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What has the discipline contributed to the understanding of sibling communication? Over twenty years ago, Noller and Fitzpatrick (1993) claimed that siblings were a forgotten relationship in the field of communication. Although Fitzpatrick and Badzinski (1994) reiterated this idea to raise attention to the lack of communication research conducted on siblings, this important topic has received little attention in the major handbooks within the field (c.f., Knapp & Daly, 2011; Knapp & Miller, 1994; Vangelisti, 2004), with only one chapter focused on middle childhood published (Stafford, 2013). Lacking a discipline-centered review of extant literature, communication scholars interested in siblings have worked in semi-isolation across the field; advancing specific studies pertaining to siblings without a theoretical framework to coherently synthesize knowledge across investigations. The aim of this study is to provide a state-of-the-discipline review of sibling communication research in order to answer the question posed, and to promote methodological and theoretical development of future studies within the communication discipline.

The studies featured in this review were published from 1995 to 2015, and include 43 journal articles. The author began the review process by searching academic databases and the internet, and subsequently included academic handbooks, authored books and edited volumes to generate an initial list of research studies pertaining to siblings and communication¹. To be included in this review, a study needed to be authored by scholars in a communication studies department and the research needed to feature both siblings and an aspect of communication as the primary focus of the study. A number of studies were initially reviewed, many of which mentioned sibling communication in the title, abstract, or text of the manuscript; however, most were recognized to focus on aspects that were not central to the study of messages and/or

included siblings as a comparative or tangential dyad in the study rather than as the featured relationship under investigation. As a result, a total of 43 articles met the inclusion criteria and information from each was subsequently entered into a spreadsheet that summarized the publication date, author(s), conceptual themes involved, if research question(s) or hypothesis(es) were advanced, population studied, sample size, mean sample age (and standard deviation), journal outlet, and psychometrics used. A preliminary sort of the 43 articles resulted in two major categories representing aspects of sibling communication that were pro-social (constructive) or anti-social (destructive) in nature². Out of the 43 studies, 32 were focused on pro-social aspects of sibling communication. Due to the large number of studies in this category, each research question(s) and hypothesis(es) in these studies were examined and then thematically sorted into two sub-categories³, including sibling closeness (involving 18 studies) and relationship maintenance (14 studies). Of the 43 studies, 8 were focused on anti-social aspects of sibling communication and covered topics of verbal aggression (5 studies) and jealousy/rivalry (3 studies). Three additional studies involved an intercultural focus that did not fit neatly into any of the described categories, but were still included in the review to represent the work being advanced to date in the discipline.

To engage a naïve reader and contextualize what is meant by sibling communication, the first of the following four sections discusses essential definitions and characteristics relevant to the historical advancement of studies involving siblings within the social sciences. The second section reviews the pro-social studies and the third reviews the anti-social studies, both of which include a discussion of potential avenues to advance future research. The last section addresses methodological and theoretical challenges facing scholars investigating sibling communication

currently, and closes with suggestions for developing a more coherent theoretical approach to advance future research.

Section 1: Definitions, Characteristics, and Brief Historical Review

Definitions & Characteristics

A definition of the sibling relationship is used in this review to establish an entry point for researchers to access the topic of sibling communication and differentiate features of siblings from other commonly studied close relationships. Features of sibling relationships are discussed to guide researchers as they design investigations that examine the complexities of siblings, their interaction patterns, and their relationship development. Sibling relationships are defined as a non-voluntary, familial relationship that encompasses four unique features: 1) it is the longest relationship a human will typically experience, 2) it involves a shared genetic and/or family heritage that cannot be substituted or replaced, 3) it is essentially egalitarian in nature in Western societies, and 4) it is ascribed, and as such typically cannot be removed throughout life (Abramovich, Pepler, & Corter, 1982; Cicerelli, 1982; Furman & Burhmester, 1985b; Weiss, 1974). Studies of siblings must be careful to avoid oversimplified definitions that rely on biological assumptions that fail to acknowledge the complexity associated with contemporary sibling relationships and family structures that involve adopted, step-, half-, and fictive sibling types.

Two characteristics that impact sibling communication patterns involve the bonding process and the incongruity of developmental phases siblings experience throughout their relationship. It is well documented that the time siblings spend together in childhood enables crucial opportunities for sibling bonding (Bank & Kahn, 1997; Ross & Milgram, 1982) that socialize an individual regarding conceptions of the relationship and an individual's behavior

over time (Kramer & Conger, 2009). Despite this bonding time, siblings "...have in common a long history of shared as well as non-shared experiences" (Cicirelli, 1997, p 2) that expose them to unique people, situations, and social information. The impact of non-shared genetics and non-shared environments influences personality development, perspective, and shared memories (Plomin, Asbury, & Dunn, 2001). Biological and environmental influences on siblings are greatest up until late childhood/early adolescence, at which time contextual factors surmount environmental factors throughout the remainder of life until biological and environmental factors again pre-empt contextual factors in old age (Cicerelli, 1997). As a result, even though an individual may grow up in the same household and share a genetic heritage with his or her siblings, the non-shared genetics and non-shared environments must also be acknowledged to influence how interaction patterns may develop over time.

In addition to the bonding process, Cicirelli (1997) highlights that incongruous developmental shifts throughout the lifespan impact sibling interaction patterns. Siblings who differ in age interpret each other's behaviors according to different development standpoints (for example, Sibling A is in middle childhood while Sibling B is in adolescence). Cicirelli's work points out that mode, proximity, and frequency of interactions are embedded early on within a family structure that is likely to influence family member role and identity formation as a function of comparisons to each other. Thus, the interval of years between siblings is influential to the sibling bonding experience, and that the developmental standpoint that each individual experiences while managing the sibling relationship within the family context will likely impact an individual's awareness and perception of others in relation to self in ways that are unique based on the individual's age and ordinal role in the family. Although the roles siblings form early in life tend to diminish once they develop their adult identities, aspects of propinquity,

degree of enmeshment among family members, and acceptance of different modes of maintaining contact are likely to influence the ways in which sibling identity and interaction is performed throughout adulthood.

Even though siblings tend to shift from their ordinal perception of each other to a more equal status in adulthood, it is unwise to characterize siblings as peers for a couple of reasons. First, defining siblings as peers oversimplifies the developmental influences that have formed the history of the relationship and disregards the ascribed nature of siblings in comparison to the voluntary choice of friendship. Second, the sibling relationship is forever embedded within a larger social system that dictates an ordinal characteristic that is reinforced by the family structure. Third, the sibling relationship inherently frames individual identity formation over time in a relational constellation involving other family members throughout the lifespan. These features are not present in voluntary relationships, and therefore are relevant to the definition of sibling relationships. Even in instances when siblings, especially those close in age, choose to casually label or conceptualize each other as “friends”, the colloquial use of this term is likely to misrepresent and oversimplify the historical context of the sibling relationship and the complexities associated with the study of sibling communication.

Another important characteristic of sibling relationships involves the variety of types that exist. Sibling types can be grouped according to biogenetic (full and half siblings), socio-legal (adopted and step-siblings), and role (fictive) classifications (Floyd, Mikkelson, & Judd, 2006). *Full* siblings are those who share both biological parents, while *half* siblings share only one biological parent. *Step-* and *adopted* siblings are non-biological relationships that are not necessarily ascribed at birth, rather initiated with a contract between adults in a parental role and legally certified at a specific point in time after which the sibling relationship formally begins.

Fictive siblings are those individuals who are recognized as members of the family, even though they do not hold a biological or legal connection with the family members (Cicerelli, 1997).

Specific sibling types are especially important to note in research because sibling interaction patterns are impacted by the duration and degree of bonding that occurs while living within the same family household.

Historical Review

The proliferation of studies investigating sibling relationships has spread progressively across disciplines within the social sciences most notably since the 1960s, which was preceded by a focus primarily on primogeniture. From 1960 to 1980, a number of studies in psychology advanced an understanding of aspects related to the sibling relationship. Lamb and Sutton-Smith (1982) published an edited volume summarizing psychology research of siblings pertaining to the various life stages of childhood throughout adulthood, including a chapter on birth order and personality effects. Banks and Kahn (1982, 1997) published an edited volume of a similar type that focuses primarily on explaining aspects of the sibling bond via a psychoanalytic perspective. Brody (1996) edited a volume focused on the causes and effects of sibling relationships which features reviews of work by R. D. Conger, M. A. Rueter, J. Dunn, R. Plomin, W. Furman, A. C. Crouter, G. R. Patterson, as well as other prolific psychologists who have contributed seminal work on siblings. Readers are encouraged to seek these books and scholars to familiarize themselves with concepts, theories, and approaches to understanding sibling research that are beyond the scope of this project, but would stimulate interdisciplinary work on sibling communication. Integrating studies of psychology with communication research is a fruitful means of advancing interdisciplinary research. For example, studies examining processes of socialization (Howe & Hildy, 1990; Jenkins & Dunn, 2009), conflict management (Shantz &

Hartup, 1992), and relationship growth and individual development (Cicirelli, 1995) all closely relate to sibling communication processes and experiences; however, these studies lack a focus on the symbolic exchange of messages and the communication process specifically.

Simultaneous to the development of studies in psychology, sociologists have advanced an understanding of siblings via an examination of the prevalence and rates of family violence, exposing the abusive nature of sibling relationships in comparison to spousal or parent-child interactions within the United States (Felson, 1983; Gelles, 1987; Gelles & Cornell, 1990; Strauss, Gelles, & Steinmetz, 1981). Although the sociology research examines messages (specifically those that are destructive and abusive), few communication scholars choose to research the dark side of family interactions, much less the dark side of sibling communication. So, while this research has prompted therapists and practitioners to advance clinical applications and counseling techniques for use with siblings (Hoopes & Harper, 1987), it is uncommon that communication scholars pursue research of this topic (Chengappa, Stokes, Costello, Norman, Travers, & McNeil, 2013). Thus, despite the growth of sibling research within the social sciences, studies in the communication field have been slow to develop.

In the mid-1990s, communication scholars started publishing research that not only included siblings as a comparative relationship type with other close relationship partners but advanced studies that focused primarily on sibling as the relationship of interest (e.g., Floyd, 1995, 1996; Martin, Anderson, & Mottet, 1997; Martin, Anderson, Burant, & Weber, 1997; Myers, 1998). To date, the work on sibling communication has slowly expanded, but remains an uncommon topic among researchers in the field. Few book chapters exist that review work on sibling communication patterns (c.f., Mikkelsen, 2006, 2014; Segrin & Flora, 2005, 2011; Stafford, 2013), and no books focused on siblings have been published in our discipline to date.

Essentially, the sibling communication research is progressing without a theoretical discussion of how to advance or link the studies via a synthesizing framework. While some may argue such an approach is unnecessary and potentially stifling, a discipline-centered approach can help scholars to avoid errant assumptions and methodological oversights, and ease the task of synthesizing across findings when developing new studies. This review initiates a broad synthesis of sibling research published and presented by communication scholars and provides methodological and theoretical suggestions to promote future work.

Section 2: Sibling Research Focused on Pro-Social Aspects of Communication

To date, studies of sibling communication patterns have most commonly focused on investigations of constructive concepts and outcomes associated with interaction. It is important to recognize the amount of work devoted to the pro-social aspects of sibling communication not only because it sheds light on these important issues, but because it also reflects a tendency in the discipline to study positive aspects that contribute to relationship growth and development over time.

Sibling Closeness

At the time of writing, 18 articles focused directly on aspects of sibling closeness investigated mainly among adults, of which particular focus was placed on gendered communication (Floyd, 1995; Floyd, 1996), concepts of closeness in the sibling relationship (Floyd, 1995; Floyd, 1996; Floyd & Parks, 1995; Rittenour, Myers, & Brann, 2008), satisfaction (Myers, 1998; Myers & Bryant, 2008; Myers, et al. 1999), commitment (Myers & Bryant, 2008; Rittenour, Myers, & Brann, 2008), support (Avtgis, 2003; Avtgis, Martin, & Rocca, 2000; Jacobs & Sillars, 2012; Mikkelsen, Floyd, & Pauley, 2011), emotion (Aksan, Goldsmith, Essex, & Vandell, 2013), affection (Floyd & Morr, 2003), and attachment (Pinel-Jaquemin & Gaudron,

2013). Consistent with general findings in communication research, these studies suggest various constructive behaviors expressed among siblings contribute to relationship satisfaction and feelings of closeness, and that constructive communication is associated with positive relationship outcomes.

Trends in sibling closeness research. Beyond the anticipated assumption that constructive communication will relate to positive relationship outcomes, these studies advance new understandings of siblings and their relationships by documenting message attributes that contribute to satisfaction, highlighting gendered patterns of communication between siblings, and revealing a potential for intimacy to be negatively construed. As anticipated, a positive trend was found between relationship satisfaction and pro-social message qualities, including indicators of closeness, degree of intimacy shared, displays of affection, emotion, and support (Aksan, Goldsmith, Essex, & Vandell, 2013; Floyd & Morr, 2003; Floyd & Parks, 1995; Myers & Bryant, 2008; Rittenour, Myers, & Brann, 2007). Degree of intimacy shared and the amount of constructive communication expressed is often linked to motivations for continued interaction among adult siblings (Fowler, 2009; Martin, Anderson, & Mottet, 1997; Myers & Knox, 1998; Rocca & Martin, 1998; Rocca, Martin, & Dunleavy, 2010). Variables explored among these studies include perceived understanding, willingness to communicate, skills in communicating, type of maintenance strategies used, self-disclosure rate, frequency, depth and breadth of communication, closeness, satisfaction, affection, and impact on cognitive development of self-concept.

Ironically, a lack of closeness may also exist in sibling interactions when contention in the relationship is high, and as a result, limiting interaction is a strategy used to ease the burden of maintaining a volatile or unsatisfying involuntary relationship by decreasing the frequency of

interactions. Thus, how and why siblings develop their relationship in adulthood is a popular area studied that relates to motives for interaction. Existing work confirms the important need for messages shared between siblings to involve aspects of closeness, commitment, liking, loving, trust, reciprocated self-disclosure, and perceptions of understanding to foster relationship quality and satisfaction overtime.

Findings associated with gendered stereotypes among siblings revealed a difference in male and female expression of and need for explicit displays of intimacy (Floyd, 1995, 1996). Females were noted to report more expressiveness, monitor and perceive relationship intimacy to a greater degree, and more actively promote intimacy in the relationship than males. An important caveat is that males do not regard the intimacy expressed with less relevance as a relational outcome compared to females (Floyd, 1995; Avtgis, Martin, & Rocca, 2000). Rather, it is relevant to consider that brothers are likely to display intimacy differently, and to interpret the monitoring and expression of intimacy on a different level than sisters. This trend has been illustrated previously in work of psychologists (Cicirelli, 1982), and reinforces the influential role female siblings impart on the family communication dynamic (Troll, 1971). It is also important to recognize that cross-sex sibling dyads are likely to foster a combination of intimacy expressions that serve to maintain the relationship that may blend the gender stereotyped expressions in ways unique to the family communication climate (Floyd, 1996).

Sibling expressions of intimacy were also found to differ from other close relationship partners in unique ways. For example, Floyd (1995) found siblings to illustrate closeness in more instrumental ways than friends. Considering the paradox siblings experience that is defined by the communal nature of siblings growing up in a family home and the competing desire for siblings to differentiate themselves from each other (c.f., Schachter, 1982; Schachter et al.,

1976), it is not surprising that siblings may rely less on similarity to develop intimacy in their relationships, since their shared family heritage embodies a strong identity of similarity inherently. Complex aspects of rivalry related to resource and goal attainment may be a strong inducement for siblings to focus expressions of intimacy in instrumental ways, while attempting to experience relationships that are conducive to healthy family interaction. For example, a unique dynamic of sibling interaction was revealed in a negative association identified by Myers and Bryant (2008) between intimate play and level of sibling intimacy. In Myers and Bryant's study, intimate play was described as behaviors likely to be aggressive in nature, shared between siblings in childhood and adolescence, and potentially anti-social and physically abusive (e.g., insults, teasing, physical contact or rough play). The notion that sibling intimacy may commonly be associated with interaction involving antisocial or abusive behaviors confirms why intimacy was noted as a contrary indicator of commitment. Myers and Bryant concluded "...it may be that although siblings engage in aggressive behavior as a way to relieve frustration, as a ritual exercise for making physical contact, or as a form of reassurance that the relationship is important (Kahn, 1983), intimate play is not associated with their satisfaction due simply to the lack of warmth associated with the indicator" (p 118). It is speculated that intimate play potentially reveals an expression of antisocial behavior that offers a glimpse into the broad spectrum of intimate interactions that contribute to the ambivalent nature of sibling relationships. The communication patterns experienced by sibling are likely to be more complex, with multiple layers of investment and kinds of exchanges, than typically experienced in friendships.

The dichotomy between pro-social and anti-social intimacy expression noted among siblings could potentially be a result of various characteristics of the sibling experience, especially when the sheer intensity brought on by closeness in age is a characteristics of the

interaction investigated. For example, the close proximity of communal living growing up and the structured positions of the family members may likely foster intensity among siblings when experienced in childhood and adolescence that may be construed in both positive and negative ways. Sibling relationships are routinely characterized by ambiguity that fluctuates between rivalry and closeness (Bryant, 1982; Pfout, 1976) and are also documented to be the most violent and abusive of the close relationships that exist in western culture (Felson, 1983; Straus, Gelles, & Steinmetz, 1981). Thus, intimate play involving verbal or physical aggression is a noted feature likely to diminish intimacy experienced between siblings, which may additionally contribute to the complexity of the emotions associated with sibling relationships in general. Greater proximity, especially among siblings aged less than 4 years apart, and perceived inequality in management of family resources and or privileges (e.g., computer and technology use, money, parent time), is likely to increase the opportunity for conflict among siblings and breeds a paradoxical environment that fosters an individualistic approach within what is socially normed to be a collectivistic subculture - the family environment. Psychologists have found siblings to prosper best in family environments that allow for *deindividuation* (Schachter, et al., 1976), which likely diminishes this paradox due to sibling tendencies to seek unique ways in which they can establish their own identity within the family. A recent study by Pinel-Jaquemin and Gaudron (2013) indicates that parents can develop different attachments with children and that children can develop different attachments with each parent. Keeping the concept of deindividuation in mind may enable future studies of siblings to more accurately conceptualize how attachment, intimacy expression, and expectations have the potential to impact the perception and performance of communication patterns experienced among siblings.

Advancing research on sibling closeness. An aspect that is not well clarified in the extant work is a conceptual understanding of the different facets of sibling intimacy within a broader model of overall intimacy in close relationships. It may be that the development of sibling intimacy throughout childhood and adolescence undergoes a distinctive process that fosters bonding in the presence of the paradox of family communal living and individual growth. While the aspects of intimacy investigated in existing studies are useful, the approach is broadly conceptualized and not consistently defined in a theoretical framework to date. Benefits from studies investigating aspects of sibling closeness are largely associated with relationship outcomes, as these studies have begun documenting how interpersonal relationship dynamics and principles are present in sibling relationships. However, advancing the work in new directions will require a more sophisticated theoretical framework, and a closer measurement of the genetic and environmental landscape associated with the sibling relationship within the ecology of broader family characteristics (Hetherington, Reiss, & Plomin, 1994; Plomin, Defries, McClearn, & McGuffin, 2008). For example, Mikkelsen, Floyd, and Pauley (2011) provide evidence that genetic relatedness influences the amount of social support provided to siblings, suggesting that genetics and allocation of resources may impact the dynamic of how intimacy may be expressed or develop over time. In a similar manner, future work must continue to identify and measure ecological variables that define the family constellation and indicate relational and situational conditions that may influence how intimacy functions in sibling relationships. Future studies should examine how aspects of relationship intimacy are related to environmental features of the relationship, such as the length of time shared in the family home, the intact nature of the family as a unit, and the structure of siblings in the family (including their ages, biological sex, and birth order). The existing studies on sibling intimacy provide a broad indication of ways that intimacy

is expressed, perceived, and associated with relationship outcomes among siblings, but lack a coherent framework for addressing intimacy expression and how it links to communication patterns experienced in the family system. Prager (1997) provides a theoretical framework in which intimacy can be more specifically articulated and operationalized by communication scholars interested in developing this area of sibling research.

Research investigating siblings would also benefit from a synthesis with family theories of interaction. For example, applying family communication patterns theory (Koerner & Fitzpatrick, 2002) to siblings would advance an understanding of sibling intimacy according to a researched and developed theoretical approach that would investigate intimacy expression in conjunction with conversation and conformity orientations in family communication environments. Although not specific to siblings, Trees (2006) offers a review of attachment theory that is useful to examine how Pinel-Jaquemin and Gaudron's (2013) study expands the ways in which we can investigate attachment, intimacy schemas, and family dynamics. Similarly, Kunkel, Hummert, and Dennis (2006) review social learning theory as it applies to family research, which links well with Stafford's (2013) recent chapter on sibling interactions during middle childhood. These are examples of chapters discussing siblings as relationship partners who are influential agents who impact the future communication patterns of each other. In 2004, Stamp authored a chapter in the *Handbook of Family Communication* that also provides a variety of theoretical lens (e.g., family systems theory, family life course theory, role theory, and network theory) through which family interaction can and has been researched to help scholars orient and extend studies of sibling intimacy expression within the family context and beyond into adulthood. Sibling studies designed within these theoretical frameworks could offer opportunity for increased consistency by which future studies can be compared, synthesized, and

new knowledge advanced. Such frameworks would also lend perspective on the cognitive and behavioral elements involved overtime in sibling relationships – aspects related to the motives and maintenance behaviors associated with siblinghood across the lifespan. Research of this nature would provide fodder for new studies that can be developed from established work in the communication discipline, while adding novel applications to sibling research to inspire interdisciplinary studies as well.

Sibling Relationship Maintenance

The studies investigating sibling relationship maintenance were grouped together due to their consequent nature, including studies of sibling strategies for maintaining the relationship and related impacts on confirmation, adjustment, and individual self-concept. Studies in this area to date have focused solely on adults. Eleven of the 14 studies examined aspects relevant to sibling maintenance behaviors, including motives (Myers, Brann, & Rittenour, 2008), reducing relational uncertainty (Bevan, Stetzenbach, Batson & Bullo, 2006), social support (Mikkelson, Myers, & Hannawa, 2011), strategies and modes (Myers & Members of COM 200, 2001; Goodboy, Myers, & Patterson, 2009; Myers, 2011; Myers, Byrnes, Frisby, & Mansson, 2011; Myers & Goodboy, 2010), equity theory (Myers, Goodboy, & Members of COM 201, 2013) and conflict resolution strategies (Pawlowski, Rocca, & Myers, 2000). Related to relationship maintenance are three additional studies that investigated sibling impact on adolescent confirmation related to rivalries and outcomes (Phillips & Schrodt, 2015), adjustment (Dailey, 2009) and self-concept (Dailey, 2010). Relationship maintenance is currently one of the more active areas of investigation in the communication discipline, with Dailey's and Phillips and Schrodt's work applying in novel ways to investigate relationships within the family between siblings and parents.

The focus on features of relationship maintenance offers an opportunity to discuss how cognitive beliefs and attitudes relate to expressions of behavior that impact sibling relationship development. Although an established body of literature exists in the field regarding relationship maintenance behaviors, more research questions than hypotheses are advanced in the sibling studies on this topic, indicating the field is in a mode of exploration rather than explanation and prediction. While 12 of the 14 studies were conducted on adults, only four of the studies samples included participants older than 30 years of age (Myers, Brann, & Rittenour, 1998; Goodboy, Myers, & Patterson, 2009; Myers & Goodboy, 2010; Myers, 2011), and only two studies (Dailey, 2009, 2010) investigated adolescents. This is a crucial point to consider when gauging the generalizability of the research across siblings of different ages.

Trends in sibling relationship maintenance research. The existing studies indicate that siblings use a variety of functional skills throughout adulthood that enable them to effectively convey information to each other, that rewards them for disclosing by means of increasing perceived understanding, and that enhance willingness to communicate and increase solidarity through the frequency, breadth and depth of topics shared. More work is warranted in the exploration of the array of motives siblings may acknowledge and attribute to maintaining their relationships. Discovery of additional motives will advance an understanding of the beliefs and attitudes that an individual associates with intentions to communicate as well as reveal why explicit communication behaviors may be exchanged between siblings.

Investigations of sibling relationship maintenance have incorporated various typologies to operationalize sibling use of maintenance strategies, associations with outcomes, and gender effects. Generally, adult siblings have been found to use shared tasks, positivity, assurances, networks, and openness (respectively) to maintain relationships (Myers & Goodboy, 2010;

Myers, Goodboy, & Members of COM 201, 2013), behaviors that have each been positively associated with motivations for pleasure, affection, relaxation, and inclusion as well as overall relational closeness (Myers, Brann, & Rittenour, 2008). Even though the list of maintenance behaviors is not exhaustive, study findings clearly indicate that positive motivations prompt greater use of maintenance strategies, which results in outcomes of increased satisfaction with sibling relationships overtime (Fowler, 2009; Myers, Byrnes, Frisby, & Mansson, 2011; Rocca & Martin, 1998). In studies utilizing Gold's (1989) typology of relationship types it has been found that intimate siblings use the most maintenance behaviors, followed by congenial and loyal siblings (Goodboy, Myers, & Patterson, 2009), and that greater psychological closeness among siblings is related to a higher use of maintenance strategies and a greater diversity of channels through which maintenance strategies are conveyed (Myers & Goodboy, 2010).

Regarding gender effects, females were found to convey more maintenance strategies than males, and sister dyads used more maintenance strategies than did brother dyads (Myers & Members of COM 200). Of the studies that sampled from an elderly population, findings suggest that even though adult sibling relationships could choose to reduce maintenance efforts overtime, motivations for affection and intimacy are strong indicators of relationship maintenance use in the later stages of life (Fowler, 2009; Myers, Brann, & Rittenour, 2008). A mechanism prompting selection of strategy use among elderly siblings is likely to be the salience of an elderly individual's diminishing opportunities to build new relationships (Goodboy, Myers, & Patterson, 2009), which aligns with Goetting's (1986) research on the developmental tasks of siblings over time.

Tangentially related maintenance strategies experienced in sibling relationships are Dailey's (2009, 2010) studies investigating family members' confirmation effect on the

development of adolescent sense of self, and Phillips and Schrodt's (2015) investigation of the effect sibling confirmation has on rivalry and relational outcomes when comparing the difference in perception of parental treatment. These studies provide a useful illustration of how group dynamics can be investigated to include siblings along with the more traditionally featured roles of mother and father in the family dynamic. This work is novel and provides insight into the impact of siblings' use of confirming and disconfirming messages that occur during the maintenance phase of a sibling relationship. Dailey's work suggests that both acceptance and challenge are important messages to receive from siblings in the family environment, as long as challenge is not communicated in the absence of acceptance. This work informs studies exploring cognition and identity development, as well as those interested in the potentially detrimental impact of sibling communication during adolescence that may decrease efforts to maintain the relationship and lead to less satisfaction. Phillips and Schrodt's work extends Dailey's conceptualization of confirming messages by relating it to relational outcomes of satisfaction and closeness.

Studies of sibling relationship maintenance indicate a complex association between messages conveyed, motivations prompting communication, and degree to which siblings engage in maintenance behaviors. Intuitively, the studies indicate the more intimate and confirming the relationship, the more positive the motives; the more positive the motives, the greater the likelihood that siblings will increase use of maintenance strategies via different channels of communication; and that more challenging, as well as accepting, messages provided by siblings in developmental periods of life generally results in healthy individuals who have an increased opportunity for greater intimacy within the relationship. This suggests sibling communication that involves constructive criticism and acceptance can be a healthy way to build integrity into

the sibling bond. The implied outcome of pro-social communication suggests that adult sibling relationships are generally positive in nature and tend to maintain this constructive state throughout the lifespan; however, it is acknowledged that not all sibling relationships follow such an idealized developmental path. As such, more research is necessary to better understand the mechanisms that prompt feelings of intimacy, the cognitive beliefs associated with motives for communicating, and the anticipated outcomes associated with various maintenance strategies over time.

Advancing studies of sibling relationship maintenance. Considering the existing knowledge regarding relationship maintenance among siblings, a productive expansion of future research in this area would be to design studies that feature dyadic data (in addition to self-report) to offer a more interactive understanding of the dynamics essential to relationship development. Investigating sibling interaction patterns in this manner may be especially useful in instances where sibling relationships are fraught with contention and complicated by illustrations of both constructive and destructive communication behaviors. The Social Relations Model (SRM; Kashy & Kenny, 1990) provides a potential theoretical and analytical framework to investigate interactional effects in family systems. Using relational maintenance behaviors is an overt behavior (Myers, Byrnes, Frisby, & Mansson, 2011) that could be studied in this manner, as well as confirming behaviors that impact relational outcomes within the context of family interactions (Dailey, 2009, 2010). Additionally, the beliefs and attitudes associated with motivations to share specific messages to maintain a relationship could also be investigated. SRM provides a more sophisticated approach upon which sibling maintenance research can be extended to involve dyadic data, and synthesized with investigations of intimacy and

communication motives, to further an understanding of how sibling interactions are understood and enacted within the family system.

Section 3: Sibling Research Focused on Aspects of Anti-Social Communication

Sibling Aggression, Envy, and Jealousy

A general inclination exists in the communication discipline to focus on positive aspects of communication, which when applied to sibling communication leads to the avoidance of a complex paradox involving sibling use of constructive and destructive communication behaviors. In this section, anti-social communication refers to messages conveying verbal aggression, envy, and jealousy that are destructive to relationship satisfaction and development. Due to the ordinal structure of families, siblings operate within a constellation of superior-subordinate relationships involving power differentials that may not reach equilibrium until adulthood (or potentially never). During childhood and adolescence, older siblings will have more resources available to them with which they can negotiate their existence (e.g., a more sophisticated means of communicating, more experience attaining goals, more privileges and/or resources) than younger siblings. This naturally evolving discrepancy sets the context for disparate communication interactions that are filled with power differentials and ripe for destructive communication to flourish among children and adolescents who may developmentally lack pro-social communication skills and may be unmotivated to use them. Anti-social sibling communication topics have received less attention in the discipline over the past two decades, even though the implications of not understanding these dynamics warrants research in the wake of studies noting the aggressive nature of sibling relationships.

In their landmark study of family violence, sociologists Straus, Gelles, & Steinmetz (1981) were struck by the self-conscious nature of parents' to limit disclosure of their tendencies

to abuse each other and their children, in comparison to the openness by which they discussed the aggressive behaviors displayed between siblings. The researchers' observation revealed a societal norm that sibling aggression is expected and tolerated as a manner in which children prepare for future conflicts with peers. While conflict does not have to be aggressive or destructive in nature, the work of Strauss and colleagues indicates that sibling conflict often involves aggressive behaviors that are destructive in nature. Since the 1980s, family conflict and aggression has been a topic of many studies, especially within the communication discipline (Anderson, Umberson, Elliott, 2004; Cahn & Lloyd, 1996; Sillars, Canary, & Tafoya, 2004); yet relatively few studies research aggressive communication among siblings (c.f., Martin, Anderson, Burant, & Weber, 1997; Teven, Martin, & Neupauer, 1998).

Studies investigating sibling use of anti-social communication are uncommon in the communication literature. Of the studies that exist, few focus on siblings as the relationship of primary interest. A total of eight articles are reviewed in this section, of which five studies investigate use of verbal aggression among siblings (Martin, Anderson, Burant, & Weber, 1997; Teven, Martin, & Neupauer, 1998; Martin, Anderson, & Rocca, 2005; Myers & Goodboy, 2006; Myers & Bryant, 2008), and three studies examine envy and jealousy among spouses and sibling triads (Bevan & Hale, 2006; Beavan & Stetzenbach, 2007; Yoshimura, 2010). Of the studies reviewed, five feature samples of adult siblings younger than 25 years old, with three studies investigating a lifespan approach that involved participants with an average age older than 25 years (Martin, Anderson, & Rocca, 2005; Myers & Goodboy, 2006; Yoshimura, 2010). Different criteria were implemented across the studies to instruct participants to identify a sibling by random choice (most studies did not specify a criteria, one instructed participants to consider the one closest in age and another to choose a biological sibling). Variables measuring the family

structure (such as, number of siblings, age interval between siblings, age of and sex of sibling relevant to the study) were mentioned specifically in only one study (Martin, Anderson, Burant, & Weber, 1997).

Trends in sibling aggression, envy and jealousy research. Consistent with previous studies, sibling use of anti-social communication is found to be negatively correlated with communication satisfaction (Bevan & Stetzenbach, 2007; Martin, Anderson, Burant, & Weber, 1997; Teven, Martin, & Neupauer, 1998), trust (Martin, Anderson, Burant, & Weber, 1997; Martin, Anderson & Rocca, 2005; Myers & Goodboy, 2006), commitment and linking (Myers & Goodboy, 2006). Generally, anti-social communication is considered destructive to relationship partners. For example, a qualitative study investigating kinds of verbal aggression communicated between siblings found messages repudiating the relationship to be the most hurtful, unfair comparisons to be the most intense, and physical acts and threats to be the most intentional (Myers & Bryant, 2008). Studies investigating differences in male and female use of verbal aggression with siblings found mixed results; Martin, Anderson, Burant, and Weber found females reported using less verbal aggression than males, while Teven, Martin and Neupauer found no significant differences between male and female expressions of verbal aggression. The contradictory results warrant further examination to distinguish if males and females perceive verbally aggressive messages similarly and to establish if trait verbal aggression impacts an individual's ability to identify if personal use of such messages with siblings is appropriate.

Regarding the expression of jealousy and envy, Bevan and colleagues investigated an individual's ruminations after exposure to an expression of jealousy from a hypothetical partner (Bevan & Hale, 2006), and how siblings' expressed jealousy and the impact it had on relationship satisfaction among young adults (Bevan & Stetzenbach, 2007). In general, both

studies found the use of distributive communication to be associated with greater ruminations and lower satisfaction among relationship partners. Yoshimura (2010) investigated envy expressed within sibling and spouse triads, and found siblings to experience and express the most envy among the triad, and spouses most likely to respond to envy. This study used evolutionary theory as a basis to explore the existence of envy in the relationships, and illustrates a specific focus on a particular kind of destructive message that may be exhibited in relationships between siblings and a spouse.

The most startling trend found in the anti-social area of sibling research is not reflected in what is published, but rather what is not published. With the extensive work in the field of sociology regarding sibling aggression and in psychology regarding the socializing force that siblings can impart on each other, it seems the next step in advancing the research in this area is to systematically investigate sibling use of aggression and how it relates to adult experience with anti-social behaviors in close relationships.

Advances in sibling aggression, envy and jealousy research. The overall implication regarding anti-social communication among siblings is that the effects of these messages are known to be detrimental to the relationship and individual, thus further research is warranted to study impacts on the development of self (e.g., unhealthy development of identity and intimacy formation in close relationships), perceptions of family members and roles (e.g., schema development regarding acceptance of inappropriate and aggressive family communication strategies), and distal effects on future voluntary relationship partners (such as romantic, peer, and parent-child relationships). It may be especially toxic to an individual's health and well-being to be connected to a sibling who was or still is aggressive and abusive. Research indicates sibling interactions play a crucial role in the development of a sense of self and that the

interactions act as reinforcing elements of an individual's identity that are enmeshed with the familial landscape (c.f., Dailey, 2009, 2010; Kramer & Conger, 2009). Due to the ambivalent and at times contradictory nature of the messages conveyed between siblings, an exploration of the impact of anti-social communication across sibling ages would help to identify if certain stages of development, ordinal dyad combinations, same- or opposite-sex pairings, and sibling types were more or less vulnerable to destructive messages.

For example, some adults may continue to use destructive messages that were common in childhood and adolescent interactions that never matured into more respectful or constructive means of communicating in adulthood. This may be exhibited among an older sibling who used aggressive intimate play (e.g., a punch in the arm, "rough-housing around" to show dominance) when interacting with a younger sibling in the family home who continue this interaction style into adulthood. The younger sibling may harbor negative connotations with the aggressive play (Martin, Anderson, Burant, & Weber, 1997; Myers & Bryant, 2008) which may not be openly articulated in adult interactions, possibly due to a lack of strategies to identify and discuss the feelings or maybe due to the habitual pattern for the older sibling to perceive the aggressive play as a form of intimate "teasing" (which may be the only form of intimacy expressed between the adult siblings).

Various theories indicate promising potential to expand studies of destructive communication within sibling and familial relationships. Building on the research of Infante and colleagues (c.f., 1987; Infante & Rancer, 1996; Rancer & Avtgis, 2006), investigating trait verbal aggression allows for complimentary investigations of constructive (via trait argumentativeness) and destructive communication patterns exhibited among siblings to explore implications that relate to the development of, integration of, and use of destructive messages in familial and

voluntary close relationships beyond the family structure. Variables relevant to message production and reception could be examined using an interactionists' approach that measures trait variables as well as situation variables to examine relevant features of a particular family communication context that may impact the use and consequences of destructive communication. An advantageous combination would be to examine communication traits, features of family communication patterns theory (Koerner & Fitzpatrick, 2002), and relational dialectics theory (Baxter, 2004, 2006) to explore how inherent contradictions experienced among family members relate to the use of different kinds of verbally aggressive messages, and to further explain when and why verbal aggression is expressed between siblings who experience different family communication styles. Extensions of this work could further investigate if sibling use of destructive communication is predictive of use of the same kinds of messages when similar tensions are faced in adult relationships experienced later in life (e.g., with peers, romantic partners, and children).

Beyond communication traits, other unique theoretical approaches are being explored that blend existing research in complimentary ways. Hamilton, McNeil, and Tafoya (2012) presented research that explored conflict management styles and confirmed that adult sibling use of conflict strategies and tactics is consistent with previous studies that associate negative forms of conflict management with destructive communication and positive forms of management with constructive forms of handling conflict. A worthy extension of this work would be to investigate if sibling forms of conflict management are predictive of management styles used in adulthood, such that destructive forms could then be identified and potentially diminished in sibling interactions to foster more constructive approaches among adults. Another extension of the conflict management investigation could use socialization approaches (c.f., Howe & Hildy,

1990; Kramer & Conger, 2009) to provide another lens to examine how and why destructive interaction patterns are modeled and formed among siblings. For example, combining social learning theory (Kunkel, Hummert, & Dennis, 2006) and emotion regulation theory (ERT; c.f., Cupach & Olson, 2006; Gottman, Katz, & Hooven, 1997) would provide a means to understand how parents model destructive and emotionally dismissing strategies to children that may be enacted among siblings and impact future adult relationships. ERT provides a useful lens for viewing family conflict and violence based on a socialized response to emotional expression communicated by parents in the family environment. Cupach and Olson's work suggests studies could extend the work on sibling use of destructive messages by examining the relationship between parent use of confirming or disconfirming patterns associated with emotional expressions in the family context to explain why adults may use destructive messages in relationships beyond the family.

The possibilities for extending work across the areas of sibling communication patterns and relationship development to better understand, explain, predict outcomes and potentially change sibling use of anti-social communication messages are vast and ripe for scholarly attention in the field. Identifying the mechanisms that prompt use of destructive communication contributes a means to recognize triggers that may instigate use, allowing for the triggers to be disarmed or decreased in family environments. For example, Schacter, et al.'s (1976) notion of *deindividualization* refers to an individual behaving in ways to establish unique areas of competence and contributions to the family structure that are acknowledged as different from other siblings. Since no published communication studies to date have examined Schacter, et al.'s concept, it is not understood how deindividuation may be linked with communication processes relevant to the growth of self in relation to other family members, and if the

phenomenon emphasizes constructive or destructive communication patterns. Identification of such mechanisms would be beneficial to examining socialization processes, relationship development, and individual well-being research to advance the current understanding of intimacy and relationship development over time. An interesting means to explore messages associated with deindividualization would be to apply relational dialectics theory (Baxter, 2004, 2006) to investigate the various contradictions and tensions present in sibling relationships as a way to deconstruct the meanings associated with destructive messages used in sibling interactions. Whether messages are associated with the overt goal to hurt the recipient or the sibling relationship, verbal aggression, envy and jealousy are pertinent kinds of messages that are anticipated to reveal the tip the iceberg of potential anti-social communication expressed among siblings.

Section 4: Overcoming Methodological Challenges to

Advance Theoretical Development

What Can Our Methodological Approaches Teach Us?

Theoretical developments in sibling communication research are dependent upon methodological improvements that operationalization more of the complex features relevant to sibling communication. To understand where these improvements can be implemented, it is necessary to review the methods used in past studies investigating sibling communication with regard to the hypothesis(es) and research questions advanced, the population sampled and the sampling technique used, and the manner in which variables are defined and measured.

Research question(s) versus hypothesis(es). One means to examine the extant sibling research literature is to review the number of studies that advance hypotheses and those investigating research questions. Twelve of the 18 studies investigating sibling closeness

advanced and tested hypotheses, and fourteen studies inductively explored research questions. Of the studies focused on relationship maintenance, 11 of 14 studies advanced hypotheses and seven advanced research questions. Of the studies focused on anti-social communication, seven of eight studies advanced hypotheses and seven advanced research questions. Overall, almost as many research questions were investigated as hypotheses were tested in the research. Although a descriptive indicator only, the higher presence of research questions indicates the discipline is likely working in an exploratory phase regarding sibling communication.

A second descriptive indicator reviewed was the publication outlets in which sibling research was found. The 40 articles included in the review were published in the following journals (the number in parentheses indicates how many of the articles were published in that journal): *Communication Research Reports* (13), *Communication Quarterly* (6), *Journal of Family Communication* (4), *Communication Reports* (3), *North American Journal of Psychology* (3), *Communication Studies* (2), *Journal of Psychology* (2), *Journal of Communications Research* (2), *Atlantic Journal of Communication* (1), *Communication Monographs* (1), *Journal of Social & Personal Relationships* (1), *Southern Communication Journal* (1), *Western Journal of Communication* (1). Documenting where the work is being published highlights the need for a wider array of journals to consider the merit of publishing research involving siblings and prompts researchers to consider a broader scope of journals in which to submit their work. A third of the studies were published in *Communication Research Reports*, with few publications in national or international communication journals. Additionally, study designs must also involve an advancement of the sampling techniques, populations represented, and variables defined and operationalized if research is going to contribute to an expansion of sibling communication research.

Sampling techniques and populations represented. The population sampled in 13 out of 18 closeness studies was based on young adults (average age ranged from 19-24 years old). Two of the studies samples averaged between the ages of 35-38 years old (e.g., Floyd & Morr, 2003; Rittenour, Myers, & Brann, 2007), another across the adult lifespan (Fowler, 2009), while two other studies involved children aged from 5-10 years old (Aksan, Goldsmith, Essex, & Vandell, 2013; Pinel-Jaquemin & Gaudron, 2013). New studies should seek to examine expressions of closeness across a wider range of adults and across multiple age groups to investigate if the lifespan is associated with specific sibling communication patterns. The population sampled in ten of the 14 relationship maintenance studies involved young adults, with two studies focused on adolescents (Dailey, 2009, 2010) and two others on middle aged to older adults (Goodboy, Myers & Patterson, 2009; Myers, Brann, & Rittenour, 2008). The population sampled in five of the studies investigating anti-social communication among siblings involved young adults, and the remaining three sampled across the adult lifespan (Martin, Anderson, & Rocca, 2005; Myers & Goodboy, 2006; Yoshimura, 2010).

It appears the vast number of sibling studies are collecting data from young adults, and using a wide array of options to instruct participants to consider a sibling while participating in the study. Different criteria were implemented across the studies to instruct participants to identify a sibling, including random choice, closest birthday in the calendar year, closest in age, biological sibling, and most recent interaction. Purposive sampling and expanding represented populations are two goals that merit more attention if communication studies are going to contribute research of sibling lifespan. To avoid criticism for relying too heavily on college student populations to generalize sibling communication phenomena, more studies should investigate mid- to older adult siblings in addition to siblings under the age of 18 years old.

Studies focused on older generations stand to make significant contributions that are salient to changing demographics in society and reflective of the broader scope through which siblings are examined in related disciplines. Studies that aim to describe and document sibling patterns among minors have a higher opportunity for examining behavioral processes in the making between siblings. Since living together in the family home is a crucial time in which sibling bonds are established, examination of these interactions would allow for greater explanation of how certain experiences may socialize beliefs or behaviors as acceptable and reinforced within the family regarding sibling communication. Although longitudinal work is rigorous and costly, it is an ideal means to explore developmental processes in sibling communication patterns over time. Considering longitudinal studies are routinely conducted by developmental psychologists, it is suggested that more collaborations are forged with interdisciplinary scholars conducting longitudinal research that will enable communication variables to be examined as a part of a larger ongoing longitudinal approach. In the event that longitudinal studies are not feasible, more cross-sectional study designs would offer potential answers to advance more research on sibling communication and relationships.

Variable definition and operationalization. To advance sibling studies and shift the body of work from an exploratory phase to a more advanced phase of theoretical development, two methodological concerns must be overcome regarding how siblings are defined and what family structure variables are assessed. Consistency in method does not need to infer that creativity is diminished, rather it requires clear identification of definitions and sample populations to articulate what type of sibling relationship is being examined and why. Although it is important to be creative in our methods to reach populations of which a convenient sampling frame may not exist, it is also advantageous to consider a more definitive recruitment and reporting

approach to identify the type and stage of sibling communication featured in a project. Another concern involves the lack of measurement of variables that reveal the elements of the ecology of the family constellation, such as family structure, number of siblings, age between siblings, age of and sex of sibling. Although some of these variables were assessed in a few studies (e.g., Myers & Bryant, 2008; Rittenour, Myers, & Brann, 2007), the majority of communication studies involving sibling intimacy did not take these variables into account. Future work should include these variables to increase the reliability of the findings and ease the comparison of results across studies to support more valid generalizations across the population studied.

Summarizing across the initial 20 years of sibling communication research brings attention to two common trends that can be recognized as both a virtue and a vice to the advancement of sibling studies. The majority of studies reviewed here implemented an empirical study design using surveys consisting of interval measures that collected self-report data (with few measures gathering data from the sibling). Studies tended to investigate differences between message qualities and use among siblings based on an individual's perspective, which may skew findings and suggest a myopic perspective of the relationship dynamic without using dyadic data. Data analyses most often included correlation and regression analyses of interval data. While the discipline has benefited greatly from the studies that exist; future work will benefit as more sophisticated methods and designs are implemented.

Various sources exist that illustrate ways in which sibling communication research can be advanced. For example, Noller and Feeney (2004) offer a useful discussion of methods and approaches for studying family interactions that can be adapted for investigations of sibling interactions. Measuring the ordinal structure (e.g., younger, older, twin), the type of sibling (biological, half, step-, adopted, fictive), and the biological sex of the siblings involved is a

means to improve future research that will have minimal impact on study designs while maximizing the potential to synthesize findings across studies. Family structure is a relevant aspect that should be documented in all studies of siblings, regardless if it will be used for merely descriptive or more analytical means of analysis. Additional variables of interest that should be measured include the length of time siblings have lived together and the quality of the sibling relationship. Gathering such data in future studies will enable researchers to conduct descriptive and statistical analyses that provide more heuristic understanding across studies.

In addition, it is important to recognize the richness that is gained through a mixed-methodological approach that embraces both interpretivistic as well as objective approaches to conducting research on siblings. While a large focus of this discussion pertains to an enhancement of the empirical means for designing studies, it is also suggested that interpretivistic methods are advanced as well to counterbalance quantitative findings with a rich, qualitative understanding of sibling communication experiences. For example, dialectical approaches, narrative analyses, constructivist interpretations, and phenomenological and critical agendas provide unique ways to investigate sibling experiences that are less common in the field and ripe for development. By capitalizing on all of the potential methodological means available in the discipline, communication scholars will more effectively contribute to the knowledge on siblings by designing studies that examine a wider representation of sibling demographics that can be woven into an interdisciplinary knowledge base in a variety of ways and forms.

To encourage intellectual stimulation and heuristic value in sibling research, communication scholars studying siblings should work to increase their contribution by carefully articulating the goals of their own research questions in contrast to those of existing research, and by consistently explicating the unique descriptive features of the siblings investigated in each

study. While the kinds of research questions asked by scholars in other disciplines differ in scope and detail from communication scholars; communication research can contribute across discipline boundaries more easily if the studies consistently articulate the unique features being investigated within a larger framework of understanding. Communication scholars need to clearly explicate how the study of messages contributes to the interdisciplinary knowledge on siblings that currently exists, as doing so will enable communication research to be more easily woven into interdisciplinary discussions regarding siblings, serving heuristically to advance theory within and outside of the discipline.

Advancing Theory in the Communication Discipline

Due to the exploratory nature of sibling research in the field to date, the area of theory development is ripe with exciting opportunity for communication scholars to contribute to the academic knowledge base. Certain themes have been repeatedly identified in sibling research that represent western ideologies and cultural constructions that will benefit from continued research as well as from contradictory approaches. For instance, in the U.S. siblings are recognized as having a unique relationship from peers (Abramovich, Pepler, & Corter, 1982), their relationships are routinely characterized by ambiguity that fluctuates between rivalry and closeness (Bryant, 1982; Pfout, 1976), are documented to be the most violent and abusive of the close relationships typically experienced by individuals (Felson, 1983; Straus, Gelles, & Steinmetz, 1980), and are found to prosper best in family environments that allow for “deindividualization” (Schachter, 1982; Schachter, et al., 1976). These themes have been identified and developed over decades of work across social science disciplines, and frame underlying assumptions that guide investigations exploring intimacy, relationship development, and maintenance of sibling relationships. However, many topics remain to be investigated. For

example, work including touch apprehension and affective orientation in Asian-American and European-American siblings (Avtgis & Rancer, 2003), face negotiation theory and family conflict (Oetzel, et al., 2003), and conflict resolution among Mexican adolescents (Killoren, Thayer, & Updegraff, 2008) are examples of intercultural studies that investigate sibling similarities and differences. Studies of this nature are even less common than studies of anti-social communication, but are necessary to address gaps in the communication field and will benefit from the work of interdisciplinary scholars (Furman, Jones, Buhrmester, & Adler, 1989).

Interpersonal theory in the field has developed many approaches to understanding the various levels of individual, interactional, and relationship approaches (Braithwaite & Schrodt, 2015) to study messages and how they impact human experience that are applicable to extending sibling research. Work focused on understanding the dark side of sibling relationships and the impact of destructive messages on self-identity and subsequent relationship experiences in adulthood, work focused on exploring the complex constellation of contemporary family structures that involve a variety of sibling types, and work that focuses on a longitudinal and dyadic approach to expand our knowledge of sibling communication and relationship development are not well represented in the field to date. However, interpersonal communication research reflects a body of literature that has depth and breadth that can be applied to siblings in various ways to address gaps in our knowledge of sibling communication.

Considering the call to action infused throughout this review and the argument to advance theory in a systematic manner that embraces multiple topics, epistemologies, and goals, the final point advanced is a suggestion for framing future sibling research within a social provisions perspective. The paradigm of social provisions, initially advanced forty years ago by clinical psychologist R. S. Weiss (1974), is a functional and fruitful foundation upon which

further work in the field can integrate disciplinary research with interdisciplinary theory, perspectives, and findings. The basic relationship functions identified by Weiss (as cited in Hinde, 1997, pg. 143) include:

1. Attachment, providing a sense of security and place.
2. Social integration and friendship, providing shared concerns.
3. Opportunity for nurturance, as when taking care of a child provides a sense of being needed.
4. Reassurance of worth, provided by relationships that attest to a person's competence.
5. A sense of reliable alliance, usually provided by kin, and involving a sense of dependable assistance if needed.
6. Obtaining of guidance, important to individuals in stressful situations.

Hinde notes the connection between Weiss's concept of social provisions and the phenomenon of social support. Research connecting social provisions with family interaction, sibling communication, and the SRM (Ackerman, Kashy, Connellan, & Conger, 2011; Rabash, Jenkins, O'Conner, Tackett, & Reiss, 2011) is already underway in the disciplines of psychology and family studies. Applying the archetypical concepts provided by Weiss's notion of social provisions to sibling research provides a broad conceptual umbrella under which specific lines of research can be integrated as a means to augment current studies of intimacy and relationship development, and also to enable future studies to link new conceptual ideas to a theoretical framework that embodies the archetypical notions of siblinghood. Encouraging future studies to connect to a social provisions paradigm is one means through which scholars could synthesize and accelerate an alignment of existing communication studies with interdisciplinary research involving interactions experienced in families among siblings of all types and ages. Adopting a social provisions paradigm could also provide an umbrella of conceptual integration without constricting epistemological approaches or theoretical creativity useful to expand the heuristic role of communication research of siblings.

In closing, this review was conducted to highlight the work of communication scholars over the past twenty years who have investigated aspects of sibling communication and relationship development to extend our knowledge and promote future work. A commendation is credited to those who have dedicated their energies to develop this area in our field, and a call to action is raised among those who have yet to explore interests relevant to siblings. While the research to date is slowly expanding beyond the more common topics of closeness, relationship development and maintenance to include some of the darker sides of sibling interactions, the scope and depth of the research in our field is limited. Future studies are called to improve the sophistication of sampling techniques and representation across multiple ages and developmental phases, and to explicate variable operationalization and include pertinent structural characteristics of the family in analyses. In addition, multiple methods are encouraged that will diversify our understanding of sibling communication, along with the implementation of dyadic and small group analyses to enhance our ecological understanding of siblings within a system of family relationships. And last, the theoretical development of sibling research will benefit from a diverse range of theories that can be connected under a common paradigm, such as a social provisions perspective, to encourage synthesis and growth in the communication discipline.

Notes

1. The reviewed articles were collected using online search engines and library databases (e.g., Academic Premier, Communication and Mass Media Complete, Communication Source, ERIC, PsychInfo). The author spent time reviewing bibliographies, curriculum vita, and books to find published work relevant to the field that was not recognized by the online search engines. While an exhaustive review was the goal of this project, the author acknowledges that some research may have been omitted due to the outlined criteria.
2. A very small third category involving three studies that did not fit well into the pro- or anti-social categories also emerged among the 43 articles. These studies are not included in the pro- or anti-social sections of the review, but are discussed in the last section under the theoretical advancement heading.
3. The sub-categories are acknowledged as an arbitrary means to classify the pro-social studies for easier reader comprehension and identification. It should be understood that sibling closeness, relationship development, and maintenance are closely related concepts that work together in a relationship over time.

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