advanced peers (Gallagher, 1999; Beitchman, 1996; Camarata, Hughes, & Ruhl, 1988). In a longitudinal study, Lahey, Loeber, Frick, Hart, and Applegate (1995) found that teenage boys who did not verbalize well exhibited more antisocial behaviors over four years compared to teens with better verbal skills. Gallagher (1999) reported that children with behavioral problems have difficulty introducing and maintaining conversation topics, say and hear fewer positive phrases in interaction, and have trouble adjusting language output to listener needs. Children with language deficits are less socially skilled because they lack the means to develop and demonstrate the skills necessary to meet the criteria for social competence.

Emotion Regulation and Social Competence

Emotion regulation, like social competence, is a broad, multifaceted construct. Eisenberg (2004) defines it as initiating, avoiding, inhibiting, maintaining, or adjusting any part of an internal-feeling state, physiological process related to emotion, or emotion-related goal. In short, emotion regulation involves tailoring behavior to accommodate a feeling or desire to have a feeling. Regulation includes effortful control, or the ability to inhibit one response in favor of another, and social cognition, the ability to identify others' emotions as important components of regulation (Eisenberg, 2001; Eisenberg, 2004; Spinrad et. al, 2006). Here a distinction must be

made between emotion lability, which refers to the volatility of emotion and negative emotions, and emotion regulation, which refers to adaptive emotional behavior. Internal state language, or a form of self-awareness, is a factor that contributes to emotion regulation (Cole, Armstrong, & Pemberton, 2010). Internal state language allows children to discuss their experiences and tailor their behavior to the prevailing social environment, enabling them to better regulate their emotions. This leads to more positive relationships.

Children who regulate their emotions well generally have more positive social interactions with their peers and are more likely to be classified as socially competent. Eisenberg et. al (1993) found that preschool boys' social status as rated by teachers and aides was positively related to attentional control and constructive coping, while it was negatively related to negative affect, emotional intensity, and acting-out coping. This means that boys who could maintain attention and who dealt with stress in appropriate ways were rated higher in social status than their peers who did not score as high in those areas. Additional research supported these findings by showing that teachers gave higher popularity ratings to children who understood social situations and displayed more prosocial behavior than their peers (Denham, McKinley, Couchoud, & Holt, 1990). Children who are sympathetic can regulate their own emotions well because they utilize two main strategies for coping: problem-focused, or modifying the source of stress, and emotion-focused, or reducing emotional distress (Eisenberg & Fabes, 1992). By utilizing these strategies, children become more popular with peers and adults view them as socially competent.

Language Ability as a Mediator Between Emotion Regulation and Social Competence

There is strong support for the nexus between language ability and social competence, and between emotion regulation and social competence, but previous research has not

investigated the possibility that language ability partially mediates the relationship between emotion regulation and social competence. Children's vocabulary affords them the ability to discuss their experiences while understanding others' experiences and feelings. This leads to meaningful interactions that develop into friendships, and consequently those children who engage in those interactions are considered socially competent. In addition, children with the ability to 'self-soothe' or use mechanisms to adjust their internal state can cope with stress effectively. The capacity to 'self-soothe' is rooted in language ability because children can use internal state language (Cole et. al, 2010). Finally, children who regulate emotions well as a result of their language development display more prosocial behavior than children who do not regulate well, and thus are more socially competent (Eisenberg & Fabes, 1992). Discerning the mechanism by which emotion regulation is related to social competence could have implications for the understanding of the development of social competence and subsequently for prevention of and intervention in behavioral issues in early elementary school. If language ability mediates this relationship, intervention programs may wish to focus on improving children's language skills..

Much of the research regarding verbal ability and emotion and social skills is limited because it concerns preschool children, or assessed children in preschool or kindergarten and followed up years later. Cassidy et. al's (2003) study on prosocial behavior pertained to three to five-year-olds, as did Eisenberg's et. al's (1993) evaluation of emotion regulation. Beitchman (1996) waited seven years before linking children's language ability at age five with social competence at age 12. Cohen & Mendez (2009) tied deficits in comprehension to a lack of responsiveness in Head Start students, and Denham et. al's (1990) finding on popularity ratings and prosocial behavior resulted from work with students in a university preschool. Research on

pre-school children often used peer play trajectories in investigating social competence (Cohen & Mendez, 2009; Mendez et. al, 2002). The present study further contributes to the literature on social competence by utilizing teacher reports on children's global functioning, and by assessing seven and eight-year-old children.

Investigating a young elementary age population will contribute to our understanding of how social competence develops as children transition to elementary school. Elementary school presents new challenges that could affect a child's development: children are evaluated on performance in the classroom, and are subject to different expectations than in preschool. Their experiences with teachers and peers are different than in preschool or kindergarten. Teachers are expected to facilitate learning in preparation for standardized testing, and friendships result from interaction other than play partnership. The development and relationships between affect, behavior, and language grow more complex, and the cognition involved in understanding others as well as expressing oneself becomes more important (Greenberg, Kusche, Cook, & Quamma, 1995). Between the ages of 5 and 7, children's cognitive functioning matures and they are able to perceive interactions through different perspectives (Greenberg et. al, 1995). The mechanisms by which language ability, emotion regulation, and social competence work may be different at age seven or eight than at age four or five given how children mature during that time. In short, many important developments occur between preschool and elementary school, and it is reasonable to investigate the relationships between language and emotional and social skills in an elementary school sample.

Based on previous literature that linked language ability with peer status and teacher ratings of social competence, and research that tied emotion regulation with social skills, the present study hypothesized that both language ability and emotion regulation skills will predict

social competence. This study also hypothesized that language ability will partially mediate the relationship between emotion regulation and social competence, as seen in Figure 1, because research has not investigated this possibility. The relationship should weaken when language ability is taken into account, suggesting that language is one mechanism through which emotion regulation is achieved. This study also considered these relationships separately for boys and girls to discern any possible gender-based differences. No predictions were made regarding the direction or strength of the relationships by gender.

Method

Participants

Participants were second-grade students ($N = 67$) at a public elementary school in central Pennsylvania; two students had to be excluded due to incomplete data. Most children were European-American (78.8%), with the remainder of the sample multiracial (7.5%), African-American (1.5%), Asian/Pacific-Islander (1.5%), and other (7.6%). The parent or guardian of two students (3.0%) did not indicate race on the consent form. There were 35 girls (53.8%) and 30 boys (46.2%) in the sample. The mean age of the children was 7 years and 6 months ($SD = .51$ months, range = 6 yrs., 11 mos. – 8 yrs., 11 mos.) Thirty-nine percent of the school's students were designated as 'low-income' by the state, and 23% of students in the whole district are eligible for free or reduced-cost lunch. The percentage of students in the district who are eligible for free or reduced-cost lunch is among the highest in the county.

Materials and Procedure

Language Ability. The Peabody Picture Vocabulary Test – Fourth Edition (PPVT-IV; Dunn & Dunn, 2007), is a standardized measure of receptive vocabulary. It contains 204 items

in increasing order of difficulty, and is intended for use with individuals ranging from 2.5 years old through adulthood. Examinees are shown a set of four pictures, and the examiner says a word. The examinee is then asked to identify the picture that corresponds to the word. There are two distinct forms of the test (A and B), and the present study utilized Form A. Internal consistency is strong, with split-half reliability ranging from .95 to .97, and the alpha co-efficient ranging from .95 to .98. (Dunn & Dunn, 2007). The PPVT also correlates highly with other measures of vocabulary, such as the Expressive Vocabulary Test; correlations ranged from .81 to .84 (Dunn & Dunn, 2007).

Emotion Regulation. The Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997) is a teacher-rated instrument designed to assess children's emotion regulation in the classroom. It contains 24 items that are rated on a 4-point Likert scale: (1= rarely/never, 2 = sometimes, 3= often, 4 = almost always). Shields and Cicchetti (1997) identified two scales: lability/negativity, which measures emotion dysregulation, and emotion regulation, which assesses adaptive behavior. Examples of items on the lability/negativity subscale include 'exhibits wide mood swings', and 'is prone to angry outbursts or tantrums easily.' Scores on this scale range from 14 to 56. Examples of items on the regulation subscale include 'is a cheerful child' and 'is empathic towards others; shows concern when others are upset or distressed.' Scores on this scale range from 8 to 32. Reliability analysis from the present study confirmed that Cronbach's alphas were strong, at .87 and .89, respectively.

Social Competence. The Behavioral Assessment System for Children-2 (BASC-2; Reynolds & Kamphaus, 2004) is a standardized measure of social competence containing 139 items. It has three components: a Teacher Rating Scale (TRS), a Parent Rating Scale (PRS), and a Self-Report of Personality (SRP). The TRS was used in the present study. The measure

contains 15 scales that are sorted into four composite categories: externalizing problems, internalizing problems, school problems, and adaptive skills. The present study used the composite scales. Internal consistency is high, with co-efficient alphas in the low to mid .90s for the school problems, internalizing, and externalizing composites, and in the high .90s for the adaptive skills composite (Reynolds & Kamphaus, 2004).

Procedure

Letters describing the study were mailed to school superintendents in central Pennsylvania. Upon receiving permission from the superintendent of the study school's district, the principal investigator met with the principal of the elementary school to discuss the study. After the school principal granted permission to conduct the study, the principal investigator met with all five of the second-grade teachers to explain the study and request permission to recruit students from their classes. Consent forms were then distributed to teachers, and their students brought the forms home to a parent or guardian. To increase incentive for students to return the consent forms, a pizza party was provided for the class with the highest rate of returns regardless of parental decision. Out of the total 104 second-grade students, 89 (85.6%) returned the forms, and response rates per class ranged from 20 out of 21 (95.2%) to 16 out of 20 (80%). Out of the students who returned the forms, 67 (75.2%) received permission from a parent or guardian to participate, resulting in an overall response rate of 64.4%. The researcher negotiated convenient times with the second-grade teachers regarding when to administer the PPVT. Students were led individually to an empty classroom in the same hallway as the other second-grade classes and were seated. The researcher explained the task to each student and obtained verbal assent before the test was administered. Each child's primary teacher completed the ERC and BASC, and received \$10.00 per child.

Results

Descriptive statistics for each variable can be seen in Table 1. To evaluate the first hypothesis that emotion regulation and language ability would predict social competence, regression analyses were conducted, as seen in Table 2. Bivariate correlations between the variables can also be seen in Table 3. Scores on the emotion regulation subscale were negatively related to scores on the externalizing problems composite of the BASC, $F(1, 64) = 24.17$, $p < .001$, $B = -1.14$, $R = .53$, Adjusted $R^2 = .27$; the internalizing composite, $F(1, 64) = 6.89$, $p = .011$, $B = -1.17$, $R = .31$, Adjusted $R^2 = .08$; and the school problems composite, $F(1, 64) = 22.28$, $p < .001$, $B = -1.16$, $R = .51$, Adjusted $R^2 = .25$. Scores on the emotion regulation subscale were positively related to scores on the adaptive skills composite, $F(1, 63) = 61.76$, $p < .001$, $B = 1.54$, $R = .70$, Adjusted $R^2 = .49$. Scores on the lability/negativity subscale were positively related to scores on the externalizing composite, $F(1, 64) = 213.87$, $p < .001$, $B = 1.2$, $R = .88$, Adjusted $R^2 = .77$; the internalizing composite, $F(1, 64) = 12.7$, $p = .001$, $B = .97$, $R = .41$, Adjusted $R^2 = .16$; and the school problems composite, $F(1, 64) = 35.17$, $p < .001$, $B = .86$, $R = .60$, Adjusted $R^2 = .35$. Scores on the lability/negativity subscale were negatively related to the adaptive skills composite, $F(1, 64) = 46.90$, $p < .001$, $B = -.90$, $R = .65$, Adjusted $R^2 = .42$.

Language ability did not significantly predict measures of socio-emotional problems. Scores on the PPVT were not related to performance on the externalizing composite, $F(1, 64) = 1.62$, $p = .21$, $B = -.10$, $R = .16$, Adjusted $R^2 = .01$, or scores on the internalizing composite, $F(1, 64) = 1.04$, $p = .31$, $B = -.14$, $R = .13$, Adjusted $R^2 = .001$. However, language ability negatively predicted school problems, $F(1, 64) = 13.80$, $p < .001$, $B = -.29$, $R = .42$, Adjusted $R^2 = .17$, and positively predicted adaptive skills, $F(1, 64) = 9.11$, $p = .004$, $B = .23$, $R = .36$, Adjusted $R^2 = .11$.

Results of the regressions by gender can be seen in Table 4. In general, most relationships were stronger for girls regardless of significance: these included scores on both subscales of the ERC and the internalizing, externalizing, and adaptive skills composites of the BASC. However, there were three relationships that were significant only among girls. These included the positive association between scores on the lability/negativity subscale of the ERC and internalizing problems; the negative association between scores on the regulation subscale of the ERC and internalizing problems; and the negative association between language ability and externalizing problems.

The hypothesis that language ability would partially mediate the relationship between emotion regulation and social competence was tested using the procedures described by Baron and Kenny (1986). This entailed testing whether the independent variable predicted the mediator; whether the independent variable predicted the dependent variable; and whether both the independent variable and mediator predicted the dependent variable. Step one of the mediation analysis involved regressing language ability on emotion regulation. Scores on the regulation subscale of the ERC did not significantly predict to scores on the PPVT, $F(1, 64) = .21$, $p = .65$, $B = .19$, $R = .06$, Adjusted $R^2 = -.01$. Similarly, scores on the lability/negativity subscale did not significantly predict PPVT scores, $F(1, 64) = .20$, $p = .66$, $B = -.12$, $R = .00$, Adjusted $R^2 = -.01$. Because these relationships were non-significant, the mediation hypothesis was not supported.

Discussion

Results suggest strong relationships between emotion regulation and social competence, and between language ability and school problems, as well as adaptive skills. The first hypothesis that emotion regulation and language skills would predict social competence was

partially supported. This supports previous research that linked emotion regulation and social skills (Eisenberg & Fabes, 1992; Cohen & Mendez, 2009; Spinrad et. al, 2006), as well as emotional problems and deficits in social competence (Cole & Hall, 2010; Cohen & Mendez, 2009).

The finding that language ability significantly predicted school problems and adaptive skills is reasonable given language's apparent relationship with behaviors that factor into those constructs. The school problems subscale consists of items that assess attention and learning problems, which may explain vocabulary's contribution to those skills. Because children learn the words that the PPVT tests in school, it seems logical that their performance might suffer if they experienced trouble focusing in class. Perhaps language ability makes understanding assignments easier, increasing the likelihood that children complete them and want to learn more. Regarding the relationship between language ability and adaptive skills, it appears that language might be especially important for two subscales of the adaptive skills composite. The first, functional communication, assesses both expressive and receptive communication abilities, and includes items such as 'responds appropriately when asked a question.' The ability to respond accordingly to a question requires adequate comprehension. The second important subscale, study skills, appears to be inherently related to language ability. Items on that component include 'reads' and 'completes homework', and presumably a student who practices reading and finishes assignments would demonstrate enhanced vocabulary skills.

The finding that language ability was related to adaptive skills is supported by previous research (Longoria et. al, 2009; Gertner et. al, 1994), and provides a new perspective regarding social competence as a whole. Because past studies have generally focused on peer play and popularity, these results add to the literature because of the BASC's comprehensive assessment

of positive social behavior. However, the result that language ability was not related to externalizing or internalizing problems differs from previous findings. The presence of language disorders in children with psychiatric problems is well-documented (Cohen et. al, 1988; Beitchman, 1985), especially when those problems consist of externalizing issues. However, the children in this study may have been too young to demonstrate the type of behavioral problems examined in these studies. Previous research concerning these issues has investigated older children and adolescents (Loeber, Burke, & Lahey, 2002; Lynam, Caspi, Moffitt, Loeber, & Stouthammer-Loeber, 2007). In addition, language ability's relationship with internalizing and externalizing behaviors may be exclusive to children with psychiatric problems. The relationships may have diminished in the current study because the sample includes normally developing children.

Although the present study's finding of a relationship between emotion regulation and social competence supported the first hypothesis and corresponded with prior research, two relationships warranted further investigation. The relationship between scores on the emotion regulation subscale and adaptive skills may be due in part to the similarity of the constructs they measure. For example, the ERC items 'responds positively to neutral or friendly overtures from adults' and 'is empathic toward others' indicate good social and communication skills. Both of those constructs are subscales on the BASC's adaptability composite. This pattern is also seen in the relationship between scores on the lability/negativity subscale and the externalizing composite, as lability/negativity accounted for a large proportion of the variance. One item on the lability/negativity subscale is 'takes pleasure in the distress of others', and a child who does that would likely enjoy bullying others, which is an item on the BASC. However, much of the relationship appears due to similarities between the lability/negativity subscale and the

hyperactivity component. The ERC includes items such as ‘prone to disruptive outbursts’, ‘overly exuberant when engaging others in play’, and ‘is impulsive’. Each of these is similar to the BASC items ‘has poor self-control’, ‘is overly active’, and ‘acts without thinking.’

Present findings failed to support the mediation model, as emotion regulation was not a significant predictor of language skills. For example, in their study on preschool children’s peer play behavior, Cohen and Mendez (2009) found that PPVT scores significantly correlated with both scales of the ERC. In a study on emotion and social withdrawal, Schultz et. al (2001) reported that receptive vocabulary predicted emotion expression knowledge, or the ability to discern another’s facial expression, and emotion situation knowledge, which is the ability to match emotional labels with environmental context. Children with greater verbal capacities had a better understanding of emotions than their peers. In addition, children who discussed emotion at a young age learned to reflect on their own emotional states, which enabled them to discuss their feelings, interpret others’ emotional states, and solve interpersonal problems (Dunn, Brown & Beardsall, 1991; Greenberg et. al, 1995). These outcomes included inhibition, which Eisenberg (2004) included in her definition of emotion regulation. Considering this research on the role of language and discourse in emotion regulation and development, the lack of a relationship in the present study is surprising.

One possibility that may account for the non-significant relationship between language ability and emotion regulation is the distinction in types of language. Expressive vocabulary refers to one’s ability to articulate meaningful words and phrases; receptive vocabulary is rooted in the ability to understand others. Although receptive and expressive vocabulary are highly correlated (Sideridis, 2010), expressive ability may be more important for emotion regulation. Expressive ability may also be more critical for using constructive coping and the strategies for

dealing with stress that Eisenberg et. al (1993) and Eisenberg and Fabes (1992) cite. In using Cole et. al's (2010) internal state language to think about their own experiences and frame them according to social context, articulating emotions with expressive language could be more important than understanding them with receptive language.

A lack of variance in score distribution on the language and emotion regulation measures could also explain the non-significant finding. Scores on the PPVT were very negatively skewed, at $-.677$. With an average standard score of 100 for each age group, this sample's mean of 111 is nearly one full standard deviation away from the standardized mean. Only 13 children, or about 20% of the sample, scored lower than the standardized average. Scores on the emotion regulation subscale of the ERC were also negatively skewed at $-.381$, and scores on the lability/negativity subscale were positively skewed at $.842$. These results suggest that children possessed above-average receptive language ability, regulated their emotions well in general, and did not show many negative emotions. The lack of participants with poorer language ability and emotion regulation skills could have contributed to the non-significant relationship between language ability and emotion regulation because low variability attenuates correlations.

Another explanation is that the relationship between language ability and emotion regulation is not linear. Prior research has focused on preschool children, particularly those in Head Start, and kindergarten students. It is conceivable that language's role in emotion regulation and social competence diminishes by the time children reach second grade. Perhaps children must reach a minimum language level to regulate effectively, and the differences in ability between children who have surpassed that minimum are unremarkable. However, children who have failed to reach the baseline level would still experience difficulty in regulating emotions and would be seen as at-risk for behavioral problems or antisocial behavior. As

children grow older, they may increasingly use non-verbal regulation strategies to cope with stress, such as pursuing hobbies or spending more time with friends outside of school. Previous research has not investigated how the role of language in emotion regulation and social skills development differs between early and middle childhood, and in adolescence.

Present findings suggest three gender differences, such that the relationships between scores on the lability/negativity and regulation subscales and the internalizing composite, as well as the relationship between language ability and externalizing composite, were significant only for girls. Moreover, almost all of the relationships were stronger in girls than in boys. Previous literature does not appear to have addressed gender differences in the development of social competence, and prior studies have had mixed results on gender differences in the display of social competence. Kaiser, Xinsheng, Hancock and Foster (2002) found that boys in Head Start demonstrated more externalizing and internalizing behavioral issues than girls. However, Eisenberg et. al (2001) reported that there were no gender differences in teacher and mother reports of these behaviors in six-year-old children, although fathers rated girls as having more internalizing problems. Fathers also rated boys as having significantly more externalizing problems than girls in that study. Future research may wish to investigate gender differences in social competence in preschool and elementary school, and evaluate how emotion regulation contributes to social skills in those populations.

Regarding the present finding that scores on the emotion regulation subscale and the lability/negativity subscale only predicted internalizing problems in girls, it is possible that girls with below average emotion regulation skills are at greater risk for internalizing problems than boys. In that case, the threshold at which girls show increased problems in this area would be higher than in boys. Given that research is inconclusive on gender-based differences in

behavioral problems however, this remains only one possibility. It is also feasible that girls in the current study with below average emotion regulation skills demonstrated more noticeable internalizing problems, or teachers expected to see those issues more in those girls. For example, a teacher could perceive a girl who is particularly shy as anxious or sad, whereas a boy could be perceived as merely quiet compared with other boys.

The third significant finding on gender difference was language ability's prediction of externalizing issues only in girls. This supports Kaiser et. al's (2002) finding that girls with language deficits were significantly more likely to demonstrate lower social competence than boys with language deficits. However, Kaiser et. al (2002) also reported that girls with language deficits were no more likely to show externalizing than internalizing behavior. The present finding regarding language ability reinforces the need for future research to investigate the overlap between language ability and social competence, and how it may differ by gender and age.

There were three limitations of this study worth noting. First, European-Americans represented an overwhelming majority of the sample, and as a result this study differs from prior research that focused on Head Start programs, which are more racially diverse. Future research should include diverse samples of elementary school students. Second, the present study relied strictly on teacher ratings for emotion regulation and social competence. Future research should utilize a multi-method approach when evaluating children. Finally, as stated before, only a few children performed poorly on each measure. This means that in general, children in this study had good verbal skills, regulated their emotions well, and displayed adequate social skills. Future research should strive to obtain a sample that represents the entire spectrum of these skills.

Several findings in the present study suggest the need for further investigation. Although only three of the regressions were significantly different by sex, research should evaluate the finding that these relationships were generally stronger in girls. Literature has not detected any patterns in the relationships between social skills, emotion regulation, and language development: results have differed based on the measures and sample. More specifically, research should further explore gender-based differences in behavioral problems at young ages. In research concerning externalizing and internalizing issues, investigators should further evaluate language's role and establish a threshold at which children could be at risk for problems. Research has shown that language delay is related to externalizing issues in clinical samples, but it is possible that relationship diminishes in normally developing children. Follow-up studies should also seek to clarify the relationships between emotion regulation and social competence to both expressive and receptive vocabulary. It is possible that the role of language in emotion regulation diminishes as children grow older, or expressive ability is more important than receptive for regulating strategies. Research might explore the developmental differences between the sexes and isolate unique experiences for each. Future studies should not only investigate gender-based differences in the development of social competence, but should also utilize multiple means of assessment, such as observation and self and peer reports.

The present study sought to determine the mechanisms by which children develop good social skills. If the importance of language ability diminishes as children grow older, prevention strategies that emphasize emotional development and appropriate social behavior may be advantageous. The Promoting Alternative Thinking Strategies (PATHS) curriculum that Greenberg et. al (1995) proposed may be effective because children learn to discuss emotions and related concepts, and less so because they improve their language skills. Questions remain

regarding the role of expressive vocabulary and how the importance of language to social competence may diminish as children grow older. The present study offers strong support for the positive relationship between emotional and social skills, and for language's role in adaptive behavior.

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Table 1

Descriptive Statistics

Variables	Total Mean (SD)	Boys	Girls
PPVT	111.2 (13.2)	114.0 (10.9)	108.4 (14.6)
ERC Emotion Regulation	26.2 (3.9)	24.8 (4.0)	27.2 (3.5)**
ERC Lability/Negativity	23.5 (6.1)	24.8 (6.5)	22.6 (5.7)
Internalizing	51.6 (14.5)	51.7 (17.6)	51.4 (11.4)
Externalizing	48.2 (8.4)	50.1 (8.5)	46.6 (8.1)
School Problems	47.3 (8.8)	48.4 (8.3)	46.4 (9.2)
Adaptive Skills	50.8 (8.5)	48.7 (8.0)	52.5 (8.6)

Note. PPVT = Peabody Picture Vocabulary Test (PPVT-IV) standard scores; ERC Emotion Regulation = emotion regulation subscale scores on the ERC; ERC Lability/Negativity = lability/negativity subscale scores on the ERC; Internalizing = scores on the internalizing problems composite of the BASC; Externalizing = scores on the externalizing problems composite of the BASC; School Problems = scores on the school problems subscale of the BASC; Adaptive Skills = scores on the adaptive skills composite of the ERC. **p < .01

Table 2

Prediction of Social Competence from Emotion Regulation Subscales

Variable	<u>ERC Emot. Reg.</u>				<u>ERC Lability/neg.</u>			
	b (s.e.)	β	<i>t</i>	p	b (s.e.)	β	<i>t</i>	p
Externalizing	-1.14 (.23)	-.53	-4.92	.000	1.2 (.08)	.88	14.62	.000
Internalizing	-1.17 (.45)	-.32	-2.62	.011	.96 (.27)	.41	3.57	.001
School Prob.	-1.16 (.25)	-.51	-4.72	.000	.86 (.14)	.60	5.93	.000
Adaptive	1.54 (.20)	.70	7.86	.000	-.90 (.13)	-.65	-6.85	.000

Note. ERC Emot. Reg. = emotion regulation subscale scores on the ERC; ERC Lability/neg. = lability/negativity subscale scores on the ERC; Internalizing = scores on the internalizing problems composite of the BASC; Externalizing = scores on the externalizing problems composite of the BASC; School Prob. = scores on the school problems subscale of the BASC; Adaptive Skills = scores on the adaptive skills composite of the ERC.

Table 3

Bivariate Correlations

Variables	1	2	3	4	5	6	7
PPVT	--	.06	-.06	-.13	-.16	-.43**	-.36**
ERC Emot. Reg.		--	-.60**	-.32*	-.53**	-.51**	.70**
ERC Lab/Neg.			--	.41**	.88**	-.52**	-.65**
Internalizing				--	.36**	.21	-.31*
Externalizing					--	.70**	-.66**
School Problems						--	-.80**
Adaptive Skills							--

Note. PPVT = Peabody Picture Vocabulary Test (PPVT-IV) standard scores; ERC Emot. Reg. = emotion regulation subscale scores on the ERC; ERC Lab/Neg. = lability/negativity subscale scores on the ERC; Internalizing = scores on the internalizing problems composite of the BASC; Externalizing = scores on the externalizing problems composite of the BASC; School Problems = scores on the school problems subscale of the BASC; Adaptive Skills = scores on the adaptive skills composite of the ERC. * $p < .05$, ** $p < .01$

Table 4

Regression Results by Gender

Relationship	R ² Total Sample	R ² Male	R ² Female
ERC Emotion Regulation → Externalizing	.277**	.159*	.358**
ERC Emotion Regulation → Internalizing	.099*	.052	.235**
ERC Emotion Regulation → School Problems	.261**	.146*	.323**
ERC Emotion Regulation → Adaptive Skills	.495**	.405**	.541**
ERC Emotion Regulation → PPVT	.057	.027	.012
ERC Lability/Negativity → Externalizing	.772**	.720**	.798**
ERC Lability/Negativity → Internalizing	.168**	.050	.506**
ERC Lability/Negativity → School Problems	.358**	.388**	.327**
ERC Lability/Negativity → Adaptive Skills	.427**	.376**	.448**
ERC Lability/Negativity → PPVT	.003	.000	.029
PPVT → Externalizing	.025	.001	.112*
PPVT → Internalizing	.016	.048	.004
PPVT → School Problems	.180**	.258**	.193**
PPVT → Adaptive Skills	.126**	.103*	.190**

Note. ERC Emotion Regulation = emotion regulation subscale of the ERC; ERC Lability/Negativity = lability/negativity subscale of the ERC; Externalizing = externalizing composite of the BASC; Internalizing = internalizing composite of the BASC; School Problems = school problems composite of the BASC; Adaptive Skills = adaptive skills composite of the BASC. The arrows indicate the direction of the relationship. * $p < .05$, ** $p < .01$.

Figure 1. Mediation model based on Baron and Kenny (1986)

