Shyness and Sociability Revisited

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Introduction

Over three decades ago, Cheek and Buss (1981) observed that some people were quiet and reserved in social situations. Cheek and Buss asked whether these individuals behaved this way because they felt inhibited and anxious in social situations (i.e., they are shy) or because they preferred to be alone (i.e., they are introverted). Cheek and Buss then further questioned whether shyness and sociability were so interrelated that expressing high levels of the one trait necessarily implies having low expression of the other. They suggested that the answer to this question was yes, by definition, if shyness was defined as nothing more than the tendency to avoid people. If, however, shyness and sociability were defined as conceptually independent, then the extent to which the two traits were related was an empirical question. They developed short self-report measures of shyness and sociability to address this question and found that the two measures were only modestly inversely related, suggesting independence of the two personality traits.

Cheek and Buss (1981) then asked: If a person was shy, did it make any difference to their behavior whether they were high or low in sociability? To address this question, they selected individuals who scored high and low on shyness and sociability, to comprise a total of four groups (i.e., high shyness and high sociability, high shyness and low sociability, low shyness and low sociability, low shyness and high sociability), and had them interact with unfamiliar peers. Cheek and Buss found that individuals who were high in shyness *and* sociability exhibited higher amounts of behavioral anxiety than adults in the other three groups. Presumably, this group exhibited a strong desire for social interaction with others, but these individuals

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were inhibited in approaching such situations by their social fearfulness. Thus, these individuals experienced conflicting social motivations.

Since the original publication, the Cheek and Buss (1981) measurement approach on the relative independence of shyness and sociability has been replicated across ages and populations, including toddlers (Trautman, Meyer-Bahlburg, Postelnek, & New, 1995), children (Asendorpf & Meier, 1993; Coplan et al., 2013; Coplan & Armer, 2007; Coplan, Prakash, O'Neil, & Armer, 2004; Tang, Santesso, Segalowitz, & Schmidt, 2016), adolescents (Mounts, Valentiner, Andrerson, & Boswell, 2006; Page, 1990), and healthy adults (Dhaundiyal & Coughlan, 2016; Eisenberg, Fabes, & Murphy, 1995; Miller, Schmidt, & Vaillancourt, 2008; Sheeks & Birchmeier, 2007; Tang, Santesso, Segalowitz, Schulkin, & Schmidt, 2016; although see Bruch, Gorsky, Collins, & Berger, 1989) as well as clinical adolescent (Wadman, Durkin, & Conti-Ramsden, 2008) and adult (Goldberg & Schmidt, 2001; Jetha, Schmidt, & Goldberg, 2009; Jetha, Schmidt, & Goldberg, 2007; Xu, Poole, Van Lieshout, Saigal, & Schmidt, 2019) samples.

As well, the independence of shyness and sociability has been demonstrated across cultures, including German (Czeschlik & Nurk, 1995), Portuguese (Neto, 1996), and Asian (Hussein, Fathy, Mawla, Zyada, & El-Hadidy, 2011) samples. Similar findings have been reported in nonhuman animals, as reflected by individual differences in overt timid and bold behavior (for a review, see Réale, Reader, Sol, McDougall, & Dingemanse, 2007). The ubiquitous manifestation of shyness and sociability across development, cultures, and phylogeny suggests that these two personality traits may be rooted in our evolutionary history.

In this chapter, we first review how shyness and sociability have been conceptualized in the past using an approach and avoidance motivational framework as a heuristic. We then review empirical research that has elucidated correlates of shyness and sociability across psychological, biological, and cognitive levels of analysis. Finally, we review recent work that has examined the life span developmental trends of shyness and sociability.

An Approach and Avoidance Heuristic for Understanding Shyness and Sociability

Approach and avoidance are fundamental motivational dimensions that are observed behaviorally and conserved across human and nonhuman animals, including invertebrates (see Wilson, Clark, Coleman, & Dearstyne, 1994, for a review). Two personality traits that are particularly salient to study approach and avoidance motivations are shyness and sociability, given their opposite social motivations. Shyness is characterized by inhibition and anxiety, and the perception of threat during social situations or anticipation of social situations, and is presumed to be maintained by an avoidance motivation (Cheek & Buss, 1981). Sociability is characterized by a desire to engage and interact, with the experience of positive emotions in social situations or anticipation of social situations, and is presumed to be maintained by an approach motivation (Cheek & Buss, 1981).

Fig. 1 An approach and avoidance heuristic framework for understanding shyness and sociability. The interaction of social approach and social avoidance dimensions and resulting four social behaviors (adapted and modified from Asendorpf, 1990)

Social Avoidance

	low	high
high	Sociable	Conflicted Shy
low	Unsociable	Avoidant Shy

Social Approach

There have been attempts in the past to use an approach and avoidance motivational framework as a heuristic to conceptualize and understand shyness and sociability (Asendorpf, 1990, 1993). Asendorpf used the interaction of social approach and social avoidance dimensions as a heuristic to understand individual differences in social behavior. In doing so, there are at least four resulting behaviors and types of individuals (see Fig. 1). The first type is *sociability* (upper left quadrant). Sociability results from high approach–low avoidance motivation tendencies. Individuals in this quadrant have a high need and desire to affiliate with others, seek out others, and find other people more stimulating than anything else. These individuals are highly outgoing, sociable, and purely extroverted. The remaining three quadrants characterize different types of socially withdrawn behaviors: (1) *conflicted shyness* (upper right hand quadrant) results from high approach–high avoidance motivational tendencies. These individuals are highly socially inhibited. They desire to interact with others but feel too inhibited and anxious in social situations to do so. Given the conflicting social motivations underlying these individuals, they are defined as socially conflicted; (2) *avoidant shyness* (bottom right hand quadrant) behavior results from low approach–high avoidance motivational tendencies. Unlike people with conflicted shyness, although avoidant individuals also experience discomfort in social situations, they have little motivation to interact with others and actively avoid social situations entirely; and (3) *unsociability* (bottom left hand quadrant) results from low approach–low avoidance motivational tendencies. These individuals do not have a high need to interact with others, but are not bothered by doing so. They are pure introverts.

Correlates of Shyness and Sociability

Shyness, sociability, and their interaction has been examined and distinguished on a range of behavioral, psychophysiological, and cognitive measures. The findings from this work have not only illustrated the relative independence of shyness and

sociability but have also illustrated that individual differences across each of these traits can produce highly different developmental outcomes. In a series of studies over the last two decades, we and others have used an approach and avoidance framework as a platform to examine the independence of shyness and sociability and to better understand the correlates and mechanisms underlying different subtypes of shyness (see Schmidt & Buss, 2010; Schmidt & Fox, 1999, for reviews). Subsequently, we review empirical research that has examined the correlates of these shyness subtypes across development.

Behavioral and Psychological Correlates

A number of empirical studies have used the approach and avoidance heuristic model to understand individual differences in social behavior, including shyness in children (Asendorpf, 1993; Coplan, 2000; Coplan et al., 2013; Coplan & Armer, 2007; Coplan, Prakash, et al., 2004; Coplan, Rubin, Fox, Calkins, & Stewart, 1994; Kopala-Sibley & Klein, 2016; Rubin & Asendorpf, 1993). Coplan and his colleagues have found that shy children display unoccupied and onlooking (passive watching of other children) behaviors in unfamiliar social situations (Coplan et al., 1994), as well as reticence during the first day of preschool (Coplan, 2000) and several months into the school year (Coplan, Prakash, et al., 2004). Among adult samples, conflicted shy and avoidant shy individuals also display distinct behaviors. For example, conflicted shy adults perceived themselves to contribute less to social interactions during everyday mealtime settings (Arkin & Grove, 1990), whereas avoidant shy individuals rated themselves as the least talkative during a dyadic social interaction with an unfamiliar social partner relative to individuals with other combinations of shyness and sociability (Schmidt & Fox, 1995).

Conflicted shyness is also predictive of adjustment problems during development, including poorer social competence during the preschool years (Coplan, Findlay, & Nelson, 2004) and loneliness, emotional instability, lower self-worth, and social anxiety during childhood and into adolescence (Crozier, 1995; Eisenberg, Shepard, Fabes, Murphy, & Guthrie, 1998; Tang, Santesso, Segalowitz, & Schmidt, 2016). Recently, a longitudinal study by Kopala-Sibley and Klein (2016) found that conflicted shyness in preschool-aged children was predictive of internalizing and externalizing behaviors in later childhood. As well, adolescents (Page, 1990), young adults (Santesso, Schmidt, & Fox, 2004), and adults (Poole, Van Lieshout, & Schmidt, 2017b) with conflicted shyness are more likely to use and abuse illicit substances compared with their peers.

Relatively less work has examined the correlates of avoidant shyness. Some work has reported that socially avoidant children reported higher levels of depressive symptoms relative to conflicted shy and unsociable children (Coplan et al., 2013). Similar findings were reported in adolescents, with social avoidance being correlated with depressive symptoms, whereas conflicted shyness and unsociability were unrelated (Bowker & Raja, 2011).

Conflicted shyness during emerging adulthood has been shown to be associated with increased social distress, increased fear of negative evaluations, and more social comparisons with peers (Nelson, 2013) relative to the socially avoidant shyness subtype (i.e., high on shyness but low on sociability). These traits are comparable to the symptoms associated with social anxiety. Indeed, we have also demonstrated that beyond emerging adulthood, adults with conflicted shyness are at an increased risk for experiencing the cognitive, behavioral, and somatic symptoms underlying social anxiety disorder (Poole, Van Lieshout, & Schmidt, 2017a). We have also found that shy (i.e., socially conflicted) adults exhibited a higher incidence of mixed handedness (a risk factor for psychopathology; Spere, Schmidt, Riniolo, & Fox, 2005) and poorer adjustment in adulthood across demographic, psychological, social, and health domains of adaptive functioning (Poole et al., 2017b).

Psychophysiological Correlates

One primary focus of our work has been examining the independence of shyness and sociability on a psychophysiological level using measures that index central and peripheral nervous system activity at rest and in response to social challenge. In one study (Schmidt, 1999), we noted that shy adults exhibited greater relative right frontal brain electrical (EEG) activity at rest (i.e., a pattern reflecting a predisposition toward avoidance behavior and negative affect), while social adults exhibited greater relative left frontal EEG activity at rest (i.e., a pattern reflecting an increased tendency for approach behavior and positive affect). Although conflicted shy (i.e., high approach–high avoidance) and socially avoidant (i.e., low approach–high avoidance) adults both exhibited greater relative right frontal EEG activity at rest, the former group exhibited more absolute activity in the left frontal brain region compared to the latter group. More recently, we reported a relation between shyness and greater relative right frontal EEG activity at rest and sociability and greater relative left frontal EEG activity at rest in adults with schizophrenia when their symptoms were statistically controlled (Jetha et al., 2009).

In an earlier study (Schmidt & Fox, 1994), we reported that conflicted shy adults also exhibited a higher heart rate and lower vagal tone (i.e., stress vulnerability correlate) during anticipation of an unfamiliar social encounter with a peer than adults in the other three approach–avoidance groups. This autonomic pattern in conflicted shy individuals indicates they have high stress and sympathetic reactivity and poor emotion regulation. Finally, in a sample of adults, we have also reported a higher cortisol awakening response among conflicted shy individuals, which may reflect the fact that these individuals require more energy resources to be socially outgoing (Tang, Beaton, Schulkin, Hall, & Schmidt, 2014).

Cognitive Correlates

Recently, we wished to extend the psychophysiological findings to possible perceptual-cognitive and neurocognitive mechanisms implicated in the origins and maintenance of conflicted shyness. In one study, we tested if individual differences in shyness and sociability were related to the processing of emotional stimuli, guided by an opponent process theory of emotion (Poole et al., 2019). The opponent process theory of emotion posits that affective states are modulated by opposing reactions (Solomon & Corbit, 1974). That is, there are two components of the emotional experience: a) *the primary process*, which is the affective state determined by the emotion-eliciting stimulus, and b) the resulting *opponent process*, which is the emotional state that is *opposite* in affective valence of the primary process (Solomon & Corbit, 1974). According to the opponent process theory, the function of the opponent process is to bring the individual's affective system to equilibrium after the experience of an emotional event. With repeated exposure to, or experience of, a specific primary process, researchers have argued that the opponent process becomes stronger across time (Comer, Harrison, & Harrison, 2015; Solomon & Corbit, 1974).

To index opponent processes, we used a visual afterimages task. During this task, participants adapt to an individual face emotion for 45 s (i.e., primary process), then the emotion face stimulus is immediately replaced with a neutral face for 800 ms, and then participants were asked to label the perceived afterimage emotion (i.e., opponent process).

Results revealed that individuals scoring high on shyness *and* sociability (i.e., conflicted) were more likely to perceive a negative emotion afterimage after adapting to happy faces and a positive emotion afterimage after adapting to angry faces, compared to other individuals scoring high and low on shyness and sociability. That is, individuals classified as *conflicted* shy experienced an increased likelihood of reporting the expected afterimage to both positive *and* threat-related emotional stimuli (Poole et al., 2019). We speculated that individuals who are characterized as shy *and* sociable (i.e., conflicted) may have increased experiences with negative, withdrawal-related emotions (i.e., angry) and positive, approach-related emotions (i.e., happy), and consequently an enhanced expected opponent process to the presentation of both negative, withdrawal-related, *and* positive, approach-related primary processes (Poole et al., 2019).

In a second study, we examined the neurocognitive correlates of shyness and sociability in children during the processing of novel tones (Tang, Santesso, Segalowitz, & Schmidt, 2016). We found that shyness was positively correlated with increases in target P300 amplitudes (an event-related potential associated with arousal, attention allocation, and cognitive resources). There were no significant relations between sociability and P300 responses. Interestingly, we also found that P300 amplitude in the frontal region mediated the relation between conflicted shyness (i.e., high shyness and high sociability) and emotional instability. These results suggest that shyness and sociability are distinguishable on neurocognitive measures in children and that there may be neurocognitive mechanisms underlying risk for emotional instability in children characterized by conflicted shyness.

Developmental Stability of Shyness and Sociability

In addition to examining the relative independence and distinct correlates of shyness and sociability, researchers also have been interested in examining the developmental stability of these two traits. Typically, shyness and sociability have been regarded as relatively stable constructs across development, particularly among extreme groups and particularly as one reaches young adulthood. However, there have been very few long-term longitudinal studies that have examined mean-level changes of shyness and sociability from early childhood into late adulthood. Thus, it remains somewhat unclear how these two traits follow similar or different developmental trends across the life course.

When examining shyness, the majority of research has assessed predictors or outcomes of different shyness trajectories (e.g., Caspi, Elder, & Bem, 1988; Grose & Coplan, 2015; Schmidt et al., 2017; Tang et al., 2017) and has not examined mean-level changes across time. A recent study attempted to take a lifespan perspective on shyness by examining a construct related to shyness (a composite using neuroticism and introversion) using a large sample of individuals between the ages of 17 to 70 (Van Zalk, Lamb, and Rentfrow, 2017). These researchers reported trends that males tended to have decreases in shyness from early adulthood to late adulthood. In contrast, females had higher mean levels of shyness overall as compared to males and that these levels remained constant across age. Recently, we reported that shyness (and conflicted shyness specifically) decreased from age 20 to 30 (Xu et al., 2019). We also found that greater decreases in conflicted shyness from age 20 to 30 were predicted by establishing a relationship, or being male.

We have also recently examined mean-level differences in shyness across the lifespan from ages 4 to 86 using a repeated cross-sectional design. (Brook & Schmidt, 2019). In the adult samples, results revealed that mean levels of shyness were significantly higher in late emerging adulthood to middle adulthood (i.e., 26–55 years) than in comparison to the other age groups (i.e., ages 17–25 and 56–86). The highest levels were found in young adulthood (i.e., ages 30–39) and the lowest levels were found in late adolescence and early emerging adulthood (i.e., ages 17–22). In the child samples, we found mean levels of shyness were relatively high in the preschool years but declined during middle childhood and increased again in late childhood/early adolescence. Caution needs to exercised when interpreting the data from the child samples as measurement invariance was not established for the child ages, so the interpretation of the mean levels of shyness in childhood may not be reliable and are only for descriptive purposes. Collectively, the trend in average levels of shyness across the lifespan appeared to follow an inverted U-shaped curve.

With respect to sociability, one study reported that sociability increased during adolescence, decreased during later adolescence into mid-adulthood, and then increased during late adulthood (Ashton & Lee, 2016). A separate study reported that sociability did not change between age 16 and 66, though this was based on two time points (Damian, Spengler, Sutu, & Roberts, 2019). We also found that sociability decreased from age 20 to 30 among both typically and atypically developing adults (Xu et al., 2019).

We have also recently examined mean-level changes in sociability across the life course from ages 3 to 86 again using a repeated cross-section design (Brook & Schmidt, 2020). Among the sample of children/adolescents, the lowest mean levels of sociability occurred during late childhood to early adolescence, relative to other childhood developmental periods. Among the sample of adults, the highest levels of sociability were seen between the ages of 17 and 22 years, whereas the 30–39 years group had the lowest levels of sociability. A final observation was that females tended to have significantly higher levels of sociability on average than males over the entire sample.

Benefits of Shyness and Costs of Sociability

In the spirit and theme of this edited volume on adaptive shyness, a final comment is warranted regarding the potential benefits of shyness and costs of sociability. Although shyness is often viewed in popular culture and the research literature as a "negative" trait and sociability as "positive" trait, are there any benefits to shyness and costs to sociability? There are accounts in the literature that suggests shyness is associated with positive aspects such as creativity (Kwiatkowska, Rogoza, & Poole, 2019) and lower risk-taking behaviors (Addison & Schmidt, 1999). As well, there are other suggestions that higher levels of sociability are not always associated with adaptive behaviors and outcomes (see, e.g., Buss, 2012; Cohen, 2004; Emmons & Diener, 1986; see also Chap. 10, this volume).

In a recent study by our group, we examined whether there were any benefits to children's shyness (Chow et al., 2017). To this end, we investigated the association between children's temperament and anxiety in an ecologically salient and stressful environment: the surgical context. We found that temperamentally shy children, paradoxically, were consistently less anxious than sociable children in response to impeding elective surgery across two visits: a preoperative visit and the day of surgery. We speculated that temperamentally shy children may be relatively less anxious than their socially outgoing counterparts because they may be more experienced with coping with anxiety in their everyday environments and perhaps have learned how to regulate their emotions better in this highly stressful context.

Conclusion

Overall, theoretical and empirical work have illustrated that shyness and sociability are fundamental and distinct personality traits that are distinguishable across a range of measures, ages, populations, and cultures. The studies reviewed earlier have been guided by the use of an approach and avoidance heuristic to understand shyness and sociability. The interaction between shyness and sociability can result in at least four social behaviors, yielding two shyness subtypes in particular. Each of these

shyness subtypes has unique behavioral, psychological, psychophysiological, and cognitive correlates across development. As well, shyness and sociability each follow unique developmental trajectories. A consideration of shyness and sociability as distinct traits can aid in our understanding of some of the reasons for different types of social withdrawal and adaptive and maladaptive outcomes associated with each of these traits.

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