Content counts: A trait and moral reasoning framework for children's selective social learning

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Abstract

We present evidence that evaluative information plays a major role in children's selective social learning. We demonstrate that social learning patterns differ as a function of whether children are exposed to positively or negatively valenced information (e.g., content; informant characteristics) and that these patterns can be understood in the

context of children's schemas for social groups, morality, and trait understanding. We highlight that attention must be given to theoretical ties between social learning and children's trait judgments and moral reasoning to strengthen our understanding of selective trust and account for variations in children's sophistication when they judge potential sources of information. Finally, we suggest revisions to current theoretical frameworks and offer suggestions to move the field forward.

1. Introduction

Selective social learning, also known as selective trust, is one of the most prominent areas of current research on children's social cognition (Harris, 2012). This research focuses on children's reasoning about the people (and to some extent, other types of sources; e.g., Wang, Tong, & Danovitch, 2019) who serve as potential resources for learning new information. Selective trust is a topic of strong interest in its own right, but it is also compelling due to its potential theoretical and empirical connections to a wide range of topics in social and cognitive development such as theory of mind (e.g., Brosseau-Liard, Penney, & Poulin-Dubois, 2015), executive function (e.g., Jaswal et al., 2014; Lucas, Lewis, Pala, Wong, & Berridge, 2013), trait attribution and personality judgments (e.g., Boseovski, 2012; Johnston, Mills, & Landrum, 2015), reasoning about social categories or groups (e.g., Boseovski, Hughes, & Miller, 2016; Corriveau, Kinzler, & Harris, 2013; Marble & Boseovski, 2019), and many more areas (Heyman & Legare, 2013; Mills, 2013; Pesch, Suárez, & Koenig, 2017). Beyond specifying circumstances in which children are critical consumers of information, selective trust research can inform, and be informed by, our understanding of other aspects of development. Indeed, selective trust research stems in many ways from the theoretical legacy of children's social learning and modeling more broadly (e.g., Bandura & Walters, 1977; Vygotsky, 1978) as well as children's concepts of situations and personality (e.g., Mischel, 1973; Mischel & Shoda, 1995). The broader connection between children's selective trust and children's evaluation of content and character is one focal point of this chapter.

There are several reviews of the selective social learning literature that offer summaries of extant literature and theoretical perspectives for understanding children's preferences when they process testimony information

(e.g., Harris, Koenig, Corriveau, & Jaswal, 2018; Mills, 2013). As such, the current chapter does not provide an exhaustive review of the literature in this regard. Instead, our aim is to elucidate the role of a specific type of information—evaluative information—in children's selective social learning. In contrast to non-evaluative or benign information (e.g., a label for a novel object), evaluative information refers to positively or negatively valenced information that is available in the social learning context. This information can apply either to informants themselves (e.g., who might be described as nice or mean people) or to the content of interest (e.g., a positive or negative claim about persons, animals, places, or things; see Table 1). The latter area—valenced content—is of particular interest here given that there has been relatively little attention to its role in social learning. This is likely due to the nature of the popular selective social learning paradigm discussed below (Koenig & Harris, 2005), which was used exclusively in non-evaluative domains (e.g., children's word-learning, object location). Our interest in this specific topic is motivated by a growing literature of disparate findings in social learning in evaluative versus non-evaluative contexts (see Boseovski et al., 2017). These findings reveal remarkable precocity in some circumstances, and limited skills in others, that are largely unaccounted for by current frameworks in social learning. Accordingly, it is necessary to unpack these differences, identify gaps in our knowledge, and suggest specific future directions to understand more fully the nature and trajectory of children's social learning. Moreover, we argue that connections between the social learning literature and areas of social cognition that are inherently evaluative – specifically person perception and moral cognition – can provide valuable insight regarding the schemas or ideas that impact children's ability to navigate potential sources of information that they encounter.

We begin this chapter with a brief overview of paradigmatic research in selective social learning. We then present evidence for differential findings in children's treatment of evaluative versus non-evaluative information, focusing on research on two specific social learning cues for which these differences are prominent: expertise and consensus. We consider what current theories offer in the way of accounting for these findings and suggest directions to move forward toward a more comprehensive framework that integrates the social learning literature with other relevant areas of social cognition. Notably, our coverage is restricted to the preschool to elementary school period. Given the differences in methodological approach, and uncertainty about developmental continuity, attention to these judgments in infants and prelinguistic children is beyond the scope of this chapter.

Table 1 Examples of evaluative and non-evaluative cues to knowledge by level of information.

Types of cues	Evaluative	Non-evaluative
Content-level	*Testimony*	
	Positive or negative feedback (Boseovski, Marble, & Hughes, 2017) or labels (e.g., traits, Boseovski, 2012; Lapan, Boseovski, & Blincoe, 2016)	Object/artifact labels (Bernard, Proust, & Clément, 2015; Chen, Corriveau, & Harris, 2013; Corriveau, Fusaro, & Harris, 2009; Corriveau, Harris, et al., 2009; Fusaro & Harris, 2008; Koenig & Jaswal, 2011)
	Positive or negative information about an animal (Boseovski & Thurman, 2014)	Object functions or locations (DiYanni, Corriveau, Kurkul, Nasrini, & Nini, 2015; Li, Heyman, Xu, & Lee, 2014; Mascaro & Sperber, 2009; Schillaci & Kelemen, 2014)
Person-level	*Subject matter*	
	Moral principles (e.g., privacy, Danovitch & Keil, 2007; social exclusion, Guerrero, Elenbaas, Enesco, & Killen, 2017)	Cultural information (e.g., procedural practices, Marble & Boseovski, 2019; Marble, Boseovski, & Dyson, 2019)
	Ambiguous peer interaction or possible transgression (Noh, Elenbaas, Park, Chung, & Killen, 2017)	Trivia related to animals, vehicles, medicine, countries/geography, food or science (Einav, 2018; Landrum & Mills, 2015; Landrum, Mills, & Johnston, 2013; Lane & Harris, 2015; Lucas et al., 2013; Lutz & Keil, 2002; Rowles & Mills, 2019; Toyama, 2017)
	Positive or negative behavior or attributes (Boseovski, 2012; Boseovski & Lee, 2008; Danovitch & Keil, 2007; Doebel & Koenig, 2013; Landrum et al., 2013; Landrum, Pflaum, & Mills, 2016; Vanderbilt, Heyman, & Liu, 2018)	Description of occupation or knowledge (Keil, Stein, Webb, Billings, & Rozenblit, 2008; Koenig & Jaswal, 2011; Lutz & Keil, 2002)
		Shirt color, single label, or no informant description (Fusaro & Harris, 2008; Jaswal & Neely, 2006; Lockhart, Goddu, & Keil, 2017; VanderBorght & Jaswal, 2009)

2. Selective social learning: A brief empirical history

Seminal research in selective social learning indicates that there is an early-emerging ability to judge whether an individual is an accurate source of information in circumstances where accuracy is relatively straightforward (e.g., Koenig, Clément, & Harris, 2004). In the standard paradigm used to assess this skill, preschoolers are presented with informants with different characteristics (e.g., knowledge base; history of accuracy) who offer conflicting pieces of information about an object (e.g., label; location). As early as 4 years of age, children can readily judge which of two people is likely to be more credible in these contexts (e.g., Jaswal & Neely, 2006).

For example, in one study (Experiment 1, Koenig & Harris, 2005), 3- to 4-year-olds were introduced to two informants (labeled according to shirt color). During a familiarization phase, participants witnessed these two informants take turns labeling familiar objects (e.g., ball, book). One informant demonstrated consistent competence in naming these objects correctly while the other informant was consistently inaccurate (e.g., labeling a ball a "shoe"). During a later test phase, participants were asked which informant they would like to ask for the labels of novel objects. Then, informants provided conflicting labels for these objects and participants were asked to endorse one of them as correct.

Four-year-olds predicted that the historically accurate informant would know the names for familiar objects, preferred to ask this informant rather than the inaccurate informant for the names of novel objects, and endorsed this informant's labels for novel objects over labels provided by the inaccurate informant. In contrast, 3-year-olds' performance was unsystematic across these measures, indicating that there is age-related change in this skill in the preschool years. This general pattern of results has been replicated with variations in content cues (e.g., novel behavioral rules, Doebel & Koenig, 2013; expertise for dog breeds, Koenig & Jaswal, 2011) and paradigm extensions have included differences in person-level information such as informant mental state (e.g., uncertainty, Sabbagh & Baldwin, 2001; deception, Vanderbilt et al., 2018), informant age (e.g., VanderBorght & Jaswal, 2009) or nationality (e.g., Corriveau et al., 2013), and number of informants (e.g., consensus, Fusaro & Harris, 2008).

Although several of these studies suggest early sophistication in young children's judgments of people as potential sources of information, a rapid accumulation of findings point to a more nuanced picture that is unaccounted for in current theoretical frameworks. Specifically, a major

challenge for researchers is to understand and integrate disparate findings concerning the conditions under which children are critical consumers of information and those in which they reveal themselves to be credulous. It is also necessary to understand selective social learning in the greater context of social cognitive skills that develop rapidly in early to middle childhood. Below, we demonstrate the importance of evaluative information for understanding limitations in children's social learning and its connection to two arenas of social cognition: trait attribution and moral development. We present evidence of disparate findings in children's use of two social learning cues—expertise and consensus—as a function of evaluative information. For each cue, we review evidence for the effects of evaluative information at the content-level and person-level.

3. Expertise as a cue to knowledge

3.1 Expertise in non-evaluative contexts

In non-evaluative contexts, young children recognize the importance of expertise information as a cue to source reliability (Lutz & Keil, 2002). Preschoolers readily distinguish between expert and non-expert informants (Koenig & Jaswal, 2011) and with age, children's understanding of expertise and the circumstances in which we need to rely on it becomes impressive (Kominsky, Zamm, & Keil, 2018). Beyond distinguishing between the presence and absence of expertise, children are able to determine whether an expert has the appropriate knowledge to be a good source of information in science-related domains (Keil et al., 2008), to know specific trivia related to domains of biology or physics (Landrum & Mills, 2015), and to decide whether an expert has tool- or object-related expertise relevant to their occupation (Landrum et al., 2013). These findings suggest that children's early understanding of expertise is based on an awareness of the underlying principles of different knowledge areas rather than simply a script for specific occupational roles associated with expertise. For example, children recognize that a doctor is more likely than a mechanic to know why plants need sunlight to grow because a doctor's expertise is in the realm of biology whereas a mechanic's expertise is not (Lutz & Keil, 2002). By 6 years of age, children extend this understanding and assign questions to appropriate experts (Aguiar, Stoess, & Taylor, 2012) even when doing so incurs a cost (Rowles & Mills, 2019).

With this initial grasp of expertise in place, children develop a refined understanding of the limitations to specific experts' knowledge (Landrum & Mills, 2015). Across development, children become aware that divisions in knowledge and therefore in expertise exist (Keil et al., 2008).

For example, children become more likely to state that expertise generalizes across discipline (i.e., expertise in the discipline of social psychology) than to state that an expert would know about the same topic across multiple disciplines (i.e., expertise for sidewalks across social psychology and chemistry) or would simply know everything (Danovitch & Keil, 2004). During middle childhood, children also begin to grasp other nuances in expertise, including the difference between a "specialist's" more sophisticated knowledge as compared to a "generalist" (Landrum & Mills, 2015).

In spite of these achievements, it is important to note that children do not consistently apply their understanding of variations in expertise to their assessments of the best source of information. As discussed above, young children appear to have a sophisticated grasp on expertise as a cue for selective trust in non-evaluative contexts, yet many of these contexts include brief descriptions of informants rather than more multi-faceted information about informants (e.g., attitudes, personalities). Children infer the area in which a specific expert will have additional specialized knowledge based on this simple information (e.g., "This expert knows all about X. Would they know more about Y or Z?" Experiment 1, Danovitch & Keil, 2004) and visual cues (e.g., mechanic attire; Lane & Harris, 2015), even for experts that are less familiar or common (e.g., eagle expert; Experiment 1, Landrum et al., 2013). From early to middle childhood, children's ability both to attribute knowledge to the appropriate expert and endorse information provided by the appropriate expert increases (e.g., Landrum et al., 2013). When evaluative information is offered, children's deference to expertise is attenuated as described below.

3.2 Expertise in evaluative contexts: Content-level influences

In selective social learning situations, experts' testimony (i.e., what they say) about a particular topic serves as content for a learner and is often endorsed as fact. However, experts' testimony may include positive or negative information inherent to the characteristics of animals, places, people, or things. In these circumstances, children's acceptance of expert testimony is hindered when an informant delivers negatively valenced information, but bolstered when an informant delivers positively valenced information (e.g., Boseovski, 2012). Indeed, experts' judgments of evaluative content can be disregarded altogether if they are negative (e.g., Croce & Boseovski, 2020). Children's preference for positivity may reflect a developmental information-processing bias (Boseovski, 2010). For example, children are more likely to endorse testimony from a reliable and positive informant over

a reliable and negative informant in the context of making a personality judgment about a stranger (Boseovski, 2012). In fact, as this positivity bias strengthens across middle childhood, the effect of evaluative content also strengthens. Although older children are capable of more sophisticated social reasoning than younger children in general, they do not display sophisticated reasoning uniformly.

In one such example (Boseovski & Thurman, 2014), 3- to 7-year-olds were presented with conflicting information about an unfamiliar animal (e.g., cuscus, an Australian marsupial) from a zookeeper informant (i.e., an expert) and a maternal informant (i.e., "just like your mom"). Half of participants heard negative testimony about the animal from the zookeeper (e.g., "Cuscuses are dirty and smelly" and "hunt other creatures") and positive testimony about the animal from the maternal informant (e.g., "Cuscuses are small and cuddly" and "love playing with…other animals"). This contingency was reversed for the other half of participants. Children were asked which informant they thought was right about the animal and were given the opportunity to "touch" the animal, which was in reality a stuffed toy inside an opaque crate with an opening through which children could insert their hand.

This evaluative information about an animal produced surprising age differences in children's endorsement of expertise: with age, children were less likely to endorse the zookeeper as correct. Specifically, 3- to 5-year-olds tended to support the expert and this endorsement did not differ significantly based on the valence of her testimony. Evaluative information also influenced children's actual behavior. Three- to five-year-olds were more hesitant to reach into the animal's crate when the maternal informant provided negative testimony than when the zookeeper provided negative testimony. In this putatively real-world situation, younger children may have used valence information to infer the level of danger associated with this unfamiliar animal, but otherwise endorsed expertise. This pattern of response aligns with children's experience and recognition of prudential messages (Smetana, Kochanska, & Chuang, 2000) and suggests a connection to development in social and moral domains of knowledge (Turiel, 1983).

In contrast, 6- to 7-year-olds were particularly sensitive to valence and endorsed the informant who provided positive testimony as correct, regardless of expertise. Further, older children's reaching behavior was associated with their endorsement of positive testimony rather than expertise information. This striking pattern of responses suggests that selective trust is limited in contexts with evaluative content. Children's prioritization and endorsement of positive information suggests that this content can interfere with the

acceptance of expertise, potentially at the cost of safety (e.g., when learning about unfamiliar animals). Other domains that contain evaluative content may also cause this interference with children's acceptance of expertise, especially if this content is directed at the learner. For example, some learning situations present the possibility of negative feedback either through subjective judgments of performance (e.g., expert's feedback on a piece of art, Boseovski et al., 2017) or an expert's corrective (i.e., helpful) but negative feedback (e.g., academic feedback; Heyman, Fu, & Lee, 2013). Children are also sensitive to the judgments that authority figures, who may be similar to experts in some social roles, make for evaluative content (e.g., traits, Boseovski, 2012; Lapan et al., 2016). Across these examples, children's preference for positivity prevails against specific cues to knowledge (i.e., expertise and authority) at the content-level. In the next section, we consider children's use of valence information at the person-level.

3.3 Expertise in evaluative contexts: Person-level influences

In addition to the evaluative content that children may learn about, children may learn from people with positive or negative characteristics. Circumstances in which children encounter valenced information about experts highlight the intersection between children's selective social learning and developmental patterns in trait attribution. Children use behavior, and eventually a wide array of traits, to understand the people around them (Miller & Aloise, 1989; Miller & Aloise-Young, 2018). In addition, positive and negative traits have potential moral implications for a person's character. In the context of expertise evaluations, children are sensitive to descriptions of experts as "nice" or "mean" when they evaluate knowledge (e.g., Landrum et al., 2013) and are more trusting of "benevolent" over ill-mannered informants (e.g., Mascaro & Sperber, 2009). Positive descriptions may also suggest that an expert is socially competent or socially engaged, which can be a powerful influence on children's preference to learn from that individual (e.g., Rowles & Mills, 2018). Indeed, children tend to prefer positive traits even in situations where this is unwarranted (Boseovski, 2010). These patterns of trust suggest a potential moral schema such that children infer good moral character from positive or desirable traits.

Children sometimes extend from one positive trait to infer that an individual has several additional positive traits, including positive assumptions about knowledge or intelligence (e.g., Brosseau–Liard & Birch, 2010; Lane, Wellman, & Gelman, 2013; Stipek & Daniels, 1990; but see

Fusaro, Corriveau, & Harris, 2011). This "halo effect" may be the product of an information–processing bias in trait judgments or children's expectations about morality (i.e., the majority of people are of good character and thus have several positive traits). Perhaps children's prioritization of social goals over epistemic goals in some social learning situations (Jaswal & Kondrad, 2016) can be understood from these developmental patterns for positivity in trait attribution and moral cognition—children pay particular attention to evaluative cues that suggest a positive interpersonal dynamic that is support-ive of social learning.

For example, Danovitch and Keil (Experiment 1, 2007) presented 5-, 7-, and 9-year-olds with dilemmas that were related to morality (e.g., whether to take turns) or science (e.g., whether to make an ingredient substitution while baking). One potential advisor was described as socially competent and the other potential advisor was described as intelligent and informed about science, but less socially competent. Ultimately, 7- and 9-year-olds selected advisors based on their expertise match to the domain of the dilemma, but when these older children made errors on the task, it was in favor of selecting the "nice" advisor. Five–year–olds did not discriminate between advisors, which suggests that these younger children were unable to choose systematically between socially desirable features versus epistemically desirable features of potential advisors in this situation.

In an additional study (Experiment 3), children were provided with sim-ilar dilemmas and then responded to several questions about whether specific moral or scientific traits would be required to resolve the dilemma (e.g., moral: "Does he need to be nice to other people?"; science: "Does he need to be good at trying out ideas?"). Overall, children endorsed moral or social competence related traits (e.g., someone who cares about another person's feelings) regardless of the expertise needed to resolve the dilemma, but only endorsed science-related traits for scientific dilemmas. These findings align with other research in this domain (e.g., Landrum et al., 2016) and suggest that children's preferences for positive or desirable traits in experts are important not just when social goals are prioritized over epistemic ones, but even when the goal is learning or performance-related (e.g., Boseovski et al., 2017). In this situation, children may engage in moral reasoning about the implications of an advisor's evaluatively "good" character in relation to the likelihood of positive versus negative learning outcomes.

Children use evaluative trait information about experts to make judg-ments about trustworthiness and to decide who is a preferable source of information, but how do children integrate content-level and person-level

information in their judgments of expertise in the broader social context? In the next section, we describe children's consideration of expertise relative to other cues in evaluative contexts and discuss these developmental patterns in the broader fabric of children's social and moral reasoning.

3.4 Expertise in the broader social and moral landscape

In evaluative contexts, valence information is a powerful influence on children's selective social learning, but children do not reason about valence information in isolation. Instead, children consider the evaluative content in a specific social learning situation alongside their preexisting schemas and conceptual ideas about people, places, and things. Our understanding of when and why this preexisting knowledge is more salient to children in their social learning judgments than specific cues to knowledge is only just beginning to take shape. This early picture suggests that children's use of schemas and children's biases are to some extent dynamic based on the setting conditions involved in a particular social learning situation. Below we describe two examples that illustrate this point and discuss shifts in the salience of cues to knowledge as a function of children's reasoning about morality and traits in the broader social and moral landscape.

Both of these examples will deal with social learning situations that involve experts with whom children share or do not share social ties (e.g., social group membership; we will use the term "social group" in this chapter in a broad way to reference all kinds of groups or categories based on race, gender, etc.). These connections may affect children's motivation to learn from or affiliate with specific experts. In a social learning situation, children's ideas about interpersonal and intergroup dynamics, group membership, morality, social convention, and other concepts may contribute to a new layer of valenced information for children to consider. Even in the absence of explicit positive or negative content, this information may impact children's views of social groups based on a developmental ingroup preference (Aboud, 2003) and developmental differences in children's tolerance of moral and social transgressions committed by ingroup versus outgroup individuals (Rutland & Killen, 2015; Schmidt, Rakoczy, & Tomasello, 2012).

One study (Boseovski et al., 2016) demonstrated children's prioritization of expertise information when it was in conflict with putative gender expectations. Specifically, this study examined 4- to 8-year-olds' reasoning about characters with expertise in a gender-stereotypical domain (e.g., a girl with sewing expertise) versus a counter-stereotypical domain (e.g., a boy with

sewing expertise). For example, children heard stories in which one female and one male character faced a dilemma regarding their sewing project. In the counter-stereotypical condition, children heard that the male character had sewing expertise, although this is traditionally a feminine domain. Next, the male and female character each offered conflicting solutions for their dilemma and children were asked which individual was correct and from which individual they would want to learn more about sewing. Overall, children endorsed the gender counter-stereotypical expert as correct despite the potential for negative social implications associated with counter-stereotypical behavior in these domains (and this finding held for female counter-stereotypical experts as well). Age differences consistent with a developmental decline in an ingroup bias (Aboud, 2008) also emerged. Four- to 5-year-olds endorsed a same-gender character for their own future learning, regardless of expertise, whereas 6- to 8-year-olds reported a preference to learn from the counter-stereotypical expert.

These findings illustrate that the goal of the learning situation (i.e., complete a project correctly) may take precedence over social group information, but not always over future learning goals. Given children's dissociation between moral and personal domains (Nucci, 2013), children in this study may have recognized that no moral principles were in play (i.e., no harm would be done to the unselected individual) and treated their choice of affiliation for future learning as a personal choice. Further, a counter-stereotypical expert may violate social convention, but children do not always view conventional violations as negatively as immoral behavior (Smetana, Jambon, & Ball, 2014). In Boseovski et al. (2016), children still accepted information from such an expert. More research is needed to understand children's trust in outgroup experts across learning situations, but the findings from this study suggest that salient social group preferences do not always prevail over specific cues to knowledge in social learning contexts. These findings also demonstrate a potential connection with the moral development literature that could be useful to investigate children's perception of gender equality. Indeed, children's attitudes about gender are influenced by positive and negative societal views about appropriate occupational roles for different people (Weisgram, Bigler, & Liben, 2010) and children may have to integrate these perceptions with their own knowledge and expectations for expertise (e.g., Bian, Leslie, & Cimpian, 2017; Shenouda & Danovitch, 2013).

Similar research has dealt with children's prioritization of social group cues such as nationality (e.g., Corriveau et al., 2013) and in the context

of expertise, children's consideration of social group information could add to our understanding regarding the origins of cultural privilege or prejudice and discrimination. For example, when children encounter two *equally* qualified experts, to what extent will preexisting schemas influence their judgments regarding the qualifications of these individuals? As a starting point for this line of investigation, Marble and Boseovski (2019) presented 6- to 9-year-olds with two experts who differed in social group status (i.e., foreign versus American) and who were described as having equal knowledge about a cultural practice (e.g., making a ceremonial item). However, children heard that one of these experts was from the culture of origin for which this practice was relevant (e.g., ceremonial item = "Polmanian" and Expert A = "Polmanian") while the other expert was from the United States, like the participants in this study. Children also heard information about how each of these experts gained their knowledge (i.e., learning method: learned from a book versus learned from a person). Children were asked to indicate which expert was correct about how to complete a cultural practice, which expert learned about the practice best, and from which expert they would want to learn about the practice. These separate measures were included to investigate which learning-related goals might elicit children's prioritization of social group membership (or potential biases) relative to their focus on how expertise was obtained.

The results revealed that cultural group membership was given highest priority overall in this particular context: children appreciated the foreign expert's heritage and reported that this informant was more likely than the American informant to be correct about the cultural practices. However, children also used learning method information and endorsed experts who gained knowledge via learning from another person over experts who learned from a book (i.e., the combination of cues was influential). Although children across ages recognized the foreign informant's qualitatively superior experience with the cultural practice, 6- to 7-year-olds did not systematically endorse learning from the foreign expert in the future.

Taken together with the results from Boseovski et al. (2016), this finding suggests developmental differences in the influence of social group information on children's desire to endorse some experts fully, perhaps for reasons related to affiliation (Cameron, Alvarez, Ruble, & Fuligni, 2001). However, findings from both studies also suggest that children use content-level and person-level information in service of their developmental preference for positivity. In Boseovski et al. (2016), children focused on expertise over

putative gender schemas, therefore ignoring implicitly negative information about traditional social conventions that were violated. In Marble and Boseovski (2019), children prioritized cultural group information and viewed it as an asset for the quality of an expert's knowledge. These patterns suggest that a core component of frameworks for selective social learning must account for the role of social context in children's shifting attention to content- and person-level information.

We now turn to a discussion of children's use of consensus information, for which there are also conflicting findings regarding children's social learning judgments in evaluative and non-evaluative settings. This cue provides an additional opportunity to investigate the power of the social landscape on children's social learning judgments.

4. Consensus as a cue to knowledge

4.1 Consensus in non-evaluative contexts

In non-evaluative contexts, agreement among a group of individuals (i.e., consensus) is another cue that children use to decide whom to trust and it may be particularly helpful for children when they cannot verify claims on their own (e.g., Corriveau, Fusaro, & Harris, 2009). In these situations, children are sensitive to the opinion of a quantitative majority and trust a consensus group over a lone dissenter for information about toys or object functions by 2 years of age (e.g., Haun, Rekers, & Tomasello, 2012). During the preschool period, children are also sensitive to non-verbal cues from a consensus that indicate agreement or disagreement with a potential informant's object label (e.g., nodding or shaking heads, Fusaro & Harris, 2008). By age 5, children integrate their sensitivity to consensus with epistemic cues and will endorse a lone dissenter with "privileged" access to the correct information over a consensus with no such access in a non-evaluative domain (Einav, 2014).

Similar to children's increasing sophistication in understanding variations in expertise across middle childhood, children are also sensitive to nuances in consensus information (Einav, 2018). By 6 years of age, children will disregard a consensus of individuals who agree on an object label in favor of a lone but reliable dissenter who provides accurate labels (Bernard et al., 2015) and children trust a consensus in which each person has perceptual access to information over a consensus where only one member of the group has such access and the rest simply agree (Hu, Whalen, Buchsbaum, Griffiths, & Xu, 2015). By middle childhood, children recognize the value of a consensus

agreement reached through a series of independent, convergent responses from each group member made without knowledge of each other's responses whereas 5-year-olds favor claims made by a non-independent consensus and 6-year-olds are unsystematic in their preferences between these two groups (Einav, 2018).

Although children recognize that a consensus opinion may be incorrect in relatively straightforward circumstances (e.g., plausibility of toy functions; Schillaci & Kelemen, 2014; but see also DiYanni et al., 2015, for cultural differences), their grasp on the dissociation between consensus agreement and accuracy (i.e., factual knowledge) is fragile. In spite of early sophistication in their use of this cue, it appears that children are sensitive to a strategy to align with the sheer greater number of individuals, sometimes regardless of their factual accuracy. This tendency is similar to adults' failure to distinguish between a true consensus and the illusion of consensus agreement (Yousif, Aboody, & Keil, 2019). For example, similar to adults' behavior in the Asch line paradigm (Asch, 1956), children conform to a consensus group's opinion on a perceptual task although this tendency declines with age when the appropriate visual match is clear (e.g., Walker & Andrade, 1996). Children appear to be sensitive to the potential social advantages of conformity (e.g., friendship; Cordonier, Nettles, & Rochat, 2018), which may outweigh the salience of accuracy in some circumstances.

The mixed evidence concerning children's use of consensus information has been discussed elsewhere in the context of the methodological differences that have promoted such variability (Einav, 2018). Here, we focus on the reasons why children's prioritization of consensus information relative to other content-level and person-level information in selective social learning situations is dynamic, akin to the shifting salience of expertise information in other learning situations. A decline in the use of the traditional attribution paradigm in developmental research resulted in less emphasis on the cue of consensus in impression formation and trait reasoning research. Although there is less research on children's use of consensus in evaluative contexts relative to their use of expertise in such contexts, we draw on the examples that are available to discuss the importance of person perception and moral reasoning in understanding children's selective social learning decisions.

4.2 Consensus in evaluative contexts: Content-level influences

In selective social learning situations, consensus opinion is another example of content that can be positively valenced (e.g., agreement with a dissenter)

or negatively valenced (e.g., disagreement) and selectively processed by children. In evaluative contexts, there is some evidence that children's developmental preference for positivity influences the salience of consensus information relative to other cues. For example, children prioritize a consensus that delivers explicit positive feedback over negative feedback (e.g., Boseovski et al., 2017). Despite children's increased skepticism toward consensus claims across middle childhood (Walker & Andrade, 1996), a strengthening positivity bias during this time (Boseovski, 2010) may interfere with children's processing of evaluative content from a consensus group.

In fact, this positivity bias has been shown to interfere with children's ability to reason about whether expert or consensus feedback should be given priority when these cues to knowledge are in conflict with one another. Boseovski et al. (2017) examined 4- to 8-year-olds' consideration of these two cues for social learning in a performance-based context (i.e., art and music). Children heard about an expert in the relevant domain and either one layperson or a consensus of three laypeople who each evaluated a novice target's art or music product. Critically, children did not have any information about the quality of the target's work and therefore had to rely on the evaluations provided by the expert and layperson(s). The evaluations provided by each source were manipulated and the expert and layperson(s) provided conflicting claims: a positive evaluation of the target's work (e.g., "it looks very good") or a negative evaluation (e.g., "it looks very bad"). Children were asked who was correct about the target's work and who they would want to learn from in the future.

Overall, children disregarded both expertise and consensus information and endorsed as correct the person or persons who provided the positive evaluation of the target's work. However, 6- to 8-year-olds were sensitive to expertise for the prospect of their own future learning and were more likely than 4- to 5-year-olds to indicate a preference to learn from the expert over a layperson or layperson consensus in the future. These results suggest that valenced content is the most salient in this type of learning context and that there are developmental differences in the extent to which children appreciate the possible superiority of expertise relative to a consensus. Children may also use evaluative content to make inferences about the people in a consensus group who provide that content. In the next section, we discuss the person-level information that may influence children's use of consensus as a cue for social learning.

4.3 Consensus in evaluative contexts: Person-level influences

To our knowledge, no studies have provided explicit trait information about a consensus group in selective social learning situations. However, given the impact of valence information at the person–level for children's judgments of experts in these situations, it is reasonable to speculate that trait information for members of a consensus group would also be influential. Indeed, children favor valence information over consensus information as a cue to knowledge in impression formation.

For example, Boseovski and Lee (2008) asked preschoolers for their explicit trait judgments of a consensus group after children witnessed these individuals engage in positive or negative behavior toward a recipient. Children witnessed one of the following scenarios involving several actors and a single recipient: five positive behaviors and one neutral behavior, one positive behavior and five neutral behaviors, five negative behaviors and one neutral, or one negative and five neutral behaviors. Then, children were asked to make a trait attribution for the recipient of these behaviors. In this evaluative context, children disregarded consensus information in favor of positively valenced behaviors to judge recipients: children were more likely to make the appropriate trait judgment about the recipient when positive behaviors had been displayed toward him or her (i.e., "nice") than when negative behaviors had been demonstrated. Furthermore, children made positive trait attributions of recipients regardless of whether one or a consensus of five individuals behaved positively toward this individual. Children also demonstrated a positivity bias in their judgments of the actors (i.e., the single actor or consensus group of actors): children were more likely to rate positive actors as "nice" than they were to rate negative actors as "mean."

In social learning contexts, trait information may intersect with children's moral reasoning about groups and be used in children's evaluations of group trustworthiness, character, and prosociality. Children use social group information to infer traits, attitudes, and preferences for people who are similar as well as dissimilar to them (Bigler & Liben, 2007). However, it is clear from the example above that children's preference to hold positive views of others can interfere with their ability to reason about whether a consensus group is prosocial or perhaps antisocial. The salience of positivity may override other schemas regarding social groups. An important future direction for selective social learning research will be to investigate the extent to which children place their trust in the opinion of a single "nice" individual contrasted against a group of "nice" people with the opposite view.

4.4 Consensus in the broader social and moral landscape

As described in an earlier section, children do not make social learning decisions based on one cue to knowledge in isolation, but rather in the context of the content-level and person-level information that is available. In the case of consensus, we return to an illustration of how the salience of cues at these two levels shifts as a function of the social learning context. Social group information and motivations for group affiliation may be particularly salient in the presence of consensus given the nature of the consensus as a group with social ties. Indeed, children can carry positive and negative assumptions about familiar and unfamiliar social groups (Aboud, 2003; Bigler & Liben, 2007) that could interfere with children's ability to rely on consensus as a cue to knowledge.

In one example (Chen et al., 2013), 4- to 7-year-olds were asked to endorse the correct name for a novel toy in a situation where social group membership and consensus information were crossed. Children received information from either a consensus of ingroup informants (i.e., same-race) versus one ingroup dissenter, a consensus of outgroup informants (i.e., different-race) versus one ingroup dissenter, or a consensus of outgroup informants versus one outgroup dissenter. Overall, children endorsed the claims of a consensus over the claim of a dissenter but did not retain trust in an outgroup consensus. In a later phase of this study, children were told that only one former consensus member remained from that group to provide additional novel toy information. Children maintained their preference for the consensus claim when the former consensus member was an ingroup individual, but did not maintain this preference when the former consensus member was from the outgroup. This finding provides additional evidence that children hesitate to affiliate with the outgroup during early childhood (Bigler & Liben, 2006). Although this study did not focus on an examination of children's explicit positive or negative assumptions about ingroup and outgroup individuals, these results speak to the possibility that children hold evaluative judgments regarding groups that influence their use of consensus information in selective trust decision-making.

However, there are developmental changes in children's prioritization of group values versus moral principles in intergroup contexts (e.g., Elenbaas & Killen, 2016; Mulvey, 2016; Rizzo, Cooley, Elenbaas, & Killen, 2018). These moral considerations may prevail over preexisting schemas or preferences for familiar social groups in social learning situations. Indeed, consensus may decrease as the most salient cue to knowledge when the

group does not uphold moral principles, although it is important to note that this shift is based to some extent on the nature of the consensus and children's own cultural background (e.g., Enesco, Sebastián-Enesco, Guerrero, Quan, & Garijo, 2016).

In one study that dealt with children's use of consensus information specifically in a morally-laden context, Guerrero et al. (2017) compared preschoolers' endorsement of a consensus claim for object labeling versus their behavior in an evaluative context (i.e., social exclusion of a peer). Children were either in a same-race condition (i.e., both the consensus group and lone dissenter were ingroup members for participants) or a different-race condition (i.e., the consensus group was composed of ingroup members but the dissenter was an outgroup member) and witnessed the judgments of this consensus group and dissenter across the two different contexts. Overall, children were less likely to endorse the consensus opinion in an evaluative context than in the non-evaluative context. Specifically, children disregarded an ingroup consensus in favor of an outgroup dissenter when that dissenter advocated against social exclusion and the consensus group favored exclusion. Children relied on consensus opinion for learning new object labels, but did not prioritize consensus over moral principles.

These findings suggest that children's moral reasoning may play a particularly important role in children's evaluation of consensus as a cue to knowledge in evaluative contexts. In addition, this connection between moral reasoning and social learning may be influenced by concerns about social politeness and the salience of competing cues to knowledge. For example, in a follow up to one study discussed earlier, Boseovski et al. (2017) reframed negative feedback from an art expert so that it was constructive (i.e., "it isn't finished, it has some mistakes" rather than "it looks very bad"). In contrast to Experiment 1, 4- to 8-year-olds were willing to endorse this negative feedback from an expert over positive feedback from a consensus and children across all ages were willing to learn from the expert rather than a consensus group in the future. Perhaps children interpreted this revised language as indicative of helpful intentions, but recent research from our lab suggests that an explicit description of what it means to be a "helper" does not have the same effect on children's acceptance of negative feedback. Perhaps a label provides less explicit information regarding intentions than the expert's direct testimony (Marble et al., 2019). Another possibility is that children base their judgments on explicit positive information first (e.g., testimony) over other cues, unless those cues are more salient. For example, children were more accepting of an expert's negative testimony when they heard

a moral reason for the testimony (i.e., the expert had promised the teacher (s) he would tell the truth; Marble et al., 2019). In this recent study, consensus information was not prioritized above valence information or acceptable context for the expert's negative testimony (e.g., a promise).

One suggestion for future research is to examine the extent to which children may be motivated to disregard information from an ill-behaved consensus group or expert in the present, but retain a desire for social affiliation with them when questioned about future learning. One possibility is that evidence of knowledge (i.e., positive person-level information) may take precedence, regardless of informants' questionable behavior. We return to this discussion of the relation between moral reasoning, trait reasoning, and children's preference for positivity in the section regarding directions for future research, but first discuss how these elements add to current theoretical frameworks for social learning.

5. Toward an integrative framework

There are numerous frameworks and reviews that offer insight about children's selective social learning and source reasoning (Brosseau-Liard, 2017; Harris et al., 2018; Hermes, Behne, & Rakoczy, 2018; Heyman, 2008; Heyman & Legare, 2013; Koenig, Tiberius, & Hamlin, 2019; Landrum, Eaves, & Shafto, 2015; Mills, 2013; Sobel & Kushnir, 2013). Several components of current frameworks are both widely accepted and valuable for the study of children's selective trust.

The evidence presented in this chapter demonstrates that specific attention to evaluative contexts and their impact on the salience of children's pre-existing schemas relative to cues to knowledge in social learning situations would enrich these existing ideas. First, we have argued here and elsewhere (e.g., Boseovski, 2012; Boseovski et al., 2017) that evaluative information is a key component of children's decision-making that is not adequately represented in extant models. Although some models have addressed the role of evaluative information about informants, no models have accounted for the effects of evaluative content on children's social learning. Second, we emphasize that the broader social and moral context plays a major role in increasing or decreasing the salience of various cues to knowledge during social learning. Several models have discussed the importance of this context but have offered few testable predictions concerning the nature of its influence. We draw from the developmental literature on trait understanding and personality judgments, as well as the literature on moral development and

social reasoning, to address how children's preexisting schemas in the socio-moral landscape influence selectivity in social learning.

5.1 General theoretical premises for selective social learning

Current accounts of social learning espouse the general premise that children trust people to communicate truthful and appropriate information (Jaswal, Croft, Setia, & Cole, 2010). In the absence of evidence that an informant is incorrect, misinformed, or intends to be deceptive, and in the absence of conflicting testimony from another informant or group, children trust an informant's claim (Boseovski & Thurman, 2014; Hermes et al., 2018; Mills, 2013) unless it directly contradicts what children have seen for themselves (e.g., Clément, Koenig, & Harris, 2004; Lapan et al., 2016). Indeed, some form of "default" trust in young children is supported by evidence that children trust an informant known to be inaccurate in the absence of an alternative (e.g., Vanderbilt, Heyman, & Liu, 2014). There is also general agreement that this trust is tempered by skepticism or selectivity (Harris et al., 2018; Heyman & Legare, 2013; Mills, 2013). Under a variety of circumstances reviewed in the first half of this chapter, young children demonstrate an ability to evaluate potential informants and decide which is a better source of information. However, we have also highlighted, and others have noted, that there are circumstances in which this skepticism is fragile even into middle childhood.

A second point of convergence across current frameworks is evidence that children prefer informants with positive or desirable attributes (see Tong, Wang, & Danovitch, 2019). Some researchers have considered the influence of person–level information such as traits (e.g., nice/mean or good/bad) and moral character (e.g., Hermes, Behne, & Rakoczy, 2015; Hermes et al., 2018; Koenig et al., 2019) and specific instantiations of evaluative qualities such as attractiveness (see Harris et al., 2018) on children's reasoning about potential informants. Based on this work, it is clear that evaluative information at the person–level influences children's preferences for certain kinds of people (i.e., positive) in social learning situations.

Beyond the main points reviewed above, current frameworks diverge with respect to the specific underpinnings of children's selectivity. Some researchers have suggested that domain-general critical thinking may be at the root of children's social learning (Brosseau-Liard, 2017; Heyman, 2008; Mills, 2013; see Heyes, 2017 and Sabbagh, Koenig, & Kuhlmeier, 2017, for discussion of potential preceding associative mechanisms).

These accounts suggest that children's social learning generally depends on their ability to evaluate informant accuracy, but at times information about the situation or the informant(s) interferes with children's ability to do so critically. Similar to this view, at least one account has posited that this critical reasoning is rooted in the same process as children's causal reasoning (Sobel & Kushnir, 2013). Specifically, the idea is that children make rational inferences from their existing conceptual knowledge to determine informant accuracy.

Somewhat distinct from these accounts are those that focus specifically on the agency and intention of informants (Koenig et al., 2019; Landrum et al., 2015). From these perspectives, children's selective social learning relies heavily on processes related to mental state reasoning. Children's decision to trust or mistrust is rooted in the evaluation of the informant's testimony as truthful or deceptive and consideration of why the informant has selected certain information to share. One idea from these perspectives is that this reasoning is very similar to the processes underlying moral reasoning and is rooted in thinking about others' agency (Koenig et al., 2019). Specifically, this view focuses on the situational monitoring that children engage in across both social learning and moral reasoning situations. This point is relevant for our own theoretical ideas, although we discuss later our view that children's reasoning about intent may play a lesser role than others have suggested.

Finally, a dual-process account for selective trust has been offered (Hermes et al., 2018). This account seeks to reconcile children's sophisticated reasoning about reliability in some situations with their lack of such sophistication in other situations, through an appeal to dissociable processes: reflective reasoning about informants (i.e., Type 2 processes) versus quick, heuristic judgments (i.e., Type 1 processes). This account stems mainly from an examination of children's treatment of trait information, which is relevant for our ideas in this chapter although we add that there is a need to consider trait information in the context of other cues.

Despite these divergent points of emphasis across current frameworks, several main ideas are complementary to one another, and to our own view. Specifically, we suggest ways to build on previous consideration of social experiences in children's integration of conceptual knowledge with situation- and person-level cues to trustworthiness (e.g., Heyman & Legare, 2013; Pesch et al., 2017) through extensions based in trait and moral reasoning.

In contrast to existing perspectives, we argue that evaluative content in social learning situations is inherent in the social and moral landscape, which

acts as a backdrop in which such learning takes place. Children's reasoning about person-level information has been acknowledged in some frameworks, particularly in the context of informants' intent (Koenig et al., 2019; Landrum et al., 2015). Based on the evidence presented above, we argue that children's reasoning about valenced *content* in addition to information at the person-level and the broader social context (Heyman & Legare, 2013), should figure more prominently in an integrative framework for social learning situations.

We also argue that the extent to which evaluative content is prioritized relative to children's other preexisting ideas and schemas depends on the salience of children's motivations, learning goals, and other potential cues to knowledge in social learning situations. Valence information can be embedded in these preexisting concepts that children bring to bear on their decision-making (e.g., positive feelings toward social ingroup members). We suggest that children's naïve theories, preexisting schemas for the social world (separate from preexisting knowledge based on perceptual access, Robinson, Nurmsoo, & Einav, 2014), and biases regarding valence information take precedence and dictate children's social learning, whereas mental state reasoning might play a limited role in these evaluative contexts (see Fig. 1). We discuss two major revisions to current frameworks based on these foci: evaluative content and preexisting schemas for social contexts.

5.2 Evaluative content matters for social learning

Recently, researchers have pointed to the need to examine children's treatment of competing cues to understand children's priorities in social learning situations (Harris et al., 2018). Our work demonstrates that evaluative information matters in these contexts: children's priorities lie with positivity, whether it is positive testimony or other content, traits, or implicit connotations about social groups. We have demonstrated that across early and middle childhood, children prioritize positive content that is inaccurate (or for which there is little evidence to support its accuracy) *over* expertise (Boseovski & Thurman, 2014), a previous history of informant reliability (Boseovski, 2012), and consensus (Boseovski et al., 2017). In addition, we have shown that in contrast to previous work in non-evaluative contexts (e.g., Clément et al., 2004) children are more likely to change their own perceptions of what is true in an evaluative context (e.g., personality judgments) based on the positive testimony of an authority figure (Lapan et al.,

2016). In fact, positive content (e.g., testimony) outweighs the importance of positive traits when the two are in conflict (e.g., Croce & Boseovski, 2020). In our work, this prioritization of positive content held even when children acknowledged the negative traits of individuals who delivered positive content. This research complements work conducted in non-evaluative contexts or without competing cues in which children demonstrate a similar positivity schema (see Harris et al., 2018; Hermes, Behne, Bich, Thielert, & Rakoczy, 2017).

The presence of such a schema highlights the need to consider evaluative content in social learning situations. The salience of positivity may derive from early trait judgment and moral reasoning frameworks that children engage across social situations in which positivity is associated with "goodness." Although children's trait understanding improves with age (Miller & Aloise-Young, 2018), children who know the difference between nice and mean prioritize positive content anyway (e.g., Boseovski, 2012; Croce & Boseovski, 2020). In these situations, a lack of skepticism does not reflect a lack of trait understanding. Our account suggests that schemas and naïve theories contribute to a hierarchy of cues that forms depending on the nature of the evaluative content.

Some researchers have characterized children's handling of evaluative content as an avoidance of negativity (Mills, 2013), but there is strong evidence that children acknowledge negative behavior and still base their decisions on positivity (e.g., Boseovski et al., 2017; Marble et al., 2019). Across early and middle childhood, children continue to make generally positive trait and intention judgments even after repeated displays of informant inaccuracy in non-evaluative (e.g., search game, Ronfard & Lane, 2019; Ronfard, Nelson, Dunham, & Blake, 2018) and interpersonal contexts (Boseovski & Lee, 2006, 2008). The lack of agreement among researchers regarding whether children's treatment of evaluative content signifies a negativity bias or a positivity bias may remain unresolved in part because of the characterization of "neutral" informants. Often, these individuals are given evaluative characteristics or provide evaluative testimony.

In circumstances where children have demonstrated a purported "pitchfork effect" or the extension from lack of knowledge in one domain to lack of knowledge in another domain (e.g., Koenig & Jaswal, 2011), we suggest that a positivity bias is still evident. For example, preschoolers prefer to learn from a "neutral" informant that states a dog is a "nice one" over an

informant who mislabels dogs as cats in domains related and unrelated to animals (Koenig & Jaswal, 2011). Given that the neutral informant delivered positive testimony in this context, these results support the interpretation that children prioritize positive content. In fact, many of the studies that compare one informant against an assumed neutral informant do not present equal quantities of information about each informant or include information about the neutral informant that is actually positive (Doebel & Koenig, 2013; Landrum et al., 2016). Indeed, capturing what children consider to be "neutral" presents a challenge for future research and for the interpretation of both content-level and person-level influences on children's priorities in social learning situations.

5.3 Children's preexisting schemas take precedence

We have highlighted research that suggests that children bring their own ideas about traits and social groups, as well as schemas for their social world, to engage in social learning. Others have also highlighted the role of such information in the social learning process, specifically children's rational inferences drawn from such conceptual knowledge or integration of these ideas with epistemic cues (Sobel & Kushnir, 2013). These schemas are of particular importance here because we suggest that they are not always used rationally in evaluative contexts. We argue that preexisting schemas intersect with the evaluative content just discussed to dictate children's willingness to trust informants and that more generally across a variety of social learning situations, the salience of these schemas may lessen children's focus on informants' intentions.

In non-evaluative social learning settings, preschoolers do not endorse unfamiliar morphological structures (e.g., irregular verb forms) that conflict with preexisting schemas for proper tense even when this information is provided by an informant with a history of accuracy in a language-related domain (Jaswal, McKercher, & VanderBorght, 2008). In evaluative social learning contexts, children's schemas may be particularly salient: there is evidence that conceptual ideas about social groups interact with specific setting conditions to influence children's endorsement of informants (e.g., Boseovski et al., 2016; Marble & Boseovski, 2019; see also Rhodes, 2013). In this chapter, we have discussed how social group information may exert an influence on social learning judgments when children's motivations for affiliation are most salient as well as how social group information may exert less of an influence when

learning-related goals are most salient. Children bring ideas about social groups into learning situations, but children's motives, affiliative goals, or salient moral principles contribute to the amount of consideration these schemas receive in social learning situations.

One of our goals in this chapter has been to demonstrate that cues to knowledge and other social schemas are not treated equally across learning situations, but rather become more or less salient in children's selective social learning judgments as a function of the learning context. For this reason, we do not emphasize any single factor, such as informant intent, as central to children's social learning. To some extent, the reciprocal relationship between details of a current situation and children's preexisting conceptual knowledge, schemas, and biases dictates whether intentions or outcomes are the primary consideration in a selective trust judgment. This view is complementary to what others have discussed regarding belief revision based on social context (Sperber et al., 2010) or even how judgments of others are made based on the balance between information in the moment and preexisting heuristics (Cimpian & Salomon, 2014; Gabora, Rosch, & Aerts, 2008).

Indeed, to use intent as an example, older children who demonstrate basic intention understanding will still revert to a positivity bias to make social learning decisions, as highlighted in the section above. It is possible that children fall back on this reasoning to avoid informants with assumed ill intentions, but this is an unlikely explanation in situations where the information is protective (Boseovski & Thurman, 2014) or intended to provide help (see Experiment 2, Boseovski et al., 2017; Marble et al., 2019). We have shown that despite a preference for an informant who speaks positively about an art product, children express a preference to *learn* from an informant who was previously correct rather than only positive (Boseovski et al., 2017). Children also show greater trust in informants when given a reason for negative feedback, which suggests that some situations may elicit reasoning about intentions in a manner captured by a selective skepticism hypothesis (Heyman et al., 2013). However, the combination of preexisting knowledge and stereotypes about social groups can moderate children's biases regarding valenced information and influence children's reasoning about intentions (see Vial & Cimpian, 2019). Future research should include measures that help to unpack when specific motivations and goals shift the salience of these schemas.
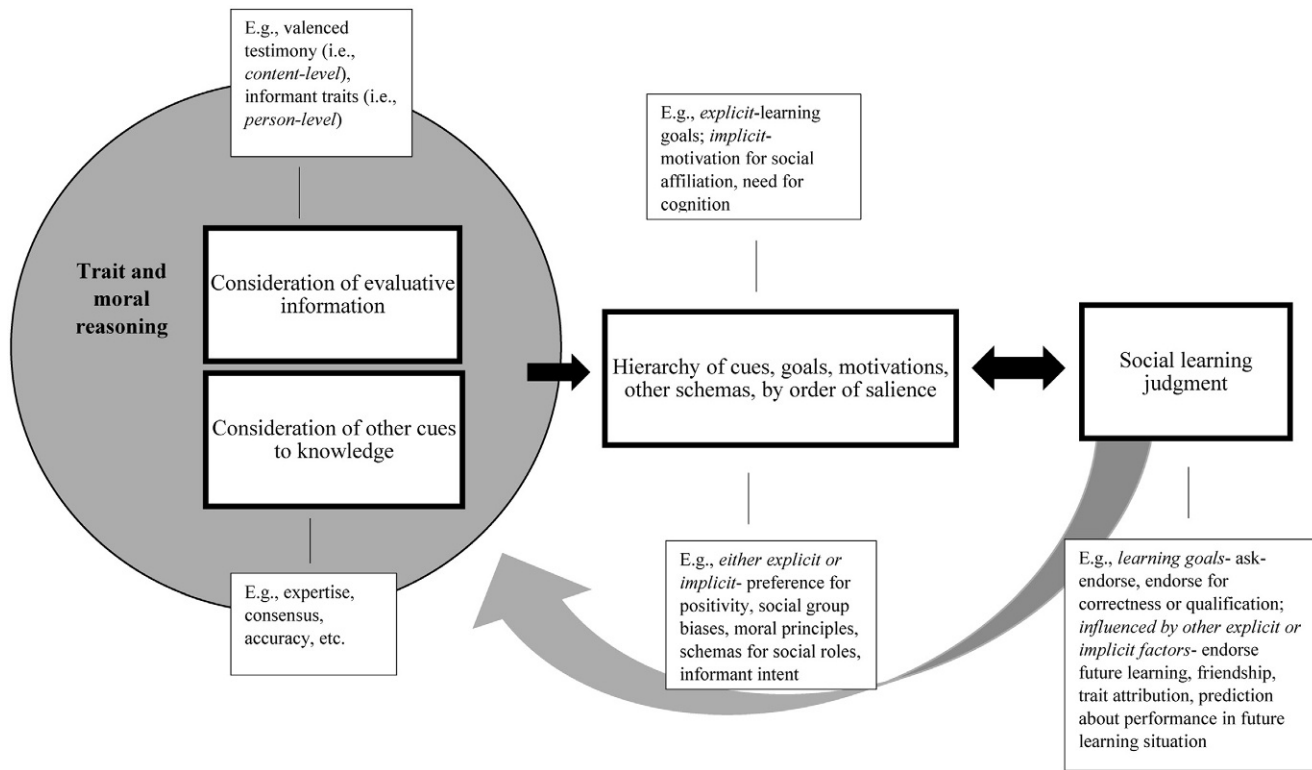
Fig. 1 Cues to knowledge that are salient in social learning situations.

5.4 Limitations in current frameworks

We have so far agreed with a general premise that children are trusting of informants in the absence of evidence to the contrary and tend to prefer positive or desirable informant traits in these individuals, sometimes to the disadvantage of appropriate informant endorsements. Unique to our perspective is our emphasis on evaluative content and how children's trait reasoning, moral judgments, and preexisting schemas figure into social learning: we propose that these elements influence children's prioritization of content-level and person-level information in the moment. We propose that social learning has its underpinnings in trait judgments and moral reasoning (i.e., other areas of social cognition that deal with valenced content) and suggest that these are moderated by children's preexisting schemas and biases. An integrative account that ties into children's person perception is required to explain the developmental change and nuance in children's wavering sophistication with selective social learning. There are two accounts that offer ideas particularly relevant to our perspective.

One of these is a dual-process account that characterizes children's application of preexisting schemas to social learning situations as a separate process from more sophisticated reasoning. We believe that the use of preexisting schemas is integrated with other forms of reasoning that take place in social learning situations. It is important to note that this account (Hermes et al., 2018) was intended to elucidate situations where social learning judgments might be reduced to these processes, such as when children encounter circumstances that prompt a halo effect. This characterization of social learning does not account for data where setting conditions introduce many levels of information that could influence social learning decisions. We do not believe that this dual-process account adequately handles these nuances for two reasons. First, a dual-process account suggests that when cognitive load is low and resources are available, children should engage in (developmentally appropriate) reflective "Type 2" reasoning, but our data demonstrate that this is not always the case. Children's performance on comprehension checks that immediately precede dependent measures demonstrate that they are able to keep information about informants and their testimony in mind and studies often include reminder phrases and visual stimuli to ameliorate cognitive load concerns throughout the session (e.g., Boseovski et al., 2017; Danovitch & Keil, 2007; Landrum et al., 2013). Even in these circumstances, children identify correctly the differences between informants (e.g., testimony, traits) and then immediately fail to act on that information. Qualitative data suggest that for many of these children, this failure to act on information appropriately is

not the result of automatic "Type 1" processing, but rather the consideration of what is and is not salient in the current situation.

Children across our studies frequently offer a range of responses from reference to traits (e.g., "she's nice"), interpersonal or social politeness concerns (e.g., "it's rude to say someone's picture looks bad"), and even objective justifications (e.g., "[Target] and [lay consensus] don't know much…but the reason [Expert] didn't say it was good was because she knew how to play piano") when they are asked to justify their selection of which informant has provided "correct" testimony in evaluative social learning contexts. By definition, Type 1 processes have been characterized as automatic to the point where participants cannot easily and quickly justify decisions made based on these relative to Type 2 processes (Hermes et al., 2018). Although we have not collected explicit response times for children's generation of these qualitative responses, these data suggest differences in the salience of specific situational or person-related information, which is not fully captured as Type 1 versus Type 2 reasoning.

However, we do not dispute that additional reflection on competing cues may occur in situations that contain particular challenges for children. For example, the dual-process account generally explains children's judgments when they encounter two competent informants and must discriminate between them rather than operate on the basis of a general halo effect (e.g. Hermes et al., 2015). In these circumstances, children are likely to engage in more reflection than in situations where some cues are more definitively favored over others.

Second, a dual-process account seems to necessitate that a schema for positivity should be classified as a Type 1 process that overrides other heuristics such as history of reliability, expertise, and consensus (but monitoring these cues could arguably be considered as Type 2 territory). This characterization of children's consistent preference for positive information neglects to encompass the variety of ways in which different types of positive information are prioritized based on salient situational information. We have described children's reasoning in selective social learning situations in terms of cues that differ in salience as a function of the learning context, whereas this dual-process account (Hermes et al., 2018) does not focus on when and why certain cues are prioritized over others. In contrast, children's use of frequency and trait information in the personality judgment literature and their moral reasoning about interpretations of "good" and "bad" provide more insight into "when" and "why" questions.

The second account that is particularly relevant to our discussion of selective social learning emphasizes children's monitoring of whether an informant is responsible for his or her behavior and testimony in social

learning situations (Koenig et al., 2019). This characterization of children's person-level evaluations places a qualitatively different emphasis from ours on informant intent. We suggest that mental state reasoning and theory of mind might be particularly relevant during the preschool period, but that the reliance on these skills for children's social learning judgments decreases once early developmental milestones are met (e.g., Elashi & Ameera, 2019). In addition, the research discussed in our framework involves measures for which other reasoning abilities may be required. Researchers who have tackled computational modeling of selective trust have found that children's reasoning about intent is important for selective trust in basic word-learning or object labeling paradigms. These researchers have also suggested that a model that captures studies that involve expertise, a large quantity of evaluative information about informants, and study measures that are more complex than "ask–endorse" questions would require a different and likely more complex model (Eaves & Shafto, 2017; Shafto, Eaves, Navarro, & Perfors, 2012). Work from our lab and others includes this very content.

Further, we are cautious about the predictive power demonstrated by theory of mind tasks in relation to selective trust. In addition to the point above, previous research indicates that only a certain period of theory of mind development or certain tasks predict basic selective social learning. For example, perhaps children prioritize intent when informants are described in mental state or intention-based terms, but prioritize other information in the absence of such descriptions. Some explicit labels may tune children's attention to possible deception in these circumstances. Indeed, preschoolers' performance in these setting conditions is linked to theory of mind task performance (Vanderbilt, Liu, & Heyman, 2011). Similar to this finding, young children's performance on a deceptive containers theory of mind task was linked to performance in a selective trust paradigm where one informant disregarded the efficient way to use a tool in favor of a non-affordant use and later provided testimony for novel tool functions (i.e., children disregarded this informant appropriately, but note that the theory of mind task performance was low overall; DiYanni & Kelemen, 2008). During the preschool period, when important milestones in theory of mind development are met, mental reasoning may be important for selective learning situations where informants' intent is in direct question (e.g., use of deception is explicit or behavior is atypical and bizarre).

In contrast, there was no evidence of a link between false-belief task performance and children's selective trust in a typical word-learning paradigm where the relative accuracy of informants' labels for familiar objects was manipulated (Pasquini, Corriveau, Koenig, & Harris, 2007). In some

instances, children who can be classified as more skeptical versus more deferential in a misleading testimony task do not differ significantly in theory of mind task performance (e.g., Jaswal et al., 2014). Further, in some cases where theory of mind task performance predicts selective trust judgments, it still does not map in the predicted way to children's actual imitation behavior (e.g., DiYanni, Nini, Rheel, & Livelli, 2012). In addition, some researchers have found that other abilities, such as categorization task performance, predict appropriate selective social learning endorsements better than theory of mind task performance or performance on executive function measures (Danovitch & Noles, 2014).

Taken together, there is mixed evidence regarding the importance of children's reasoning about intent and mental states in their selective trust judgments across development or setting conditions. It remains an open question whether the issue lies with the types of tasks used (i.e., they do not tap into the appropriate level of theory of mind or theory of mind skill) or with the presence of another variable that accounts for more variance in individual and age-related differences in selective trust studies. One possibility is similar to an argument made about the role of inhibitory control in children's selective trust decision-making (Heyman & Legare, 2013): perhaps across development and with the sophistication of the social learning task, the role of theory of mind or intent-based reasoning becomes relatively minor and children rely on other strategies to make these decisions. Future research would benefit from studies that directly contrast the need for children to use intention-based reasoning with other strategies to select informants. For example, intention information could be contrasted with trait information or schema-relevant information (e.g., social group membership) to investigate which type of information is most salient (and in which contexts it is salient). This strategy for future research could also highlight how these different levels of information are prioritized similarly or differently across variations in social learning contexts.

6. Future directions

Throughout this chapter, we have suggested several specific avenues for future work in this field: to examine the extent to which trait and other person-level information influence children's use of consensus as a cue to knowledge, to investigate the role of moral reasoning in social learning situations that deal with evaluative content and consensus information, and to examine the circumstances in which children's selective trust judgments shift based on the most salient considerations in a particular social learning

situation. We conclude this chapter with an outline of the broader issues that will need to be addressed to move this field forward. One of these issues concerns the consideration of development and age-related change in selective social learning. Although this chapter does not explicitly address underlying processes or mechanisms for selective social learning, our intention is to assist in setting up the field for more rigorous investigation of these factors. We have outlined developmental patterns in other areas of person perception that point toward theoretical connections to moral and trait reasoning, and we now offer concrete predictions and suggestions that relate to these patterns and methodological considerations that could advance our understanding of development in this arena.

6.1 Methodology

We have reviewed multiple domains in which social learning occurs, some of which deal with more subjective content than others. Although subjective content may invoke biases or schemas more readily than objective content, children have demonstrated a preference for positivity and attention to evaluative information in both subjective domains (e.g., artistic performance; Boseovski et al., 2017) as well as more objective domains (e.g., safety; Boseovski & Thurman, 2014). This application of positivity in more objective domains rules out the possibility that children's preference for positivity is due to self-presentational or social politeness concerns alone. Nevertheless, future research should address differences in children's patterns of selectivity across domains to better understand how these variations influence the level of skepticism demonstrated across development.

There are at least two additional considerations for future methodology at the measurement level. Researchers should develop measures that would allow us to understand the full effect of evaluative content on children's hierarchy of priorities in social learning contexts. This is crucial because many every day topics are delivered with valence information that could cause transient shifts in children's priorities. Teachers and authority figures are not immune from injecting evaluative language unintentionally, even when they deliver facts. One testable prediction is whether a negative informant needs to provide many more instances of competence to earn trust relative to a positive informant (i.e., an open question regarding frequency, Boseovski & Lee, 2006). Greater emphasis on qualitative data would be useful to understand children's sensitivity to these situations and to shifts in priorities.

In addition, more work can be done to ensure that future studies focus on cues to knowledge that are salient and relevant to children. In an effort to maintain experimental control and isolate the relative influence of one cue to knowledge over another, the field has relied largely on the judgments that children make between two comparison points (e.g., two informants or one versus a group) using a limited number of cues. This foundational work should be extended to ensure that researchers are not making inaccurate assumptions about cues that children would prioritize in social learning if they were offered a host of options. One approach would be to unpack children's priorities from the bottom-up using a mixture of open-ended and follow-up forced-choice interview questions that ask children what characteristics they would like to know about these individuals: when children encounter learning contexts with evaluative content, what do they want to know about the informants who deliver this content? Is it the informants' intentions, social role, history of behavior, traits, relationship with the learner, or something else?

6.2 What is the relation between traits, morality, and positivity?

Given our emphasis on the importance of evaluative contexts for understanding patterns in children's selective social learning, one important future direction for research is to unpack the relation between children's moral reasoning, trait reasoning, and positivity bias. We have suggested that children's moral and trait reasoning are the underpinning for social learning in evaluative contexts, but it is unknown whether a positivity bias is an instantiation of children's sensitivity to moral principles. One idea about the relation between these factors is that a positivity bias represents children's initial and implicit deference to positive information as a cue to general "goodness." There seems to be an early lack of differentiation between types of positive traits (Boseovski, 2010) and this lack of differentiation may extend to social roles associated with knowledge, goodness, or moral obligations. For example, authority figures and experts may be viewed as members of a broader class of knowledgeable grown-ups that share much of the same responsibilities, knowledge, and behavior.

Across development and under circumstances in which children have the opportunity to reflect, the connection between these three factors may become more explicit and clearer. For example, children's preference for positivity may come to be based on the judgment that positive traits represent something inherently "moral" and trustworthy about a person, which is

prioritized across not only learning situations, but other social interactions. Critically, the nature of the social learning context and children's social learning experiences over time will determine whether and how the connection between moral reasoning, trait reasoning, and a preference for positivity manifests. One possibility that should be explored is the extent to which such connections might be more readily apparent in group contexts where moral and social norms regarding exclusion and treatment of peers may be more salient relative to learning situations that involve one source of information or two equally "nice" sources.

6.3 Individual differences

A final suggestion is the need to consider stable individual difference factors that may determine in the moment motivations and account for patterns in selective social reasoning. In evaluative contexts, we have highlighted children's propensity to attend to positivity, but this tendency may depend on within-person differences (Boseovski, 2010; Boseovski & Lapan, 2019). Similar to this factor, differences in temperament and attachment should receive more attention (Corriveau, Fusaro, et al., 2009; Corriveau, Harris, et al., 2009). These factors could contribute to the motivations and goals that children bring into social learning situations and we have highlighted in this chapter that such motivations play a role in the prioritization of different cues to knowledge. Children's social experiences are likely to be an important factor that differentiates among patterns of selective trust and may even account for differences in the extent to which children focus on content-level versus person-level information. Differences in these social experiences derive not only from the socio-cultural backdrop of children's lives but also share in a reciprocal relationship with children's internal characteristics that may be particularly relevant for understanding how and when children rely on others to learn information (see Chan & Tardif, 2013). It will be important to determine the extent to which individual differences account for differences in selective trust as a function of developmental level.

One testable prediction is that the salience of potential social group biases and trait information will increase in learning situations that highlight social affiliation as the best strategy for positive learning outcomes. One unresolved question is the extent to which individual differences in the motivation to learn (e.g., need for cognition) can influence some children to override all potentially inappropriate cues to knowledge that deal with valence

information. Children's preference for positivity may be so developmentally salient during early and middle childhood that there are limits to their ability to discount evaluative information in learning contexts, regardless of or in conjunction with other individual difference factors. This possibility has implications for potential developmental limits in children's ability to be accurate critical consumers of information and suggests the need to investigate the boundaries of these limits (i.e., to address questions such as what children make of accurate but morally questionable authority figures and experts).

7. Conclusion

In this chapter, we have discussed the need to account for the role of evaluative information in selective social learning and suggest that it is best understood in a moral and trait reasoning framework. Notably, content-level, person–level, and contextual information are central to this framework in recognition that different cues become salient under different circumstances. It is critical to consider these broad connections to better approximate children's everyday social learning. The novel ideas and concrete testable predictions offered here provide a springboard for developing a more integrative framework for children's selective social learning that incorporates these connections to other areas of reasoning.

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