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The current study investigated children's use of information about informants' cultural background and learning method to learn novel facts about an unfamiliar culture. Ninety-six 6- to 9-year-olds heard about an immersed informant (i.e., member of an unfamiliar out-group) and a non-immersed informant (i.e., member of the child's in-group) who each learned about a novel cultural practice differently (i.e., from a person vs. from a book). Children decided which informant executed the cultural practice better (i.e., correctness), which informant they would prefer to learn from (i.e., future learning preference), and how they would want to learn (i.e., learning method preference). Overall, children preferred to endorse immersed informants over non-immersed informants, but a synergistic effect emerged such that the immersed informants who learned from a person were seen as ideal for imparting information in this context. No significant age effects emerged. Relational vocabulary predicted children's performance on the correctness question. These findings are discussed in light of limitations of current selective social learning models and implications for how children learn during middle childhood.

LEARNING IN CULTURAL CONTEXTS: CHILDREN'S EVALUATIONS OF LEARNING EXPERIENCES AND CULTURAL EXPERTISE

by

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CHAPTER I

INTRODUCTION

From an early age, children attend to a variety of characteristics that distinguish one person from another. These characteristics include perceptual features such as accent (Corriveau, Kinzler, & Harris, 2013; Kinzler & DeJesus, 2013a, 2013b), race (e.g., Frazier, Gelman, Kaciroti, Russell, & Lumeng, 2012; Shutts, Banaji, & Spelke, 2010; Shutts, Roben, & Spelke, 2013), gender (e.g., Frazier et al., 2012, Shutts et al., 2010, Shutts et al., 2013), and age (e.g., Frazier et al., 2012; Shutts et al., 2010). Young children use these characteristics selectively to decide whose opinion to endorse when forming their own preferences for friends (Kinzler, Shutts, DeJesus, & Spelke, 2009; Shutts et al., 2013), food (e.g., Frazier et al., 2012), objects and activities (Shutts et al., 2010; VanderBorght & Jaswal, 2009), and when labeling unfamiliar objects (e.g., Brosseau-Liard & Birch, 2011; Koenig & Jaswal, 2011).

The selective social learning process described above enables children to acquire information that they could not realistically obtain on their own. Beginning in the preschool years, children consider both the characteristics of others as potential "teachers" and of specific learning situations to evaluate the quality of information provided by informants (Koenig & Sabbagh, 2013). One area in which there has been little systematic research concerns social learning about culture (Koenig & Sabbagh, 2013; but see Harris, 2007, for research on religious claims and Souza & Legare, 2011,

for research with adults). Children's own learning experiences vary as a result of differences in cultural upbringing (Rogoff, 2014). The importance ascribed to both learning experience and cultural identity may change across middle childhood as children gain experience with what constitutes a good source of information. For example, children's perceptions of these two features may influence their acceptance of a teacher's knowledge about unfamiliar cultural information or practices (e.g., a dance routine specific to a particular community and used for specific celebrations). Consider a native of a long-standing village in the Andes Mountains who is an active participant in traditional textile weaving (Paradise & De Haan, 2009). Now imagine a native of New York City who has only read about this weaving practice. To what extent is one of these people more qualified to teach someone about weaving and how would children evaluate these potential sources of cultural information? Children encounter many people from a variety of backgrounds and their perceptions of these people dictate whether children trust them as sources of information (Harris, 2007; Koenig & Sabbagh, 2013; Mills, 2013).

In the current study, 6- to 9-year-olds judged whether a person immersed in an unfamiliar culture (i.e., out-group member) could be considered more knowledgeable about that culture's practices than a person from their own culture (i.e., in-group member) who learned about those practices as well. On one hand, children may think that someone who lives in a cultural group simply knows better information about that group's cultural practices, in the same way that preschool and school-age children make inferences about others' knowledge based on race (e.g., Gaither et al., 2014) and accent (e.g., Kinzler,

Corriveau, & Harris, 2011; Kinzler & DeJesus, 2013a, 2013b). On the other hand, when group differences are salient, 6- to 9-year-olds are prone to biased views that favor their in-group (Bigler, Jones, & Lobliner, 1997). Specifically, cultural domains can foster prejudicial expectations about what out-group members are like or what they know and do (Kalish & Lawson, 2008). This prejudice may interfere with children's ability to judge others' cultural knowledge accurately and may cause children to endorse an in-group informant with less experience.

Also of interest was whether participants believe that some types of learning are more effective than others, regardless of a source's affiliation with the origin of cultural information. In particular, the current study investigated whether 6- to 9-year-olds judged learning from a person as a better way to learn about a novel culture than learning from a book. From an early age, children use imitation (Barkley, Ullman, Otto, & Brecht, 1977; Meltzoff, Waismeyer, & Gopnik, 2012; Repacholi, Meltzoff, Rowe, & Toub, 2014; Vygotsky, 1978; Wang, Meltzoff, & Williamson, 2015; Williamson, Jaswal, & Meltzoff, 2010) and modeling (Bandura, 1989; Goldhaber, 2000) to learn sociocultural information. For example, children mimic behavior and speech to learn and internalize aspects of their culture such as social roles (e.g., gender-specific roles) and language (Vygotsky, 1978). Given the early advantages of learning from a person, children in the current study may believe that learning from a person supports greater attainment of cultural knowledge than learning from a book.

Children’s developing social cognitive skills and verbal ability may influence their evaluation of differences in cultural immersion and learning experience. Between

the ages of 6 and 9 years, there is considerable development in theory of mind, or the ability to recognize that different people have different mental states that are influenced by individual experiences (Lagattuta, Sayfan, & Blattman, 2010; Wellman & Liu, 2004). This understanding of differences could help children make comparisons between two sources of cultural information when people do not share similar past cultural or learning experiences. Likewise, developmental differences in relational vocabulary (i.e., the ability to compare and contrast two items; Newcomer & Hamill, 2008) could predict how children relate the immersion and learning histories of each cultural informant.

Below, I review the relevant literature regarding evidence of children's selective social learning, the limitations of current selective social learning models, and ideas about how children learn cultural information.

Selective Social Learning: General Paradigm and Previous Research

Young children selectively evaluate who is a good source of information and their ability to do so improves with age (Harris, 2007, 2012; Mills, 2013). The method used to assess selective social learning involves a standard paradigm in which children must rely on informants to learn new information (e.g., the labels of unfamiliar objects; Harris, 2007, 2012; Jaswal & Neely, 2006). In one example of this paradigm, Jaswal and Neely (2006) introduced 3- to 4-year-old participants to two informants. Each informant labeled a series of objects that were familiar to the child such that one informant labeled the familiar objects accurately, while the other informant labeled them inaccurately. This "history phase" demonstrated for children which informant was a reliable versus unreliable source of information (e.g., labeling a shoe as "shoe" or as a "glass"). Then,

during a test phase, the same informants provided conflicting labels for a new series of objects that were unfamiliar to young children (e.g., a book light). Children were asked to endorse a label from one of the informants. Participants of both ages endorsed labels provided by the historically accurate informant rather than those from the inaccurate informant, indicating that they use prior accuracy as a cue for entrusting someone to provide new information (Harris, 2007, 2012; Jaswal & Neely, 2006).

In addition to tracking accuracy and reliability when learning new information, young children readily distinguish between expert and non-expert informants (e.g., Koenig & Jaswal, 2011). In one study, 3- to 4-year-olds were presented with an informant described as an "animal doctor" and "dog expert," and an informant described as "just like your mom" (Koenig & Jaswal, 2011). These informants did not differ from each other in any other aspect (e.g., race, gender). After children witnessed these informants provide a series of conflicting labels for different dogs, they endorsed the "dog expert" as correct when learning about new dogs, indicating that they recognized expert knowledge at an early age.

Other studies assessed whether children can distinguish between different types of experts (e.g., Landrum & Mills, 2015). Four-year-olds recognize that a doctor and a mechanic possess different knowledge specific to the underlying principles of their respective fields (Lutz & Keil, 2002). Landrum and Mills (2015) suggest that this understanding of differences in expertise continues to develop until at least 10 years of age. By the end of middle childhood, children understand that an expert with specific knowledge differs from an expert with broad or general knowledge. For example, an

expert with specific knowledge about poodles might know why poodles living in the same house could contract the same illness (i.e., general principle) as well as why the poodle is the national dog of France (i.e., specific trivia); an expert with general knowledge about dogs might only know the explanation behind the first fact (i.e., general principle). Children's ability to recognize whether an expert's knowledge generalizes across related broad and specific domains continues to develop during this period as well.

In contrast to studies in which informants differed only along the level of expertise, the current study required that children consider multiple differences between informants (i.e., expertise *and* cultural background) during a developmental period in which awareness of nuances in expertise continues to expand. Both the immersed and non-immersed informants were described as having the same cultural knowledge (e.g., how to perform a dance routine). However, the immersed informant was described as a member of the target culture (and therefore, an out-group member from participants' perspective). In contrast, the non-immersed informant gained the knowledge indirectly and was described as a member of participants' in-group. Thus, the current study allowed for an assessment of the extent to which other characteristics, in addition to expertise, might influence children's social learning in a cultural context.

Social Learning: Real-Life Complications

As discussed above, children can clearly use cues such as reliability and expertise to decide who is knowledgeable. However, the extent to which they prioritize these cues in the context of other informant characteristics is unclear. Of particular relevance, social group membership (e.g., gender, race) has not been examined systematically in this field

(Koenig & Sabbagh, 2013; Landrum & Mills, 2015; Lutz & Keil, 2002; but see Boseovski, Hughes, & Miller, 2016). This cue is important to children, who use it to decide who to befriend (Kinzler et al., 2009; Shutts et al., 2013) and who they should trust in the absence of other information (Corriveau et al., 2013). However, recognition of differences in social group membership may be the basis of putative social biases (Bigler & Liben, 2007).

Socialization may prevent children's acceptance of knowledge from informants with unfamiliar, dissimilar, or counter-stereotypical backgrounds. Children should rely on expertise to learn new information (e.g., Koenig & Jaswal, 2011), but their trust in informants may be influenced by social biases when they evaluate unfamiliar cultural information or the teachers who provide it. For example, one potential teacher may be knowledgeable, but belong to a cultural group unfamiliar to the child and thus the child may disregard her knowledge in favor of a less knowledgeable but more familiar teacher. The potential for negative consequences if the child affiliates with an unfamiliar or counter-stereotypical expert may outweigh the desire to learn from this optimal source. For example, in one study in which a boy was more knowledgeable about ballet than a girl, strong gender stereotypes about what boys and girls "should" know prevented male children from accepting ballet expertise from the boy (Boseovski, Hughes, & Miller, 2016). Children also develop social group biases in favor of familiar racial and cultural groups (e.g., Bigler & Liben, 2007; Shutts et al., 2010). Children are sensitive to cues such as in-group membership (Bigler & Liben, 2007) and prefer an in-group informant in their decision-making (Shutts et al., 2010). Previous research has been limited to the

investigation of children's general sensitivity to cultural labels, but not how this sensitivity influences children's evaluations of expertise – a cue that is otherwise influential in selective social learning (e.g., Boseovski, Marble, & Hughes, 2016; Koenig & Jaswal, 2011; Sobel & Kushnir, 2013).

In another study, Diesendruck and haLevi (2006) showed 4- to 6-year-olds line drawings of one character with the same personality trait label as a target character (e.g., "shy"), and a second character with the same social category label (e.g., a label of ethnicity such as "Jewish") as the target character (but not the same personality trait). Participants were told that these characters liked to play different games (e.g., "zigo" vs. "zaber"). Then, to determine whether children would use personality or ethnicity to make a match, children were asked to infer the target character's game preference. Irrespective of age, children used ethnic labels (i.e., "Jewish" and "Arab") to reason about the types of games that Jewish and Arab target characters would prefer to play. Furthermore, these ethnic labels were more powerful than other social category labels for both children and adults, although the aim of this study was not to examine their influence on cultural expertise judgments specifically.

Accent is another cultural cue that has been used to investigate children's group biases (e.g., Corriveau et al., 2013; Kinzler et al., 2011; Kinzler & DeJesus, 2013a, 2013b). For example, in a word-learning study, 4- and 5-year-olds heard informants with either a native accent or a foreign accent label a series of objects unfamiliar to the child (Corriveau et al., 2013). Participants preferred labels provided by the native-accented informant. However, in a second phase of this study, participants heard from informants

who differed in both accent and accuracy for labeling familiar objects. When confronted with these native- versus foreign-accented speakers, participants were likely to endorse an accurate informant, regardless of accent. This study demonstrates one situation in which an initial bias was overcome, perhaps because the goal was to learn accurate object labels and did not require children to affiliate personally with either informant, but this research did not examine how children make social learning decisions based on a thorough history of informants' cultural background.

The current study examined how a putative in-group bias might interact with multiple informant characteristics to influence children's evaluations of cultural expertise. Children heard about one culturally unfamiliar person (i.e., immersed) and one familiar person (i.e., non-immersed) who each learned about a novel culture's practices. If this information elicits a bias against cultural unfamiliarity, children should be reluctant to endorse the immersed informant even though she is native to the culture of interest.

Children's Ideas about Learning

Another interest in the current study was whether 6- to 9-year-olds believed that learning novel cultural practices from a person was more effective than learning them from a book. Bandura (Bandura, 1989; Goldhaber, 2000) suggested that parents use social interactions to model culturally appropriate behavior for their children, but also that children engage in these interactions actively to learn appropriate behavior. Some of children's earliest learning takes place through the imitation (Barkley et al., 1977; Meltzoff et al., 2012; Repacholi et al., 2014; Wang et al., 2015; Williamson et al., 2010)

and modeling of adults (Bandura, 1989; Goldhaber, 2000). Children learn about their physical world (Wang et al., 2015), causal events (Meltzoff et al., 2012), strategies for categorizing objects (Williamson et al., 2010), social exchange rules (Repacholi et al., 2014), and gender roles (Barkley et al., 1977; Ma & Woolley, 2013) through observation and imitation. Relatedly, collaborative learning (i.e., learning from a more experienced person; Rogoff, 2014) has been adapted for classrooms, where productive collaborations involving peer conversation can be an especially effective learning strategy (Kuhn, 2015). Regardless of whether children benefit academically from collaboration, they may prefer this learning method for its social benefits.

Despite the key role of other people in many of children's learning experiences, older children may not view individualized social interactions as necessary in all situations. In addition to learning from people, children also learn from books in both informal and school settings (Freeman, 2014; Wells & Zeece, 2007). A variety of topics, from the environment (Wells & Zeece, 2007) to bullying prevention (Freeman, 2014), can be learned through books. Previous research suggests that when a situation is not moral in nature (i.e., makes no reference to emotional experiences), 5- to 9-year-olds have no trouble accepting information from a single, asocial source (i.e., a computer) to learn basic facts (e.g., where the fastest bird lives; Danovitch & Keil, 2008).

Collectively, previous research regarding how children learn indicates that children's preference to learn socially (i.e., from a person) rather than non-socially (e.g., from a book) may be domain-dependent. On one hand, children may find that the social aspect of learning from a more experienced person is a useful learning strategy,

particularly in cultural domains. On the other hand, children have experience learning from books and computers (e.g., Danovitch & Keil, 2008) and may find the involvement of another person irrelevant in some circumstances.

Lockhart and colleagues (2016) demonstrated that children are indeed sensitive to the usefulness and necessity of different learning methods. Five- to 11-year-olds were presented with a scenario in which a child had grown up on a deserted island with a parent who was able to provide basic needs (e.g., food and shelter), but was unable to communicate in any way or teach the child. After children heard this information, they were interviewed to determine which types of information or facts they thought a person could learn on his or her own versus the information that would require some instruction. Five-year-olds indicated that some information is easily "learnable" and can be acquired through individual firsthand perceptual experience (e.g., seeing that the sky is blue). Children distinguished "learnable" information from procedural information (e.g., how to read) and indicated that procedural information required instruction from someone else. However, the ability to detect when assistance from another person is required followed a protracted development and was still imperfect among 8- to 10-year-olds. The extent to which children make online decisions about which learning method is sufficient may depend on the content they wish to learn.

Children in the current study were asked explicitly about their preference to learn from a person versus from a book to inform whether there is age-related change in perceptions of effective learning and how these perceptions influence children's evaluations of cultural knowledge. In an unfamiliar cultural domain, the use of a learning

method that bolsters social skills (i.e., learning from a person) may be of particular importance to children. In addition, the extent to which informant learning method influences children's judgments about informants' expertise has remained unexamined, particularly in cultural contexts. Some researchers have investigated adults' understanding of the acquisition of expertise for cultural practices, such as religious rituals (Legare & Souza, 2012), but little is known about how children evaluate this type of knowledge acquisition. This is surprising given that children understand general expertise early in life (Lutz & Keil, 2002) and that displays of cultural expertise during family holidays (e.g., culture-specific dancing, cooking etc.) may well be a child's first encounter learning from more experienced people about cultural practices.

Potential Mechanisms that Support Social Judgments

Several changes in social cognitive development contribute to the ways in which children make social judgments. Throughout early and middle childhood, children develop critical reasoning abilities linked to developments in theory of mind (i.e., understanding that individuals have different mental states; Lagattuta et al., 2010; Wellman & Liu, 2004). With age, children become advanced social thinkers: 7-year-olds make inferences about others based on social relationships and other information (Rutland, 2013). These older children can reflect on complex social situations (i.e., those that have several possible social implications) in ways that allow them to override certain biases such as an in-group bias (Boseovski & Marcovitch, 2012; Richardson, Mulvey, & Killen, 2012).

During the same developmental period, executive function (e.g., cognitive control of thoughts and actions; Marcovitch, Jacques, Boseovski, & Zelazo 2008) and other cognitive skills develop (Mills, 2013). These developments may support the ability to reflect on and evaluate multiple pieces of information about informants simultaneously. According to Mills (2013), accurate evaluations of informants should depend on more than children's access to background knowledge about informants. Specifically, to evaluate expertise accurately children must both recognize the type of knowledge needed to make a claim and infer whether the informant possesses this knowledge.

Beyond informants' expertise, children in the current study needed to weigh the impact of informants' cultural immersion and informants' learning methods on cultural knowledge. Young children in particular may not have the cognitive ability to consider these characteristics simultaneously, especially a less perceptually salient characteristic such as nationality (Bigler, 2013). This challenge may cause children to default to biased decision-making at the expense of gaining more expert information whereas improvements in social cognitive abilities may decrease in-group bias and support reflection on the advantages of immersion and learning method. The way in which children are asked about informants can elicit reflection as well. Questions that highlight a need for affiliation with a counter-stereotypical or out-group member tend to prompt greater reflection on the consequences of such affiliation (Boseovski, Hughes, & Miller, 2016; Ma & Woolley, 2013).

The current study explored the possibility that age-related change in interpretive theory of mind (TOM) may support 6- to 9- year-olds' social learning evaluations of

informants in a cultural context. Six- to 7-year-olds are aware of the potential for diversity in mental states across people, but overextend this diversity in a way that causes them to forget or ignore "common ground" between people (Lagattuta et al., 2015). In one study, children watched two dolls view a partially obscured picture whose content was easily identifiable (e.g., flowers covered up so that petals and part of the stem were still visible; Lagattuta et al., 2010). One of these dolls had viewed the full picture previously while the other doll viewed the picture partially covered. Six-year-olds ignored the fact that both dolls would be able to identify the picture even when it was covered. Instead, these children believed that differences in past visual access to the picture caused differences in the dolls' current beliefs about what the object could be, regardless of whether the current view made the content of the picture obvious.

By the end of middle childhood, children consider both "common ground" and how nuances in others' diverse past experiences affect their thoughts and decisions (Lagattuta et al., 2015). In the current study, children's interpretive TOM ability was measured to determine the association between age-related change in performance on a TOM task (i.e., Droodles; Lagattuta et al., 2010) and the ability to evaluate informants' cultural knowledge for correctness. Age-related change in TOM might influence how children use nuances in culturally diverse pasts to evaluate informants' cultural knowledge. Both informants learned the same information about novel cultural practices but learned through different methods. TOM provides at least a partial explanation for how children are able to make accurate evaluations of informants in some other social learning paradigms (see Mills, 2013).

Relational vocabulary may be an additional factor that explains developmental changes in children's social learning evaluations, particularly in situations that require consideration of multiple informant characteristics. Relational vocabulary serves as a general proxy for cognitive development, but also is the ability to make a comparison between two objects (TOLD-P, 4th ed.; Newcomer & Hamill, 2008). This general comparison ability may be related to the comparison strategies children use in social settings. The relational vocabulary subtest (TOLD-P, 4th ed.; Newcomer & Hamill, 2008) measures children's ability to compare two everyday objects (e.g., a kite and a bird). This comparison ability may be related to evaluation strategies for the cultural knowledge of two informants who share some knowledge but had different learning experiences. Children with better relational vocabulary performance likely are more efficient in their comparison of informants and therefore endorse the immersed informant as correct and as someone from whom they would want to learn in the future.

Summary

Information about an informant's cultural immersion may provide insight into how much knowledge that person has about a cultural practice. This information may indicate an advantage in cultural knowledge on which children could capitalize. However, children may not use such information to their advantage when it comes from an unfamiliar, out-group member (Bigler & Liben, 2007). Cultural immersion information may elicit biases that prevent children from accepting expertise from unfamiliar experts. Both the person providing information and the situation in which information is provided influence children's preferences to learn from particular

informants (e.g., Koenig & Sabbagh, 2013). In the domain of cultural learning, decisions may be made based on the combination of cultural immersion and learning method.

The Current Study

This study investigated the extent to which 6- to 9-year-olds use information about cultural group membership (e.g., target country vs. United States) and informants' learning methods (from a person vs. from a book) to evaluate informants' knowledge about a novel cultural practice. Another goal of this study was to explore the extent to which one aspect of theory of mind and relational vocabulary support children's social evaluations in cultural contexts.

All participants heard from an immersed informant (i.e., from the target country and therefore an out-group member) and a non-immersed informant (i.e., from the United States and therefore familiar to participants). Half of the participants heard about an immersed informant who learned from a person while the other half heard about an immersed informant who learned from a book. Children were asked to decide which informant was better at a cultural practice and from which informant they would want to learn about the practice. These correctness and future learning preference questions were both included to investigate whether children provide different responses when prompted to reflect on the implications of their choice versus when the questions do not prompt such reflection. Children also indicated which learning method they preferred. As noted, children's understanding of expertise continues to develop during this period. Therefore, questions regarding the boundaries of informants' cultural expertise were included. Children were asked to decide which informant would know the most about topics related

to the cultural practices in the current study. In addition, children were asked how much they liked each informant (i.e., "liking" rating questions). Children's ratings of informants were used to provide supporting evidence for the presence or absence of a putative in-group bias in the event that children did not address cultural immersion in their justification of informant endorsement.

Overall, it was expected that participants would have a preference for the immersed informant that would become stronger with age. It was also expected that learning from a person would be the preferred learning method. The age effect was expected to be qualified by an interaction with learning method: older children in particular were expected to be sensitive to and endorse an immersed informant who learned from a person; younger children were expected to be less likely to endorse the immersed informant who learned from a person than older children.

It was expected that higher Droodles and relational vocabulary performance would help children compare the learning histories of two informants and accurately infer which informant had the best learning experience, increasing the likelihood of endorsement of the immersed informant.

CHAPTER II

METHOD

Participants

Ninety-six 6- to 9-year-olds (*M* = 96.6 months, *SD* = 14.1, 46 boys and 50 girls) were tested (Cohen, 1992). Participants were recruited from local after school programs and other community events in Guilford County, North Carolina, and the surrounding areas. Participants represented a variety of ethnic/racial identities: 68.8% Caucasian, 14.6% African American/Black, 6.3% Hispanic/Latino, 3.1% Asian, and 11.5% who classified themselves as biracial/multiracial; an additional 2.1% of participants chose not to disclose their ethnic/racial identity. Participants represented a variety of socio-economic backgrounds, but the majority of participants were from upper-middle-class backgrounds. Testing sessions occurred in the Development and Understanding of Children's Knowledge (D.U.C.K.) laboratory in the Psychology Department or in consenting after school centers. One testing session occurred in a home residence in Chapel Hill, North Carolina. Parents signed consent forms for their children to participate in the study. Additionally, children 7 years of age and older provided written assent prior to their participation.

Materials

The materials for the main task included a total of eight photographs of adult female faces with neutral expressions from the NimStim face database to represent the

informants and four images gathered from the Internet to represent cultural items (see Appendix A for examples). Each photograph or image was presented on a white background in Microsoft PowerPoint. For each story, participants viewed two photographs of adult female faces and one image of a cultural item. All stimuli were presented in gray scale on a laptop. The experimenter provided story information and administered test questions verbally.

The materials for the TOM secondary task consisted of a laminated sketch of an object or animal for each of three trial types, a piece of opaque cardboard with a small window cut out (i.e., "occluder"), two small toy houses, two signs to label the houses, and three figurines to act as characters in the task (Lagattuta et al., 2010).

The relational vocabulary subtest of the Test of Language Development—Primary (fourth edition, Newcomer & Hammill, 2008) consisted of 34 items. All vocabulary pairs were presented verbally to participants (see Appendix D for examples).

A video camera was used to record all testing sessions. For one participant, only audio was recorded due to a technical failure with the camera.

Design

This study used a 2 (age: 6.0-7.9 vs. 8.0-9.9 years) x 2 (informant learning method: immersed-person vs. immersed-book) between-subjects design. This design did not include conditions that examined informant learning method held constant between the immersed and non-immersed informants (i.e., immersed-person and non-immersed-person; immersed-book and non-immersed-book). Instead, these comparisons were examined with the exploratory analyses described in the results section. In each age

group, half of the participants heard about an immersed informant who learned from a person, whereas the remaining half heard about an immersed informant who learned from a book; these contingencies were reversed for the remaining participants. All participants were asked to choose between the immersed and non-immersed informant in response to several questions. Consistent with previous research (e.g., Boseovski & Thurman, 2014; Brosseau-Liard & Birch, 2011; Koenig & Jaswal, 2011), both informants were adult females. Each participant heard two stories from different domains (e.g., one story about learning a culture-specific dance and one story about learning to sew a culture-specific doll). An example of a full story is available in Appendix B. Secondary tasks occurred between the stories. Task order was counterbalanced across participants and for the TOM task, the trial types were presented in a random order. Each testing session lasted approximately 45 minutes.

Procedure

Pilot Study. A pilot study with 6- to 9-year-olds (n = 12) ensured that the four cultural practices were sufficiently unfamiliar to children and did not present any perceptual or other conflicts with the manipulation of informant learning method. One story was provided per participant out of a total of four stories possible (informants learning a culture-specific dance routine, table assembly, doll sewing, or paper bird folding). Memory check questions ensured that children in this age range could remember information about each informant for the duration of the task. Children from the pilot sample did not have difficulties answering test questions and were able to sit through the task.

Main Task. Participants heard two stories about two informants with different cultural backgrounds who each learned about the same target cultural practice a different way. Each story provided information about the learning experience of one culturally immersed informant (e.g., from the target country where the cultural practice was developed) and of one culturally non-immersed informant (e.g., from the United States, like participants in this study). Participants had to choose which of these informants to endorse for several questions during the test phase.

The experimenter introduced the target informants of each narrative with side-by-side photographs. Names for these informants were randomly assigned from a set list of eight possible names. All country and language names were fictitious to eliminate the possible influence of prior knowledge on children's responses, with different names used for each story. Participants were told where each informant was born, where each currently lived, and the language that she spoke with her family (see Appendix B). Informant presentation order was randomized.

Participants answered a set of memory check questions for each informant (e.g., "Which girl is Sasha?" and "Where is Sasha from?") to ensure that they remembered correctly the differences between informants. Participants who provided incorrect responses heard the introductions for both informants a second time.

***Learning Experience Phase*.** Next, participants heard learning experience information for each informant while the informant's photograph was displayed next to the image of a target cultural item or practice (e.g., Ruslandian paper bird). For example, in one narrative about an immersed informant who learned from a person, the immersed

informant “sat with her mom and carefully watched her” complete a cultural practice and her mother helped her several times to complete the practice but now the informant could complete the cultural practice on her own (see Appendix B). After a brief pause, participants heard learning experience information for the non-immersed informant who learned from a book. This informant “read the book about Ruslandian birds and looked at the pictures showing how to fold the paper” and used the books several times to complete the cultural practice, but now the informant could complete the cultural practice on her own (see Appendix B). Informant presentation order was randomized. The learning method (i.e., from a person or from a book) for each informant (i.e., immersed or non-immersed) was counterbalanced.

Critically, each informant received the same instructions specific to carrying out the cultural practice (i.e., in this example both are told the same order of folding movements to create the paper bird).

Participants then answered a second set of memory questions for each informant regarding the learning method (e.g., “Who learned to make Ruslandian birds at home with her mom?”) to ensure that participants recalled key differences in informants’ learning experiences. Participants who provided incorrect responses heard the learning experience information for both informants a second time.

Test Phase. Participants answered a series of forced-choice questions: a) correctness question (e.g., “Who would make a better Ruslandian bird?”), b) future learning preference question (e.g., “If you wanted to learn how to make these Ruslandian birds, *who* would you want to learn from?”), and c) learning method preference question

(e.g., “If you wanted to learn how to make these Ruslandian birds, *how* would you want to learn about them?”). Forced-choice questions were presented in randomized order within each block of questions. Answer options for these and all other forced-choice questions were offered in randomized order.

Participants also had the opportunity to provide a justification of their informant endorsement for each of these questions (e.g., “Why would Sasha make a better bird?” “Why would you want to learn from Sasha?” and “Why would you want to learn from a person?”). Each justification was also followed by a forced-choice follow-up question to assess whether children endorsed an informant or learning method due to the cultural expertise of an informant, an in-group bias, or a learning method preference (e.g., “Would Sasha make a better bird because she: a) knows the most about Rusland, b) comes from a family like your family, or c) learned about the birds the best way?”) if the participant did not explicitly express one of these reasons on his or her own.

Following the second story, participants answered five forced-choice questions to assess their belief in the boundaries of informants’ expertise (e.g., “Who would know more about what Ruslandian children like to do for fun?” “Who would know more about how to get ready for a family tradition?”). Participants then answered the question, “You chose (name) as the person who would know more most of the time. Can you tell me why?” and had the opportunity to justify their general endorsement of one informant more often than the other informant.

After each story, participants rated how much they liked each informant on a scale of one to three stars, with one star indicating “not very much,” two stars indicating “a

little," and three stars indicating "a lot." These questions were administered as the last set of questions (i.e., after the test questions for the first story and after the boundaries of expertise questions for the second story).

Secondary Tasks.

Interpretive Theory of Mind Task: Droodles (Lagattuta et al., 2010). A full protocol for this task is in Appendix C**.** Participants watched two dolls that either had or did not have visual access to a picture for three sets of test trials. These test trials consisted of three types: irrelevant-past, relevant-past, and distinct-pasts. In the irrelevant-past trial, the content of the drawing is obvious even when most of the drawing has been covered; characters' previous viewing experience did not matter. This trial type is particularly important for age-related change in interpretive theory of mind. Younger children tend to mistake that previous viewing experience is necessary on this trial. In the relevant-past trial, the content of the drawing is not obvious when most of the drawing is covered and an unknowledgeable character would have to guess what the drawing could be; characters' previous viewing experience did matter. In the distinct-pasts trial, the two dolls each "saw" a different drawing that looks identical when covered with an occluder; characters' previous viewing experiences were distinct and should influence characters' "guesses" of the occluded drawing.

Test of Language Development—Primary (TOLD-P): Relational Vocabulary Subtest (fourth edition, Newcomer & Hammill, 2008). The experimenter asked children how two words are related and children responded verbally (e.g., "How are a pen and a pencil alike?" to which the child might respond, "You can use both of them to write.").

The experimenter provided one prompt per item if the participant provided a vague or incorrect answer (e.g., “Tell me more about how a pen and a pencil are alike” in response to “You hold them”). If a participant failed to answer five consecutive items correctly, the task ended. Participants received one point for each correct response and no point if they failed to articulate the appropriate relationship between the two objects for a given item. There are 34 items on this subtest. See Appendix D for experimenter instructions and sample items.

Debriefing. After participants completed the entire testing session, they were told that the countries they heard about in the main task were not real countries, but rather had been made up only for the day's activities. The experimenter made sure that children understood the use of fake countries before she ended the testing session.

CHAPTER III

RESULTS

Descriptives for all variables can be found in Table 1. First, analyses of the main dependent variables (i.e., correctness, future learning preference, and learning method preference questions) for the main task are reported, followed by exploratory analyses for these variables. Next, analyses of the qualitative data are reported. Analyses of the secondary tasks are also described. Preliminary analyses indicated that there were no significant effects of participant gender, race, family annual income, story type, or story order (all p's > .08). Therefore, these factors were not considered further in the analyses below.

Main Task

For the correctness and future learning preference questions, participants received a score of 0 if they selected the non-immersed informant and 1 for the immersed informant. Scores from each story were added together to create a total score that could range from 0 to 2 for each of these questions. Participants who did not provide a relevant justification for their informant selection were given a follow-up forced choice question (e.g., for future learning preference: "Would you want to learn from [immersed informant] because she: comes from a family like your family (in-group bias), learned about the paper birds the best way (learning method preference), or because she knows the most about Rusland (cultural expertise)?").

Table 1. Descriptive Analyses for Main and Secondary Tasks.

	n	*Min.*	*Max.*	*M(SD)*
Main task				
Correctness	96	0.00	2.00	1.41(0.76)
Future learning preference	96	0.00	2.00	1.19(0.74)
Learning method preference	96	0.00	2.00	1.06(0.77)
Secondary tasks				
Droodles	96	1.00	9.00	6.04(1.86)
TOLD-P	96	1.00	31.00	19.96(6.37)

Correctness Question. Overall, participants endorsed the immersed informant as correct significantly more than expected by chance, $t(95) = 5.22$, $p < .001$. This was true for both younger children, $M = 1.23$, $SD = 0.80$, $t(46) = 2.37$, $p = 0.02$, and older children, $M = 1.53$, $SD = 0.71$, $t(48) = 5.23$, $p < .001$. An age (6.0-7.9 vs. 8.0-9.9 years) by informant learning method (immersed-person vs. immersed-book) analysis of variance (ANOVA) on the correctness question revealed a main effect of informant learning method, $F(1, 95) = 5.55$, $p = 0.02$, $\eta_p^2 = 0.06$. Participants who heard about an immersed-person informant were more likely to endorse the immersed informant as correct ($M = 1.58$, $SD = 0.70$) than those who heard about an immersed-book informant ($M = 1.22$, *SD*

= 0.79). There was no significant main effect of age, $F(1, 95) = 2.60$, $p = 0.11$, and no significant interaction between age and informant learning method, $F(1, 95) = 0.22$, $p = 0.64$ (see Table 2 and Figure 1).

Table 2. Means (and Standard Deviations) for Correctness and Future Learning Preference Questions by Participant Age and Informant Learning Method.

	Correctness				Future Learning Preference			
	Person		Book		Person		Book	
Age	*n*	*M (SD)*	*n*	*M (SD)*	*n*	*M (SD)*	*n*	*M(SD)*
Younger	24	1.42(0.78)	23	1.13(0.81)	24	1.00(0.78)	23	1.09(0.67)
Older	26	1.73(0.60)	23	1.30(0.76)	26	1.50(0.76)	23	1.13(0.69)

Exploratory Analyses. Exploratory analyses examined whether the main effect of informant learning method was associated with the informant's immersion or the learning method (from a person vs. from a book). These analyses used the data collected in this study to estimate what participants' correctness scores would have been in the conditions "immersed-person and non-immersed-person" and "immersed-book and non-immersed-book," which were not included in this design. Participants' correctness totals were re-coded to create a new correctness total. For each story, participants received a score of 0 if they selected the informant who learned from a book and a score of 1 if they selected the informant who learned from a person. Scores for each story were combined for a total that could range from 0 to 2. When both informants had learned from a person, participants endorsed the immersed informant as correct (M= 1.58, SD = 0.70)

significantly more than a non-immersed informant (M = 0.78, SD = 0.79), $t(94) = 5.25$, $p < .001$ (see Figure 1).

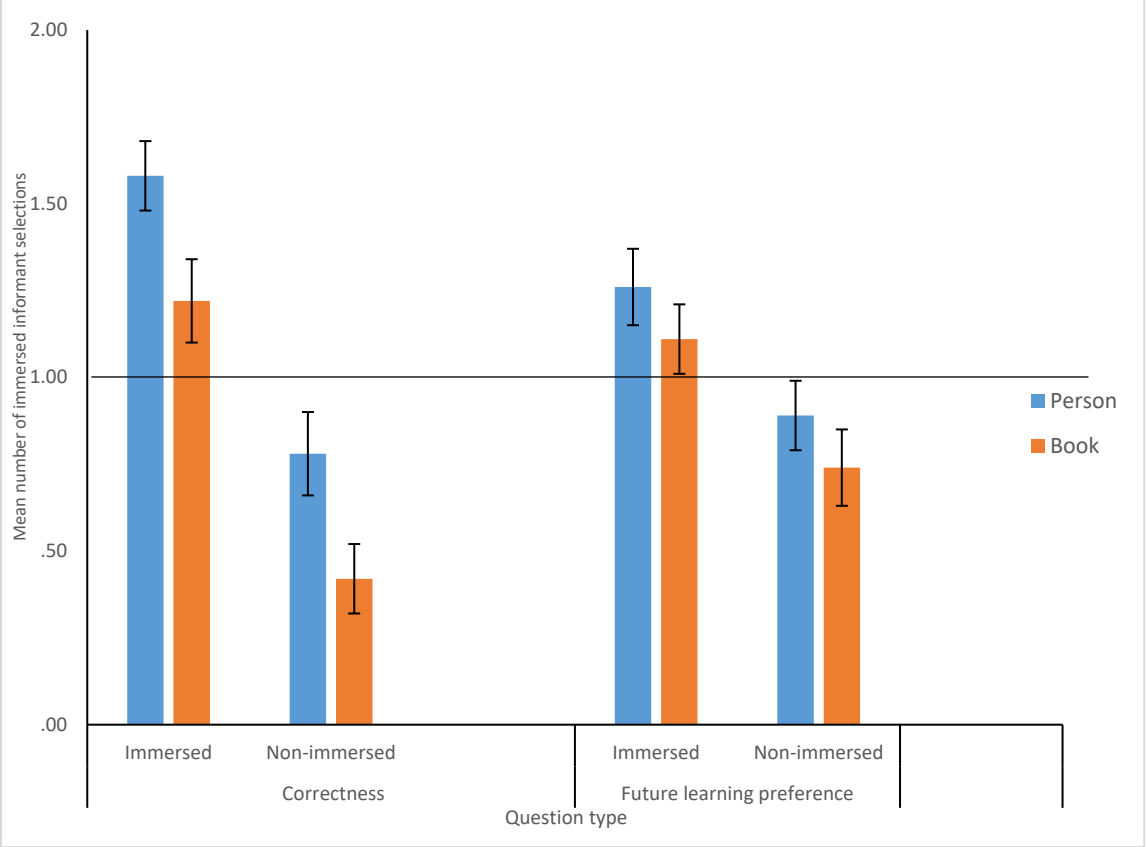

Figure 1. Children's Selection of the Immersed Informant by Question Type and Informant Learning Method.

Qualitative Data. Participants were asked to justify their informant selections. Justifications were coded as "in-group bias", "learning method preference," "cultural expertise," or "other/don't know" for both the correctness and future learning preference questions (see Table 3 for examples). Justifications were dependent on whether participants endorsed the immersed or non-immersed informant, $\chi^2(3) = 27.13$, $p < .001$

for story 1 and $\chi^2(2) = 14.82$, $p = .001$ for story 2. Most participants who endorsed the immersed informant referenced cultural expertise, but many referenced learning methods. Most of the participants who endorsed the non-immersed informant referenced learning method. Proportions of each type of justification for each story are reported in Table 4. Responses did not depend on age for story1, $\chi^2(3) = 7.07$, $p = 0.07$, or story 2, $\chi^2(2) = 3.58$, $p = 0.17$. Fifteen participants needed the follow-up forced-choice question for story 1 and one participant refused to answer this question. Six participants needed this question for story 2.

Table 3. Examples of Coding Scheme for Correctness and Future Learning Preference Questions.

Code	Correctness	Future Learning Preference
In-group bias	-----	Because she does the things I like to do. She speaks English. Because she lives in the U.S.
Learning method preference	Because books are very knowledgeable. Because she could look at the instructions. Because she saw her mom doing it and she learned from there.	Because she read it from a book and it has more information. Because she could ask questions about it when she learned.
Cultural expertise	Because she because um she's from Polmania and it's a special thing that they do. Because she's native to Rusland and that's where the Ruslandian birds come from.	Because they're from her country and it's probably a little more special to her. Because she is from that country and she knows a lot about it.
Other (Includes "I don't know" and no response)	Because she would be the best. Because she knows a lot about them. Because she's the best at sewing.	She's good at them. Because she's a good reader. She looks like hers is a little bit better.

Table 4. Proportion of Participant Informant Endorsements by Response Type for the Correctness and Future Learning Preference Questions.

	Correctness								Learning Preference							
	Story 1				Story 2				Story 1				Story 2			
	Immersed		*Non-immersed*		*Immersed*		*Non-immersed*		*Immersed*		*Non-immersed*		*Immersed*		*Non-immersed*	
Code	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
In-group bias	0	0	1	3.0	0	0	0	0	0	0	9	21.4	0	0	5	13.9
Learning method preference	20	32.3	22	66.7	30	41.1	19	86.6	21	38.9	21	50.0	28	46.7	17	47.2
Cultural expertise	35	56.5	1	3.0	28	38.4	0	0	23	42.6	0	0	19	31.7	0	0
Other (Includes "I don't know" and no response)	7	11.3	9	27.3	15	20.5	4	17.4	10	18.5	12	28.6	13	21.7	14	38.9
Total n	62		33		73		23		54		42		60		36	

Note. N for Correctness Story 1 is 95 because one participant refused to answer. All other N's = 96.

Future Learning Preference Question. Overall, participants endorsed the immersed informant for future learning significantly more than expected by chance, $t(95) = 2.47$, $p = 0.02$. By age, this pattern was demonstrated by older children, $M = 1.33$, $SD = 0.75$, $t(48) = 3.06$, $p = 0.004$, but not younger children, $M = 1.04$, $SD = 0.72$, $t(46) = 0.41$, $p = 0.69$ (see Table 2 and Figure 1). An age (6.0-7.9 vs. 8.0-9.9 years) by informant learning method (immersed-person vs. immersed-book) ANOVA on future learning preference revealed no significant main effect of age, $F(1, 95) = 3.32$, informant learning method, $F(1, 95) = 0.90$, nor an interaction between these factors $F(1, 95) = 2.35$, all p's $> .07$.

Exploratory Analyses. Although the ANOVA revealed no effects for this variable, exploratory analyses provided a more sensitive examination of the possibility that informants' immersion nevertheless had a similar effect to that found for the correctness question. Future learning preference totals were re-coded in the same way as the correctness totals. When both informants learned from a person, participants endorsed the immersed informant for future learning (M = 1.26, SD = 0.80) significantly more than a non-immersed informant (M = 0.89, SD = 0.67), $t(94) = 2.43$, $p = 0.02$ (see Figure 1).

Qualitative Data. Justifications were coded in the same way as the correctness question and were again dependent on whether participants endorsed the immersed or non-immersed informant, $\chi^2(3) = 31.17$, $p < .001$ for story 1 and $\chi^2(3) = 22.11$, $p <. 001$, for story 2. Most participants who endorsed the immersed informant referenced cultural expertise or learning method. Most participants who endorsed the non-immersed informant referenced learning method. Proportions of each type of justification for each story are reported in Table 4. Justifications were not dependent on participant age for story 1, $\chi^2(3) = 4.54$, $p = 0.21$, or story 2, $\chi^2(3) = 2.94$, $p = 0.40$. Eighteen participants needed the follow-up question for story 1 and 17 participants needed this question for story 2.

Learning Method Preference Question. For each story, participants could choose to learn for themselves from a book or from a person. Chi-square tests revealed that participants' learning method endorsement was not dependent on informant learning method for story 1, $\chi^2(1) = 0.64$, $p = 0.42$, but it was dependent on informant learning method for story 2, $\chi^2(1) = 8.02$, $p = 0.005$. For story 1, the proportion of participants

who selected to learn from a person was relatively equal to the proportion who selected to learn from a book, regardless of the informant learning method. For story 2, the majority of participants (72%) who heard about an immersed informant who learned from a person endorsed learning from a person for themselves. Participants who heard about an immersed informant who learned from a book remained relatively evenly divided between the learning methods. Preferred learning method was not dependent on age, $\chi^2(1) = 1.06$, $p = 0.30$ for story 1 and $\chi^2(1) = 0.34$, $p = 0.56$ for story 2.

Qualitative Data. Participants were asked to justify their endorsement of a learning method (e.g., "Why would you want to learn from a person?"). This question was followed by a forced-choice question (e.g. "Would you want to learn from a person because it's a better way to learn or because that's how you learn about new things?") when participants gave irrelevant answers. Participants' responses were coded as "better method," "like-me bias," or "other/I don't know" (Table 5). Twelve participants needed the follow-up question for story 1 and 11 participants needed this additional question for story 2. Justifications were dependent on whether participants endorsed learning from a person versus learning from a book for story 1, $\chi^2(2) = 12.24$, $p = 0.002$, but not for story 2, $\chi^2(2) = 0.56$, $p = 0.75$.

The majority of participants in both age groups indicated that the learning method they endorsed was a better way to learn for both stories (Table 6). However, justifications were dependent on age for the first story, $\chi^2(2) = 8.19$, $p = 0.02$, but not the second story, $\chi^2(2) = 1.04$, $p = 0.60$. This finding may be driven by a larger proportion of younger children giving "other/I don't know" responses for story 1 than for story 2.

Table 5. Examples of Coding Scheme for the Learning Method Preference Question.

Code	Learning Method Preference
Better method	(Book) Because it gives you more information, like if you learned it from your mom you might forget, but from a book you might remember better.
	(Person) Because they can show you the steps and an example how to do it.
	Because I learn better from someone telling me.
Like-me bias	Because I understand a person more than a book.
	Because I like reading.
Other (Includes "I don't know" and no response)	Because you can trust her.
	Because it (book) would be easier to find.

Table 6. Proportion of Participants' Learning Method Preferences by Response Type.

	Learning method preference							
	Story 1				Story 2			
	Book		*Person*		*Book*		*Person*	
Code	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Better method	26	52	39	84.8	27	67.5	40	71.4
Like-me bias	11	22	2	4.3	8	20	8	14.3
Other (Includes "I don't know" and no response)	13	26	5	10.9	5	12.5	8	14.3
Total n	50		46		40		56	

Boundaries of Expertise Questions. Participants received a score of 0 if they selected the non-immersed informant and a score of 1 if they selected the immersed informant as the person who would know more for three or more out of the five boundaries of expertise questions. Two participants refused to answer one of the five questions and therefore did not have data for this "majority" question.

Overall, participants selected the immersed informant significantly more than expected by chance, $t(93) = 3.01$, $p = 0.003$. An age (6.0-7.9 vs. 8.0-9.9 years) by informant learning method (immersed-person vs. immersed-book) ANOVA on this score

revealed no main effect of age, $F(1,93) = 3.21$, informant learning method, $F(1,93) = 1.82$, nor a significant interaction between these factors, $F(1,93) = 0.06$ (all p's > .07).

"Liking" Ratings. An average rating of how much participants liked each informant was calculated, collapsed across both stories. Overall, participants rated liking both informants a moderate amount and there was no difference in how much participants rated liking the immersed informant ($M = 2.21$, $SD = 0.63$) versus the non-immersed informant ($M = 2.24$, $SD = 0.59$).

An age (6.0-7.9 vs. 8.0-9.9 years) by informant learning method (immersed-person vs. immersed-book) ANOVA revealed no significant effects of age, informant learning method, nor an interaction between these factors for either informant rating, (immersed: $F(1,95) = 2.59$, $F(1,95) = 1.31$, $F(1,95) = 0.19$; non-immersed: $F(1,95) = 0.30$, $F(1,95) = 0.35$, $F(1,95) = 0.27$; all p's > .10).

Secondary Tasks

TOLD- P: Relational Vocabulary Subtest. Each participant received a raw score for the number of relational comparisons that they made accurately. Scores ranged from 1 to 31 out of possible 34 points ($M = 19.96$, $SD = 6.37$). A regression analysis was conducted to evaluate how much both age in months and the raw score contributed to predict the correctness question total score. Children with better TOLD-P raw scores were more likely to endorse the immersed informant as better able to execute a cultural practice, $b = 0.46$, $t(95) = 3.79$, $p < .001$. These raw scores accounted for 14.5% of the variance in correctness question total scores above and beyond age in months, which was

not a significant predictor of correctness question total scores, b = -0.10, $t(95)$ = -0.83, p > 0.10.

The TOLD-P raw score was not a significant predictor of future learning preference, b = 0.16, $t(95)$ = 1.21, or learning method preference totals, b = -0.01, $t(95)$ = -0.06, all p's > .10.

Droodles. Each participant received a score of 0 for an incorrect response and 1 for a correct response on each question of each trial type. Participants' scores were totaled to provide a trial type total as well as an overall total (i.e., across all three trial types). In regression analyses with age in months and participants' overall total on Droodles as predictors, Droodles performance was not a significant predictor for performance on the correctness, b = -0.003, $t(95)$ = -0.02, future learning preference, b = 0.04, $t(95)$ = 0.32, or learning method preference question totals, b = 0.003, $t(95)$ = 0.03, all p's > 0.10.

A regression analysis was conducted to evaluate how much age in months and performance on irrelevant past trials, relevant past trials, and distinct past trials each contributed to predict performance on the correctness question. These trial type scores were not significant predictors for performance on the correctness question, irrelevant: b = -0.02, $t(95)$ = -0.15, relevant: b = -0.003, $t(95)$ = -0.02, distinct: b = 0.02, $t(95)$ = 0.14, all p's > .10; the future learning preference question, irrelevant: b = 0.18, $t(95)$ = 1.76, relevant: b = -0.04, $t(95)$ = -0.33, distinct: b = -0.09, $t(95)$ = -0.79, all p's > .08; or the learning method preference question, irrelevant: b = -0.09, $t(95)$ = -0.87, relevant: b = 0.04, $t(95)$ = 0.34, distinct: b = 0.06, $t(95)$ = 0.53, all p's > .10.

CHAPTER IV

DISCUSSION

In the current study, 6- to 9-year-olds were provided with information about informants' cultural group membership and learning method and asked to evaluate informants' knowledge about a novel cultural practice. This study builds on selective social learning models that include cultural cues in that it addressed a situation in which children's perceptions of cultural immersion had to be weighed against their perceptions of expertise. In an unfamiliar cultural context, both cultural group membership (i.e., immersion) and learning method influenced perceptions of expertise. As a group, children preferred an immersed informant over a non-immersed informant and preferred an informant who learned from a person over an informant who learned from a book. In particular, results suggested a synergistic effect in which an immersed informant who learned about a cultural practice from a person was particularly potent for children.

Contrary to the expectation that younger children would be less likely than older children to endorse the immersed informant for the correctness and future learning preference questions, children endorsed the immersed informant overall, irrespective of age. However, younger children demonstrated a weaker pattern of immersed informant endorsement for the future learning preference question. Children's learning method preferences also did not vary by age. Importantly, the "liking" ratings suggested that children did not demonstrate a personal preference for either informant over the other.

Partially consistent with predictions, relational vocabulary was a significant predictor of children's performance on the correctness question, but was not a significant predictor for future learning preference or learning method preference.

Children's Evaluations of Expertise

The current study contributes to research on children's understanding of expertise in that it extends this investigation to a novel domain (i.e., cultural practices). This departure from typical expertise paradigms brings social learning research into a domain that is readily applicable to everyday reasoning about what people from different backgrounds might know. Moreover, whereas most studies in this area investigated children's evaluations of an expert versus a non-expert (e.g., Koenig & Jaswal, 2011; Mills, 2013), this study provided a more nuanced account of the factors that guide children's social learning in that both informants were knowledgeable about the cultural practice at hand.

It is striking that children were apparently unbiased toward the out-group and readily selected the immersed informant as correct, as reflected in the quantitative and descriptive data. Moreover, children's "liking" ratings of non-immersed informants did not differ significantly from those of immersed informants, which suggests that a presumed in-group bias may not be the default for 6- to 9-year-olds in the context of this study.

Perhaps the novel cultural context of this study enabled participants to view out-group membership as an inherently helpful characteristic to accumulate cultural expertise. Indeed, in contrast to previous research in which information about the out-

group was only relevant for social affiliation preferences (e.g., race in the context of toy preferences; Shutts et al., 2010), out-group membership was directly associated with the domain of expertise in the current study.

It is important to note, however, that younger children were less likely than older children to choose the immersed informant for future learning; approximately half of these children chose the in-group informant instead. The qualitative data revealed that only a small percentage of participants demonstrated evidence of an in-group bias in their justifications of informant endorsement and only for the future learning preference question (with the exception of one participant for the correctness question). This finding may provide partial support for a putative in-group bias in that these children may not have wanted to affiliate personally with an out-group member. Some younger children may have been influenced by this bias implicitly: they may have selected the non-immersed informant simply because she was the only familiar "piece" of an unfamiliar learning context. For example, a few children referred to a concern that they would not be able to learn the new information from the immersed informant because she may teach or speak differently due to her nationality.

Taken together, these results are somewhat compatible with previous expertise research. Children's ability to use nuanced expertise information is consistent with the finding that by middle childhood, children understand that variations in expert knowledge exist (Landrum & Mills, 2015) and make specific inferences about what informants know (Danovitch & Keil, 2004; Landrum & Mills, 2015; Lutz & Keil, 2002). The majority of children believed the immersed informant's knowledge to generalize to more related

domains of information than the non-immersed informant's knowledge. This finding aligns with research in which 6- to 8-year-olds attributed knowledge that was related to, but outside of, an expert's specific domain of expertise to that expert (e.g., attributing trivia knowledge about dachshunds to a poodle expert; Landrum & Mills, 2015). Older children's endorsement of the immersed informant for the question about family traditions is consistent with the idea that children use cultural identity to evaluate the knowledge of unfamiliar out-group members based on prejudicial expectations about what out-group people know (Kalish & Lawson, 2008). This interpretation is also consistent with more global Western stereotypes that unfamiliar cultures are more "traditional" in a pejorative way (e.g., "undeveloped;" see Rogoff, 2014).

The synergistic effect of cultural immersion and learning method aligns in part with a small literature in which putative biases with other informant characteristics did not influence children's evaluations of expertise in the expected direction. For example, in one study with 4- to 8-year-olds (Boseovski, Hughes, & Miller, 2016), children selected a gender counter-stereotypical expert as correct about stereotypically masculine or feminine activities (e.g., a girl who had football expertise), although this effect increased with age. Also, there is emergent evidence that older children (i.e., 9- to 10-year-olds) and pre-adolescents are more accepting of group membership differences in some contexts (Aboud, 2013; Mulvey, 2016; Nesdale, 2013). For example, these children believe that it is morally wrong to exclude an out-group member on the basis of his or her group membership alone. Furthermore, in the context of friendships, these children are more accepting of out-group members joining their group to participate in an activity

(e.g., ballet) than teenagers. Thus, it is clear that the influence of putative biases on children's judgments is context-dependent and also likely to be influenced by other informant characteristics.

Although findings from the current study were somewhat consistent with previous research as described above, they are discrepant with other studies in which an in-group bias was found. In several selective social learning studies, in-group actors or informants were favored (e.g., Kinzler et al., 2009; Shutts et al., 2010; Shutts et al., 2013) and there is evidence for a heightened sensitivity to group differences that could elicit biases during early to middle childhood (Bigler & Liben, 2007; Dunham, Baron, & Banaji, 2008; Mulvey et al., 2014). Previous research suggests that a preference for the in-group is a default response based on familiarity (e.g., Kinzler & DeJesus, 2013a, but see Corriveau et al., 2013). There are three possible explanations for this discrepancy. First, the current study investigated children's evaluations of experts in a new cultural domain in which immersion served as an indication of cultural expertise. Inspection of the qualitative data revealed that a large proportion of children justified an endorsement of the immersed informant with reference to her cultural expertise due to her nationality. In fact, children seemed to believe that cultural group membership entailed automatic knowledge about one's culture. It may be that during middle childhood, children make a general assumption that all members of a group participate in that group's practices.

Second, the paradigm used in the current study may not have produced a strong in-group versus out-group conflict relative to paradigms used in previous research. Children had to rely entirely on the cultural information and labels provided by the

experimenter to distinguish between informants (i.e., informants were the same race). Although explicit labeling of differences contributes to their psychological salience (Bigler & Liben, 2007), some research suggests labels are not as strong as perceptual cues in establishing group categories (Diesendruck & Weiss, 2015). The effect of nationality labels in the current study may have been weakened due to the inclusion of an additional informant difference (i.e., informant learning method).

Third, the aims of previous investigations focused on when children display an in-group bias in the absence of other informant characteristics (e.g., Heyes, 2015; Shutts et al., 2010) or only in combination with informant accuracy (e.g., Kinzler et al., 2011) to determine general sensitivity to cultural cues. Children in these studies used information provided about informants' cultural background to infer activities that they might like to do (Diesendruck & haLevi, 2006; Shutts et al., 2010, Shutts et al., 2013) or the pronunciation of words that were novel to children (Corriveau et al., 2013; Kinzler et al., 2011). These studies were not intended to capture the extent to which cultural group membership interacts with nuances in expertise to influence children's judgments of informant knowledge.

The Influence of Learning Method on Children's Judgments

As noted above, informant immersion and informant learning method together influenced children's evaluations of cultural expertise such that an immersed informant who learned about cultural practices from a person was perceived as the ideal informant. Learning from a person may have been perceived as similar to imitating a person to learn cultural information. The synergistic effect found in this study offers support for the idea

that young children imitate adults to follow social convention appropriately (Harris, 2012; Heyes, 2015, 2016; Lyons & Keil, 2013).

Research on imitation provides a foundation for understanding why children may value learning from a person over learning from a book. In one study, preschoolers watched two adults demonstrate how to open a puzzle box (Nielsen & Blank, 2011). One adult opened this box efficiently, but the other did so inefficiently (i.e., included unnecessary moves to open the box). Children imitated the efficient technique in the presence of the efficient model, but imitated the inefficient technique in the presence of the inefficient model. These findings suggest that young children view others' intentional actions as information about socially acceptable methods for completing a cultural practice (Harris, 2012). In addition, similar studies find that with age, children adhere to the techniques demonstrated by adults more strictly than at younger ages (Harris, 2012).

The qualitative data from this study suggest that by middle childhood, some children are able to offer an explicit explanation as to why learning from a person is helpful, particularly learning from a person immersed in the same culture about which you wish to learn. Although participants were close to evenly divided in their learning method preferences after just one story, over half of participants endorsed learning from a person by the time they had heard both main task stories. This shift in preferred learning method could have been due to the additional time children had to think about which method would be best between the first and second stories. The opportunity to reflect on a similar story for a second time may have allowed children to think about the social nature of the learning situation. This explanation is speculative, as a large proportion of

children still preferred to learn from a book by the end of the session. Perhaps for some children, experience with books in school is more influential, but the measures in this study are not sensitive enough to pinpoint how these children are different from those who preferred to learn from people.

Possible Process Explanation for Children's Judgments

The current study included measurements that could provide information about the potential mechanisms that support 6- to 9-year-olds' evaluations of informants in a cultural domain. Individual differences in social cognitive skills may inform how children evaluate informants (Danovitch, 2013; Mills, 2013). Previous research has been inconclusive with regard to the skills that are important for social learning and the circumstances under which specific skills matter (Mills, 2013). In the current study, measures of theory of mind and relational vocabulary were included in an attempt to identify which mechanisms contribute to children's evaluations of informants and their claims.

Together, the Droodles and relational vocabulary measures may not have been the best tasks to capture the processes that support children's social judgments. One explanation as to why Droodles did not predict children's judgments may be that it measures interpretive theory of mind whereas tasks used in previous social learning research typically use false-belief measures (e.g., Fusaro & Harris, 2008; Danovitch & Noles, 2014). Some researchers have speculated that age-related improvement in interpretive theory of mind may help 8- to 10-year-olds understand that differences in others' mental states are involved in the learning process (Sobel & Letourneau, 2015).

However, the current study focused on evaluations of expertise-- or the result of learning rather than the learning process. Another possibility is that there is generally mixed evidence regarding the power of theory of mind tasks to predict children's social judgments. In some cases, children who demonstrated advanced false-belief theory of mind were better able to evaluate informants based on their past accuracy (e.g., Fusaro & Harris, 2008). In other instances, measures of theory of mind did not predict children's expertise evaluations as well as non-social cognitive skills (e.g., Danovitch, 2013; Danovitch & Noles, 2014). Children's decisions about which informant is the best source of information may rely on their understanding that different people have different knowledge bases (Danovitch & Noles, 2014). These findings may allude to an explanation for the predictive power of relational vocabulary for children's social judgments in this study. Relational vocabulary may tap into non-social cognitive skills, such as categorization, which mediated children's expertise judgments to a greater degree than social cognitive skills in some studies (Danovitch, 2013; Danovitch & Noles, 2014). The relational vocabulary subtest required children to consider similarities between two objects and acceptable answers included reference to a category membership shared by both objects.

Additional research is needed to determine which social cognitive and non-social cognitive skills (Danovitch, 2013) support children's social judgments and in which circumstances certain processes are more influential than others (Mills, 2013). One promising factor is reflection, which is thought to support social judgments (Boseovski & Marcovitch, 2012; Mulvey et al., 2014). Performance on the different question types used

in the main task (i.e., correctness and future learning preference) may provide insight into the role of reflection in children's social judgments. Previous research suggests that correctness questions prompt immediate responses that are more prone to bias, whereas questions such as future learning preference prompt reflection about consequences (Boseovski. Hughes, & Miller, 2016; Ma & Woolley, 2013) and may allow children to overcome bias with age (Boseovski & Marcovitch, 2012; Richardson et al., 2012). Although others have suggested that the future learning preference question prompts greater reflection (Boseovski. Hughes, & Miller, 2016; Ma & Woolley, 2013), in this study some younger children perceived a disadvantage to future affiliation with an out-group person, whereas older children recognized the learning advantage of such an affiliation. Older children endorsed the immersed informant for both the correctness and future learning preference questions at a rate greater than predicted by chance, whereas younger children only did so for the correctness question. Younger children did not endorse the immersed informant at a rate significantly different from chance for the future learning preference question.

Future Directions and Limitations

An interesting synergistic effect of cultural immersion and learning method (i.e., specifically the boost from learning from a person) emerged here, but could only be addressed through exploratory analyses. In this study, scenarios in which informants shared cultural immersion but differed in their learning method were not included (e.g., immersed-book vs. immersed-person). Scenarios in which informants shared a common learning method but differed in their cultural immersion were also not included (e.g.,

immersed-person vs. non-immersed-person). These combinations should be addressed in a future study. In traditional expertise research, occupation labels provide strong cues to expert knowledge (e.g., doctor or mechanic; Lutz & Keil, 2002). Specific background information about informants' learning experiences could function like occupation labels and may be prioritized over informants' cultural immersion when learning in other domains such as the sciences, in which cultural immersion is not inherent to the knowledge an informant has.

Droodles and relational vocabulary were somewhat informative regarding which social cognitive mechanisms might support children's social judgments, but these measures were limited in the insight that they could provide for children's judgments in this study. Theory of mind and other social cognitive and cognitive processes are broad constructs and there are several different measurements used to address whether these processes support children's social cognition. Researchers need to consider which component skills of these processes make specific contributions to children's social judgments. For example, a future investigation might include tasks that measure multiple aspects of theory of mind (e.g., false-belief understanding, interpretive theory of mind, moral theory of mind) to determine the extent to which each component predicts evaluations of an expert versus a non-expert, or two experts who differ in some combinations of other characteristics. As noted, researchers should also expand their investigations to examine the role of reflection, non-social cognitive skills (Danovitch, 2013), and other potential processes in children's social judgments.

Conclusion

Six- to 9-year-olds take into account cultural immersion and learning method in their evaluations of expertise. This finding demonstrates a sophisticated reasoning ability present by middle childhood that influences how children approach learning about unfamiliar cultures and people from unfamiliar places. Overall, there were few age differences in children's judgments, consistent with previous research. Children's preferences for specific learning methods and types of teachers are especially important to consider in the context of educational programs. Such preferences may influence enthusiasm to learn and retain second languages, information about the history of world cultures, and other cultural information.

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APPENDIX A

EXAMPLES OF MAIN TASK MATERIALS

APPENDIX B

EXAMPLE OF MAIN TASK PROTOCOL: IMMERSED INFORMANT LEARNED FROM A PERSON, NON-IMMERSED LEARNED FROM A BOOK

Randomize photo assignment as either culturally immersed informant or non-immersed informant (the PowerPoint slides are pre-randomized, select the correct one for your testing session). Randomize informant introduction order. Randomize name assignment.
Introduction: *My name is (name) and today I'm going to tell you about two people. Then I'll ask you some questions about these people, but there are no right or wrong answers to the questions. Are you ready to get started?* ***Randomize presentation order below.***

This is _____ and this is _____.

Immersed informant (I): _____ was born in a country called Rusland and she still lives in Rusland today. _____'s whole family is from Rusland too. When she is with her family, _____ speaks Ruslandian, the language that her family speaks.

Non-immersed informant (NI): _____ was born in the United States and she still lives in the United States today. _____'s whole family is from the United States too. When she is with her family, _____ speaks English, the language that her family speaks.

Administer Memory Check 1

Okay, great! Now we're going to hear some more about these two people, so listen carefully because I'll ask you more questions at the end.

Randomize presentation order of Learning Experience Information (based on PowerPoint).

Learning Experience Information

Immersed = From a person

When _____was growing up, she used to make Ruslandian paper birds while sitting with her mom at home in the living room. These birds have a very special meaning in her country and _____ used to make them with her aunts and cousins too. _____sat with her mom and carefully watched her fold the paper. When _____ was ready to make a Ruslandian bird, her mom showed her how to fold the paper to make wings for the bird. _____'s mom told her, "First you fold the paper in half. Then, you fold this center piece into a triangle to make the wing." _____ made these birds many times with her mom and today _____ is making one of these Ruslandian birds on her own.

Non-immersed = From a book

When _____was growing up, she used to read a book about Ruslandian paper birds while visiting the library with her friend. These birds are very special to the people that live in Rusland so they make them a lot. _____read the book about Ruslandian birds and looked at the pictures showing how to fold the paper. When _____ was ready to make a Ruslandian

bird, she got some paper from her backpack to make the wings of the bird. From the library book _____ read, “First fold the paper in half. Next, fold the center piece into a triangle to make the wing.” _____ made these birds many times while using this book and today _____ is making one of these Ruslandian birds on her own. ***Administer Memory Check 2 and Test Questions.***

Example of learning experience information: Immersed informant learned from a book

Learning Experience Information

Immersed = From a book

When _____was growing up, she used to read a book about Ruslandian paper birds while visiting the library with her friend. These birds have a very special meaning in her country so people that live in Rusland make them a lot. _____read the book about Ruslandian birds and looked at the pictures showing how to fold the paper. When _____ was ready to make a Ruslandian bird, she got some paper from her backpack to make the wings of the bird. From the library book _____ read, “First fold the paper in half. Next, fold the center piece into a triangle to make the wing.” _____ made these birds many times while using this book and today _____ is making one of these Ruslandian birds on her own.

Non-immersed = From a person

When _____was growing up, she used to make Ruslandian paper birds while sitting with her mom at home in the living room. These birds are very special to the people that live in Polmania and _____ used to make them with her aunts and cousins too. _____sat with her mom and carefully watched her fold the paper. When _____ was ready to make a Ruslandian bird, her mom showed her how to fold the paper to make wings for the bird. _____’s mom told her, “First you fold the paper in half. Then, you fold this center piece into a triangle to make the wing.” _____ made these birds many times with her mom and today _____ is making one of these Ruslandian birds on her own.

Administer Memory Check 2 and Test Questions.

APPENDIX C

DROODLES PROTOCOL (FROM LAGATTUTA ET AL., 2010)

Introduction:

Here is Sam and here is Alex. Let's pretend these dolls are real people like you and me.

Here are two houses.

Which house should be Alex's house? OK! Let's put this sign with a picture of Alex outside his/her house. Can you help me? It goes right here. [*NOTE: WE MADE LITTLE SIGNS OF THE CHARACTERS WITH THEIR PICTURES AND NAMES TO PUT IN AN STAND IN FRONT OF EACH HOUSE*]

OK, then this house will be Sam's. Can you help me put the sign outside Sam's house?

When Sam and Alex are inside their houses they can't hear what we are saying or see what we are doing.

Let's put them in their houses.

Can Sam or Alex hear what we are saying now?
Can Sam or Alex see what we are doing now?

Irrelevant Past Trial: Flowers

(OK, let's play again. Let's put them back in their houses so they can't see or hear what we are doing.)

Sam and Alex have never seen this picture before.

Let's let Alex out of his/her house and show him/her this picture of flowers.

Alex (looks toward picture and says), "Ooh, flowers." Now Alex goes back inside.

Now, let's cover up the flower picture like this (put on window).

Here come Sam and Alex. Let's show them this picture like this (covered up).

Test 1: Sam has never seen this picture before, what will Sam think this is?
Test 2: Alex has seen this picture before, what will Alex think this is?
Test 3: Why did/didn't they think the same thing? (whatever child predicted)

Test 4: So, what picture is really under here?

Test 5: Look, here comes Joe (again) (drive Joe in car up to picture). He/she did not see or hear what we were doing. Joe has never seen this picture before. What will Joe think this is?

Relevant Past Trial: Boat

(OK, let's play again. Let's put them back in their houses so they can't see or hear what we are doing.)

Sam and Alex have never seen this picture before.

Let's let Sam out of his/her house and show him/her this picture of a boat.

Sam (looks toward picture and says), "Ooh, a boat." Now Sam goes back inside.

Now, let's cover up the boat picture like this (put on window).

Here come Sam and Alex. Let's show them this picture like this (covered up).

Test 1: Sam has seen this picture before, what will Sam think this is?
Test 2: Alex has never seen this picture before, what will Alex think this is?
Test 3: Why did/didn't they think the same thing? (whatever child predicted)
Test 4: So, what picture is really under here?

Test 5: Look, here comes Joe (again) (drive Joe in car up to picture). He/she did not see or hear what we were doing. Joe has never seen this picture before. What will Joe think this is?

Distinct Pasts Trial: Pig/Boot

(OK, let's play again. Let's put them back in their houses so they can't see or hear what we are doing.)

Sam and Alex have never seen these pictures before (show pig and boot side by side, with pig in front of Sam's house, and boot in front of Alex's house). (Turn over boot and show pig).

Let's let Sam out of her house and show her this picture of a pig. Sam (looks toward picture and says), "Ooh, a pig." Now Sam goes back inside.

(Turn over picture of pig and show boot)

Let's let Alex out of her house and show her this picture of a boot. Alex (looks toward picture and says), "Ooh, a boot." Now Alex goes back inside.

(turn both pictures back over—so they are side by side same as beginning)

Now, let me show you this window. Look, if I put it over the pig, it looks like this. If I put it over the boot, it looks like this. See? They look the same. (show it over pig and boot again so they can see)

Control 1: What picture did Sam see before? (correct if necessary). Right, Sam saw the PIG. Sam saw the PIG.

Control 2: What picture did Alex see before? (correct if necessary). Right, Alex saw the BOOT. Alex saw the BOOT.

Now, let's cover up the pig picture like this. (remove boot picture and put pig picture in middle, covered by window)

Here come Sam and Alex.
Test 1: What will Sam think this is?
Test 2: What will Alex think this is?
Test 3: Why did/didn't they think the same thing? (whatever child predicted)
Test 4: So, what picture is really under here?

Test 5: Look, here comes Joe (again) (drive Joe in car). He/she did not see or hear what we were doing. Joe has never seen this picture before. What will Joe think this is?

APPENDIX D

TOLD-P RELATIONAL VOCABULARY SUBTEST PROTOCOL AND SAMPLE ITEMS (FROM NEWCOMER & HAMILL, 2008)

Subtest 2: Relational Vocabulary

Directions: Say, I want you to tell me how two things are alike. If I said, "How are a cap and a hat alike?" what would you say? ("Something you wear on your head.") If the child says, "Something you wear," query the child to provide a more complete answer. Say, Where do you put them? The child should respond, "On your head." Then you respond, Yes, they are something that you wear on your head. If the child responds incorrectly, provide the correct response. Now let's try another one. How are a pen and a pencil alike? ("Something you write with.") If the child does not respond, give the child a visual clue by pretending to write with an empty hand. That's right, something you write with. (If the child gives an incorrect response, provide the correct answer.) Then go on to item 1.

Introduce each pair of words with, How are _____ and _____ alike? Query responses that are vague, incorrect, or incomplete by saying, Tell me more about _____. This questioning technique may be used only once with each item.

Scoring: Specific scoring criteria for each word are listed on this form. Record a 1 for each correct answer and a 0 for each incorrect answer. Stop testing after 5 consecutive failures.

Item	Score
1. a kite and a bird *One point:* they fly, fly on wind currents, airborne, use wind to fly *Query:* lightweight	☐
2. a couch and a chair *One point:* sit on them, furniture you sit on *Query:* furniture	☐
3. red and yellow *One point:* colors *Query:* make orange, paints, crayons	☐
4. a glass and a cup *One point:* to drink from them, hold liquid/beverages, drinking utensils *Query:* things to hold	☐
5. a book and a newspaper *One point:* you read them, reading materials/matter, publications, readable *Query:* contain information, letters/words, news/information	☐