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A MODEL AND MEASURE OF US PARENTS' PERCEPTIONS OF YOUNG CHILDREN'S PARASOCIAL RELATIONSHIPS

Bradley J. Bond and **Sandra L. Calvert**

Children's parasocial relationships have been understudied, even though recent research suggests that children learn better from socially meaningful than from socially irrelevant media characters. This study articulates a model of parasocial relationship development among children and, in the process, establishes new measures of children's parasocial interactions and parasocial relationships. Parents of children (≤ 8 years old) completed an online questionnaire about their child's favorite media character. The measure of parental perceptions of children's parasocial relationships was composed of three dimensions: character personification, social realism, and attachment. The measure was then utilized as the endogenous variable in a model predicting parental perceptions of children's parasocial relationships. The model revealed that engagement with toy replicas of media characters, repeated media exposure, parent encouragement, and parasocial interactions were significantly related to parental perceptions of young children's parasocial relationships. The possible influence of parasocial relationships on children's potential to learn from media characters is discussed.

KEYWORDS parasocial relationship; parasocial interaction; structural equation modeling; parent engagement; toy play; parent survey

Individuals form close interpersonal relationships with significant people in their lives, particularly with family members, friends, and significant others (Bowlby, 1969). Yet, as media continue to saturate our social environments, relationships with media characters not only exist, but can become important components of individuals' perceived social networks (Giles, 2002). Emotionally tinged relationships with media characters that parallel real social relationships have been termed parasocial relationships (Horton & Wohl, 1956). The development and maintenance of parasocial relationships (PSR) is similar in many ways to the development and maintenance of face-to-face friendships. For example, people use the same factors to evaluate real-life others that they use to make judgments about media characters (Rubin & McHugh, 1987). Face-to-face friendships and PSR also follow similar processes of development, whereby time spent together can lead to familiarity and liking, ultimately leading to relationship formation (Rubin & McHugh, 1987). PSR with media characters, then, can develop into important, meaningful components of audiences' social worlds.

Most of the research investigating the development of PSR has examined adult audiences' relationships with media characters. The few studies investigating children's PSR have suggested that elementary school children develop stronger relationships with media

characters of the same sex who they find to be realistic and who possess positive, prosocial qualities (see Hoffner, 2008). Although most of the research on children's PSR has been conducted with elementary school children, Rosaen and Dibble (2008) found that the youngest participants in their sample of 5- to 12-year-old children developed the strongest PSR with media characters. Moreover, studies suggest that children as young as 18 to 21 months can develop PSR with media characters (Calvert, Richards, & Kent, 2013; Gola, Richards, Lauricella, & Calvert, 2013).

In one study, Gola and colleagues (2013) attempted to control the development of PSR among 21-month-old children using a longitudinal experimental design involving DoDo, a children's character extremely popular in Taiwan but unknown to children in the United States. In a familiar treatment condition, 18-month-old children were exposed to videos featuring DoDo and were given toy replicas of DoDo to play with for 3 months. In an unfamiliar treatment condition, children were not exposed to DoDo. When the children in both conditions were 21 months old they viewed DoDo perform an early mathematical seriation task on video and were asked to subsequently perform the seriation task. Children in the familiar treatment condition did not learn the seriation task significantly better than children in the unfamiliar treatment condition, suggesting that familiarity with the character was not enough to influence learning. However, within the treatment condition, children who performed more imaginative nurturing behaviors (e.g., feeding the character, putting the character to bed, giving the character a bath) with the toy replica of DoDo over the 3-month period scored higher on the seriation task than the children who engaged in fewer nurturing behaviors (Gola et al., 2013). Because prosocial care-taking behaviors are often indicative of emotional feelings for others (Batson, Lishner, Cook, & Sawyer, 2005), the authors argued that children who were engaging in nurturing behaviors with DoDo had developed stronger PSR with the character and, in turn, were better able to learn from the character (Gola et al., 2013). Children not only develop PSR, but PSR with media characters may increase the likelihood children will learn from media characters.

Further evaluation of how children develop PSR seems warranted if strong PSR with media characters could influence children's ability to learn from those characters. The primary theoretical objective of the current study was to develop and test a proposed model for young children's parasocial relationship development. The secondary, methodological objective was to develop new scales to operationalize young children's parasocial interactions (PSI) and PSR. When collecting data on young children's media habits (≤ 8 years old), parents are likely to provide estimates that are more reliable than those provided by children (Common Sense Media, 2013). Thus, to meet the objectives of the current study, parents of young children were surveyed using novel measures of PRS and PSI that were then used to develop a broader model of parental perceptions of young children's parasocial relationship development.

Dimensions of PSR in Early Childhood

Operationalizing and measuring PSR among children has varied greatly in the literature. Common features among these measures are that they focus on children's favorite characters and that PSR are treated as a multi-dimensional construct. For example, Wilson and Drogos (2007) used a 2-item scale to measure PSR that reflects *character personification*, asking children how much they would like to be friends with their favorite media characters and how much they would like it if their favorite media characters went to their school. Hoffner (1996)

asked 7- to 12-year-old children a short series of questions about their favorite media characters to measure PSR, including items that assessed *attachment* and *attraction*. In their study on *social realism* and PSI, Rosaen and Dibble (2008) expanded Hoffner's (1996) scale. Previous research on children's PSR, then, suggests that character personification, attachment, attraction, and social realism may be the underlying dimensions of young children's PSR.

Character Personification

In order to have relationships with media characters, person-like qualities must first be assigned to those characters. Hoffner (2008) found that the development of PSR with media characters is similar to the development of social relationships with friends or neighbors. Giles (2002) argued that once audiences assign personhood to media characters, those characters are then incorporated into audiences' social worlds. Given that most adults form PSR with actors, news anchors, or celebrities, it should not be a difficult task for adults to confirm the personhood of their favorite media personalities and, in turn, possibly develop one-way relationships with those personalities (Giles, 2002). Children, however, may be more likely than adults to also form relationships with anthropomorphized beings or fantasy characters, such as Nickelodeon's SpongeBob SquarePants or *Sesame Street's* Elmo. If PSR develop similarly with non-human media characters as they do with human characters, then children may be imaginatively personifying their favorite media characters. Character personification as defined here is akin to the concept of similarity identification, which may be an important component of adults' PSR development (Giles, 2002). The key feature of similarity identification is the sharing of perspective (Feilitzen & Linné, 1975). That is, individuals must be able to distinguish features or attributes of a media character that they also see in themselves.

Attachment

Young children seek proximity to others with whom they have an attachment to garner feelings of comfort and security (Bowlby, 1969). It is possible that children seek comfort and security from familiar media characters in similar ways that they seek these feelings from face-to-face relational others. Giles (2002) uses the term attachment interchangeably with PSR, while others have studied attachment as a factor influencing the strength of PSR (Cohen, 1997). Cole and Leets (1999) argued that individuals form attachments to media characters much the same way they form attachments in face-to-face relationships and that the presence of the attachment figure should provide a sense of security to the viewer.

Attraction

Several studies have found that physical attraction to media characters is an important predictor of PSR with those characters (Rubin & McHugh, 1987). The importance of an attractiveness dimension has also been shown in studies specifically examining PSR with media characters among children (Hoffner, 1996; Wilson & Drogos, 2007).

Social Realism

Social realism is the likelihood that a media character could occur in the real world (Wright, Huston, Reitz, & Piemyat, 1994). In an extensive review of the literature on PSR,

Giles (2002) noted that the perceived realism of a character may be a significant predictor of PSR among adults. Previous research has found positive relationships between the perceived realism of media characters and PSR with those characters, even among children. Children often treat their imaginary friends (Singer & Singer, 2005) and their favorite media characters as if they are real (Wright et al., 1994). If a media character can be imagined without resorting to fantastical thinking, it is considered to be high in social realism. In one study, children as young as 5 years old had stronger PSR with media characters who were high in social realism than those low in social realism (Rosaen & Dibble, 2008).

A Model of Young Children's Parasocial Relationship Development

Young children's PSR are anticipated in the current study to be multidimensional constructs consisting of character personification, attachment, attraction, and social realism. The primary objective here, however, is to articulate a model of young children's PSR development. Previous research on children's media experiences and studies examining children's relationship development suggest that several factors may work in concert to initiate and strengthen children's PSR. These are parasocial interaction, parent encouragement, repeated media exposure, and toy engagement.

Parasocial Interaction

An important distinction has recently been drawn between parasocial *interactions* and parasocial *relationships*. Parasocial interactions (PSI) occur within a single media experience, whereas PSR extend beyond any one instance of media exposure (Schramm & Hartmann, 2008). PSI are understood as individual instances of viewers' responses to media characters. PSR refer to the lasting, affective bond between the viewer and the onscreen individual (Hoffner, 2008).

The distinction between PSI and PSR may be of particular importance for predicting children's relationships with media personalities. Children's media characters are often created to address the child and, in turn, to maximize the potential for PSI. In the television program *Dora the Explorer*, for example, the main character periodically speaks directly to the child, pauses for anticipated responses from the child, and responds in a manner that may foster additional PSI (Lauricella, Gola, & Calvert, 2011). *Dora the Explorer* is not the only children's media character fostering PSI with viewers; rather, many of the most successful children's television programs utilize this interactive format. Much like interpersonal communication in which continued conversations can make people feel closer to one another (Berger & Calabrese, 1975), young viewers are more likely to experience meaningful PSR with media characters who directly address them (Auter, 1992). It is likely, then, that PSI are potential precursors to PSR much the same way that face-to-face interactions are precursors to social relationships.

Parent Encouragement

Research suggests that parent involvement can assist children with social functions, such as developing secure relationships. Mothers' symbolic play with young children, in which objects or ideas are used to represent other objects or ideas, has significantly predicted peer competence later in childhood (Vandell, Ramanan, & Lederberg, 1991).

Given the similarities between face-to-face friendships and PSR, parent encouragement of PSR may also strengthen children's PSR, especially for young children who are not yet skilled in social relationship development.

Similarly, co-viewing with children affords parents the opportunity to shape the child's response to the televised message (Desmond, Singer, Singer, Calam, & Colimore, 1985). For example, if parents believe that value lies in their children knowing and relating to Elmo, they may encourage children to interact with Elmo. Parent encouragement of interactions with the character could signal to children that parents approve of Elmo as a social partner, and could, in turn, bolster children's PSR with the character.

Repeated Media Exposure

Repeated exposure may play an important role in the development of PSR. Daily exposure to screen media for children under the age of 2 averages almost one hour, doubles to almost two hours for 2- to 4-year-old children, and increases to two and a half hours for 5- to 8-year-old children (Common Sense Media, 2013). Young children likely form PSR with media characters during the time spent with media. Moreover, media personalities in today's media landscape are likely to cross media platforms, making repeated exposure more likely (Giles, 2002). For example, Elmo appears on *Sesame Street*, in movies, in video games, on websites, in books, and as a marketing device for consumer goods, including toys.

The relationship between repeated media exposure and PSR parallels the relationship between time spent with others and the strength of face-to-face friendships. In interpersonal communication, increasing the amount of communication between two individuals can lead to increased liking of one another (Berger & Calabrese, 1975). Similarly, increased exposure to a media character could increase familiarity with the character, which could then foster PSI with that character. More frequent PSI with media characters could then strengthen PSR with those media characters.

Toy Engagement

Nearly all children (97%) under the age of 6 own toys or other consumer goods associated with a well-liked media character (Rideout, Vandewater, & Wartella, 2003). Children treat toy replicas of media characters as if they are real during play (Singer & Singer, 2005). Playing with a toy replica of a media character may then facilitate both PSI and PSR with the character. Seminal research by Friedrich and Stein (1975) demonstrated that preschool-age children who role played with puppets after viewing Mister Rogers' Neighborhood were better able to translate the prosocial behaviors from the television screen to their own behavioral repertoire.

More recent research suggests that toy engagement may influence how children interact with media characters (Calvert et al., 2013). Strommen and Alexander (1999) found that children were significantly more engaged with educational television programs when viewing with a toy replica of the main character in the program than when viewing without the toy replica. Gola and colleagues (2013) found that toddlers who demonstrated more rather than less prosocial behaviors during play toward a previously unfamiliar puppet were more likely to learn a mathematical seriation task that was subsequently presented onscreen by that character. This research suggests that supplementing television exposure with toy replicas of media characters may foster the development of PSR with media characters.

The Current Study

The purpose of the current study was twofold: (1) to articulate and test a model of how PSR develop during early childhood; and (2) to create a measure that is sensitive to the properties of PSR during early development that parents could answer on behalf of their children. [Figure 1](#) displays the predicted model of PSR development proposed here, including PSI, parent encouragement, toy engagement, and repeated media exposure.

The model organizes the variables that likely predict PSR, making the case that PSI partially mediates the relationship between toy engagement and PSR, and between parent encouragement and PSR. Previous research demonstrates that repeated exposure alone does not predict PSR (Rubin & McHugh, 1987). Therefore, we predict that repeated exposure will lead to stronger PSR, but only through PSI as a mediator. It is likely that repeated exposure reduces uncertainty about a media character, allowing a child to more openly interact with the media character, especially with characters that directly address the viewer. If repeated exposure fosters PSI, then it will be indirectly related to PSR, as shown in [Figure 1](#).

Methods

Participants

A database of 562 parents in the Washington DC metropolitan area was used to recruit potential participants. Parents in the database who reported having at least one child between the ages of 6 months and 8 years were contacted via email and asked to complete an online questionnaire about their child's favorite media character. The online survey was completed by 146 parents, approximately 26% of the parents who were initially contacted for participation. Parents reported on children ranging in age from 0.5 (i.e., 6 months) to 8.25 ($M = 3.50$, $SD = 1.59$). Approximately half of the children were male (51%). The sample was composed of White (75%), mixed race (15%), Asian (4%), Black (2%), and Hispanic children (2%). Two percent of parents did not report their child's race.

Procedure

Data were collected via an online questionnaire. The questionnaire was designed as a parental report on one child's relationship with a media character. Given the possibility that participants may have multiple children, a randomization method was used to select one child per family by having each parent provide the name of the child in the household who

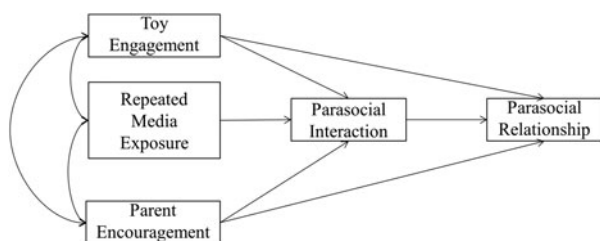


FIGURE 1

Model of Parents' Perceptions of Children's Parasocial Relationships

was between 6 months and 8 years of age who most recently celebrated a birthday. The child's name entered into that question was then utilized in the remainder of the questionnaire, automatically replacing the word "[child]" in each item on the questionnaire.

Parents who reported that their child had a favorite media character were also asked to report the character's name. The character's name was then utilized in the remainder of the questionnaire and, like the child's name, was automatically inserted to replace "[character]" in each item on the remainder of the questionnaire. For example, if a parent reported that his or her child was named Sara and her favorite media character was Dora the Explorer, the item "[Child] treats [character] like a friend" would have been displayed to this hypothetical participant as "Sara treats Dora the Explorer like a friend."

Measures

The measures of PSR, PSI, parent encouragement, toy engagement, and repeated media exposure were based on previous research, but each was adapted for use in this study. Measures presented items to parents and asked them to respond to each item on a 5-point Likert-type scale ranging from *Strongly Disagree* (1) to *Strongly Agree* (5). Means and standard deviations of each measure are presented in Table 1. Items for parasocial relationships are in Table 2. Items for PSI, parent encouragement, toy engagement, and repeated media exposure are presented in the Appendix. Descriptions and psychometric properties of measures follow.

Parasocial Relationships. Because considerable variability exists in the measurement of PSR among children (Hoffner, 1996; Rosaen & Dibble, 2008; Wilson & Drogos, 2007), a methodological objective of this research was to develop a measure of young children's parasocial relationships. As such, items for the PSR scale were derived from both conceptual arguments about the defining characteristics of PSR and from previous empirical research measuring PSR with media characters. Previous research has consistently assumed that children are most likely to develop PSR with characters deemed favorites and, as such, ask children to report on their favorite characters. That approach was employed here. The literature also supports the hypothesis that PSR are multidimensional and, as such, items for the initial scale were determined in conjunction with the various dimensions of PSR that have been explicated in previous research: character personification, attachment, attraction, and social realism.

TABLE 1

Correlations, Means, and Standard Deviations for Variables in Model of Parents' Perceptions of Children's Parasocial Relationships

	Toy Engagement	Repeated Media Exposure	Parent Encouragement	Parent Interaction	Parasocial Relationship
Toy Engagement	1.00				
Repeated Media Exposure	.15	1.00			
Parent Encouragement	.33**	.20	1.00		
Parent Interaction	.36**	.29**	.32**	1.00	
Parasocial Relationship	.32**	.28**	.67**	.45**	1.00
Mean	3.19	11.42	2.75	2.37	3.21
Standard Deviation	.55	3.64	1.02	.94	.53

TABLE 2
Exploratory Factor Analysis Loadings for Parents' Perceptions of Children's Parasocial Relationship Items

Factor	Eigenvalue	Variance	Item	Loading	M	SD
Character Personification	4.26	32.75	[Child] thinks that [character] has thoughts and emotions.	.65	3.66	.74
			[Child] gets sad when [character] gets sad or makes a mistake.	.50	3.18	1.01
			[Child] trusts [character].	.75	3.74	.78
			[Child] treats [character] as a friend.	.65	3.34	1.05
			[Child] believes that [character] has needs.	.66	3.24	.74
Social Realism	1.88	14.47	[Child] believes that [character] has wants.	.72	3.29	.80
			[Child] knows that [character] is imaginary.*	.67	2.52	1.01
			When [character] acts out a behavior on screen (like dancing, singing, or playing a game), [child] believes that [character] is performing the behavior in real life.	.66	3.08	1.01
Attachment	1.52	11.67	[Child] believes that [character] is real.	.58	2.83	1.05
			[Character] makes [child] feel comfortable.	.85	3.83	.70
			[Character] makes [child] feel safe. The voice of [character] soothes [child].	.81	3.35	.80
Total Variance:		58.89		.57	2.38	1.05

Note: Item marked with an asterisk was reverse coded.

Character Personification. Based on prior scales and empirical research (Giles, 2002; Hoffner, 1996; Hoffner, 2008), five items were included on the PSR scale to quantify personification of children's favorite media characters. Sample character personification items include, "[Child] thinks that [character] has thoughts and emotions," and "[Child] trusts [character]." The items measuring character personification are also consistent with the construct of identification.

Attachment. Ten items were included in the questionnaire to assess attachment to the media character. These included "[Character] makes [child] feel safe," and "[Child] protests when [child] is not allowed to watch [character]."

Attraction. Five items measuring the child's perception that his/her favorite media character was physically attractive were included in the scale (Hoffner, 1996). Examples of attractiveness items include, "[Child] finds [character] cute, pretty, or attractive" and, "[Child] thinks that [character] is strong."

Social Realism. Based on a previous study (Hoffner, 1996), five items were adapted to examine social realism. These included statements like, "[Child] believes [character] is real," and "[Child] would like to meet [character] in person." Details of the data reduction process used to examine the multidimensionality of the parent's perception of children's PSR measure are presented in the Results section of this manuscript.

Parasocial Interaction. PSI was measured using a 6-item PSI scale developed for this study, with roots in the behavioral measures of PSI by Schramm and Hartmann (2008). Sample items include, "[Child] talks to [character] when [character] is portrayed on a screen," and "When [character] asks [child] to perform a certain behavior (like pointing or clapping), [child] performs the behavior." The PSI measure was internally consistent ($\alpha = .88$) and yielded one construct in a factor analysis (Eigenvalue = 3.82), explaining 63.73% of the variance in the items. Higher mean scores for the six items of the PSI measure indicated more interaction with an onscreen media character.

Parent Encouragement. Three items that paralleled the personification items in the PSR scale were used to measure parent encouragement of PSR. These items were, "I want [child] to consider [character] a friend," "I encourage [child] to think that [character] has thoughts and emotions," and "I encourage [child] to think that [character] has needs and wants." The parent encouragement measure was internally consistent ($\alpha = .83$) and yielded one construct in a factor analysis (Eigenvalue = 2.23), explaining 74.21% of the variance in the items.

The items measuring parent encouragement were very similar in wording to the items measuring character personification. To confirm that the items measured different constructs, a factor analysis was conducted. The factor analysis resulted in two factors, suggesting that the parent encouragement items were conceptually unique from the character personification items. Means scores for the three items represented parent encouragement of children's PSR, with higher scores representing more parent encouragement of PSR development.

Repeated Media Exposure. Parents were asked to report how often children were repeatedly exposed to their favorite media character on television, DVDs, video games, online computer games, and mobile devices. The differing media platform items were summed to create one score of repeated media exposure for each child. Scores ranged from 5 (no exposure to their favorite character on any screen media platform) to 20 (always exposed to their favorite media character on every media platform). Higher scores indicated more repeated exposure to a favorite media character over a variety of media platforms.

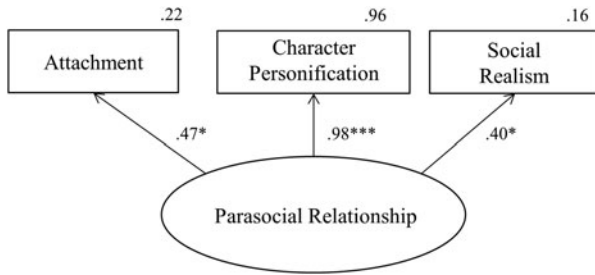
Toy Engagement. Toy engagement was measured using nine items that were adapted from a coding scheme that measured the development of PSR with toy puppets of media characters during parent-child play observations (Gola et al., 2013). Sample items include, “[Child] performs pretend care-taking behaviors when playing with a toy version of [character] (e.g., feed the character, put it to sleep),” and “[Child] calls the toy version of [character] by name when playing with the toy.” The toy engagement measure was internally consistent ($\alpha = .89$) and yielded one construct in a factor analysis (Eigenvalue = 5.50), accounting for 61.16% of the variance among the items. The mean of the 9 items was then computed to assign each child a toy engagement score, with higher scores indicating more engagement with a toy replica of the child’s favorite media character.

Results

Measure of Parents’ Perceptions of Young Children’s PSR

The measure of parents’ perceptions of children’s PSR was predicted to be a multidimensional construct. A principal component analysis was performed on the 25-item scale using Varimax rotation. In line with previous research (DeVellis, 2003), any items with low factor loadings or items that cross-loaded with more than one factor were removed from the factor structures. Three factors met the retention criterion of eigenvalues greater than 1.0, though a fourth factor approached retention. The fourth factor contained only one item that measured attraction, “[Child] finds [character] cute, pretty, or attractive.” Hoffner (2008) has noted that the perceived attractiveness of media characters is theoretically different from PSR with media characters. Given the lack of face validity of the item and the weakness of a one-item factor, this item was dropped from the measure and all proceeding analyses in the present study. A scree-plot test of the factors confirmed that a three-factor solution was a valid conclusion. A total of 12 items contributed to the three factors, accounting for 58.89% of the variance. The three factors were consistent with our expectations of character personification, social realism, and attachment to media characters as the essence of early PSR (see Table 2).

A path model was used to confirm the stability of this three-factor solution. Specifically, AMOS structural equation modeling software was employed to determine the fit of a path model utilizing the three factors as components of a larger latent variable labeled “parasocial relationship,” as displayed in Figure 2. The data did not significantly deviate from the hypothesized path model, indicating a good model fit, $\chi^2(1) = .06$, $p = .80$. The Normed Fit Index (NFI = .99) and the Comparative Fit Index (CFI = 1.00) were both indicative of a good fitting model. In addition, the Root Mean Square Error of Approximation (RMSEA = .00) also indicated that the model was acceptable.

**FIGURE 2**

Confirmatory Factor Analysis of Dimensions of Parents' Perceptions of Young Children's Parasocial Relationships Measure, $\chi^2(1) = .06$, $p = .80$, $NFI = .99$, $CFI = 1.00$, $RMSEA = .00$; $p^* < .05$, $p^{***} < .001$

In summary, three separate factors measured distinct components of parental perceptions of children's PSR with media characters: character personification, social realism, and attachment. The measures used to capture these factors all had high levels of internal consistency in the current study and fit as components of a child's PSR when examined using path model analyses.

Model of Young Children's Parasocial Relationship Development

A path analysis using maximum likelihood estimation was created in AMOS structural equation modeling software to test the fit of the proposed model of children's PSR displayed in Figure 1. PSR and PSI were entered into the model as the endogenous variables. Toy engagement, repeated media exposure, and parent encouragement were entered into the model as the exogenous variables. Missing data points in the data set were completely random, independent of both other variables and the variable itself. Missing data were estimated by the software, and standard analyses were then applied to the complete data set.

Initial analyses revealed that the model was properly over-identified ($df = 1$) and that the data did not significantly depart from the model, $\chi^2(1) = 1.22$, $p = .27$, indicating a good-fitting model. Table 1 presents the zero-order correlations, means, and standard deviations of the variables in the model. Figure 3 shows the path coefficients. The various model-fit indices also supported the proposed model of children's PSR. Both the Normed Fit Index and the Comparative Fit Index approached one ($NFI = .99$; $CFI = .99$) and the Root Mean Square Error of Approximation indicated good fit ($RMSEA = .04$, $CI: .00, .23$).

Although the data significantly fit the predicted model, alternative models exist that would add or trim paths and change how one would depict the development of children's PSR. Scholars have argued that the goodness of fit for the most plausible alternative models to any predicted model should be reported in an effort to strengthen the validity of the predicted model (McDonald & Ho, 2002). We examine two alternative models here.

The first model adds a direct path from repeated media exposure to PSR. It is possible that simple exposure to the character would be directly associated with parent's perceptions of children's PSR rather than only having an association with PSR mediated by PSI. However, including a path directly from repeated media exposure to PSR weakened the model, $\chi^2(1) = 26.09$, $p < .001$.

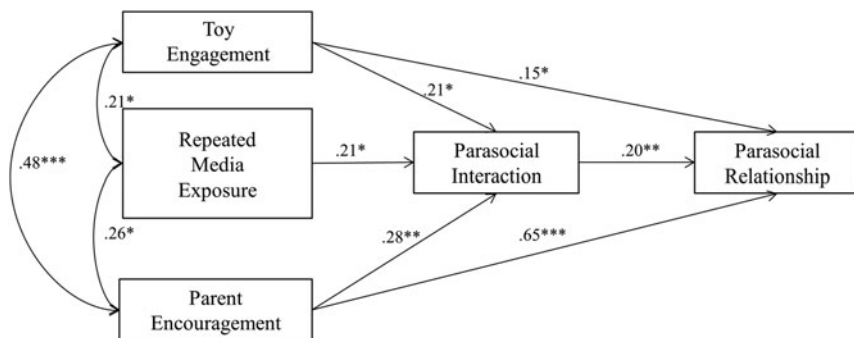


FIGURE 3
 Path Analysis of Model of Parents' Perceptions of Young Children's Parasocial Relationship Development, $\chi^2 (1) = 1.22, p = .27, NFI = .99, CFI = .99, RMSEA = .04, p^* < .05, p^{**} < .01, p^{***} < .001$

A second plausible model would place toy engagement as an endogenous variable rather than an exogenous variable. It is possible that the development of PSR would lead to any toy replica of a child's favorite media character being more engaging to the child, rather than engagement with the toy leading to PSR. A path model with toy engagement as the final endogenous variable was a good-fitting model, $\chi^2 (4) = 7.77, p = .10 (CFI = .97, NFI = .94)$; however, the model was not a significantly better fit than the originally predicted model, $\Delta\chi^2 (3) = 1.33, p = .51$. Given the inability of the data to fit alternative models significantly better than the predicted model, a strong case can be made for the validity of the original predicted model illustrated in Figure 3, thereby warranting further dissection of the paths in the predicted model.

A closer examination of the model in Figure 3 reveals that the three exogenous variables were correlated, with the strongest correlation existing between parent encouragement and toy engagement ($r = .46, p < .001$). Toy engagement ($\beta = .20, p < .05$), repeated media exposure ($\beta = .21, p < .05$), and parent encouragement ($\beta = .26, p < .01$) were significantly related to parents' perceptions of PSI with a favorite media character. PSI were significantly related to PSR ($\beta = .18, p < .05$). Both toy engagement ($\beta = .16, p < .05$) and parent encouragement ($\beta = .65, p < .001$) were directly related to the strength of parents' perceptions of PSR. PSI served as a mediator in the relationship between the exogenous variables and the endogenous outcome variable, PSR.

One method to more rigorously test for mediation is to reinforce the findings from the path analysis with the Sobel test, which provides an analysis of the significance of mediation (Sobel, 1982). In the model, PSI significantly mediated the relationship between toy engagement and PSR ($z = 1.70, p < .05$), repeated media exposure and PSR ($z = 1.81, p < .05$), and parent encouragement and PSR ($z = 1.72, p < .05$). The multiple Sobel tests strengthen the argument that PSI mediates the relationship between the exogenous variables in the model and PSR.

The sample consisted of parental reports for children varying in age from 6 months to 8 years. Because of the large variance in age, the goodness of fit of the proposed model was tested using only children under the age of 2, children 2 to 4 years old, and children 5 years old and older. The three age groups were determined to be the most valid age

categorizations for the current study because symbolic function and story comprehensions are weak for children under the age of 2, improve during the preschool years from ages 2- to 4, and are better still as children enter the early years of school from ages 5-8 (Calvert, 1999). Even so, children still struggle with plot comprehension, such as understanding character motives, feelings, and cause-effect relationships among program events, prior to ages 9-10 (Calvert, 1999). The data for each age group fit the model, but did not differ significantly from the other two age groups, suggesting that there were no age differences in the children's PSR development model.

To summarize, the strongest relationship in the model was the direct relationship between parent encouragement and PSR; the direct relationship between toy engagement and PSR was also significant. PSI served as an important mediator between toy engagement, repeated media exposure, parent encouragement, and PSR. PSI, it seems, is a partial mediator between toy engagement and PSR, and parent encouragement and PSR. Given that no direct relationship exists between repeated media exposure and PSR, PSI fully mediates the relationship between repeated media exposure and PSR.

Discussion

Young children live in a media-saturated world where media characters may come to be valued as relational partners similar to face-to-face others. Yet little is known about the development of PSR with media characters among young children, nor is there a standard measure for operationalizing PSR during early childhood. The current study addresses both of these issues at a theoretical and a methodological level, respectively. We begin by discussing the dimensions of parents' perceptions of children's PSR, the methodological focus, and then turn to our primary theoretical objective: the variables associated with parents' perceptions of children's PSR.

Data from parents of children who were ages 6 months to 8 years of age support the hypothesis that PSR, much like interpersonal relationships, are multidimensional constructs. Parental perceptions of young children's PSR with media characters were composed of three separate factors: character personification, social realism, and attachment. The final scale consisted of 12 of the original 25 items; these 12 items had high internal consistency and accounted for over half of the variance in PSR. Our finding that PSR are multidimensional constructs for young children reinforces previous PSR measurement development with adolescent samples (Auter & Palmgreen, 2000).

The current study had parents report on their child's *favorite* media character, a procedure that was consistent with prior PSR research with children (Hoffner, 1996; Rosaen & Dibble, 2008; Wilson & Drogos, 2007). Our scale, however, could also be used to measure the positive PSR between children and *any* media character. For example, Lauricella and colleagues (2011) found that children who saw Elmo nest cups were more likely to learn that task than were children who saw DoDo, a popular Taiwanese puppet, perform the task. The authors attributed the significant difference in learning to the social meaningfulness of Elmo. Had a scale like the one presented here been available, Lauricella and colleagues could have quantified parent's reports of children's PSR with Elmo by simply placing 'Elmo' into the items instead of the child's favorite media character. By doing so, examining differences in learning between children who had stronger versus weaker PSR with the popular *Sesame Street* character would have been possible.

Several features of the parents' perception of children's PSR scale strengthen the scale's usability. First, the scale is only 12 items, making it easy to include in surveys of children's media use. The scale was also extremely easy for parents to understand, as missing data were rare and parents did not report any problems completing the questionnaire. By using online survey technology, we were able to implant the child's name and the name of the child's favorite media character directly into each item of the scale, thereby making the scale easier to interpret and more personalized to each participant.

Once we established a scale to measure young children's PSR, we were able to answer our primary question: how does PSR develop in young children. The results suggest that parent encouragement of PSR, engagement with a toy replica of the media character (e.g., a puppet), and PSI are positively associated with young children's PSR. PSI can be increased through repeated media exposure, but exposure to media characters alone does not predict PSR.

The strongest relationship in the model was the direct relationship between parent encouragement and PSR. Parents' attitudes and behaviors can influence their children's PSR, much like parents' guidance and support can increase the development of children's interpersonal skills (Hetherington, Parke, Gauvain, & Locke, 2006). Given that children learn better from characters with whom they have developed meaningful PSR (Gola et al., 2013), it would behoove educational media producers to develop dialogue and storylines that stimulate not just children's interaction with the onscreen character, but also encourage parents to engage with their child and the character during media exposure and subsequent toy play. Parent encouragement could strengthen PSR between children and educational media characters, thereby increasing the likelihood that children will learn the intended educational lessons these characters provide.

As predicted, PSI was associated with PSR in young children. Our findings extend previous research on adolescents and adults that demonstrated that PSI with media characters can lead to stronger PSR with those media characters (Rubin & McHugh, 1987). The relationship between face-to-face friendship development and PSR development among young children parallels the development of these relationships among adults: young children, like adults, use interactivity with media characters to bolster relationships with the characters. Moreover, preschoolers who physically or verbally interact when prompted by a television character are more likely to understand important story content (Calvert, Strong, Jacobs, & Conger, 2007).

Toy engagement, repeated media exposure, and parent encouragement were all related to PSI. Playing with a toy replica of a media character may provide a child with a sense of friendship or contact comfort from that character, making it more likely that the child will interact with the same character when viewed on a screen. Repeatedly seeing the character on a variety of media platforms or being encouraged by a parent to interact with a media character also increases PSI.

Although the model provides initial insight into the early development of PSR, the data applied to the model were cross-sectional and correlational in nature, not causal. For example, toy engagement served as an exogenous variable in the model, but alternatively, toy engagement could be the outcome of the PSR development process. Indeed, the data also fit an alternative model whereby toy engagement was the endogenous variable. Alternatively, the relationship between toy engagement and PSR may well be bidirectional. That is, the more a child is engaged in play with toy replicas of media characters, the more likely that child may be to interact with the characters onscreen

and develop PSR with the characters. Conversely, the stronger children's PSR with media characters, the more likely children may be to engage in play with toy replicas of those characters. Longitudinal research would help reveal the causal direction of the pathways presented in our model of children's PSR. Longitudinal research would also provide us with more information about developmental change in children's PSR with media characters. Perhaps, for instance, children begin to look for more abstract qualities in their friendships with media characters as they grow older, as they do in their face-to-face friendships.

The relationship between PSI and PSR may also be mutually causal in that PSR may enhance PSI. Stronger PSR then may invoke more frequent, intimate PSI between a child and a media character. Investigating the relationship between PSI and PSR should continue, particularly given the increasingly interactive nature of media platforms.

Another limitation to both the PSR scale and the model is the inability to predict negative PSR. Our current measure of parent's perception of their children's PSR only measures the strength of a relationship with a liked character. However, individuals can have strong emotional responses to characters that they dislike as well (Konijn & Hoorn, 2005). The current scale would not validly measure children's negative PSR. The implications of having a strong, positive PSR with an antisocial character are also not addressed here. In such instances, PSR could potentially sensitize children to act in antisocial rather than prosocial ways. Future research should examine both of these topics.

The parent's perceptions of children's PSR scale was correlated with variables that it theoretically should be correlated with, such as PSI and parent encouragement, strengthening criterion validity. Efforts to examine construct validity would further ensure the usability of the scales for future research. For example, wishful identification, the desire to emulate a media character with whom an individual identifies (Hoffner, 1996), is similar to, but distinct from, PSR (Giles, 2002). In PSR, the viewer does not have the desire to be the media personality, but rather views the media personality as someone to be *with*, similar to any face-to-face friendship. Testing the proposed measure of PSR among very young children against items that purportedly measure wishful identification could further the construct validity of the scale articulated here.

Although parent encouragement was highly correlated with PSR, social desirability could have played a role in parents' responses to the items measuring parent encouragement. Parents may have reported that their children's media exposure occurs in the presence of the parent simply because co-viewing may seem more socially acceptable. In turn, parents may have overestimated the amount of time that they spend encouraging their children to interact with media characters. Because the three items that measured parent encouragement were behavioral in nature, observing parent-child interactions in the home and measuring observed instances of the behaviors included in the questionnaire items would provide useful insight into the scale's construct validity. Additionally, developing self-report versions of the parental perception measures that could be administered directly to children would not only be useful to test the criterion validity of the parental perception measures in the current study, but would benefit researchers interested in further studying young children's PSR.

Even with the limitations noted above, the model lends insight into the factors influencing PSR development among young children. Although the model was theorized from the literature on children's PSR, that respective body of literature is in its infancy. As children's PSR are studied further, other variables may surface as important components of children's PSR. Thus, the model proposed and tested here should be considered exploratory in nature.

In conclusion, our findings open the door to further exploration into the earliest PSR that children develop with media characters. Children's PSR appear to be multidimensional constructs, composed of character personification, social realism, and attachment. Various factors in children's lives can influence the development of children's PSR, including parent encouragement, engagement with toy replicas of media characters, PSI with the media characters themselves, and repeated exposure to the characters across media platforms. Because children learn more from characters that they find to be socially meaningful (Lauricella et al., 2011), developing PSR with characters in educational media may increase the likelihood that children will master the educational lessons they are expected to learn from media characters (Gola et al., 2013). That young children treat and learn from media characters in much the same way that they treat and learn from their face-to-face friends provides an important lesson not just for children, but also for parents, educators, and media professionals who teach children in our media saturated society.

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APPENDIX: ITEMS IN THE PARASOCIAL INTERACTIONS, PARENT ENCOURAGEMENT, TOY ENGAGEMENT, AND REPEATED MEDIA EXPOSURE MEASURES

Parasocial Interactions

1. [Child] thinks that [character] can see him/her when [child] views [character] on a screen, like a television, computer monitor, or iPad.
2. [Child] thinks that [character] can hear him/her when [child] views the media character on a screen, like a television, computer monitor, or iPad.
3. [Child] acts like [character] is interacting with him/her when viewing the character on a screen, like a television, computer monitor, or iPad.
4. [Child] greets [character] (says 'hi,' waves, etc.) when [character] first appears on a screen, like a television, computer monitor, or iPad.
5. [Child] talks to [character] when [character] is portrayed on a screen.
6. When [character] asks my child to perform a certain behavior (like pointing to the screen or clapping), [child] performs the behavior.

Parent Encouragement

1. I want [child] to consider [character] a friend.
2. I encourage [child] to think that [character] has thoughts and emotions.
3. I encourage [child] to think that [character] has needs and wants.

Toy Engagement

1. [Child] acts like his/her toy version of [character] is interacting with [child] when playing.
2. [Child] plays with a toy version of [character].
3. [Child] talks to a toy version of [character].
4. [Child] greets (says 'hi,' waves, etc.) his/her toy version of [character] when initiating play with the toy.

5. [Child] performs pretend care-taking behaviors when playing with a toy version of [character] (feed the character, put it to sleep, etc.).
6. [Child] takes a toy version of [character] on trips.
7. [Child] plays with a toy version of [character] more than [child] plays with other toys.
8. [Child] calls his/her toy version of [character] by name when playing with the toy.
9. [Child] sleeps with a toy version of [character].

Repeated Media Exposure

1. [Child] repeatedly watches the same television programs that feature [character].
2. [Child] repeatedly watches the same DVDs that feature [character].
3. [Child] repeatedly plays the same video games that feature [character].
4. [Child] repeatedly plays the same online games that feature [character].
5. [Child] repeatedly views [character] on screens of mobile devices like cellular phones or tablets (like the iPad).

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