ABSTRACT

Title of Thesis: PARENT PERCEPTIONS OF CHILD BEHAVIOR: FACTORS ASSOCIATED WITH SOCIAL SKILLS IN KINDERGARTEN STUDENTS

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Associations between informant rating of children's social competence and self-regulation are well documented across different forms of self-regulation, including temperamental effortful control and executive functioning (Spinrad et al., 2006). Several studies have shown correlations between informants' ratings of the importance and of the frequency of particular social skills. However, studies have not considered whether parents' perceptions of a skill's importance varies with their perceptions of their child's self-regulation. This study tested the hypothesis that parent perceptions of the importance of their child's social skills and their perception of their child's self-regulation as well as their interaction would contribute to their ratings of social skills frequency among kindergarteners ($n = 113$). Findings with kindergarteners showed that parents' importance ratings and self-regulation ratings

contributed uniquely to variance in reported social skills and that the relation between rated importance and rated skills was moderated by self-regulation. As self-regulation ratings increased, so did the relationship between social skills importance and frequency. The importance of a given social skill relates to its reported frequency, but higher self-regulation is associated with greater social skills, regardless of parent importance ratings.

PARENT PERCEPTIONSOF CHILD BEHAVIOR: FACTORS ASSOCIATED

WITH SOCIAL SKILLS IN KINDERGARTEN STUDENTS

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Chapter 1: Introduction

Navigating the social world as a young child is full of social expectations and complexities. From a very young age, children are expected to adjust to the ever-changing social demands or rules, to attend to and respond to specific pieces of information within a social interaction while ignoring others, and to hold information about the social exchange in working memory. Overcoming challenging social situations often requires self-regulation, which is a construct that emerges throughout the first few years of life (Kopp, 1982). Self-regulation addresses social complexities through monitoring, inhibiting, and regulating thoughts, feelings, and behaviors in order to appear as socially competent or appropriate (Cole et al., 1994). Self-regulation is a multidimensional construct (Baggetta & Alexander, 2016), which makes measurement difficult.

Two subfields of psychology have proposed two different perspectives of self-regulation that emphasize similar, yet distinct processes. Within the first perspective, theorists from temperament research focus on regulating a child's emotional state, or their affect (Gross, 2013). Within the affective perspective of self-regulation, regulatory processes are often volitional and focus on increasing positive emotions while decreasing negative emotions in social situations. This conceptualization of self-regulation is based on temperament, or the stable and innate individualistic levels of reactivity and regulation that a child develops over time (Rothbart & Bates, 2006).

The second perspective of self-regulation is founded from theorists who support cognitive processes driving self-regulation as opposed to affective processes. Researchers focus more on children organizing, encoding, and interpreting incoming

information about social situations appropriately. Regulatory processes within this cognitive perspective help the child to adjust to the current social situation and prepare for longer term outcomes. This conceptualization falls more in line with executive functioning (EF) skills, or the control of multiple neurocognitive processes that work together to facilitate planning, problem-solving, and goal-directed activity (Blair, 2016).

Theorists across subfields of psychology agree that regulating thoughts, feelings, and behaviors requires young children to coordinate many processes. Additionally, the processes enabled during a social situation may vary between children. The differences between children's regulatory processes may be captured using measurements such as parent reports of their child's social functioning. Moreover, social competency, or the ability to appraise and process social situations that require social adaptation to the demands presented (Schultz et al., 2001; Yeates & Selman, 1989) is an outcome of self-regulation given that regulatory processes impact the ways in which children engage with their peers. Children are also judged by their peers based on the effectiveness of their social interactions (Raver, 2004; Spinard et al., 2006). Within social competency, specific prosocial behaviors thought to be indicative of social success are deemed social skills. Social skills have taken many forms, and some researchers even argue that social skills are generalized in all child behaviors (Hops, 1983). Therefore, understanding factors such as self-regulatory processes that influence children being deemed as socially competent has been widely researched. Many researchers agree that self-regulatory strategies possessed by children are related to the child being viewed in a more positive light

and as likeable by both their peers and by their teachers in school (Eisenberg et al., 2002; Raver, 2004). Furthermore, parent and teacher reports of socially competent children were found to be related to the children's development in multiple domains including mental health (Denham, 2006), positive peer relations (Baumeister & Vohs, 2004), and academic success (Blair & Razza, 2007; Denham, 2006).

Whereas the relations between the broad constructs of self-regulation and social competency have been supported, research is limited with respect to the relationship between specific social skills (prosocial behaviors) and the regulation of emotional and behavioral responses. Few studies exist relating observed social skills such as assertion and empathy to parent and teacher-reports of self-regulation (Blair & Raver, 2015; Dollar et al., 2018; Eisenberg et al., 2002; Montroy et al., 2014). Specifically, one study that evaluated the social skill assertion, which includes prosocial behaviors such as initiating appropriate behavioral responses (Gresham & Elliot, 2008), reported that assertion and problem behaviors as rated by the Social Skills Improvement System (SSiS; Gresham & Elliot, 1990) mediated the relationship between self-regulation and growth in early literacy skills in preschoolers (Montroy et al., 2014).

The value placed on specific social skills may also influence the frequency in which these skills are observed. Previous research determined that parents reported observing social skills significantly more frequently than teacher informants. In addition, one study conducted by Frey et al., (2014) found that parents provided higher average importance ratings than teachers across all social skills domains as reported on the SSiS. Moreover, research has reported moderate correlations ($r = .43$)

between how often raters observe social skills and the importance of those skills (Frey et al., 2014). Parent-related factors such as how often parents engage with their child may contribute to their child's social functioning. For example, parent involvement, social competency, and problem behaviors have been found to be related such that increased parent involvement related to simultaneous improvements in overall social skills and lower ratings of problem behaviors as rated by the Social Skills Rating Scale (SSRS; Elliot & Grasham, 1990). In other words, parental engagement with their child has been related to their overall sensitivity to their children's social skills. Parent sensitivity may derive from their unique social expectations for their children, in turn impacting their child's overall behavior (Nokali et al., 2010).

However, research is limited in identifying factors that adult raters take into consideration when deeming a child socially competent, such as importance of the skills, severity of behavior, and social demands of a specific context. Prior studies have analyzed predictors such as student age, sex, race, language, and family status (Elliot et al., 1989; Frey et al., 2014) but have yet to explore rater's values or ways in which they determine which skills are critical and which are not to their child's social development.

Additionally, differences between adult raters have been widely reported (Achenbach et al., 1987; Crowe et al., 2011; De Los Reyes & Kazdin, 2005) such that inter-rater reliability is low (r's = .20-.40) when comparing parent and teacher reports of social skills (Gresham & Reschly, 1987; Renk & Phares, 2004). Low inter-rater reliability may be a result of different values informants place on children's behaviors

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depending on the social context (Frey et al., 2014). Therefore, this study will only focus on parent-reported social skills and will only be generalizable to parents. While restricting analyses to only parent reports may serve as a limitation, findings will provide details into the unique perspectives of parents as well as valuable input regarding what social skills parents identify as critical to their child's social development (Ruffalo & Elliot, 1997).

The present study will evaluate factors that are associated with parents' perceptions of their kindergarten-age children's social skills. By using parent reports of self-regulation and social skills, this study will first analyze the relations between parent reports of importance ratings, frequency ratings of social skills, and self-regulatory processes. The study will also determine whether lower or higher levels of self-regulation significantly interact with the relationship between how often parents report social skills (i.e., frequency ratings) and how much value parents place on specific social skills (i.e., importance ratings).

Self-regulation will be measured through two different rating scales to compare and contrast the two theoretical perspectives. Social skills will be broken down into seven distinct subscales as described by the SSiS. This study will investigate if and how parent ratings of self-regulation interact with their importance ratings of social skills to influence the frequency ratings of those skills. Through investigating these relationships, this study will identify which specific social skills parents rate more critically important to their child's development. The present study will also determine whether a child's ability to self-regulate, or the parent's values

placed on social skills, or the interaction of the two predictors significantly influence how parents perceive their kindergartener's prosocial behaviors.

Chapter 2: Literature Review

Social Competency

Social competency refers to "the effectiveness of social interactions" (Rose-Krasnor, 1997 p.112) and is centered around positive engagement with peers, consistent with one's goals and intentions, and successful self-regulation during that engagement (Denham et al., 2003). In other words, social competency is a product of successful regulatory processes enabling positive social exchanges. Socially competent behavior requires the coordination of various processes that enable children to behave in prosocial ways that align with personal and shared social goals. Social goals can vary across different social situations.

While many definitions of social competency exist, researchers have struggled to produce a single depiction of a "socially competent" individual. The ways in which social competency is assessed is often in relation to different socio-cultural demands which vary across different contexts. For example, a child negotiating for a preferred toy may look very different at home versus in a school setting (Denham et al., 2012; Yeates & Selman, 1989). Additionally, different informants provide different perspectives when evaluating socially competent behaviors.

Measures of social competency, often rating scales that are completed by the child's parents and teachers, require raters to report on the abilities of children to contribute to social exchanges, work together with peers, make rational decisions based on the social demand, identify how peers may feel in social situations, and

remain calm when teased (Gresham & Elliot, 2008). Many of these abilities are

associated with children actively coordinating and modulating the intensity, duration,

and expression of their emotions and behaviors to achieve social goals in a particular

context (Alduncin et al., 2014; Denham et al., 2003). Research has also reported that

ratings of lower or higher degrees of social competency made by adult informants are

related to sociometric status ratings of peer acceptance. Specifically, higher ratings of

socially competent behaviors relate to higher ratings of peer acceptance or

psychosocial adjustment in children (Gresham & Reschly, 1987; Yeates & Selman,

1989).

Social Skills

  Informants are not just rating the child's overall social competency on

measures, but rather the individual's specific prosocial behaviors, or social skills

(Gresham & Elliot, 2008) and how these social skills meet social goals such as

positive engagement with peers. In other words, social skills are the successful,

socially accepted, observable prosocial behaviors (Hops, 1983; Elliot et al., 1989).

Furthermore, as described by parents of adolescents with high-incidence disabilities

(e.g., emotional disabilities and learning disabilities as noted on the IEP), children

with strong social skills are more likely to get along with others (e.g., establishing

friendships) and exhibit positive character traits (Kolb & Hanley-Maxwell, 2010).

Within the larger theme of "getting along with others," the majority of parents

appeared to place greater emphasis on specific prosocial behaviors during childhood

that they felt indicated social competence such as their child distinguishing the

motives of others, using their words, empathizing with peers, and understanding social cues (Kolb & Hanley-Maxwell, 2010).

Social skills have also been described as, "behaviors that, within given situations, maximize the probability of securing and maintaining reinforcement and/or decreasing the likelihood of punishment or extinction contingent upon one's social behavior" (Gresham & Reschly, 1987 p. 368). Specific behaviors subsumed within social skills include exhibiting empathy, cooperating with others in group activities, proactively communicating, negotiating, and problem solving with peers (Gresham & Elliot 2008; Lynch & Simpson, 2012).

One dilemma researchers face when measuring social skills is the generalization of the skills. To clarify, social competence is a "summary term" that involves evaluative judgments made by raters as to determine whether the child's behaviors were competent or incompetent (Hops, 1983; McFall, 1982; Nangle et al., 2010), while social skills are the specific prosocial behaviors that enable prosocial exchanges (Cavell, 1990). Prosocial behaviors may differ between social skills. While social competence and social skills have been differentiated in research (McClelland & Morrison, 2003; Rose-Krasnor, 1997), some theorists identify social skills in all waking child activities regardless of whether the behaviors are judged and therefore view social competency and the behaviors (socials skills) to be the same (Hops, 1983). Social skills consist of many different prosocial behaviors and are described in the following.

Cooperation

Cooperation is a social skill that includes behaviors such as collaborating with peers, sharing materials, and working together to follow rules and instructions (Gresham & Elliot, 2008). One review conducted by Denham (2006) found that both parent and teacher informants were in agreement that specific prosocial behaviors, such as cooperation, positively influenced first grade academic outcomes. Cooperation has been reported to be an essential skill for maintaining interpersonal relationships such that collaborating with peers instead of competing with them often results in stronger friendships (Schneider et al., 2014).

Empathy

Empathy is a social skill that involves a child emotionally expressing concern and respect for a peer's feelings and viewpoints (Gresham & Elliot, 2008; Hinnant & O'Brien 2007). Studies have found that by sharing the same affect, or emotional state (Gross, 2013), as one's peers, children who are rated high in empathy are also more capable of interpreting or perceiving different social situations. Additionally, Eisenberg and colleagues (1994; 1997; 2002) have all reported relations between greater parent and teacher ratings of effortful control (EC) and parent and teacher ratings of empathetic responding for kindergarten-age children. Through interpreting social situations and responding empathetically, children are better able to identify and solve problems in proactive ways, as well as achieve social goals such as form more friendships, and volitionally select responses that appropriately align with the social situation. Taken together, empathy appears to a social skill that drives many positive behaviors and has been shown to be a predictor of greater social competency (McKown et al., 2009).

Communication

Communication is described by Gresham and Elliot (2008) as behaviors involving turn-taking and exchanging thoughts and ideas between peers. Prosocial communication consists of receptive, affective responses that align with the social situation. Prosocial communication skills are indicative of effective self-regulation of a child's affect as well as cognitions. Effective self-regulation consists of attending to and responding to both non-verbal and verbal social cues by inhibiting specific verbal responses (i.e., inhibiting the urge to yell at a peer), while engaging in socially appropriate emotional exchanges (i.e., expressing or communicating emotions to problem-solve with a peer) (Eisenberg et al., 2000).

Assertion

Assertion includes the prosocial behavioral responses of initiating exchanges between peers, as well as verbally defending one's beliefs (e.g., doing what's right) (Gresham & Elliot, 2008). Assertion is a unique social skill such that research has found that children who are higher in assertion may also exhibit behavioral responses that are negatively-based (e.g., refusing to share a toy), and assertion is often elicited for the purpose of retaining an object or affective state as opposed to giving it away (e.g., alerting peers that the toy is yours and you believe no one else should have it) (Nangle et al., 2010). However, research has also established that the interaction between higher ratings social skills such as assertion, cooperation, and self-control increases general social competency, and predicted kindergarten-age student's academic achievement in third grade (Denham et al., 2012). In sum, assertion is a

social skill whose function is based on the social context, where some situations may not always result in a prosocial response.

Responsibility

Responsibility has been described as behaviors including moral decision-making and communicating with peers and adults to review quality of work on a task (Gresham & Elliot, 2008). Responsibility also includes responses such as showing regard or care for property (Montroy et al., 2014). Responsibility relates to self-regulatory processes such that individuals with higher responsibility may be more likely to consciously adjust their affect and inhibit behavioral impulses more than peers who are lower in the responsibility social skill. Moreover, responsibility is a social skill that is shown to exhibit cultural biases based on ethnicity and gender such that in a study reviewed by Norton et al., (2010) where it was reported that teachers rated students higher in responsibility who were female and Caucasian.

Engagement

Engagement is described by Gresham and Elliot (2008) as a child's abilities to join in both school and home-based activities, as well as to participate in a group activity. Specifically, teacher-reports of engagement are based on classroom involvement in activities, adjustment to different social rules within the classroom setting, and social exchanges with fellow classmates (Denham et al., 2012; Robson et al., 2020). The social skill of engagement has also been found to be related to attentional processes associated with self-regulation (Blair & Raver, 2015). Specifically, children's abilities to sustain engagement results from attending to aspects of a social situation while avoiding aversive aspects of that social situation

(e.g., avoiding becoming distracted from a study group). Greater abilities to maintain

attention may result in not only greater self-regulatory strategies but a greater

likelihood of positive engagement with peers and greater likelihood of academic

success (Robson, et al., 2020).

Self-control

Self- control is described as a child's ability to adjust and respond

appropriately to conflict. Behaviors associated with conflict resolution include

controlling the child's behavioral responses as well monitoring problem-solving

related to the conflict (Gresham & Elliot, 2008; Kim et al., 2001). Furthermore, self-

control is related to inhibition, or a regulatory cognitive process that involves

resisting impulsive, prepotent response (Rhoades et al., 2009). Self-control includes

modulating emotional and behavioral responses and selecting more appropriate

responses that align with social demands. As described in Rhoades et al., (2009, p.

311), children who exhibit greater self-control tendencies, such as using their words

as opposed to aggressing towards peers, are more likely to achieve their personal

goals, be viewed more positively by their teachers, be perceived as a likeable play

partner, and ultimately have greater social competency. Furthermore, a recent meta-

analysis has found that greater self-control skills during kindergarten predict higher

levels of academic achievement in reading and mathematics, as well as greater social

competency overall in later childhood (e.g., through age 12) (Robson et al., 2020).

Measures of Social Competency

The multifaceted construct of social competency and prosocial behaviors can

be assessed in a variety of ways. Performance-based measures of social skills have

been implemented using structured activities that ask the child to report responses

based on different social vignettes to gauge social competence (e.g., Theory of Mind

tasks; role-play tasks) (Dodge et al., 1985; Matson & Wilkins, 2009). Additionally,

behavioral observations have been a source of measurement for rating social

competency through reliably reporting the frequency of target prosocial behaviors

within a naturalistic setting (e.g., reporting the instances of helping a peer during a

classroom activity; Dirks et al., 2007; Matson & Wilkins, 2009; Nangle et al., 2010).

However, behavior rating scales are considered the most efficient and common form

of measuring social competency, which include broad assessments of social skills

(Crowe et al., 2011; Gresham et al., 2011). Each method has both strengths and

weaknesses, but all forms of measurement have been found to capture multiple

dimensions of social competency, including adaptive behavior, peer acceptance, and

prosocial functioning (Gresham & Reschly, 1987; Cordier et al., 2015).

Sociometrics

The sociometric status measurement dimension of social competency is based

on an individual's peer ranking, which consists of collecting judgements in which a

student's peers rank how likeable the child is (Rose-Krasnor, 1997). One downfall to

this method is that sociometric rankings offer positive evaluations by others but do

not explore the nature of the individual's lack of competency when not ranked

positively by others (Dirk et al., 2007). Sociometric evaluations also do not capture

the frequency in which an individual initiates social exchanges, making it difficult to

determine if the individual lacks in social competency or just hasn't yet gained

acceptance from peers.

Performance-Based Measures

Performance tasks are additional methods put forth by researchers to measure social competency and are often presented as social problem-solving activities. For example, The Challenging Situations Task (CST; Denham et al., 1994) measures children's responses to hypothetical peer situations. Children are presented with situations such as, "being hit by a peer on the playground," and the child's responses are coded based on their affective and behavioral reactions to the situation. Puppets and additional manipulatives are often incorporated into performance tasks of social competency for young children. For example, Denham's Puppet Causes task consists of an open-ended, semi-naturalistic interview where children are asked to identify emotions which are presented by puppets (e.g., happy, sad, angry, fearful) and then to create a story about why the puppet is expressing the specific emotion (Denham, 2006). Lastly, performance measures can often be incorporated into self-regulation batteries that include a variety of child tasks that assess the child's attention, emotional, and behavioral regulatory abilities (Denham, 2006).

Behavioral Observations

Behavioral observations are valuable when assessing social competency because the examiner can assess specific skill strengths and weaknesses and can record the child's prosocial behavior in a naturalistic setting. Observations can also account for the changing social demands and different factors impacting social contexts (Hops, 1983). Specific coding systems been developed to provide more structured methods of data collection. One system founded by Denham aimed to capture "emotion-in-action" (Denham, 2006 p.63) which includes a child's emotion

expression and behavioral responses to different social situations. Additionally, coding systems such as the one founded by Dodge et al. (1986) can operationalize discrete behaviors that occur during exchanges such as subtle changes in facial expressions when a child doesn't get picked for a game.

Behavior Rating Scales

As previously stated, rating scales are the most common, cost-efficient, and brief way to measure social competency. Most rating scales of social competency require the caregiver to complete questions, but many scales also include teacher reports and self-reports if the students are eight years of age or older (Crowe et al., 2011). Rating scales may also diverge in specific domains of social competency. For example, some measures will highlight the individual's emotions and their emotional expressions that play a significant role in judgements by social agents. Notably, the Social Skills Improvement System (SSiS; Gresham & Elliot, 1987) is a teacher and parent-reported measure capturing different social skills and problem behaviors.

Research has commended the SSiS as having excellent psychometric properties such as internal consistency (coefficient alphas ~.96), test-retest reliability (overall $r = .82$), and validity (Renk & Phares, 2004; Gresham & Elliot, 2008; Cordier et al., 2015). Raters complete items to capture the frequency of observed prosocial behaviors in children. Frequency ratings produce a total (overall, scaled) Social Skills score, along with seven other social skills subscales that include communication (seven items), cooperation (six items), assertion (seven items), responsibility (six items), empathy (six items), engagement (seven items), and

self-control (seven items; Gresham & Elliot, 2008). Higher ratings of frequency indicate a higher degree of observed prosocial behavior.

Furthermore, parents appear to be sensitive to a variety of different prosocial behaviors when assessing their child's overall social competency, but research is limited when identifying how critically important parents find any of these frequently observed prosocial behaviors (Lane et al., 2007). For example, parents within the standardization sample for the SSiS (n= 2,000 parent reports for students ages 5-12; Gresham & Elliot, 2008) reported the most frequently observed prosocial behaviors included following directions or instructions in an attentive manner, taking turns, and regulating emotions and behaviors when interacting with peers. An additional study conducted by Kolb and Hanely-Maxwell (2010) reported similar prosocial behaviors when parents of adolescent-aged students were asked to describe what "social skills" meant to them. According to this study, parent descriptions of social skills included, "the ability to get along with others, including the skills needed to develop relationships and friendships (p.169)." In sum, parents appear to have similar beliefs about prosocial behaviors that are indicative of socially competent individuals, but the level of importance placed on those prosocial behaviors may vary among parents.

SSiS Importance Ratings. Unlike many rating scales assessing social competency, the SSiS provides a dual rating system, where raters are asked to report on the frequency of observed prosocial behaviors, as well as how important the informant feels the social skill is to the child's development. Informants are asked to rate importance on a three-point Likert scale with response options including *not important*, *important,* or *critical*. According to Gresham and Elliot (2008, p.2),

"importance ratings provide a means of establishing the rater's perceived value of the behaviors being assessed. This, in turn, has validity implications for the assessment results and practical implications for the selection of behaviors for intervention." Currently, no other measure of social competency implements importance ratings.

Multiple studies have used item-level analyses, often presented through frequency tables, to capture specific skills that parents have rated as most "critical" to their child's social development. Generally, parents have reported that almost all prosocial behaviors they observe are, at minimum, important to their child's social development. For example, Elliot et al. (1989) collected social skills importance ratings from 179 parents of preschool-age students using the earlier version of the SSiS, the Social Skills Rating System (SSRS; Gresham & Elliot, 1990) and found that parents rated almost all items to be either "important" or "critical" when given the importance rating options of *not important, important,* or *critical.* Specifically, parents rated items comprising the cooperation subscale to be the most critical for their child's social development. Another study by Lane and colleagues (2007) also used the SSRS and found that multiple skills received "critical" importance ratings by the majority of their sample (> 50% of 124 parents) across the SSRS's four subscales (assertion, cooperation, responsibility and self-control). Through a series of frequency tables, Lane et al. (2007) reported that the majority of their sample's parents endorsed critically important social skills that fell within the subscales of cooperation, self-control, and responsibility. None of the items comprised within the assertion subscale received majority (>50%) critical importance ratings by the study's parents.

Frey et al. (2014) expanded on the work of Elliot et al. (1989) by using the SSiS as opposed to the SSRS to identify specific items rated most frequently as "critical" by a majority of parents of pre-school age children. A total of 95 parents participated in the study across ten preschool locations. Item- level analyses recorded how often items were rated "critical" from each social skills subscale to determine the ten items with the highest percentage of parent-reported critical ratings. Results indicated that the ten most critically important social skills (rated by 47.4%-72.6% of parents as "critical") fell within the subscales of cooperation, engagement, responsibility, assertion, and communication. The subscales of self-control and empathy were not indicated as having any items most often rated as critically important by the sample (Frey et al., 2014).

SSiS Frequency Scores. Previous research has explored predictors of social competence including student sex, age, race, language, and family status (Elliot et al., 1989 Frey et al., 2014) through a series of ANOVAs. The potential influence of parent importance ratings on social skills frequency has not been investigated. However, Frey et al. (2014) reported that the influence of parent-reported frequency significantly predicted parents' importance ratings (β = .008; t = 4.57, p < .001) and explained about 18% of the variance in parent importance ratings. Interestingly, researchers have not sought to determine whether greater parent-reported importance ratings of social skills significantly positively impacts frequency ratings of those social skills.

An additional factor influencing social skills frequency that has not been considered in previous research is children's regulatory processes. Researchers have

reported that greater social competence (higher frequency ratings) is positively related to higher self-regulation (Raver, 2004; Spinrad et al., 2006), and that lower social competence, which is often exhibited by children engaging in problem-behaviors such as impulsivity and emotionally reactive responses to social situations, has been related to lower ratings of children's self-regulation (Eisenberg et al., 2010).

SSiS Importance Ratings and Frequency Scores. Research has found a moderately positive relationship ($r = .429$) between importance ratings and the frequency in which prosocial behaviors are observed such that parents may attend to specific skills, or provide higher frequency ratings, depending on how critically important their impression of the social skills are in social situations (Frey et al., 2014). However, agreement about importance ratings between informants (parents and teachers) is lower (~$r = .28$; Frey, et al., 2014; Ruffalo & Elliot, 1997). Moreover, Ruffalo and Elliot (1997) found that parent-reported social skills importance ratings between mothers and fathers were very weak ($r = .07$), while their percentage of agreement on items was moderate ($M = 59\%$ agreement).

Additionally, while Frey's (2014) study reported on the social skills overall frequency score and the overall importance rating of social skills, this relationship was not assessed at a subscale-level. Frey calculated the overall mean importance rating by using all items on the SSiS. As such, exploring the relations between frequency and importance of specific social skills may provide deeper insight into how parents perceive their child's social development and whether parents' values of prosocial behaviors correspond to their reports that children's engagement in these behaviors. While social skills overall frequency ratings have been found to

significantly positively influence importance ratings (Frey et al., 2014), the opposite

impact is unclear.

On one hand, it may be that some parents may provide higher importance

ratings on specific subscales but may not observe behaviors relating to those social

skills as often, which may result in weaker correlations. On the other hand, parents

may observe their children engage in prosocial behaviors associated with specific

skills frequently and in turn may not perceive the skill to be important for

development. Parents may feel that, given their child appears to be socially competent

in a specific domain, the skills are perceived as less critical.

Interaction of Social Skills Importance and Self-Regulation as a Predictor.

It is believed that children with higher self-regulatory capabilities may be "protected"

from a variety of environmental stressors including low parental responsiveness and

lack of parent support (Eisenberg et al., 2000; Rosanbalm & Murray, 2017). It may be

that higher self-regulation better enables the child to resist engaging in maladaptive

emotional and behavioral responses in their social settings. As a result, parent's value

of specific social skills may be irrelevant and may not significantly impact their

child's social development. In other words, high levels of self-regulation, which

consists of both cognitive and affective processes, has been found to prevent children

from developing maladaptive responses to social situations (Belsky et al., 2001;

Eisenberg et al., 1993; Eisenberg et al., 2000). This study will determine if high self-

regulation may act as a greater buffer to maladaptive responses than parent's

perceptions of the importance of their child's social skills. It may be that higher self-

regulation could result in children engaging in prosocial behaviors when interacting

with their peers, hence parents would rate these skills as occurring with higher frequency, regardless of whether they find these specific prosocial behaviors critically important.

Another possible explanation to the idea that importance ratings may not impact frequency when parents perceive their child's self-regulation to be high is that parents who observe their child benefitting from regulatory strategies (e.g., being engaged with and liked by their peers) may not feel that specific social skills are as critical to their child's development.   Parents may be less sensitive to the values placed on specific social skills if they already assume their child is interacting with their peers appropriately and is making friends. It may be then when children are high in self-regulation, parent's perceptions of the frequency in which specific social skills occur will be higher regardless of the different parent importance ratings. In other words, an interaction effect may not be as pronounced when children exhibit higher levels of self-regulation.

Parents of children with lower self-regulation may be more sensitive to their child's social difficulty and may attempt to compensate for their child's lack of regulatory strategies by placing greater emphasis on specific skills as more important for their child's development. Additionally, sensitive parents who teach their child about prosocial behaviors may help them engage in these social skills. It may appear that children who are rated lower in self-regulation may require a greater degree of parent involvement and parent sensitivity to the importance of those skills developing. Therefore, parent importance ratings may matter more when observing the frequency of social skills when they perceive their child's self-regulation as low.

For example, if parents find the specific social skill, empathy, to be more critically important, they may be more likely to intervene or prompt their child to develop and use regulatory strategies that increase empathetic responding (Rosanbalm & Murray, 2017). In sum, this study will determine whether self-regulation moderates the relationship between the importance of social skills parents place on their child's behaviors, and how often parents observe these social skills.

Theoretical Orientations of Social Competency

Numerous theories exist surrounding the construct of social competency, but this study primarily reviews three influential theories. The first is Rose-Krasnor's (1997) model named the "social competence prism," the second is the social information processing model of social competency developed initially by Dodge et al., (1986), and the third is the biopsychosocial model (SOCIAL) produced by Beauchamp and Anderson (2010).

The Social Competency Prism

The social competence prism model is founded by Rose-Krasnor (1997) and organizes the construct of social competency into a hierarchy of theoretical conceptualizations. The most basic level, or the "skills" level, is at the bottom of the prism and serves as the foundation of social competence. This level includes specific social skills previously mentioned, such as perspective-taking and empathy. The skills level also addresses the successful regulation of an individual's emotions and behaviors, which relates to an individual's personal goals, values, and motivation for specific social skills to be implemented. Moving up the prism, Rose-Krasnor proposes the middle level, or the "index" level, to represent the measurement of

social skills and deeming skills competent or not. Competent, prosocial behaviors are judged based on whether social and personal goals are met. Third, the highest level in the prism identifies social competency as effective social interactions that meet both personal and social goals and consist of organized, competent behaviors. Therefore, the social competence prism consists of effective social interactions that accomplish social goals and are driven by prosocial behaviors that individuals must engage in.

Within this framework, Rose-Krasnor (1997) also proposes the idea that social competency is the product of multiple processes working together, resulting in four different dimensions of measuring "socially competent" individuals: 1) assessing their success of specific skills, 2) assessing their sociometric status (e.g., being accepted by peers), 3) assessing the development of their relationships, and 4) assessing their daily functioning. The specific skills measurement dimension states that social competency is measured based on checklists or rating scales of social attributes of individuals that are indicative of competence. One major limitation to this type of evaluation of social competency are the checklists and rating scales themselves. Raters decide on what skills or attributes are "competent," which can vary greatly across studies, resulting in disagreements in criteria for socially competent individuals. For the purpose of this study, rating scales, as opposed to other methods of measurement such as sociometric recording and naturalistic observations, will be used.

The Social Information Processing Model

The second theoretical framework is Dodge and colleague's (1985; 1986) social information processing model that describes social competency as a multi-step,

social-cognitive process consisting of a compilation of skills in order to effectively respond to the social environment (Dodge et al., 1986). Each step in the social-information processing model consists of skills that Dodge refers to as, "learned prosocial behaviors." Steps include identifying a social goal, monitoring one's environment in relation to that goal, selecting and engaging in skills that can orient an individual towards the set goal, and evaluating the social outcome to determine whether the goal was met.

The first two steps in the social information processing model are considered encoding steps (Nangle et al., 2010). For example, if a child sees a group of students playing basketball, the child must first orient themselves to the situation with pre-existing social knowledge, and schemas (e.g., scripts for how to join a game). Next, the child must monitor the likelihood of them joining the game (e.g., seek environmental input suggesting students are accepting or rejecting entry). Thus far, the child has had to encode internal and external cues, interpret the cues, and determine whether the cues are aligned with the social goal for this situation.

The third step of the social information processing model involves the child actively selecting different skills to enact that align with the social goal (e.g. preparing to cooperate; inhibiting the desire to jump in). The fourth and fifth steps include the child selecting and implementing the skills (e.g., initiating a question and asking the group whether they can play). Finally, the sixth step evaluates the outcome and whether or not the child's goals were met (e.g., was the child let into the game?). As summarized by Denham (2006, p.73), the social information theory is described as the following: "young children must learn to process social information—to encode

and analyze social situations, set social goals, and determine effective ways to solve differences that arise between them and their peers, and actually perform these behaviors (Crick & Dodge, 1994)."

It is important to note that the social information processing model also consists of a series of feedback loops such that each step is met with feedback from peers and new information from the external environment (e.g., the child initially interprets that the students are accepting them, only later to determine they changed their minds). Feedback loops result in the child being guided by both new, relevant social information as well as recalling information from their pre-existing schemas (Nangle et al., 2010). Furthermore, similar information processing models have been proposed in which greater focus is placed on individualistic attributions of the child completing the processing steps (Rubin & Rose-Krasnor, 1986 p.285) and define social competency as, "the ability to achieve personal goals in social interaction while simultaneously maintaining positive relationships with others over time and across situations."

Overall, theorists are in agreement that individual differences in social information processing skills can influence the different behaviors that individuals engage in, and that it is important to understand both the social and cognitive processes that influence behavior and ultimately an individual's social competence (Crick & Dodge, 1986; Lemerise & Arsenio, 2000). While Rose-Krasnor's (1997) model highlights checklists and measures associated with capturing children's prosocial behaviors, the social information processing model appears to explicate

children's social competency into steps that relate to the ultimate goal of successful social interactions.

The Developmental Biopsychosocial model (SOCIAL) Framework

A third and final theory used to explain the multidimensional construct of social competency and the development of social skills is Beauchamp and Anderson's 2010 review of the SOCIAL integrative framework of social competence. The SOCIAL framework is presented as an integrative approach that addresses multidisciplinary perspectives of social competency. In other words, the SOCIAL model argues that social competency is an output of a compilation of biological underpinnings, "socio-cognitive skills," and a multitude of both internal (e.g., temperament traits) and external factors (e.g., environmental) that are all integrated and impact the development of social skills. Social-cognitive skills influence a child's affect surrounding a social situation, which in turn impacts their cognitions or mental thought processes about the social situation. Social-cognitive skills also include cognitive processes such as working memory, or the capacity to hold and manipulate information in the mind (Baddeley, 2000). Furthermore, social-cognitive skills highlight the bi-directional relations between an individual's thoughts, feelings, and behaviors resulting in successful self-regulatory processes and proactive social functioning (McClelland et al., 2015). The social-cognitive skills often overlap with self-regulatory strategies such that social competency is a product of successful self-regulation (McClelland et al., 2015; Robson et al., 2020). However, while research analyzing self-regulatory processes, such as executive functioning skills (EF) and effortful control (EC), has found relations to social competency, findings often do not

account for parent's perceptions of their child's social competency, and specifically

the more important value that parents may place on specific areas of social skills.

Self-Regulation

The term self-regulation has been referenced across diverse disciplinary

perspectives in psychology, resulting in the lack of a single, cohesive definition.

Broadly, the term self-regulation has been described by researchers as a

multidimensional, complex construct which consists of transactional cognitive and

affective processes (McClelland et al., 2015). While many descriptions of this

complex construct exist, researchers have agreed that affective and cognitive

processes of self-regulation enable individuals to set and achieve goals, satisfy

hedonic needs, and/or successfully maneuver through multifarious social situations

(McClelland et al., 2015; Vohs & Baumeister, 2011). Furthermore, affective and

cognitive processes are reciprocally related and can occur within individuals (i.e.,

cognitions relating to emotions relating to behaviors) as well as between the

individual and their surroundings (i.e., individual's cognitions and emotions regarding

the situation). Some processes associated with self-regulation may occur

automatically, while other processes require more conscious effort (Blair & Ursache,

2011; Nigg, 2017). Due to the descriptions of self-regulation varying in scope and

focus on the variety of different interacting processes, the construct of self-regulation

can be viewed through two different perspectives: the affective perspective and

cognitive perspective. Each of the two perspectives have similar, yet distinct

processes, and researchers from both perspectives propose the same functions or

desired outcomes of successful self-regulation through multiple interacting processes.

The affective perspective of self-regulation is founded in the temperament literature, where self-regulation is viewed as the regulation of emotional reactivity through effortful control (EC; Rothbart & Derryberry, 1981), a dimension of temperament. Specifically, the affective perspective of self-regulation highlights EC as, "the ability to inhibit a dominant response and/or activate a subdominant response, to plan, and to detect errors" (Rothbart & Bates, 2006 p.129). EC processes such as attention and inhibitory control work to regulate an individual's reactivity, which is defined as the general sensitivity to an individual's positive or negative emotional states as a response to an internal or external stimulus (Rothbart et al., 2001). Furthermore, reactivity and EC are found to be triggered or motivated by emotionally provocative situations, where EC processes exert volitional control over certain emotional responses and in turn select a more appropriate emotional response. One function of EC is to regulate reactivity through modulating an individual's affect, or current emotional state, such that EC processes decrease the impact of negative reactivity while increasing positive affect and assisting the individual return to an affectively neutral state.

The cognitive perspective of self-regulation references executive functioning (EF) skills, or processes that assist with problem solving, inhibition of responses, organization or planning of responses, and altering an individual's perception of a situation (Blair, 2016; Gross, 2013; Nigg, 2017). Through this perspective, successful self-regulation occurs through a compilation of EF skills. The EF skills can also be further divided into top-down, or higher-order processes such as executive attention, working memory, planning, organization, problem-solving, and cognitive reappraisal,

as well as bottom-up EF skills which consist of inhibition and more automatic processes controlling emotional, behavioral, and physiological stress responses to social situations (Blair & Ursache, 2011). Often times, combinations of top-down and bottom-up EF skills are enabled for successful self-regulation of cognitions and behaviors.

Effortful Control and the Affective Perspective

The affective perspective of self-regulation highlights a framework derived from temperament literature that views self-regulation as a product of reactive and regulatory responses to children's surroundings (Rothbart & Bates, 2006). Behavioral responses can vary between children based on their temperamental dispositions as well as their affect, or emotional state (Gross, 2015). Researchers within this perspective also highlight EC, a regulatory domain of temperament (Rothbart, 2012), that includes processes such as attention and inhibitory control to voluntarily modulate attention while inhibiting or activating behavioral responses as needed to adapt to the social context (Eisenberg & Spinrad, 2004). In other words, temperamental reactivity is regulated by different EC processes, and these processes vary between individuals (Teglasi et al., 2015). Specifically, researchers within this perspective of self-regulation have identified four key processes associated with EC : attention, or an individual 's ability to shift focus towards or away from specific stimuli based on an emotionally-driven outcome, inhibitory control, where an individual volitionally does or does not respond to specific stimuli causing attention to shift (Tiego et al., 2020), low-intensity pleasure, or experiencing enjoyment from low-intensity activities or stimuli, and perceptual sensitivity, which is the ability

to detect low-intensity stimuli within an individual's environment (Rothbart et al., 2001; Slobodskaya, et al., 2020). Low-intensity pleasure and perceptual sensitivity are related to attention and inhibitory control such that children can shift attention towards low-intensity stimuli to detect pleasure, or shift attention away from emotionally aversive stimuli. Attention shifting in turn helps to regulate emotional and behavioral responses. Therefore, all four components of EC contribute to multi-dimensional self-regulation processes (Rothbart & Rueda, 2005; Vohs & Baumeister, 2011).

Temperament and self-regulation are both constructs that influence a child's social functioning, including social skills, prosocial behavioral responses, modulating emotions given the context, and peer acceptance (Eisenberg et al., 2002). Specifically, self-regulation of an individual's affect may result in positive social outcomes including children engaging in proactive social interactions, volitionally avoiding emotionally-triggering situations, and engaging with peers for low-intensity pleasure of social connection (Slobodskaya et al., 2020). The relations between EC and social competency are further discussed in the "self-regulation and social competency" section of this review.

Measures of Self-Regulation in the Affective Perspective

Behavior rating scales are one of the primary methods to capture children's temperament and their temperamental dispositions. Parent-reported rating scales have been found to be particularly insightful given that parents are able to observe their child daily across multiple settings and can observe different behavioral responses to different social situations. One temperament-based measure, the Children's Behavior

questionnaire (CBQ; Rothbart et al., 2001) examines temperamental dispositions as well as self-regulatory processes that modulate reactivity, such as attention focusing and inhibitory control (Rothbart et al., 2001). Raters are asked to conceptualize their child's reactions to different situations and rate how true or untrue each statement is on a seven-point Likert scale (1 = extremely untrue of your child; 7= extremely true of your child). The 94 items on the CBQ capture a multitude of behavioral responses which are divided into three domains of temperament: surgency/extraversion, negative affectivity, and EC. Within the EC domain, a composite score derived from four subscales is calculated which includes attentional focusing, inhibitory control, perceptual sensitivity, and low intensity pleasure (Rothbart et al., 2001). The four EC subscales create a composite score associated with the child's abilities to not only suppress inappropriate responses to emotional situations, but to also maintain focus on tasks, and to purposefully seek positive engagement from situations, which all relate to self-regulatory processes (Rothbart & Bates, 2006). In other words, the EC composite on the CBQ captures self-regulatory processes such as attention (attention-focusing subscale), and inhibition (inhibitory control subscale), in addition to low-intensity pleasure and perceptual sensitivity. According to temperament theorists, self-regulation is often motivated by the desire to feel better and seek to satisfy hedonic needs (Koole, 2009), which may explain the emphasis on perceptual sensitivity and low-intensity pleasure.

Moreover, subscales that encompass the EC composite may share similarities with the capturing social competency as measured by the SSiS. For example, the CBQ's inhibitory control subscale focuses on children's behavioral responses such as,

"can easily stop an activity" and, "can wait before starting a new activity if asked to do so," which may relate to the self-control social skill subscale on the SSiS. The abilities to modulate specific emotional and behavioral responses in turn produce socially competent responses (Slobodskaya et al., 2020). Additionally, it could be theorized that the CBQ's low intensity pleasure subscale, which includes items such as, "enjoys being talked to" and, "enjoys 'snuggling up' next to a parent," may relate more to SSiS social skill subscale of engagement. Within the engagement subscale, parents report child behaviors involving participating in conversations with peers and adults, as well as making friendly easily. The social connection that comes from engaging with peers could be a function of seeking low-intensity pleasure as referenced on the CBQ's EC composite. As a result, the EC domain from the CBQ represents the construct of self-regulation through the affective perspective in this study.

Executive Functioning Skills and the Cognitive Perspective

The cognitive perspective of self-regulation highlights neurocognitive processes, or executive functioning (EF) skills working together to help students modulate and monitor their responses to their social worlds (Miyake et al., 2000). EF skills include, "deliberate, higher-order cognitive processes such as planning or organizing information, problem-solving, working memory, inhibitory control, and shifting attention that influence goal-directed behavior" (Blair, 2002; Blair & Raver, 2012; Calkins & Marcovitch, 2010; Diamond, 2013). Similar to EC, EF skills assist in the modulation of emotional and behavioral responses through processes like executive attention as well as inhibition, further emphasizing that self-regulation

consists of bi-directional relations within an individual in terms of thoughts, feelings, and behaviors (Raver et al., 2012). As stated in Fuster (2008, p. 28), "executive processes may provide the means by which children can delay and reorient their behavior under circumstances that elicit automatic emotional responses such that they override the action tendency associated with the emotion and behave in socially acceptable ways."

Theorists who support the cognitive perspective of self-regulation suggest that children can attend to both immediate, short-term responses (similar to the affective perspective of self-regulation), in addition to planning and organizing cognitions for longer-term outcomes. For example, planning is one EF skill that is conceptualized as a child's ability to manage current events as well as anticipate future events and set goals based on future-oriented task demands (Gioia et al., 2000). Executive attention includes the ability to "overcome attention to a competing stimulus" in a hierarchal way such that the individual is prioritizing their most important goals (Nigg, 2017 p.38). Working memory involves, "maintaining a task or idea in mind while rapidly adding relevant information or deleting irrelevant information in response to task demands (Baggata & Alexander, 2016 p.14; Miyake et al., 2000), and inhibition is described as the ability to resist or suppress prepotent, dominant responses, as well as ignore distractions and stay focused on a specific response (Diamond, 2006; Miyake et al., 2000). EF skills are subsumed within the construct of self-regulation such that many of these skills are required for children to successfully regulate their emotions and behaviors in appropriate ways that align with the social situation, such as

remembering and following directions, as well as resisting impulsive responses and engaging in alternative problem-solving behaviors (Diamond, 2016).

Measures of Self-Regulation in the Cognitive Perspective

The BRIEF, now in its second edition, is a behavior rating scale designed to capture everyday behaviors associated with EF skills of children ages 5-18 (Gioia et al., 2000). The BRIEF parent report asks informants to report on the frequency of specific behaviors they've observed their children engage in within the last six months using a 3-point Likert scale (1 = Never; 2 = Sometimes; 3 = Often) for a total of 86 items. Within the BRIEF, the Global Executive Composite (GEC) consists of eight subscales including inhibition, shifting, emotional control, initiation, working memory, planning/organization, organization of materials, and monitoring. Of the eight subscales, an exploratory factor analysis from the first edition revealed a two-factor structure consisting of a 3-scale labeled the behavioral regulation factor, and a 5-scale labeled the metacognition factor (Gioia et al., 2002). The first factor, the Behavior Regulation Index (BRI) score, is a composite score derived from the inhibit, shift, and emotional control subscales and represents the effectiveness of a child's abilities to regulate and monitor their behavioral responses to social situations (Gioia et al., 2000). The BRI not only highlights parent-reported behaviors related to attention (e.g., shift subscale), but also captures another self-regulatory process, inhibition (e.g., inhibit and emotional control subscales). These subscales in turn also relate to managing socially competent behaviors. For example, the BRIEF contains an emotional control subscale which consists of measuring fluctuations of mood, outbursts, and over-reactions and the child's abilities to cognitively attend to and

regulate their emotions (Gioia et al., 2000). Items within the emotional control

subscale capture difficulties associated with the self-control such as, "child resists or

has trouble accepting a different way to solve a problem with schoolwork, friends,

tasks, etc." Parent reported behaviors from the BRIEF's BRI can overlap with the

self-control subscale within the SSiS, where parents rate how often their child

remains calm when teased and responds appropriately to social problems (Gresham &

Elliot, 2008). Moreover, the emotional control subscale, where items such as, "mood

is influenced by the situation" or, "small events trigger big reactions" could also

relate to the social skill of cooperation. Cooperation involves parent-reported

behaviors such as their child following directions without becoming upset.

Specifically, higher scores on the emotional control scale (e.g., more instances of

outbursts) can negatively impact a child's cooperation skills.

The BRIEF also calculates a Metacognition Index score, which is comprised

of the Initiate, Working Memory, Plan/Organize, Organization of Materials, and

Monitor subscales. Given the focus of this study, the BRI on the BRIEF will represent

the cognitive perspective of self-regulation. Gioia et al. (2000) proposed that self-

regulation can be captured through reporting specific behaviors including children

engaging in proactive problem-solving, inhibiting impulses, and monitoring their

behavioral responses.

The second edition of the BRIEF (Gioia et al., 2015) later breaks down self-

regulation into three different indices to capture the target of a child's regulatory

processes (e.g., "what" is being regulated). Indices include a modified BRI consisting

of the Inhibit and Self-Monitor scale (shift and emotional control subscales removed;

self-monitor subscale added into the second edition), the Emotion Regulation Index (ERI) which is a composite of the shift and emotional control subscale, and the Cognitive Regulation Index (CRI), comprised of Initiate, Working Memory, Plan/Organize, Organization of Materials, and Task-Monitor (new to the second edition) subscales. Considering the inhibit, emotional control, and shift subscales are still used to calculate regulatory indices, this first edition BRI composite score will be used for the present study's analyses.

Similarities and Differences between Perspectives of Self-Regulation

Research has found that both EC and EF processes enable the ways in which individuals modulate behavioral and emotional responses, as well as cognitively organize information about social situations to prepare for an appropriate response. In other words, self-regulation involves reciprocal relations between an individual's thoughts, feelings, and actions (McClelland et al., 2015). Furthermore, overlapping processes of EF and EC influence the ways in which individuals interact with peers, develop socially competent behaviors, and navigate through the ever-changing social world (Calkins & Marcovitch, 2010; McClelland, et al., 2015). For example, Carlson and Wang (2007, p. 492) described the reciprocity between the affective and cognitive perspectives such that, "emotions can help organize one's thinking, learning and action (emotion as regulating), and cognitive processes play a role in regulating emotions (emotions as regulated)."

Moreover, individuals may engage in self-regulation to modulate some type of response to an individual's environment or to meet a specific goal (Zhou et al., 2012). Both EC and EF are bi-directional enablers of self-regulation that are influenced by

individual goals, needs, and social desires (Blair & Dennis, 2010; Blair, 2002). Additionally, EC and EF and impact the ways in which young children, particularly kindergarten-age children, develop the abilities that allow them to modulate their behavioral responses, adjust emotional reactions, and engage in effective social exchanges.

While EF and EC processes both contribute to construct of self-regulation, the processes do have differences given that they have emerged from two different theoretical fields of psychology. For example, Blair and Razza (2007, p.648) highlight that while EC and EF address the inhibition of specific responses as well as attentional processes, "EF focuses primarily on volitional control of cognitive self-regulatory processes, whereas EC includes to some extent, although not exclusively by any means, a focus on automatic or nonconscious aspects of emotional reactivity and regulation." To better understand the outcomes of successful self-regulation, the transactional affective and cognitive processes associated with self-regulation must first be examined.

Theoretical Orientations of Self-Regulation

Both the affective and cognitive perspectives of self-regulation stem from different subfields of psychology. However, it is important to note that even though there are conceptual differences, research across different theories promote that self-regulation consists of an individual's response to modulating emotional, behavioral, or cognitive reactivity to meet set goals or achieve specific outcomes. Specifically, many theorists call for an integrative framework that describes self-regulation as the reciprocal interactions between affective and cognitive processes. Through this

integrative framework, individuals are using affective processes to modulate their emotional responses, while cognitively organizing information about their surroundings, and to successfully contribute to social exchanges with their teachers and peers (Blair & Dennis, 2010; Blair & Razza, 2007; Blair, 2002).

The Triadic Reciprocal Model

Alfred Bandura poses the social-cognitive theory of self-regulation and a "triadic reciprocal" model which consists of interacting relations between an individual's behavior, an individual's environment, and an individual's affective state (Bandura, 1989). The model exemplifies bi-directional relations between affect and cognition such that an individual's affect, or current emotional state (Gross, 2015), can influence the initiation of higher-level, cognitive processes, which can influence an individual's behaviors. Conversely, cognitive processes work to inhibit specific emotional responses and to reduce negative affectivity as well. For example, an individual's beliefs, emotional and cognitive competencies, and personal goals influence their behavior. Their behavior can also be modified through the environment. Furthermore, Bandura and more recent research from Zimmerman (2005) supports that self-regulatory processes in children can be influenced through emotional interactions and external modeling, or observing adult peers engaging in social situations, which in turn influences the child's behavioral response to the situation (Bandura, 1989; Zimmerman, 2005). These relations can occur externally between the individual and their environment, as well as internally within the individual. Therefore, experience from prior social interactions can inform children of

strategic social performance adjustments to social demands in future, similar situations.

Stress-Response Framework

Theorists also support that self-regulation can be viewed through a stress response framework such that to successfully regulate, the individual must actively implement homeostatic and allostatic mechanisms as a response to aversive stimuli, which can include both reactive and effortful processes (Blair & Dennis, 2010; Nigg, 2017). Similar to the ways in which a temperamental framework focuses on regulating reactivity (Rothbart et al., 2001), the stress response framework of self-regulation highlights moderating reactivity and achieving the goal of affective equilibrium. Furthermore, Blair and Dennis (2010) promote that an individual's affect and emotional intensity in which they experience emotions may result in the initiation of cognitive processes to modulate these emotions, resulting in an optimal balance between reactivity and cognitive control.

SOMA model

Another model describing self-regulation is through Carver and Scheier's (1998) SOMA Theory, which further highlights that self-regulation is often goal-based and consists of interacting affective and cognitive processes. The SOMA model describes individuals receiving feedback from the environment to modify the way they go about achieving set goals, or a "feedback loop" (Burnette et al., 2013). Specific components of the SOMA model include goal setting, goal-operating, goal-monitoring, and achievement which is also found in self-control literature and explains the functions or desired outcomes of self-regulation. Carver and Scheier

(1998) related the feedback loop to a thermostat, where temperature, or in this case an individual's affect, is "set" and monitored based on input of the environment. Setting a goal is equivalent to setting the temperature on the thermostat, preparing for a controlled response (affect), and adjusting behavior through a "recursive cycle" which occurs on a continuous loop of adaptive responding (Blair & Ursache, 2011; Burnette et al., 2013; Carver & Scheier, 1998). Several theories also hypothesize that the ability to self-regulate may result in different outcomes aside form goal pursuits. Many theorists support that successful regulatory processes result in social competencies and general academic achievement (Kim & Kochanska, 2012; Montroy, et al., 2016; Vohs & Baumeister, 2011).

In sum, there is an ever-growing number of models and theories explaining self-regulation and providing different perspectives on the overlap of regulatory processes. Theorists agree that self-regulation is multidimensional and is observed uniquely across individuals (Edossa et al., 2018). Furthermore, many theorists support that self-regulation can occur automatically through higher-level cognitive processes associated with EF as well as volitionally, where dimensions of temperament such as EC and behavior inhibition modulate responses (Vohs & Baumeister, 2011). Theorists stress the importance of bi-directional relations between an individual and their environment that ultimately influences behavior (Carver & Scheier, 1998; McClelland et al., 2015; Zimmerman, 2005), as well as relations within an individual's cognitions and emotions.

Social Competency and Self-Regulation

Both constructs of self-regulation and social competency are related to each other due to the overlap in underlying affective and cognitive processes that contribute to successful regulation and successful navigation of children's social worlds. For example, parents often perceive socially competent children as those who are sharing materials, taking runs with their peers, attending to and following directions, and modulating their responses (Gresham & Elliot, 2008). All the actions described require the enactment of self-regulatory processes. Researchers agree that the two constructs overlap, such as Spinrad et al., (2006, p.2) who stated, "children who are high in self-regulation are expected to be able to modulate their negative emotions and to be relatively competent at interacting with others."

Indeed, many social skills associated with "socially competent" children include both cognitive (e.g., information processing) and emotional skills (e.g., controlling affect), as well as meeting both behavioral (e.g., prosocial responses aligning with the situation) and motivational expectations (e.g., self-efficacy) (Bell & Wolfe, 2004; Nangle et al., 2010; Robson et al., 2020). Eisenberg and colleagues have also explored the relationship between self-regulation and social competency in studies conducted in 1995 and again in 1997, where students whose social competence was rated higher by teachers on The Perceived Competence Scale for Children (Harter, 1979) were also found to have higher regulatory strategies as reported by the CBQ (Rothbart et al., 2001). In other words, higher levels of self-regulation were related to greater observed social skills (Eisenberg et al., 2002; Nangle et al., 2010; Spinrad et al., 2006).

Within the affective perspective of self-regulation, EC, particularly the process of inhibitory control, enables children to resist reacting to dominant emotional responses. Inhibitory control has also been linked to social competence such that in a study conducted by Rhoades et al., (2009), it was reported that children who were better able to inhibit behavioral impulses were more likely to have greater positive peer problem solving abilities and accomplish more personal social goals. Specifically, children who were able to resist the primary response of aggressing towards a peer who stole their toy, and who were able to respond in an alternative way (e.g., requesting a turn to play with the stolen toy), were rated higher in social competence as measured by the Preschool and Kindergartener Behavior Scales (PKBS; Merrell, 1996).

Spinrad et al., (2006) also conducted a study examining the relations between EC, resiliency, prosocial behaviors, and parent and teacher-rated popularity. Research found that EC, as rated by the CBQ (e.g., composite of attention shifting, attention focusing, and inhibitory control subscales), was highly positively correlated with social competence, which suggests that EC may foster the skills needed to engage in positive interactions with peers and increase being liked by peers. These findings were demonstrated again by Blair and colleagues (2004) who reported that EC and social competence were found to be positively correlated based on CBQ parent and teacher reports, which suggests that children with higher EC appear to have greater social competency compared to children with lower EC. Finally, Séguin and MacDonald (2018) conducted a study to investigate predictors of prosocial behavior and found that temperament, specifically negative affect (e.g., soothability and

shyness), predicted lower peer relations and self-management above and beyond parent-reported emotion regulation. Collectively, these findings are consistent with the well-established link between self-regulatory processes such as EC and social competency in young children.

Within the cognitive perspective of self-regulation, EF skills have also been found to be related to successful social interactions. For example, one study conducted by Duncan et al., (2017) reported that direct training in cognitive tasks which included executive attention-related activities were associated with greater levels of self-regulatory processes which can then lead to greater prosocial behaviors. Moreover, attentional control has been found to statistically significantly predict children's emotional expression and emotion knowledge, or the interaction between emotions and cognitions within social environments (Schultz et al., 2001).

Self-Regulation Measures and Social Competency Measures

Some social skills subscales found on the SSiS may share similarities to the self-regulation measures (e.g., the CBQ and the BRIEF) used in this study. For example, the nature of the items comprising the self-control subscale of the SSiS (e.g., staying calm when disagreeing with others; takes criticism without getting upset) appears to relate to the items regarding the child's behaviors measured by the CBQ's inhibitory control subscale (e.g., waiting one's turn when asked to do so) and the BRIEF's emotional control subscale (e.g., difficulty with emotional outbursts). While exact item overlap is not apparent, conceptual similarities between subscales exist, which may result in the measures capturing similar behaviors of the child through their items.

In contrast, additional social skills subscales such as empathy or responsibility may exhibit weaker or non-significant relationships with self-regulation measures given that self-regulation is typically depicted as paying attention to a child's environment or inhibiting specific responses. Attention (paying attention to social cues) and inhibitory control (resisting impulsive behavioral responses) also align with socially competent behaviors. For example, one qualitative study conducted by Kolb and Hanely-Maxwell (2010) collected parent's open-ended responses when asked to identify and reflect on prosocial behaviors that they associate with social competency. During the open-ended interview, parents described socially competent behaviors as attending to social cues, "getting along with peers," and engaging in positive peer interactions through controlling emotions. While parent's descriptions aligned with self-regulatory processes including attention and inhibition, parents did not detail behaviors such as empathetic responding or taking accountability for actions as crucial parts of their child's self-regulation in their interviews.

Social Skills Importance and Self-Regulation

While research has established that the constructs of self-regulation and social competency are related, the possible links between self-regulation and the importance of the skills that determine a child to be socially competent has not been explored. In other words, the relationship between parent's perceived importance of skills and their child's self-regulatory competencies have not been studied. As such, this study seeks to strengthen the ways in which research conceptualizes parents' ratings of importance of a social skill in relation to parents' observations of the frequency with which their child exhibits that skill. Parents may perceive specific social skills as less

important when their child appears to have greater self-regulatory competence to modulate their emotional and behavioral responses. Parents may believe that higher ratings of self-regulation are linked to socially competent behaviors, resulting in lower perceptions of the importance of specific skills after controlling for the frequency of the social skills parents observe.

The Present Study

Higher ratings of social competency and higher self-regulatory abilities are associated with successful peer relations, academic engagement, and positive long-term outcomes such as planning future social goals for later childhood (Robson et al., 2020). While research has identified prosocial behaviors, or social skills, as a product of successful regulatory processes, limited studies have identified the values that parents place on social skills. Parent's perceptions of their child's social skills may vary with respect to the importance of the particular skill(s) to their child's social development (Ruffalo & Elliot, 1997). Indeed, parents may believe some specific skills are more important to their child's social development than others, and the extent to which importance ratings relate to self-regulation has yet to be explored. In addition, it is unknown to what extent parents' unique values placed on their child's social skills influence how often they observe those skills (frequency), and whether parent's importance ratings interact with their perceptions of their child's regulatory capabilities.

To provide an in-depth look into the relationships between specific social skills and children's self-regulation abilities, as well as parent's perceived importance of social skills and children's self-regulation abilities, bivariate and partial correlation

analyses were conducted. The variables including frequency and one of the two self-regulation measures were held constant during multiple partial correlational analyses. Controlling for frequency and one of the self-regulation measures was important because it addressed potential confounding effects of specific variables. In turn, controlling for effects of other variables helps researchers to learn more about the strength of individual associations between parent's values of the social skills they observe and their child's regulatory capabilities.

In addition to bivariate and partial correlational analyses, this study breaks new ground in its aim to unpack factors influencing social skills frequency. As previously discussed, studies have investigated multiple predictors of social competence as measured by SSiS frequency scores (Elliot et al., 1989; Frey et al., 2014). However, research has neglected to explore the ways in which combinations of parent-importance ratings of social skills and parent ratings of their child's self-regulation contribute to their child's social competence. In other words, the joint effect of importance ratings and self-regulation on social skills frequency has not been examined. As such, the present study explored the additive and interactive effects of the independent variables, social skills importance and self-regulation, on social skills frequency. Findings determined which combinations of variables and their interactions uniquely explained the variance of parent-reported frequency ratings of social skills. Relevant assumptions of multiple regression were tested, and their implications were considered.

Research Aim

Determine Predictors of Overall Social Skills Frequency

This study first explored the extent to which all the predictors, importance ratings and self-regulation, when taken together, explained the variance in parent reports of social skills frequency. Simultaneous multiple linear regression was used to investigate the potential predictors of parents' observations of social skills. Specifically, analyses examined the additive and interactive effects of parent-rated overall importance of social skills (e.g., raw mean of all importance ratings) and child self-regulation on overall social skills frequency (e.g., total scaled score). The present study is the first known study that accounted for these specific predictors when examining the variance in parent-reported social skills frequency scores.

Two multiple linear regression models were used to address this aim. Self-regulation, as measured by two separate composite scores from two separate measures, represented the two different perspectives of the construct. As a result, each measure was considered an independent variable and was incorporated into separate models. The first multiple regression model consisted of the overall scaled score of social skills frequency as the dependent variable. Independent variables included the overall importance rating of the social skills, the BRI composite from the BRIEF, and the interaction between both importance and the BRI. The second model used the same outcome variable, but included overall importance of social skills, the EC composite from the CBQ, and their interaction term as independent variables.

Hypotheses

1. Based on previous literature reporting on the ways in which social skills frequency and social skills importance have been predicted (Frey et al., 2014), this study assumed that overall importance ratings of the social

skills score would explain a significant, unique amount of variance when holding all other variables (e.g., self-regulation measures) constant.

2. It was hypothesized that the interactions between importance ratings and self-regulation (e.g., importance x BRI and importance x EC) would contribute to parent's perceptions of overall social skills frequency. It was expected that the interaction terms, in their respective models, would explain additional variance in social skills frequency beyond the individual predictors. Specifically, the present study proposed that the relationship between the importance and frequency of social skills would vary depending on the children's levels of self-regulation. When children's self-regulation is low, importance ratings were predicted to have a positive effect on frequency ratings as moderated by self-regulation when measured by either the BRI or EC. It was assumed that parents of poorer-regulated children would find prosocial behaviors, or social skills, to be increasingly more valuable to their child's social development, resulting in a greater relationship between importance and frequency ratings. In other words, it was anticipated that lower levels of self-regulation would positively moderate the relationship between importance ratings and frequency ratings, while higher levels of self-regulation would also moderate the relationship, but to a lesser degree.

It was hypothesized that when self-regulation was high, the strength of the relationship between importance ratings and frequency ratings would be less pronounced. Hence, as self-regulation increases, so too would

frequency ratings of social skills, despite the importance ratings parents provide. As previously discussed, high self-regulation may act as a barrier to maladaptive emotional and behavioral responses, resulting in parent's importance ratings of social skills being less impactful on how often they observed their child's social skills when compared to high self-regulation ratings. Findings provided important insights into parent perceptions of their children's prosocial behaviors.

Chapter 3: Methods

Design

This study used an archival data set collected as part of a larger investigation, titled the Teglasi Kindergarten Study, conducted by Dr. Hedwig Teglasi and a team of graduate student researchers. Under the supervision of Dr. Hedwig Teglasi, a team of graduate research assistants collected parent ratings of social skills (Social Skills Improvement System; SSiS), as well as two additional rating scales measuring temperament (Children's Behavior Questionnaire; CBQ) and executive functioning (Behavior Rating Inventory of Executive Functioning; BRIEF). Within the CBQ, the effortful control domain (EC; a composite of the attentional focusing, inhibitory control, perceptual sensitivity, and low intensity pleasure subscales) was used to represent the affective perspective of self-regulation, while the Behavioral Regulation index (BRI) within the BRIEF represented the cognitive perspective of self-regulation and consisted of an emotional control, inhibit, and shift composite.

Data Collection and Procedures

The study was approved by the University of Maryland Institutional Review Board (IRB), and data collection took place from 2012-2019. It is important to note that data collection did not take place during the COVID-19 pandemic. Upon receiving signed informed consent from parents, packets were sent home to parents which contained rating scale measures, including Behavior Rating Inventory of Executive Function (BRIEF), the Social Skills Improvement System (SSiS), and the Child Behavior Questionnaire (CBQ) to complete. Identifying information such as consent forms and demographic information was separated from the data which were deidentified.   All data had been double entered into a Microsoft Excel spreadsheet by graduate researchers. Researchers independently entered the data twice and congruence checking was completed. Finalized, deidentified data was then transferred from Microsoft Excel into SPSS Version 26 for analysis.

Participants

Participants were included in this dataset if all three parent rating scales were completed. In total, 115 participants from the larger research sample were eligible for this study. Participants were the parents of 63 male and 52 female kindergarten-age students (age range = 58-83 months; M_{months}= 69). Students of the parent participants were recruited from 10 schools in the Mid-Atlantic region of the United States and one additional school from Chicago. Eight of these schools were private Christian schools, one school was located at a public research university and allowed for research studies to be conducted, and two were public elementary schools. The students yielded a predominantly White sample (62% White, 8% African American, 6% Hispanic, 11% Asian, and 13% unknown or mixed race), but parent race/ethnicity

was not collected. In addition, marital status and financial income information were not required for participation in the current study, nor were participants financially compensated for their time.

Parent reports were the primary focus of this study, but it is important to note that teacher reports were also collected. A total of 37 teachers completed teacher-reported measures (SSiS, BRIEF, and CBQ). However, this study focused on parent perceptions and identifying factors associated with the ways in which parents report their child's social skills. Identifying specific factors may help inform the interpretation of scores. It is reasonable to investigate factors influencing parent and teacher judgments of social skills separately given low convergence on total scores (r = .20, p <.01; Heyman et al., 2018) and subscale scores (r's ranged from .13 - .22; Heyman et al., 2018). However, additional researchers suggest that relations between parent and teacher reports of social skills may vary in strength based on the subscale (Lane et al., 2007).

Measures

The Social Skills Improvement System (SSiS)

Parents were asked to complete the Social Skills Improvement System (SSiS; Gresham & Elliott, 2008) to measure overall child social skills, problem behaviors, and academic competence. The SSiS is an extensively used measure with a self, parent, and teacher version. For this study's purpose, only the parent-report ratings were analyzed. The SSiS takes on average 15 minutes for informants to complete and includes 46 items that are comprised of seven subscales: Communication, Cooperation, Assertion, Responsibility, Empathy, Engagement and Self-Control.

Each subscale consists of 6-7 items. Parents were asked to rate the frequency in which they observe their child engage in specific behaviors using a 4-point Likert scale ranging from 0 (*Never)* to 3 (*Always).* Additionally, raters also reported on the perceived importance of the specific behavior on a 3-point Likert scale, from 0 (*Not Important)* to 2 (*Critical*). The SSiS is comprised of three unique scales: social skills, problem behaviors and an academic competence scale which is only found within the teacher-report. This study used the overall Social Skills frequency scale as well as the seven subscales.

Graduate student researchers hand-scored this measure. The overall frequency score is comprised of raw scores from the subscales which are converted into standardized social skills scores based on the student's age. Overall importance ratings were calculated by using the raw mean of items within each subscale to then calculate an overall average score. Subscales of the frequency of social skills were comprised of raw sums of items within each of the seven subscales, while importance ratings at a subscale-level were comprised of the average importance of items within each of the seven subscales.

The SSiS has an acceptable internal consistency and test-retest reliability for both parent and teacher reported scales and subscales (Gresham et al., 2011). Alpha levels for all subscales range in reliability from mid- to high-.80s on the parent report. Additionally, Gresham and colleagues (2011) reported that Cronbach's alpha coefficients for all the seven social skills subscales are greater than or equal to .70.

Within the present study (N = 115), the internal consistencies of the social skills subscales were calculated as follows: communication, (α = .67), cooperation,

($α$ = .80), assertion, ($α$ = .63), responsibility, ($α$ = .77), empathy, ($α$ = .87), engagement, ($α$ = .84), and self-control ($α$ = .79). The internal consistency of the overall social skills frequency was strong ($α$ = .92).

The Social Skills overall frequency scores were normally distributed (see Table 1), as well as all the social skills subscales. Bivariate correlations between subscales found that each scale was significantly and positively correlated with at least one other sub-scale and significant *r*'s ranged from .30's to .70's. In addition, bivariate relations between social skills average importance ratings (see Table 2) showed that each scale was significantly and positively correlated with at least one other subscale. Strength of relationships varied from *r*'s of .40's to .60's.

Table 1

Mean, Standard Deviation (SD), and Correlation among Social Skills Frequency Subscales

Frequency Subscale	1	2	3	4	5	6	7	8
1.Communication								--
2.Cooperation	.509**							--
3.Assertion	.361**	.115						--
4.Responsiblity	.513**	.708**	.339**					--
5.Empathy	.325**	.389**	.406**	.438**				--
6.Engagement	.459**	.168	.609**	.296**	.461**			--
7.Self-Control	.367**	.439**	.232**	.525**	.419**	.371**		--
8.Overall Frequency	--	--	--	--	--	--	--	
Mean	15.74	12.66	14.31	12.04	12.52	14.22	10.84	95.02
SD	2.53	2.44	2.71	2.49	3.38	3.57	3.20	11.88
Minimum	9.00	6.00	8.00	3.00	3.00	4.00	2.00	59.00

Maximum	21.00	18.00	20.00	18.00	18.00	21.00	18.00	128.00
Skewness	-.117	-.015	.023	-.012	-.134	-.305	-.173	.286
Kurtosis	-.334	.468	-.605	1.05	-.298	.008	.074	.678

Note. * *p* < 0.05, ** *p* < 0.01

Table 2

Bivariate Correlations among Social Skills Average Importance Ratings between Subscales

The Behavior Rating Inventory of Executive Function

Average Importance Subscales	1	2	3	4	5	6	7	8
1.Communication								
2.Cooperation	.563**							
3.Assertion	.516**	.507**						
4.Responsibility	.551**	.658**	.627**					
5.Empathy	.481**	.444**	.542**	.548**				
6.Engagement	.631**	.533**	.573**	.505**	.560**			
7.Self-Control	.413**	.538**	.625**	.630**	.459**	.566**		
8. Overall Average Importance	--	--	--	--	--	--	--	
Mean	1.29	1.34	1.25	1.41	1.37	1.32	1.21	1.29
SD	.28	.31	.31	.36	.37	.28	.31	.25
Minimum	.86	.77	.57	.83	.83	.86	.43	.87
Maximum	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Skewness	.627	.238	.411	.230	.385	.657	.831	.731
Kurtosis	-.421	-.732	-.397	-1.31	-1.09	-.376	.359	.016

Note. * *p* < 0.05, ** *p* < 0.01

Parents also completed the Behavior Rating Inventory of Executive Function (BRIEF; Gioia et al., 2000) which is a measure attending to the complex theoretical assumptions of behavioral manifestations of executive functioning abilities and dysfunction in multiple settings (e.g. home, school, work, etc.). The BRIEF also consists of a self, parent, and teacher-report, as well as a preschool version exclusively for students 2-5 years. This study utilized the 5–18-year-old version. The BRIEF has been reported to arguably be the most popular measure of executive functioning inside and outside of lab settings (Ezpeleta et al., 2015).

This measure also takes 15 minutes to complete and consists of 86 items that report on executive functions through eight non-overlapping scales labeled Inhibit, Shift, Emotional Control, Initiate, Working Memory, Plan/Organize, Organization of Materials, and Monitor. BRIEF authors have conducted an exploratory factor analysis on these subscales and a two-factor structure was found: The Behavioral Regulation index which is comprised of a three-scale (Inhibit, Shift, Emotional Control; 8-10 items per scale) and Metacognition, which involves five scales comprised of 6-12 items each (Initiate, Working Memory, Plan/Organize, Organization of Materials, Monitor; Gioia et al., 2002; Lyons et al., 2016). A total Global Executive Composite score is also provided. Parents and teachers are asked to report whether or not the child has engaged in specific problem behaviors within the past six months and to rate the frequency using a 3-point Likert scale ("Never", "Sometimes", Often"). Raw item scores are summed for each subscale and then converted into a standardized T-score based on the student's age. The raw subscale scores are also summed and standardized with T-scores to calculate index or composite scores. The BRIEF uses a

standard mean score of 50 and a standard deviation of 10 when reporting subscale and index scores. T-scores at or below 59 are considered to be within the average range of functioning. T-scores of 60–64 are in the mildly elevated range, and scores equal to or exceeding 65 are considered to be significantly elevated. As such, higher scores indicate greater clinical behavioral concerns surrounding self-regulation. The BRI and additional index scores that will not be used in the present study are comprised of the sum of the T-scores from their respective subscales.

Graduate students also hand-scored this measure. In previous literature, the BRIEF has a well-established reliability with high internal consistency of Chronbach's alphas ranging from .80-upper .90's for both parent and teacher reports. Test-retest reliability has also been reported as high with means in the upper .80 ($r=$ .82-.88). Lastly, inter-rater reliability between parents and teachers produced moderate correlations (Mean $r = 0.32$ for normative samples). Regarding validity, research has indicated high interrater agreement regarding item-scale assignment, and multiple factor analytic studies (Lyons et al., 2016). In addition, research has shown the BRIEF maintains good convergent and discriminant validity when compared to alternative measures (Gioia et al., 2000).

Lyons et al. (2016) performed a confirmatory analysis to determine if a three-factor model would be more beneficial once researchers separated the Monitor subscale into two separate domains (Self-Monitor and Task Monitor). At this time more current findings have reported on the three-factor model being the most beneficial and new indices have developed: Emotional Regulation (Shift, Emotional Control), Behavioral Regulation (Self-Monitor, Inhibit), and Metacognition (Initiate,

Working Memory, Plan/Organize, Organization of Materials, Task-Monitor; Roth et al., 2013; Gioia et al., 2002).

This study further examined the Behavior Regulation Index (BRI) previously established through EFA and a two-factor design with the original eight subscales of the BRIEF (Gioia et al., 2000). The BRI is created through combining scores from Emotion Control, Inhibition, and Shift subscales that relate to how children engage in inhibition to shift cognitions and modulate their emotional responses and behaviors (Peters et al., 2012). Upon further examination of these subscales, the Inhibit scale appears to measure impulsivity-based instances such as acting out and restricting physical impulses. Within the Emotion Control subscale, items highlight lack of emotion control, such as presentation of emotional outbursts. Finally, the Shift subscale measures more cognitive-based questions and appears to focus on internalizing symptoms and inner-conflicts.

This study used the BRI composite as a measure of self-regulation to represent the cognitive perspective. Within the present study's sample, the BRI consists of the subscales inhibit ($\alpha = .83$), shift ($\alpha = .76$), and emotion control ($\alpha = .86$). The BRI internal consistency was acceptable ($\alpha = .88$) and scores were normally distributed (see Table 3).

Within the BRI subscales, parent-report Shift scores were positively skewed and was moderately unevenly distributed (kurtosis greater than the cut-off of 2). Remaining subscales were found to be normally distributed. The bivariate relations of BRI subscales were also examined. Each scale was significantly and positively correlated with the other scales comprising the BRI composite.

Table 3

Mean, Standard Deviation (SD), and Correlation among BRI subscales

BRI Subscales	1	2	3	4
1.Shift				--
2.Inhibit	.274**			--
3.Emotional Control	.364**	.477**		--
4.BRI	--	--	--	
Mean	53.71	52.08	51.77	52.29
SD	11.83	8.27	9.40	8.56
Minimum	35.00	35.00	35.00	35.00
Maximum	99.00	78.00	80.00	75.00
Skewness	1.18	.418	.372	.380
Kurtosis	2.53	.112	-.065	-.263

Note. *$p < .05$, **$p < .01$.

Children's Behavior Questionnaire (CBQ)

Parents also completed the CBQ (Rothbart et al., 2001) which is a measure used to assess dimensions of their child's temperament between the ages of 3 to 7 years old. The CBQ measures specific, daily behaviors that reflect the ways in which children engage within their social worlds. Parents were asked to answer how true 94 questions were regarding their child's reactions to several situations within the last six months. Answers are recorded using a 7-point Likert scale ranging from 1 (*extremely untrue of your child*) to 7 (*extremely true of your child*) with the additional option of a Not Applicable (N/A) response for items where parents have never seen the child in the situation described. Higher scores are indicative of higher level of specific dimensions of temperament traits.

Authors of the CBQ report adequate internal consistency. Specifically, within a sample of four and year year-old children, internal consistency estimates for the CBQ scale ratings ranged from Cronbach's alphas of .64 to .92, with a mean of .73. The internal consistency for the subscales comprised of the effortful control (EC) domain has been reported as acceptable for the attentional focusing ($\alpha = .67$), inhibitory control ($\alpha = .76$), perceptual sensitivity ($\alpha = .64$), and low intensity pleasure scales ($\alpha = .64$; Rothbart et al., 2001).

The present study utilized the EC domain composite score which includes the four scales of attentional focusing, inhibitory control, perceptual sensitivity, and low intensity pleasure. Subscales within the EC domain consist of 6-8 items per scale. Subscales consist of the mean of raw items affiliated with the scale. The overall mean of all the items within the four included scales (e.g., attentional focusing, inhibitory control, perceptual sensitivity, and low intensity pleasure) was calculated to determine the EC domain score.

Within the current study's sample, the internal consistency of the EC domain (using all items across the four subscales comprising the domain) was acceptable ($\alpha = .80$). Subscales of the EC domain produced Cronbach's alphas ranging from .59 to .73. Internal consistency was calculated for the four scales, including attentional focusing ($\alpha = .73$), inhibitory control ($\alpha = .68$), perceptual sensitivity ($\alpha = .59$), and low intensity pleasure ($\alpha = .69$), and findings were found to be relatively similar to the original standardization sample (Rothbart et al., 2001). Overall, the EC domain was normally distributed (see Table 4). Subscales within the EC domain were variable.

Parent ratings of attentional focusing and perceptual sensitivity were moderately skewed negatively, while the remaining subscales were approximately symmetric. All subscales comprising the EC domain were normally distributed (all kurtosis values between -2 and +2). The bivariate relations of EC domain subscales were examined, and each scale was significantly and positively correlated with at least one other scale of the EC domain.

Table 4

Mean, Standard Deviation (SD), and Correlation among Effortful Control subscales

Effortful Control Subscales	1	2	3	4	5
1.Attentional Focusing					--
2.Inhibitory Control	.456**				--
3.Low-Intensity Pleasure	.145	.243**			--
4.Percpetual Sensitivity	.256**	.355**	.237*		--
5. EC Domain	--	--	--	--	--
Mean	5.14	4.96	5.85	5.43	5.34
SD	.96	.93	.58	.84	.57
Minimum	2.33	2.67	4.25	2.17	4.09
Maximum	6.83	6.83	7.00	6.83	6.52
Skewness	-.596	-.282	-.205	-.932	-.273
Kurtosis	.394	-.438	-.388	1.33	-.540

*Note. * $p < 0.05$, ** $p < 0.01$*

Data Analytic Plan

Analyses Accounting for Missing Data

Few items were missing across the three rating scales. Mean substitution was conducted for the measures except for the SSiS such that missing values from the BRIEF and the CBQ (i.e., skipped items) were replaced with the participant's mean score of the remaining items within the subscale for a maximum of two items per subscale. No participants were excluded from analyses such that all the participants were missing two or fewer items per subscale across the SSiS, the BRI (e.g., inhibit, shift, and emotional control), and the EC domain (e.g., attentional focusing, inhibitory control, low intensity pleasure, and perceptual sensitivity).

Regarding the SSiS, research lab members followed the procedures as specified by the SSiS manual to handle missing items. Original scoring procedures of the SSiS involved lab members providing "adjustment values" for subscale scores when one item was missing, and to the overall social skills frequency scores when four or fewer items were missing. According to the SSiS manual, adjustment values are added to subscale scores to, "present a more accurate scale or subscale score estimation" (Gresham & Elliot, 2008 p.22). When reviewing the raw data from the SSiS, no participants exceeded more than one item missing from each subscale, nor did participants exceed more than four items missing from overall frequency scores. Adjustment values were added to those participants.

Within the subscales comprising the BRI, mean substitution was applied to four participants (3% of the study's sample) within the Shift, Inhibit, and Emotional Control subscales. Specifically, each participant was missing one item. No missing items overlapped between participants. As such, standardized BRI scores were recalculated with mean substituted items.

Within the EC domain, mean substitution was used for five participants (4% of the study's sample) who each did not complete one to two items across subscales. Two of the five participants entirely skipped one, non-overlapping item, and the remaining three participants did not complete two items each. Of all the items, #94 ("enjoys gentle rhythmic activities, such as rocking or swaying") was overlooked by two participants. No other items were skipped by multiple parents.

Preliminary Analyses

Preliminary Descriptive Analyses. Preliminary analyses for the present study reported descriptive information regarding the sample for each measure after removing influential outliers or data. Preliminary descriptive analyses included tests for normality and the skewness of the data, bivariate correlational analyses of the relations among the various subscales of each measure (see Tables 1-4) and assumption testing for multiple linear regression.

Correlations within Measures. Preliminary bivariate correlations were conducted to determine the relations among the seven social skills subscales as reported by the SSiS (see Table 1). Additional bivariate correlations were conducted to determine the relations among the importance ratings of the seven social skills subscales (see Table 2), as well as the three subscales comprising the BRIEF's BRI (e.g., inhibit, shift, and emotional control; see Table 3), and the four EC domain subscales (e.g., attentional focusing, inhibitory control, low-intensity pleasure, and perceptual sensitivity; see Table 4) of the CBQ.

Preliminary Replication Analyses. Previous studies have reported on specific social skills that parents have rated most important for their child's social

development (Lane et al., 2007; Ruffalo & Elliot, 1997), but have neglected to explore the ways in which the importance of specific social skills relates to their specific frequency. As such, bivariate correlations examined the relationships between overall frequency scores and overall average importance ratings, then scores at a subscale-level. Specifically, analyses within this sample sought to replicate previous findings by Frey and colleagues (2014) who reported moderately positive relations between overall frequency (e.g., social skills total scaled score) and overall importance ratings (e.g., raw mean score of all importance ratings) within the SSiS. Frey and colleagues' (2014) sample is comparable to the current study (ages 3-5 years, predominantly White sample). This study expected to replicate the moderately positive correlation within this sample while contributing additional research by analyzing relations at a subscale-level.

When studying these relationships at a subscale-level, bivariate relations between the frequency and importance ratings of the seven social skills subscales were expected to vary in strength. Specifically, previous research (e.g., Elliot et al., 1989; Frey et al., 2014) has reported that parents indicated items from five of the seven social skills subscales (e.g., cooperation, engagement, responsibility, assertion, and communication) to receive the greatest percentage of critical importance ratings. The two remaining subscales (empathy and self-control) had zero items in the top-ten to receive the greatest percentage of critical importance ratings. Given the variability in critical importance ratings of these subscales, it was expected that the relations between social skills frequency and importance ratings will vary across the subscales.

Additional replication analyses were used to examine the relationship between parent-reported self-regulation and social competency as measured by SSiS overall frequency scores. The constructs of self-regulation and social competency have been well-established in research such that for individuals to successfully interact within their social worlds, they must regulate their responses and adapt to social demands of different contexts (Robson et al., 2020). It was expected that social skills frequency, both overall and at a subscale-level, would positively correlate with both measures of self-regulation (BRI and EC domain). However, it was anticipated that subscale-level correlations would vary in strength such that specific social skills may require this child exhibiting greater self-regulatory capabilities than other social skills.

Preliminary Explorative Analyses. Preliminary explorative analyses examined the relations between social skills importance and children's self-regulation capabilities as measured by the composite score labeled the BRI from the BRIEF, and by the EC domain of the CBQ. This was the first known study to evaluate the relationship between parents' importance ratings of social skills and their perceptions of how well their child engages in self-regulation. Two partial correlation analyses were used to explore these relationships to remove the potential confounding effects of additional variables. Overall social skills frequency was controlled for first, followed by the other measure of self-regulation to examine the link between the overall importance (mean score of all social skills importance ratings) and each self-regulation measure. Frequency was controlled for as it relates to social skills importance, and one self-regulation measure was controlled for due to the two

measures exhibiting some degree of overlap within their items, which would obscure the relation of the other self-regulation measure with the importance of social skills.

Multiple Linear Regression Analyses

Using G*Power, the minimum number of participants needed for this study was identified through an a priori power analysis. The two self-regulation measures were ran in two separate analyses with different self-regulation measures as the dependent variable and three independent variables in each model. Each model consisted of the independent variables including importance, one measure of self-regulation (e.g., the BRI or the EC), and their interaction. G*Power results recommended a minimum sample size of 77 participants to retain power near .80 with a significance level of .05 and a smaller effect size ($f^2 = .15$) with three predictor variables. It is determined that the sample used in this study was sufficient.

Using two separate analyses to account for the two measures of self-regulation (BRI and EC domain), the present study sought to determine how much variance in overall social skills frequency is explained by all of the predictors taken together in each model, as well as the extent to which each independent variable contributes a unique amount of variance in the outcome variable, while controlling for the other predictors. Multiple linear regression was used to determine changes in R^2 among the variables of interest (i.e., self-regulation as measured through EC domain, BRI, social skills, and importance ratings of social skills) as well as the two interaction terms among importance ratings and self-regulation measures (SSiS importance x BRI and SSiS importance x EC domain). Assumptions of multiple regression analyses were considered to ensure the correct analyses are being implemented in this study.

Assumption testing included tests for linearity, homoscedasticity, and multicollinearity among predictors.

Chapter 4: Results

Descriptive Analyses

Descriptive information regarding measures used in this study are found within Tables 1-4. Descriptive analyses sought to explore relations within and between variables, while also replicating prior findings that link social competence and self-regulation, as well as social skills frequency and social skills importance.

Bivariate Correlations Within Measures

Bivariate correlations of subscales within each measure used in the present study are presented in Tables 1-4. Each measure's subscales were significantly correlated with at least one additional subscale in the domain. Bivariate relationships between the measures being used in the current study are reported in Table 5 of the *Appendix.*

Identifying Critically Important Items

Procedures seen in Frey et al. (2014) were replicated to make the current study more comparable to Frey's research. Each item's parent importance rating from the SSiS was reviewed and the top-10 items with the highest percentage of "critical" importance ratings were identified. Multiple similarities were discovered regarding the prosocial behaviors that parents report to be highly valued between studies. Item descriptions and percentages of parents rating the items to be of "critical" importance are reviewed in Table 6 (see *Appendix).*

Replication Analyses

Overall Social Skills Frequency and Overall Average Social Skill Importance

      Social skills frequency and importance have been found to be moderately

correlated (Frey et al., 2014; Lane et al., 2007) and preliminary replication analyses

further explored this relationship. Bivariate correlational analyses between the SSiS

overall social skills frequency and overall average social skills importance ratings

indicated a moderately positive relationship ($r = .303$, $p = .001$; see Table 8) which

replicates prior findings.

Social Skills Frequency and Self-Regulation

      Bivariate correlation was also used to replicate previous research that links

self-regulation and social competency (Eisenberg et al., 2002; Robson et al., 2020).

Self-regulation was captured using two separate measures to represent the two

different theoretical orientations and significant relations were found with each (see

Table 7). Analyses were conducted first by using the overall frequency scores, then

by using subscale-level frequency scores from the SSiS. Bivariate correlations

between overall social skills frequency and the BRI were significant, and moderately

negative (see Table 7; $r = -.368$, $p < .001$). As overall frequency of socially skilled

behavior increased, BRI scores, indicative of concerns with self-regulation,

decreased. At a subscale level, frequency scores of multiple, but not all social skills

subscales significantly correlated inversely with the BRI. Communication ($r = -.377$),

Cooperation ($r = -.453$), Responsibility ($r = -.394$), and Self-Control ($r = -.425$) were

significantly linked to the BRI (see Table 7), while the subscales including Assertion

($r = -.011$), Empathy ($r = -.155$), and Engagement ($r = -.105$) were not significantly related to the BRI.

Self-regulation as measured by the EC domain was also significantly correlated to overall social skills frequency ($r = .450$, $p < .001$). Higher overall social skills frequency scores were linked to higher EC domain scores. At a subscale level, frequency scores of six of the seven social skills demonstrated bivariate relations to the EC domain (r's ranged from .231 to .526; see Table 7. Similar to findings reported from the relations between importance and the BRI, the subscale Engagement was not significantly related to the EC domain ($r = .136$).

Table 7

Relations Between Social Skills Frequency and Self-Regulation Measures

Subscale Frequency		Comm	Coop	Assrt	Resp	Empathy	Engage	Self-Control	Overall Frequency
Self-Regulation Measure	BRI	-.337**	-.453**	-.011	-.394**	-.155	-.105	-.425**	-.368**
	EC	.378**	.526**	.186**	.414**	.231*	.136	.335**	.450**

* $p < 0.05$, ** $p < 0.01$

Exploratory Analyses

Social Skill Subscale Frequency and Average Importance

Previous research has linked overall frequency and overall average importance of social skills. The current study explored relations of frequency and important at the subscale levels as well. As expected, relationships varied in strength across subscales. Specifically, the Engagement subscale demonstrated a moderately positive relationship between Engagement frequency and average importance ($r = .405$), while four of the six remaining subscales exhibited weak to moderate, positive

bivariate correlations (*r's* .20's - .30's). The Cooperation and Self-Control subscales did not demonstrate significant relationships between the subscale's frequency and average importance (see Table 8). A series of Fisher's *z* tests revealed no significant differences between the subscale correlations, suggesting that specific social skills vary, but aren't significantly different.

Table 8

Bivariate Correlations between Frequency and Average Importance Ratings of Social Skills

SSiS Subscales	1 F	2 F	3 F	4 F	5 F	6 F	7F	8F
1.Communication Importance	.271**							
2.Cooperation Importance		.132						
3. Assertion Importance			.374**					
4.Responsibility Importance				.355**				
5.Empathy Importance					.279**			
6.Engagment Importance						.405**		
7.Self-Control Importance							.160	
8.Overall Average Importance								.303**

Note. F = subscale frequency score; Importance = subscale average importance rating
* *p* < 0.05, ** *p* < 0.01

Bivariate Correlations between Self-Regulation and Social Skills Average Importance

While multiple significant bivariate relationships were established between social skills frequency and self-regulation measures (i.e., communication, cooperation, responsibility, and self-control were significantly correlated to both the BRI and EC domain), no specific social skills importance ratings were significantly

related to self-regulation measures. Non-significant relations from the bivariate correlational analyses are depicted in Table 9 of the *Appendix.*

Partial Correlations Between Predictors

Two partial correlational analyses were conducted to determine the relationship between predictor variables (i.e., importance ratings and self-regulation measures) without the confounding influence of additional variables. Overall social skills frequency was controlled for, followed by the other measure of self-regulation not being used (EC domain or the BRI). As provided in Tables 10 and 11 in the *Appendix,* overall importance and self-regulation was not related, neither after controlling for overall frequency, nor after controlling for the other measure of self-regulation. When exploring partial correlations at a subscale-level, one SSiS subscale, Engagement, exhibited a weak, yet significant, negative relationship to EC after controlling for overall frequency ($r = -.186$, $p < .05$). This finding was surprising considering the relationship between EC and the average importance of Engagement was non-significant when social skills frequency was not controlled for ($r = -.040$, see Table 9).

Multiple Regression Analyses

Two multiple linear regression analyses were conducted to address the hypothesis that overall average social skills importance interacts with self-regulation as measured by the BRI and the EC domain to uniquely explain the variance in overall social skills frequency scores.

Assumption Testing

Prior to running regression analyses, assumption testing was conducted to check the normality, homoscedasticity, lack of multicollinearity, and outliers within the dataset.

Normality of Errors. Each regression was checked for normality using a P-P plot. The residuals appeared to be normally distributed across all multiple regression models.

Independence of Observations. Durbin-Watson statistics were used in each regression to check for the assumption of independence of observations. All Durbin-Watson values fell between 1 and 3, indicating that the observations in the data set were independent from one another.

Homoscedasticity. The assumption of homoscedasticity was checked by creating a scatterplot of standardized residuals versus standardized predicted values of each regression and examining the distribution of the residuals. The scatterplots showed no obvious signs of funneling or that of a cone shape, indicating that the variance of the residuals was constant and not heteroscedastic.

Multicollinearity. The assumption that there is no multicollinearity among the independent variables was checked by examining bivariate correlations and the VIF and Tolerance statistics of each regression. No bivariate correlations among the independent variables exceeded r - values of .50. Furthermore, VIF values did not exceed 10 and Tolerance values did not fall below .20. Therefore, the independent variables were not overly correlated with one another, and the assumption was met.

Influential Outliers. Tukey's method was used to test the assumption of no influential outliers of each case for each regression. The revised model by Hoaglin

and Iglewicz (1987) was used for assumption testing in which upper and lower quartile cut-offs were established with respect to the dataset. According to Tukey's method, an Inter-Quartile Range of 2.2 is used as a cut-off to identify cases that fall in the lower and upper extremes quartiles. An Inter-Quartile Range of 2.2 roughly translated to scores falling above or below three standard deviations from the means within the dataset. As such, two participants were excluded from regression analyses. One participant's overall social skills frequency score was 59, which is more than three standard deviations below the mean score, and the second participant's score of 128 fell three standard deviations above the mean score. The current study's final sample was 113 parents.

Regression Analyses

Two multiple linear regression models were used to determine how social skills importance, self-regulation as measured through the BRI or the EC domain, and their interaction explains the variance in parent-rated overall social skills frequency scores.

Model 1: Importance, BRI, and their Interaction on Overall Frequency. The results of the multiple linear regression analysis (reported in Table 12) indicated that together, importance and BRI, and their interaction term, explained 26.8% of the variance in overall social skills frequency scores ($\Delta R^2 = .268$, $F(3,109) = 13.305$, $p < .001$). Using standardized beta coefficients, analyses found that the predictor overall average importance of social skills ($\beta = .275$, $p = .001$) significantly explained a unique amount of variance in overall social skill frequency scores when holding all other predictors constant. Additionally, self-regulation, when measured using the BRI

(β = -.332, p < .001) also accounted for a unique amount of variance in overall social skills frequency scores. The interaction term between the overall average importance and the BRI was found to be marginally significant with a small effect size when explaining additional variance beyond what predictors accounted for individually (β = -.166, p = .052; with a 95% CI= -1.621 to .0076).

When analyzing the predictors individually, overall social skills frequency scores increased by .275 standard deviations (3.04 points on the SSiS) for every one standard deviation increase in overall average importance ratings. In addition, frequency scores decreased by .332 standard deviations (or 3.67 points on the SSiS) for every one standard deviation increase in BRI scores when holding all else constant. As a reminder, higher BRI scores indicate greater concerns with regulating emotions and behaviors. Given that the interaction term was marginally significant, simple slope analyses were conducted, showing that for every one standard deviation increase in the interaction term there was a .166 decrease in standard deviations of social skills frequency scores (1.83 points on the SSiS; see Table 12).

Simple slopes for the association between social skills importance and social skills frequency were tested for high (-1 SD below the mean; BRI is reverse scored), moderate (mean), and low (+1 SD above the mean) levels of self-regulation measured by the BRI (see Table 13). Two of the three simple slope tests revealed a significant positive association between social skills importance and frequency. Specifically, importance was more strongly related to frequency when self-regulation was high ($\beta = 19.23, t(109) = 4.12, p < .001$) or moderate ($\beta = 12.29, t(109) = 3.27, p < .01$). No significant relationship between importance and frequency was

found at low levels of self-regulation ($\beta = 5.34, t(109) = .9503, p = .334$). As depicted in Figure 1, the strength of the relationship between social skills importance and social skills frequency increases as the level of self-regulation increases. This interaction finding was predicted, but the pattern in which higher self-regulation moderates the relationship between social skill importance and frequency was the opposite of the hypothesis.

Model 2: Importance, EC, and their Interaction on Overall Frequency. This analysis regressed importance ratings, self-regulation as measured by the EC domain, and their interaction on participants' overall social skills frequency scores. The results indicated that the predictors all together explained 32.5% of the variance ($R^2 = .325$, F(3,109) = 17.469, $p < .001$). Overall average importance significantly accounted for a unique amount of variance in overall frequency ($\beta = .281$, $p<.001$), as did the EC domain ($\beta = .432$, $p<.001$) when holding self-regulation constant. However, the interaction term between overall average importance and the EC domain did not significantly explain a unique amount of variance in social skills frequency scores (see Table 12). This finding was inconsistent with one of the hypotheses of this study such that it was expected that the interaction term between predictors would explain social skills frequency beyond the other variables.

Overall social skills frequency scores increased by .281 standard deviations for every one standard deviation increase in importance ratings (or 3.106 points on the SSiS) and increased by .432 standard deviations for every one standard deviation increase in EC scores when holding all else constant (4.77 points on the SSiS). Both importance and EC were significant predictors of social skills frequency, and each

explained a unique amount of variability in the overall social skills frequency scores.

However, the interaction between overall average importance and the EC did not

significantly contribute variance in overall frequency above what individual

predictors can explain, even though the slope pattern when examined at different

levels of self-regulation was similar to findings using the BRI (see Figure 2).

Table 12

Multiple Linear Regression of EC, BRI, Importance, and interaction terms on Frequency

| Predictors	Overall Social Skills Frequency				
	Model 1	$CI_{95\%}$ LLCI ULCI	**Model 2**		$CI_{95\%}$ LLCI ULCI
	Standardized β		Standardized β		
Importance	.275***	4.836 19.735	.281***		5.401 19.650
BRI	-.332***	-.641 -.217	--		--
EC	--	--	.432***		5.353 11.462
Importance x BRI	-.166 †	-1.621 .0076	--		--
Importance x EC	--	--	.117		-3.522 23.237
F	F (3, 109) = 13.305***	93.098 96.686	F (3, 109) = 17.469***		93.179 96.633
R²	.268	--	.325		--
ΔR²	.268	--	.325		--

Note. †*p*< .10. **p* < .05. ***p* < .01. ****p* < .001.

Table 13

Simple Slopes M ± 1 SD value of moderator (Self-Regulation through the BRI)

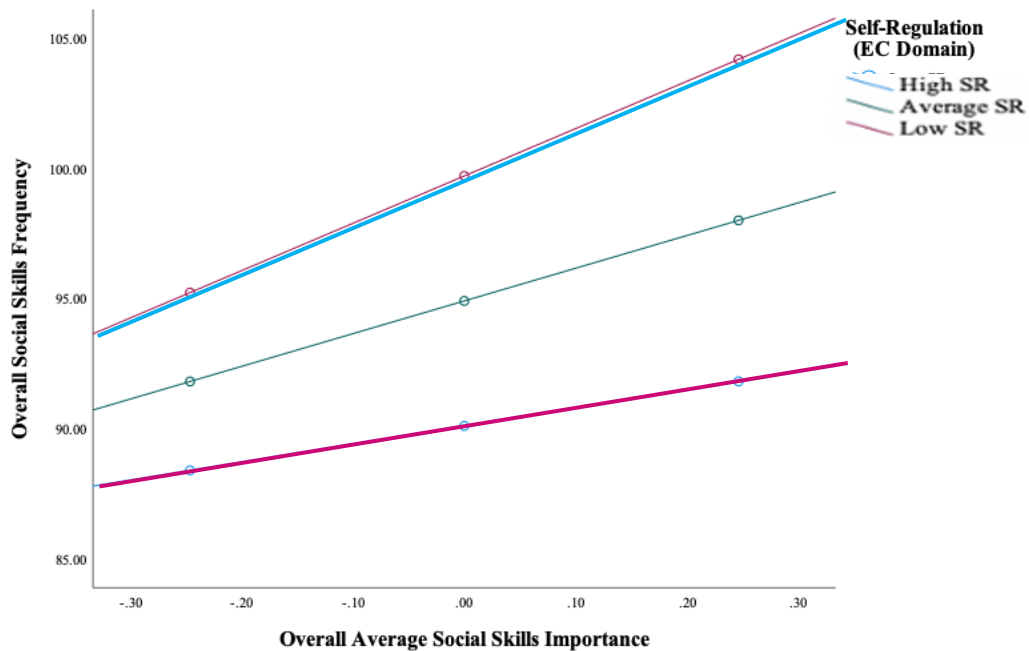| Level of Self-Regulation		Effect	*SE*	*t*	*p*	CI$_{95\%}$ LLCI	ULCI
High Self-Regulation	-1 SD	19.23	4.67	4.12	<.001	9.99	28.28
Moderate Self-Regulation	0 mean	12.29	3.76	3.27	<.01	4.84	19.73
Low Self-Regulation	+1 SD	5.34	5.62	.95	.34	-5.79	16.46

Figure 1

Interaction Graph at Different Levels of Self-Regulation (BRI)
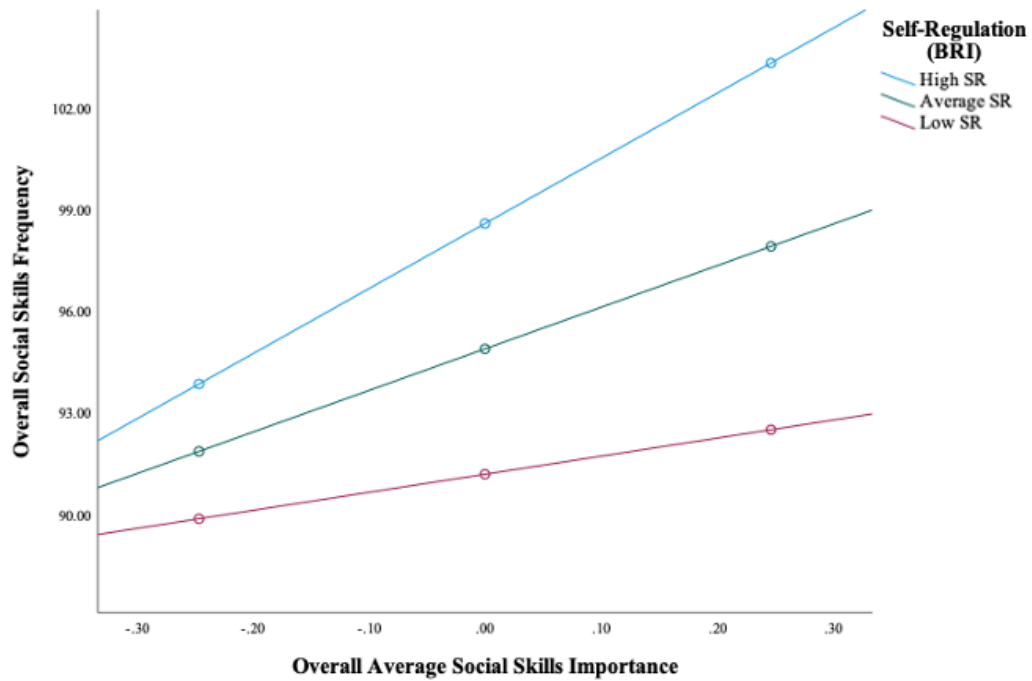
Figure 2

Interaction Graph at Different Levels of Self-Regulation (EC Domain)

Chapter 5: Discussion

     This study aimed to highlight the ways in which parents' ratings of social skills importance and children's self-regulation interacted to predict the frequency of children's displayed social skills. Social skills importance and self-regulation were examined as individual predictors of social skills frequency, given that the skills reported as more important by parents tend to be reported as occurring with higher frequency (Frey et al., 2014; Lane et al., 2007; Elliot et al., 1989) and that self-regulation is a robust predictor of socially effective behaviors (Rhoades et al., 2009; Robson et al., 2020). Parent ratings are useful in providing insights about children's functioning and are often used as a basis for developing interventions geared towards

increasing socially competent behaviors (Gresham & Elliot, 1990; Heyman et al., 2018; Major et al., 2015).

Hypotheses included that 1) social skills importance would account for a unique amount of variance in social skill frequency scores such that parents would place higher values on skills they wished to see more of and 2) an interaction between importance and self-regulation would be significant such that the relation between importance and frequency of social skills would be strengthened, particularly when parents perceived their child as poorly regulated. The first hypothesis was supported, while the second was not supported.

Preliminary analyses were conducted that replicated patterns observed in prior literature such that social skills frequency was significantly related to both predictors, importance ($r = .303$; Frey et al., 2014; Lane et al., 2007) and self-regulation (BRI $r = -.368$; EC domain $r=.450$; Blaire et al., 2004; Ciairano et al., 2007; Eisenberg et al., 1995), but novel exploratory findings revealed that parent importance ratings did not matter in terms of parent ratings of their child's self-regulation. Parents reported frequency of social skills, but not perceived importance of social skills, correlated to self-regulation. The value parents placed on specific social skills was independent of their impressions of their child's regulatory strategies. This pattern was contrary to the expectation that parent importance ratings would be biased by their impressions of their child's self-regulation, which was the basis for predicting the interaction effect previously described. However, this pattern is also logical in that social competence relies on children aligning their responses with social demands, regardless of the importance of doing so.

Social skills importance and self-regulation (as measured by the BRI and EC domain in two separate models) significantly explained a unique amount of variance in social skills frequency, which supported the first hypothesis. The second hypothesis was not supported in that when self-regulation was measured by the BRI, findings demonstrated a marginally significant ($p = .052$) interaction. Simple slope analyses indicated that the direction of such effect was opposite of what was predicted. The relationship between social skills importance and frequency depended on the level of self-regulation, which suggests that children's abilities to regulate their emotions and behaviors plays a crucial role in parents' observations of their social skills, regardless of the importance of those skills. A similar, yet non-significant, pattern emerged when self-regulation was measured by the EC domain.

Simple slope analyses, conducted to examine the marginally significant interaction effect found with the BRI, revealed that moderate and higher self-regulation bolstered the relationship between social skills importance and frequency. When self-regulation was low, the relationship between social skills' importance and frequency was not significant. In other words, if children are not able to regulate their responses to their social worlds, then they do not exhibit socially competent behaviors, even though parents continue to place higher emphasis on the socially competent behaviors. Hence, the hypothesis that parents' ratings of importance would be biased by their perceptions of their children's self-regulation was not supported despite finding an interaction.

The discrepancy between higher parent importance ratings and lower parent reported self-regulation may motivate parents to seek interventions addressing ways

in which they can better support their child in managing responses to social situations and in turn strengthen prosocial behaviors. Parent values of social skills are important, but when thinking about interventions, focusing on the actual skills that need to be strengthened, as opposed to focusing on what parents believe to be important, is crucial. In other words, parent values have driven previous social skills interventions (Ruffalo & Elliot, 1997) but also providing greater focus on the ways to increase self-regulation skills themselves appears to be most effective in increasing the frequency in which children engage in social skills.

Limitations

This study contributes to research on the ways in which parents perceive socially competent children, but there are multiple limitations to address. First, most participants were recruited from private schools, specifically in the Mid-Atlantic region of the United States, and over half were White (62%), which questions the generalizability of the findings of this study to other types of schools and to the national population. There are also limitations regarding the measures used in this study. Specifically, the SSiS is the only measure that collects informant importance ratings, which limits researcher accessibility of this construct.

In addition, this study did not utilize SSiS teacher-reports which could have revealed different patterns in the ways in which informants determine the importance of specific areas of social skills. For example, Frey et al. (2014) reported that teacher ratings of social skills frequency and importance ratings were correlated, which suggests that exploring the difference between parent and teacher informants may be beneficial. Parents and teachers may also perceive different social skills to be more

important based on the contexts in which those skills are observed (Frey et al., 2014; Teglasi et al., 2017). For example, a child may engage in higher levels of cooperation in school with their classmates as opposed to sharing a toy at home with a sibling. Future research may wish to further identify specific contexts both in school and at home (i.e., completing homework, group projects, meeting new adults with a parent) which may promote specific areas of social skills to align with demands of particular social situations.

Another limitation is that the values and biases parents hold may vastly differ based on a variety of cultural, geographical, and broad societal factors, which again makes the generalization of results challenging and questions the need to explore moderators of these relations reported in the study. For example, the ways in which parents share or reinforce their beliefs regarding specific social skills they find to be of utmost importance to their children may impact the ways in which their children engage in those specific social skills. Findings from this study highlighted a few skills that the majority of parents within this sample had deemed "critical" such as taking responsibility for one's own actions, behaving while unsupervised, and expressing manners (i.e., saying "thank you"). Future research may also wish to consider factors including parent-child interactions, the nature of the parent-child relationship, and household dynamic (e.g., parenting style, house rules, and parent temperament). Greater parent involvement has also been found to be beneficial to social competency-based interventions such that parents are influential in children's acquisition, generalization, and maintenance of social skills (Ruffalo & Elliot, 1997).

Conclusions and Implications

Despite these limitations, this study contributes to existing literature regarding parents' values and factors that affect how they perceive their child's social skills in many ways. Parent perceptions are valuable given that they often witness their child's behaviors in a wide variety of settings and situations and can provide insight into their child's specific social skills (Kolb & Hanley-Maxwell, 2003). As such, findings indicated that parents do not modify their beliefs as to what social skills they feel are important on the basis of their impressions of their child's self-regulation. Specific social skills were also identified as most critical to parents and were compared to prior literature (Frey et al., 2014) which confirmed that parents prioritize a range of behaviors including but not limited to getting along with peers, following directions, and taking responsibility for one's actions. Parent's personal values might drive their motivation to seek out and participate in interventions promoting social competent behaviors that they feel is important. Given that overall average social skills importance relates to overall social skills frequency depending on moderate and high levels of self-regulation, future research may consider regressing importance, self-regulation, and their interaction on social skills at a subscale-level to identify specific areas social skills that are more associated with the predictors. Most importantly, this study reveals that the importance of social skills contributes to how often these skills are observed after accounting for self-regulation, and that self-regulation significantly moderates the relation between importance and perceived frequency.

Table 5

Bivariate Correlations Between Predictors

Measure	1	2	3
1.BRI			
2.EC	-.312**		
3.Overall Importance	-.079	.092	

Note. * *p* < 0.05, ** *p* < 0.01

Table 6

Comparing Top-10 Ranked Critically Important Items: Frey et al. (2014) and the

Current Study

Frey (2014) Item	Social Skill Subscale	% Parent critical rating	Present Study Item	Social Skill Subscale	% Parent critical rating
**17: Follows your directions	Cooperation	72.6	**26: Takes responsibility for her/his own actions	Responsibility	58.7
**16: Is well-behaved when unsupervised	Responsibility	60.0	**16: Is well-behaved when unsupervised	Responsibility	41.1
11: Says when there is a problem	Assertion	56.8	4: Says "thank you"	Communication	47.1
10: Takes turns in conversations	Communication	55.8	**29: Interacts well with other children	Engagement	41.1
32: Does what he/she promised	Responsibility	53.7	**12: Works well with family members	Cooperation	45.7
**29: Interacts well with other children	Engagement	49.5	**17: Follows your directions	Cooperation	44.9

**26: Takes responsibility for his/her own actions	Responsibility	49.5	7: Pays attention to your instructions	Cooperation	44.2
**42: Takes responsibility for his/her own mistakes	Responsibility	49.8	**42: Takes responsibility for her/his own mistakes	Responsibility	43.4
**45: Stands up for her/himself when treated unfairly	Assertion	48.4	**45: Stands up for herself/himself when treated unfairly	Assertion	42.8
**12: Works well with family members	Cooperation	47.4	38: Shows concern for others	Empathy	42.8

Note. ** = both studies ranked the item in the top-10 most critically important social skills

Table 9

Relations Between Social Skills Average Importance and Self-Regulation Measures

Subscale Average Importance		Comm	Coop	Assrt	Resp	Empathy	Engage	Self-Control
Self-Regulation Measure	BRI	-.094	-.070	-.097	-.157	-.063	.009	-.103
	EC	.163	.005	.177	.150	.073	-.040	.088

Table 10

Partial Correlations Between Predictors Controlling for Frequency

Control Variable	Variable	1	2	3
Overall Frequency	1.BRI		--	.036
	2.EC	--		-.052
	3.Overall Average Importance	.036	-.052	

Note. correlation analyses were not conducted between variables

Table 11

Partial Correlations between Predictors Controlling for Self-Regulation Measure

Control Variable	Variable	BRI	EC	Overall Average Importance
BRI	Overall Average Importance	--	.071	1
	EC	--	1	.071
EC	Overall Average Importance	-.053	--	1
	BRI	1	--	-.053

Note. correlation analyses were not conducted between variables

<div align="center">**References**</div>

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