

EXPLORING SELECTIVITY IN CHILDREN'S KNOWLEDGE
TRANSMISSION: THE EFFECTS OF GROUP AFFILIATION
AND KNOWLEDGE TYPE



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Exploring Selectivity in Children's Knowledge Transmission:
The Effects of Group Affiliation and Knowledge Type

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DECLARATION OF ORIGINALITY

I, Didar Karadağ, certify that

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ABSTRACT

Exploring Selectivity in Children's Knowledge Transmission: The Effects of Group Affiliation and Knowledge Type

A wealth of studies investigated factors guiding children's decisions when learning from others, while less is known about factors that govern children's decisions when they transfer knowledge to others. This research asked whether children would privilege ingroup members when informing others and if so, whether this tendency would be observed to similar degrees when transferring different kinds of information (social norms vs. moral norms). Five- and 6-year-old children were assigned to minimal groups on the basis of their color preference. Children were then introduced to two potential recipients differing in their group membership, and were asked to choose one or both of these recipients to teach social or moral norms. Later children were asked to rate how much they liked members of their own group and the other group. Results showed that children were more likely to choose ingroup members for teaching social norms, and they were more likely to choose both members when teaching moral norms. In both conditions, children gave higher liking ratings for members of their own group. Thus, while children displayed an overall ingroup preference indicated by their explicit liking ratings, their selectivity to inform ingroup members depended heavily on the type of information that was to be taught.

ÖZET

Çocuklarda Seçici Öğretme Davranışının İncelenmesi: Grup Üyeliğinin ve Kültürel Bilginin Öğretme Davranışı Üzerindeki Etkisi

Çocukların başkalarından yeni bir bilgi öğrenirken dikkat ettikleri faktörleri inceleyen pek çok çalışma bulunmasına rağmen çocukların başkalarına bir bilgiyi öğretirken dikkat ettikleri faktörler daha az araştırılmıştır. Bu çalışmada, çocukların başkalarına bir bilgiyi öğretirken kendileriyle aynı sosyal gruptan olan kişilere öncelik verme eğiliminde olup olmadıkları ve böyle bir eğilim bulunması halinde, bu eğilimin öğrettikleri bilginin türüne göre değişip değişmediği incelendi. Çalışmada 5 ve 6 yaşındaki çocuklar renk tercihlerine göre oluşturulan yüzeysel gruplara atandılar. Çocuklar, biri kendileriyle aynı gruptan olmak üzere iki yeni çocuk ile tanıştırıldılar. Sonrasında çocuklardan, tanıştırıldıkları çocukların birini ya da ikisini birden seçerek toplumsal ya da ahlaki kuralları öğretmeleri istendi. En sonunda çocuklardan kendi gruplarından ya da diğer gruptan olan çocukları ne kadar sevdiklerini puanlamaları istendi. Çalışmanın sonuçlarına göre, toplumsal kuralları öğretmeleri istendiğinde çocuklar kendi gruplarından olan kişileri daha sıklıkla seçerken ahlaki kuralları öğretmeleri beklendiğinde iki çocuğu birden seçtiler. Ayrıca, iki koşulda da çocuklar kendileriyle aynı gruptan olan çocukları daha fazla sevdiklerini belirttiler. Sonuç olarak, çocuklar genel olarak kendi gruplarından olan kişileri tercih etmiş olsalar da, seçici olarak kendi gruplarından olan kişilere öğretme davranışları öğrettikleri bilginin türüne göre değişiklik gösterdi.

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CHAPTER 1

INTRODUCTION

Social transmission of specific knowledge and skills is readily observable in numerous species to varying degrees (e.g., Catchpole & Slater, 1995; Fisher & Hinde, 1949; Hunt & Gray, 2003; Lewis & Laland, 2012; Tennie, Call & Tomasello, 2009; Whiten et al., 1999), and these species benefit from this transmission in several ways. Among all species, however, humans depend more on the cultural heritage and information of the previous generations (Boyd, Richerson, & Henrich, 2011; Kline 2015). Human culture is the product of a collaborative effort across generations (Tomasello, Kruger, & Ratner, 1993). In other words, at one point, one member of a social group starts a practice or creates a novel invention (e.g., a specific skill) and this specific skill or knowledge is protected and improved by others, and later on, is transmitted to the others in its precise form. Descendants of this group build new inventions based on the knowledge and/or skills that had been previously transmitted to them (Tomasello et al., 1993). Given this cumulative nature of social knowledge transmission, the acquired knowledge becomes more intricate, thus, more difficult to transmit as accurately as possible (e.g., Dean et al., 2014; Lewis & Laland, 2012; Tennie et al., 2009; Tomasello et al., 1993). This process makes it critical that the abilities required to acquire and transmit knowledge socially develop early in life, so that cultural knowledge can be transferred to new generations without going through extreme changes.

In line with this, children, from very early on, are equipped with a cognitive inventory that is necessary to facilitate their learning from others as well as transferring their knowledge to others, socially. For instance, sensitivity to cues that

are critical for social learning, such as the use of direct eye contact (for reviews, see Csibra & Gergely, 2009; Gergely & Csibra, 2006), or the use of generic language (e.g., Gelman, Ware, Manczak & Graham, 2013; Rhodes, Leslie, Bianchi, & Chalik, 2017), emerges early in life. Later on, children's ability to represent others' minds (e.g., Davis-Unger & Carlson, 2008a; Frye & Ziv, 2005; Ziv & Frye, 2004), their understanding that mistakes and knowledge exist concomitantly (e.g., Ronfard & Corriveau, 2016), and their executive function skills (e.g., Davis-Unger & Carlson, 2008b) aid them in transferring their knowledge to others (for a review, see Corriveau, Ronfard & Cui, 2018).

Further, children are quite selective when learning from others and endorse information from certain sources, instead of accepting information indiscriminately. Children selectively endorse information provided by informants who have been accurate in the past (e.g., Birch, Vauthier & Bloom, 2008; Koenig et al, 2004; Koenig & Harris, 2005; Pasquini, Corriveau, Koenig, & Harris, 2007), who are likely experts in the field of knowledge provided (e.g., Burdett et al., 2016; Landrum, Mills, & Johnston, 2013; VanderBorghet & Jaswal, 2008) and who are their ingroup members (e.g., Hetherington, Hendrickson, & Koenig, 2014; Kinzler, Corriveau, & Harris 2011; Macdonald, Schug, Chase, & Barth, 2013).

Children also begin displaying basic forms of teaching around the age of 12 months (Akagi, 2012; Lizskowski, Carpenter, Striano, & Tomasello, 2006; Lizskowski, Carpenter, & Tomasello, 2008) and their teaching skills improve considerably over the course of the preschool years (e.g., Davis-Unger & Carlson, 2008a, 2008b; see also Strauss & Ziv, 2012). Recent evidence demonstrates that children are selective also when they teach. For instance, they evaluate certain cues that allow them to decide when teaching is necessary (e.g., Gweon, Shafto, &

Schulz, 2014; Ronfard, Was & Harris, 2016): They teach information that is challenging to learn in the absence of instruction (Bridgers, Jara-ettinger, & Gweon, in press; Gweon, Chu, & Schulz, 2014; Ronfard et al., 2016), and consider the characteristics of the learners when teaching (e.g., Kim, Kalish, Weisman, Johnson, & Shutts, 2016; Kim et al., 2018).

Compared to children's learning, however, much less is known about the factors that influence children's teaching decisions. The present research aims at expanding existing literature on children's teaching by asking whether children are sensitive to those cues that guide them when learning from others, also when informing others. Specifically, it asks what role information type and the social attributes of the learner play in guiding children's teaching. In the upcoming sections, research on children's knowledge acquisition and their knowledge transmission will be summarized.

1.1 Children's social learning

Starting from the first years of their life, children are skilled learners with an immense potential. According to natural pedagogy hypothesis, from infancy on, children attend to pedagogical cues such as infant-directed speech, direct eye-gaze and contingent responsiveness (for reviews, see Csibra & Gergely, 2009; Gergely & Csibra, 2006). This sensitivity to pedagogical cues helps children to learn generalizable information that does not have a causally linked means-ends relationship with what is aimed with providing that information and how that information is presented, and is otherwise hard to learn through mere observation (Csibra & Gergely, 2009; Gergely & Csibra, 2006). Children look for information from others and are able to learn from potential teachers. Initially, when learning

from others, infants and young children make use of gestures such as pointing (e.g., Lizskowski, Brown, Callaghan, Takada, & de Vos, 2012), and social referencing (e.g., Tamis-LeMonda et al., 2008; Zabatany & Lamb, 1985), and imitate others (e.g., Gergely, Bekkering, & Kiraly, 2002; Gergely & Csibra, 2005; for a review, see Harris, Koenig, Corriveau, & Jaswal, 2018). Subsequently, in addition to being attentive to information sources around them, they actively demand information from potential informants by asking questions (Chouinard, 2007; Frazier, Gelman, & Wellman, 2009). As children mature, the nature of these questions changes: they begin asking more specific questions requiring explanations, instead of general questions (Chouinard, 2007). This, in return, enables children with the opportunity to acquire more complex knowledge (Chouinard, 2007; see Ronfard, Bartz, Cheng, Chen, & Harris, 2018, for a review). As children seek for explanations, they also evaluate and act upon the explanations provided in response to their questions. Frazier and colleagues (2009) showed that children accept an explanation that is given in response to their question, when they think that the provided explanation is plausible, and they elaborate more on the topic by asking questions that follow up on the previous ones. On the other hand, when a given explanation is not explanatory, children repeat their original question, and even attempt to give their own explanation (For reviews, see Harris et al., 2018; Ronfard et al., 2018.).

In addition to being curious, children are also careful learners. It has been documented that children are selective when learning from others. Using by-now well-established selective trust paradigm, Koenig and colleagues (2004) explored whether or not children can detect reliable sources of information and whether or not this sensitivity influences their decisions regarding whom to learn from. In their study, Koenig and colleagues (2004) showed 3- to 4-year-old children videos of two

adults, one labelling a familiar object correctly and one incorrectly. Upon observing informants labeling the familiar object, children were asked to identify the accurate and the inaccurate informants. Then, children observed these two informants labelling an unfamiliar object (i.e., a mido or a toma). Subsequently, children were asked to state which of the informants labelled the object correctly and what that unfamiliar object was called. Results of the study demonstrated that children were capable of identifying the accurate informant and favored the label provided by the reliable informant, who had previously labelled familiar objects correctly (Koenig et al., 2004).

Building on the findings of Koenig and colleagues (2004) and adapting their methodology, subsequent research revealed that when children are presented with contrasting information provided by two informants, an important cue children attend is the perceived reliability (i.e., past accuracy) of the informants (Koenig et al., 2004; Koenig & Harris, 2005). This tendency is so robust that children can track which of the informants is more reliable (Pasquini et al., 2007), and make learning decisions on the basis of informant's previous reliability even after a week (Corriveau & Harris, 2009a). Having reliable informants seems to be quite important for children; however, they do not always have the opportunity to directly assess the reliability of an informant. In these cases, they look for other indirect cues about reliability that might guide their decisions regarding whom to learn from (Aldan & Soley, 2019). To exemplify, an informant's likely expertise on the relevant subject can be considered as a way to evaluate whether or not an informant provides reliable information (e.g., Landrum, Mills, & Johnston, 2013; VanderBorghet & Jaswal, 2008). For instance, when learning about toys, children tend to choose peers over

adults as informants, whereas, they prefer adult informants when learning about foods (Vanderborgh & Jaswal, 2008).

Social attributes of the potential informants also influence children's learning decisions. Using a paradigm similar to Koenig and colleagues (2004), Corriveau and Harris (2009b) showed that when children observe familiar and unfamiliar teachers provide contrasting labels for a novel object, children prefer to endorse the label provided by the familiar teacher (Corriveau & Harris, 2009b). Additionally, children trust some informants more than others on the basis of their social group affiliation (e.g., Elashi & Mills, 2014; Kinzler et al., 2011; Macdonald et al., 2013). Kinzler and colleagues (2011) showed children two informants, one of whom spoke either with a native accent and the other spoke with a foreign accent. These informants demonstrated children how a novel object worked. Upon observing these two informants, children were asked how the novel object worked. Results revealed that children preferred to endorse the way native accented informant operated the object (Kinzler et al., 2011).

1.2 Children's teaching

Teaching has been previously referred to as the flipped image of learning except the fact that teaching is the product of an intentional effort to guide a mental state change in the other parties (Strauss & Ziv, 2012; Strauss, Ziv, & Stein, 2002). Strauss and colleagues (2002) argue that teaching is special for several reasons. First, even though many different forms of social learning appear to be shared by different species, teaching is the only form specific to humans and shared by all human societies regardless of their culture (Gergely & Csibra, 2006; Kline, 2015; Strauss et al., 2002; Tomasello et al., 1993). Second, teaching as an ability is naturally inherent

in humans, in other words, everybody knows how to teach but almost no one is instructed on how to teach (Strauss et al., 2002). Third, among all the different types of social interactions, teaching can be considered as a “specialized kind of social interaction” (p.1476) with a specific aim –displaying an intentional effort to meet the learner’s needs (Strauss et al., 2002). Further, although teaching seems to focus on facilitating learning, learning may or may not occur as a result of teaching. The teacher still engages in teaching regardless of its consequence. In that respect, human teaching has no immediate pay-off for the teacher (Caldwell, Renner, & Atkinson, 2018).

Children engage in teaching early in life and their teaching ability improves drastically as they get older (Strauss & Ziv, 2012). After their first birthday, infants are able to identify individuals who know less (Lizskowski et al., 2006; O’Neill, 1996), and display a rudimentary form of teaching: Infants, upon observing an adult looking for an object, inform the adult about the place of the object by pointing to it (Lizskowski, et al., 2006; 2008). Between the ages of 3 and 6, children’s understanding of the concept of teaching advances. Children begin reasoning that teaching is an intentional behavior that aims to cause a change in the learner’s knowledge (e.g., Jeong & Frye, 2018; Ziv, Solomon, Frye, 2008). Children reason that individuals do not need instruction equally, and recognize that teaching occurs in cases where one of the involved parties is less knowledgeable than the other (Ziv & Frye, 2004). At around the same age, children begin engaging in practicing teaching (e.g., Howe, Della Porta, Recchia, & Ross, 2016; Kim et al., 2016; 2018; for a review, see Strauss & Ziv, 2012). In a study conducted by Strauss and colleagues (2002), 3- to 5-year-old children were asked to demonstrate how to play a novel game to an individual who did not have prior knowledge of the game. Young

children's teaching depended heavily on demonstration (i.e., they performed the necessary moves to play the game) and they rarely provided explanations along with their demonstrations. Older children's teaching, on the other hand, was focused on explaining how the game was played by referring to the game rules (Strauss et al., 2002). In another study, 5- to 6-year-old children engaged in longer teaching episodes, provided explanations along with demonstrations, they identified mistakes -when any occurred- and strived to correct them in addition to developing compensatory strategies (e.g., they reminded the rules) to facilitate learning of the ignorant recipient (Davis-Unger & Carlson, 2008a; 2008b). By the time they start primary school, children's teaching is assumed to become adult-like (for a review, see Strauss & Ziv, 2012).

As children are selective in learning, there are reasons to expect them to be selective in teaching. First and foremost, teaching requires effortful engagement from both the teacher and the learner (Burdett et al., 2017; Fogarty, Strimling, & Laland, 2011). In their review, Burdett and colleagues (2017) argue that there is a cost associated with teaching on the account of both parties: Learners benefit greatly from instruction; however, accessing a competent teacher might be challenging if there is no social (e.g., belonging to same social group) or biological relationship (e.g., kinship) between the teacher and the learner. As an example, the authors mention a Hawaiian fishing community in which sharing information regarding the areas where fish are abundant with only members of their family is the common practice (Kamakau, 1976, as cited in Burdet et al., 2017). While teachers might use teaching instrumentally to be prestigious members of a community who have access to different resources, to be so, they need to commit both their time and effort into this process. As a result, the authors suggest that benefits of teaching can be maximized

when the cost associated with teaching can be minimized through either restricting teaching among close relationships (e.g., kins or cultural groups) or doing a cost-benefit analysis (Burdett et al., 2017). Accordingly, the teacher should selectively choose the most relevant set of knowledge and skills for the learner, and consider how much the learner will benefit from the information to be transmitted (e.g., Bridgers et al.; Gweon et al., 2014; Gweon, Shafto et al., 2014). Also, the teacher should evaluate whether or not providing instruction is the only efficient way of transferring the knowledge to avoid this costly investment (e.g., Bridgers et al., in press; Gweon et al., 2014; Ronfard, Was, & Harris, 2016).

Previous research reveals that children's knowledge transmission is indeed selective. Children appear to have some ideas regarding what should be taught and to whom. Starting from 3 years, children are sensitive to the difference in knowledge levels between a teacher and a learner, and expect that the unequal distribution of knowledge should be compensated for by directing teaching efforts to the less informed individual. In a study conducted by Ziv and Frye (2004), 3- to 6-year-old children heard several stories related to teaching. In these stories, participants were introduced to one adult and two children. The adult and one of the children knew how to do that certain thing (e.g., how to write, how to count, etc.), whereas the other child did not. Participants were asked which of the children should be taught, for instance, how to write by the adult. Children expected the adult to teach the ignorant child rather than the knowledgeable child.

When children themselves teach others, however, their teaching is not always directed at the less informed learner. A study by Kim and colleagues (2016) found that children never shared information with individuals who knew less. In their study, 3- to 6-year-olds saw two individuals that differed in their knowledge about

familiar objects (i.e., one was accurate whereas the other one was inaccurate). Subsequently, children were requested to inform one of these two individuals about the label of a novel object that was known by the child but was unknown to either of the recipients. The results revealed that children almost always chose to share information with the individual who displayed knowledge in previous encounters (Experiments 1-2). Children's reasoning for informing the previously knowledgeable person remained same when they were asked to whom another person would teach, in a third-party context (Experiment 3). Further, in cases where the knowledgeable person explained that she already knew the information that was to be taught, children still wanted to teach the knowledgeable individual (Experiment 4) (Kim et al., 2016). In a later study by Kim and colleagues (2018), children's selective learning and teaching behaviors were compared cross-culturally. Four- to 6-year-old Japanese and German children were shown an opaque box containing several objects. Later, children were introduced to two puppets, one of whom knew what the box contained whereas the other did not. Children were then asked which of the puppets they should tell what the box contained. Findings showed that 6-year-old Japanese children selectively taught the puppet who did not know what the box contained; however, this was not the case with the German children and younger Japanese children, who preferred to teach the puppet who knew what was inside the box. Together these findings present a complicated picture that is not compatible with the earlier research suggesting that children would reason that people who know less should receive instruction from knowledgeable individuals, thus, direct their teaching to the ignorant individuals (Ziv & Frye, 2004). According to the authors (Kim et al., 2016; Kim et al., 2018), one explanation for these findings might be that children reason differently when they receive information from others compared to

when they give information to others. In the prior case, children's decisions might be governed by an epistemic concern to receive the most useful and accurate information which, in return, saves them from engaging in a costly yet inefficient learning process with an outcome of receiving incorrect information from an inaccurate informant. In the latter case, however, children might reason that putting effort into informing an ignorant individual might not be cost efficient on their account. Thus, they might choose to inform already knowledgeable recipients with a motivation to form connections with them because they seemed competent and might reciprocate by providing useful information in potential forthcoming encounters (Kim et al., 2016; 2018). On the other hand, it should be noted that older Japanese children's choice for ignorant individuals as recipients is parallel to the existing findings (e.g. Ziv & Frye, 2004). Kim and colleagues (2018) argue that, in Japanese culture, which is a close-knit, collectivist culture, teaching might be viewed as prosocial behavior in the form of helping. In relation with this, as children get older, they might have witnessed situations in which individuals teach each other to help. To summarize, these findings suggest that children have certain assumptions about what teaching is, and whom it should be directed to (Kim et al., 2016; Kim et al., 2018; Ziv & Frye, 2004). While children view knowledge gap as an important criterion for teaching, in third-party contexts (Strauss et al., 2002), this criterion alone does not always guide their own teaching behaviors (Corriveau, Ronfard, & Cui, 2018; Ronfard & Harris, 2017).

When teaching, it is important to prioritize some information over the others because instruction may not be needed for the transfer of all information. Further, even in cases when instruction is needed, one might still need some criteria to evaluate the priority of the information to be taught before spending time and effort

to transfer it (Bridgers et al., in press). In addition to whom they teach, children are also selective about what information to teach. For instance, children decide not to teach if the information to be transmitted can be acquired through exploration (Ronfard & Harris, 2017). In a study by Ronfard and colleagues (2016), children saw a novel puzzle box containing some treats in it and could be opened in several ways. Children were either directly taught a method to open the box or were given the chance both to explore the box on their own and to receive instructions to open the box with different methods varying in difficulty. Subsequently, children were invited to teach how to open the box to a novice. In both cases, children chose to teach the method they learned through instruction; however, if children had a chance to explore the box on their own, they preferred to teach the methods that they were taught only in cases where acquiring this method was difficult during self-exploration (Ronfard, Was, & Harris, 2016). Further, children reason about the efficacy of teaching by evaluating both the difficulty of learning the information without instruction and the outcome associated with learning that information. In a series of experiments by Bridgers and colleagues (2019), 5- to 7-year old children were introduced to two novel toys that had six different versions in which the difficulty of functioning (i.e., cost [e.g. varying from easy to very difficult in four levels]) and the outcome of functioning, (i.e., reward [e.g., cool vs. dull]) were varied. Children reasoned that when one of the toys was difficult to self-discover whereas the other was not, the difficult toy should be taught; and when one of the toys had a cool outcome whereas the other did not, the cool toy should be taught. However, when difficulty and outcome were pitted against each other, difficulty seemed to triumph outcome in guiding children's teaching decisions (Bridgers et al., in press).

In addition to hard-to-acquire information, Ronfard and Harris (2017) argue that, when teaching, children might also prioritize information that can be generalized over specific information. Even though there has been no study that directly tested whether children would prefer to teach generalizable information over specific information, Gelman and colleagues (2013) found that 5- to 6-year-old children associate generic information with pedagogical contexts and use more generic expressions when they were requested to pretend as the teacher.

Finally, socially relevant information such as social norms (e.g., game rules) and conventions (e.g., artifact use or rituals) seem to be another frequently transmitted type of information among children (Ronfard & Harris, 2017). Children are careful when observing their social environment and sensitive to the social norms that regulate their actions given in a social context (Rakoczy & Schmidt, 2013; Schmidt & Tomasello, 2012). Children readily learn and follow social norms like rules of games. Even when the existence of the rules is not made explicit, children, just by observing another individual performing an action, can reason that there must be some rules that regulate how these actions are performed (Schmidt, Butler, Heinz, & Tomasello, 2016). Further, children often contribute to the establishment of novel norms. In their study, Göckeritz and colleagues (2014) constructed a novel version of a marble run game. The set-up of the marble run was designed in such a way that, in order to successfully complete the game each player had to accomplish a specific task in coordination with other players. Five-year-old children in groups of three were introduced to the marble run and were told that the aim of the game was to put marbles into the red box. Children were then left alone to play the game. The same procedure was repeated for three days. On the third day, one child from the group was randomly chosen and grouped with two other novices to play the game. Children

not only came up with novel rules about how to play the game, but they also transferred these rules to the naïve players by using normative language (Göckeritz, Schmidt, & Tomasello, 2014). In another study, conducted with younger children, Rakoczy and colleagues (2008) presented 2- to 3-year-olds with a novel object and showed children two novel actions: one of the actions was framed as a game by using a novel verb (i.e., daxing), and the other action was framed as a mistake that occurred by accident while playing the game. Later, when a naïve puppet came and performed the action that was identified as a mistake after claiming that s/he was going to play the game (i.e., when the puppet said it was going to dax), children criticized the puppet, corrected its mistake and taught how to correctly “dax”; however, this did not happen when the puppet performed the same action in a more neutral context, such as when the puppet said that s/he was going to show something, instead of playing the “daxing” game (Rakoczy, Warneken & Tomasello, 2008). In addition to social norms (e.g., game rules), children also transmit information about conventions like artifact functions and rituals (Ronfard & Harris, 2017). Previous research shows that children have normative expectations about how artifacts should be used, and they oppose when these artifacts are used in an unconventional way (e.g., Siegel & Callanan, 2007; Wheaterhead & Nancekivell, 2018; Wohlgeleitner, Diesendruck, & Markson, 2010). In one study, Casler and colleagues (2009) introduced both familiar and novel artifacts to children and showed how to use these artifacts in an appropriate way (i.e., using a CD to play music). Later, a puppet who was not present in the room during the experimenter’s demonstration was introduced and children observed this puppet using one of the artifacts in an inappropriate way (i.e., using a CD to dig in the sand). Results showed that children immediately protested the puppet’s way of using the artifact by criticizing him for using the

artifact in the unconventional way and by giving him away due to his incorrect use, and tried to inform the puppet about how the artifact is used correctly (Casler et al., 2009). Finally, in a recent study by Clegg and Legare (2016), children observed a demonstrator who either spoke in an instrumental way (e.g., “I will make a necklace, look what I will do”) or in a conventional way (e.g., “I always do this necklace this way, and this is how everybody does it”) while performing an action sequence to make a beaded-necklace. This sequence included some ritualistic components (e.g., touching the bead to the forehead before putting it through the string) that were unrelated to the end goal (i.e., to make a necklace). When children were requested to teach how to make the necklace to a novice learner, children who observed the demonstrator that spoke in a conventional way, were more likely to teach the action sequence compared to children who observed the demonstrator that used an instrumental language (Clegg & Legare, 2016).

Children’s selectivity in teaching based on the type of information emerges quite early. For instance, 24-month-old toddlers were found to be selective about which information to transmit. They chose to enact a novel action to a naïve learner immediately upon observing the action presented in a pedagogical (i.e., through eye-contact and infant-directed speech) rather than in an intentional way (e.g., without eye-contact) (Vredenburgh, Kushnir, & Casasola, 2015). However, findings of a recent study challenged this result: When the presentation of the action (pedagogical vs. intentional) and the complexity of the actions (simple vs. complex) were pitted against each other, 2-year-olds preferred to teach a naive learner the action that was simple regardless of how the action was presented previously (Experiment 1). In the second experiment, the researchers matched the execution complexity of the action with the presentation mode (i.e., two simple/complex actions presented either

pedagogically or intentionally), and contrary to Vredenburg and colleagues' (2015) findings, toddlers chose to teach the simple action regardless of whether it was presented pedagogically or intentionally (Bazhydai, Silverstein, Westermann, & Parise, under review).



CHAPTER 2

THE CURRENT STUDY

The current study aims to understand the role of the information type and the group affiliation of potential recipients in guiding children's decisions to inform others. From earlier in life, children have a nuanced understanding of different social groups (Plötner, Over, Carpenter & Tomasello, 2016), use several cues to identify these differences and demarcate their social environment (e.g., Aboud, 1988; Baron & Dunham, 2015; Shutts, Roben, & Spelke, 2013). Children are sensitive to both natural groups such as gender and age (e.g., Shutts, Banaji, & Spelke, 2010) and minimal groups that are constructed on the basis of a previously defined criterion such as T-shirt color (e.g., Bigler, Jones, & Lobliner, 1997; Dunham et al., 2011). This sensitivity also influences their social preferences and their learning. For instance, children exhibit preferences for ingroup members (e.g., Dunham et al., 2011; Dunham & Emory, 2014; Plötner, Over, Carpenter, & Tomasello, 2015; Richter, Over, & Dunham, 2016; Yang & Dunham, 2019), evaluate them more positively (e.g., Bigler et al., 1997; Dunham et al., 2011), affiliate more with them (e.g., Plötner et al., 2015), help and distribute more resources to them (e.g., Dunham et al., 2011; Plötner et al., 2015), and prefer to learn from them (e.g., Hetherington et al., 2014; MacDonald et al., 2013). Thus, one might expect that this sensitivity to group affiliation affects children's teaching such that children would prefer to inform ingroup members rather than outgroup members (Corriveau et al., 2018).

Prior studies also show that children associate social groups with cultural knowledge. Human species, as much as being social, are also cultural. Culture is defined as “the set of attitudes, values, beliefs and behaviors shared by a group of

people, but different for each individual, communicated from one generation to the next” (Matsumoto, 1996; p. 16) and it is evaluated as an element that differentiates social groups from one another (Hofstede, 1991). Historically, people living together as a group have created and passed down their culture such as knowledge and practices about norms and conventions, rituals, artifacts, literary and musical texts as well as sets of specific skills across generations. Children are born into social groups, and they must acquire and transfer their cultural knowledge for successful adaptation to their immediate surrounding. Diesendruck and Markson (2011) argue that from early on, children understand the conventional nature of culture. Children have basic presumptions that some individuals might know some information better than the others; hence, if individuals belong to the same cultural community, they are more likely to have certain information and behave in line with what is expected of them (Diesendruck & Markson, 2011). In line with these arguments, recent evidence suggests that preschool-aged children anticipate that people belonging to the same social category are more likely have common knowledge (Plötner et al., 2016). Children expect members of the same linguistic ingroup to know the same songs (Soley & Aldan, 2018) and they generalize cultural knowledge (i.e., songs), but not generic knowledge (i.e., facts about animals) across members of novel social groups (Soley, in press). Children also use cultural knowledge as a cue to infer social affiliation among individuals (e.g., Liberman, Kinzler, & Woodward, 2018; Watson-Jones & Legare, 2016; Wen, Hermann, & Legare, 2016), to navigate their learning as well as teaching behaviors (e.g., Casler, Terziyan, & Greene, 2009; Clegg & Legare, 2016; Göckeritz et al., 2014; Oláh, Elekes, Bródy, & Király, 2014; Rakoczy et al., 2008; Schmidt, Rakoczy, & Tomasello, 2012).

If children reason that cultural knowledge and social groups are related to each other, and that cultural knowledge is only relevant to the members of a certain social group, they might transfer knowledge differently to others, depending on the conventionality of knowledge and the group affiliation of the potential recipients. The current research explored this idea by focusing on social-conventional norms (e.g., “One should be silent in the library”) and moral norms (e.g., “One should help another person who needs help”). Two studies asked whether children distinguish between social-conventional norms and moral norms when informing ingroup and outgroup individuals.

From early on, children distinguish between social conventional and moral norms (e.g., Josephs & Rakoczy, 2016; Meriç & Özyürek, 2018; Mulvey, 2016; Nucci & Nucci, 1982; Nucci & Turiel, 1978; Sariçam & Halmatov, 2012; Smetana, 1981; for reviews, see Helwig & Turiel, 2011, Smetana 2013; Smetana, Jambon, & Ball, 2014). Children conceptualize social-conventional events as relating to the social order and organization; whereas they identify moral events as relating to consequences associated with the actions irrespective of the social context, and they respond differently to transgressions of each type of rules (Nucci & Turiel, 1978). Children consider that, in general, breaking moral norms compared to social-conventional norms, is more wrong regardless of its reason and have more serious consequences, and rule-breakers should bear these consequences (Smetana, 1981). Additionally, children reason that transgressing a moral norm would still be wrong, even when there are no rules dictating that it is wrong, or even when there is an authority that posits that it is acceptable to break these norms (e.g., Smetana, 1981; Smetana & Braeges, 1990). On the other hand, children consider social-conventional norms as changeable and that the consequences of transgressions are less serious and

context-specific (e.g., Smetana 1981, Turiel, 1983, see Smetana, 2013 for a review). Children also have different expectations regarding to whom these different kinds of norms apply: they expect social norms to be applicable to only specific community members (e.g., Kalish, 2012) whereas moral norms to be applicable to everyone (e.g., Josephs & Rakoczy, 2016; Mammen, Köymen, & Tomasello, 2018). Children show different reactions when either norms are violated depending on the violators' identity (e.g., Liberman et al., 2018; Mulvey, 2016; Schmidt et al., 2012). For instance, children expect ingroup members to adhere to social-conventional norms such as game rules, and when this is not the case, they protest and endorse social-conventional norms solely on ingroup members (Schmidt et al., 2012). Furthermore, children do not hold outgroup members responsible for conforming to social-conventional norms (Liberman, et al., 2018).

In the current studies, children were assigned to groups based on a minimal cue (i.e., T-shirt color) and were presented with one ingroup and one outgroup individual, both of whom were presented as being ignorant of either a moral or a social-conventional norm. Children were then asked whom they would rather inform about the norm. Finally, children were also asked to give liking ratings for each potential learner. Based on previous studies, children were expected to be more likely to share information with ingroup members compared to outgroup members. Further, this preference was predicted to be more salient when transferring social-conventional norms than when transferring moral norms. Finally, children were expected to display higher liking ratings for ingroup members regardless of their teaching decisions.

2.1 Experiment 1

Previous research has established that assignment to minimal groups elicits ingroup preference in children (e.g., Dunham et al., 2011; Jordan, McAuliffe, & Warneken, 2014; Yang & Dunham, 2019). These studies were all conducted with North American children. The aim of Experiment 1 was to establish that minimal group assignment would yield similar effects such that Turkish children would display higher levels of explicit liking towards ingroup members over outgroup members on the basis of minimal group membership.

Participating children were introduced to two groups of children that were distinguished by the colors of the t-shirts children wore: green and orange. Participants were asked which color they liked more. Upon choosing a color, participants were informed that they now belonged to the group with t-shirts in the color they chose. Following this, participants were shown two groups of unfamiliar children that belonged to the two groups, and they were asked to point to the group they belonged to as well as to the group they did not belong to.

After the group assignment and identification, participants were shown photographs of children wearing orange and green t-shirts and were asked to rate how much they liked each child on the photo on a 5-point rating scale (e.g., Misch, Over, & Carpenter, 2016; Over, Eggleston, Bell, & Dunham, 2018). Based on previous research using similar manipulations (e.g., Dunham et al., 2011; Yang & Dunham, 2019), participants were expected to give higher liking ratings to the members of their own group. Participants received a brief training on how to use the rating scale before proceeding with the rating of the photographs.

2.1.1 Participants

Ethics approval was obtained from the The Ethics Committee for Master and PhD Theses in Social Sciences and Humanities at Boğaziçi University. Participants were recruited from public and private schools in İstanbul and Balıkesir provinces of Turkey. After getting the necessary permissions from school principals and teachers, parents received an informed consent form and a question form including questions about demographic information (See Appendix A, for Turkish version see Appendix B). Children, whose parents gave consent were tested individually in their schools.

The final sample included 24 (13 female), 5- and 6 years old children (Range = 5.04 – 6.58; $M_{age} = 5.59$). This age range was chosen based on previous research suggesting that around this age, children begin making attributions on the basis of minimal group affiliations (Baron & Dunham, 2015; Dunham et al., 2011; Dunham & Emory, 2014).

Data of an additional 8 children were not included in the final analyses, because these children either, failed to correctly identify their assigned group ($n = 3$), did not pass the rating scale training ($n = 4$), or because the child was not fluent in Turkish ($n = 1$).

2.1.2 Materials

For creating the visual stimuli, photographs of 20 female and 20 male children between the ages of 5- to 7 were chosen from existing laboratory database at Boğaziçi University Baby and Child Development Lab. These photographs were rated by eight adults (Age range = 21-31 years; $M_{age} = 24.87$; four females) on the basis of perceived age, positivity, knowledgeability, and friendliness. For both gender groups, the photographs of eight children that received similar ratings from

the adult raters were chosen. These photographs were edited in the same way such that each appeared in front of a white background, they showed upper half of children's bodies, and the t-shirt color was apparent.

Using Microsoft PowerPoint (2016), slides including previously edited photographs were created and these slides were presented on a laptop computer. Previous findings on children's preference for ingroup members in the minimal group paradigm showed that children tend to favor own-gender ingroups more than other-gender ingroups (Dunham et al., 2011). In order to avoid introducing gender as another membership cue, separate slide series were created for each gender.

A five-point rating scale showing face drawings on a happy-to-sad continuum was adapted from previous studies (Dunham et al., 2011; Misch et al., 2016; Over et al., 2018) and used to measure children's social preferences.

One green and one orange t-shirt and along with one green and one orange wristband were used to mark participants' group membership.

2.1.3 Design and procedure

The experimenter invited the child to a quiet room in his/her school where each child was tested individually. The experimenter explained to the child that they were going to play a game; but the game was only played in groups, and she invited the child to look at the groups. The experimenter showed the first slide on a laptop computer. This slide showed four members of the green/orange group who were either all male or all female depending on the participant's gender. The experimenter explained to the child that they were the members of the orange/green group by saying "Look, these children wearing orange/green T-shirt, so they are members of the orange/green group." Then, the experimenter showed the second slide which was

identical to the first slide except that it featured the other group. The experimenter explained to the child that these were the members of the green/orange group by saying “Look, these children wearing green/orange T-shirts, they are members of the green/orange group.” The order of the color presentation was counterbalanced across children.

Once the child was familiarized with the two groups, the experimenter explained to the child that one had to be in a group to play the game and asked him/her which color s/he liked more: green or orange (e.g., Jordan et al., 2014). Once the child chose a color, the experimenter told that if s/he liked color green/orange, s/he should be in the green/orange group. Subsequently, the experimenter gave a T-shirt and a wristband in the chosen color and helped the child to wear these. Then the experimenter showed the third slide which featured members of both groups and asked the child to identify the group s/he belonged to and the group s/he did not belong to: “Which one is your group? Which one is not your group?”

Upon group assignment, the experimenter introduced the 5-point rating scale with drawings of different facial expressions ranging from happy to sad. The experimenter first went over each face and told the child what each of their expressions meant (i.e., the happiest face meaning “Sevdim” / “I liked him/her”, the less happier face meaning “Biraz sevdim” / “I liked him/her a little”, the neutral face meaning “Ne sevdim, ne sevmedim” / I neither liked nor disliked him/her”, the less sadder face meaning “Biraz sevmedim” / “I disliked him/her a little” and the saddest face meaning “Sevmedim” / “I disliked him/her”). Then the experimenter went over all expressions once more in a mixed order and this time asked the child which picture meant which expression, for instance by asking “Can you show me which one means ‘I disliked him/her?’”. If the child accurately matched each expression

with the corresponding picture, the experimenter proceeded to the experimental trials; if not, the experimenter repeated the whole procedure once more. Children who failed to correctly identify each facial expression on both trials still completed the testing phase, however, their data were later excluded.

In the experimental trials, the experimenter showed the participant the photos of children that belonged to the orange or the green group one by one, and asked the participant to rate how much s/he liked the child on the scale that they were introduced before. Children's responses were recorded in the order that the expressions were presented on the rating scale (i.e., expression matched with I liked him/her = 1, expression matched with "I did not like him/her" = 5), these ratings were later reverse-coded and scored between 1-5, with higher scores indicating more liking.

For the liking ratings, the t-shirt color of the first child shown was counterbalanced across children. Additionally, the matching of the t-shirt colors to photos of children were counterbalanced across children, such that each child photo was presented wearing both orange and green t-shirts. The group membership of the target children varied in "ABBABAAB" order across trials. Participants received eight trials.

In both studies, the experimental session was recorded with a portable camera. A second coder checked all recorded videos for potential mistakes in online coding as well as experimenter bias.

In all experiments, at the end of the experimental session, participants received stickers as thank-you gifts.

2.1.4 Results

For statistical analyses, IBM Statistical Package for the Social Sciences (SPSS) was used. Participants' liking ratings were averaged across four trials, separately for trials with ingroup and outgroup members. Then, a mixed Analysis of Variance (ANOVA) was conducted on children's ratings with the group membership of the target (ingroup vs. outgroup) the within-subjects variable and the participant gender (male vs. Female) as the between-subjects variable. Results revealed a significant effect of targets' group membership such that participants gave significantly higher liking ratings for ingroup members ($M = 3.83$, $SD = 0.66$) compared to outgroup members ($M = 3.18$, $SD = 0.758$), $F(1, 22) = 7.36$, $p = .013$, $\eta_p^2 = 0.25$). There was no significant effect of participant gender, $F(1, 22) = 0.195$, $p = .066$, $\eta_p^2 = 0.009$) and no significant interaction between targets' group membership and gender, $F(1, 22) = 0.476$, $p = 0.50$, $\eta_p^2 = 0.02$ (See Figure 1).

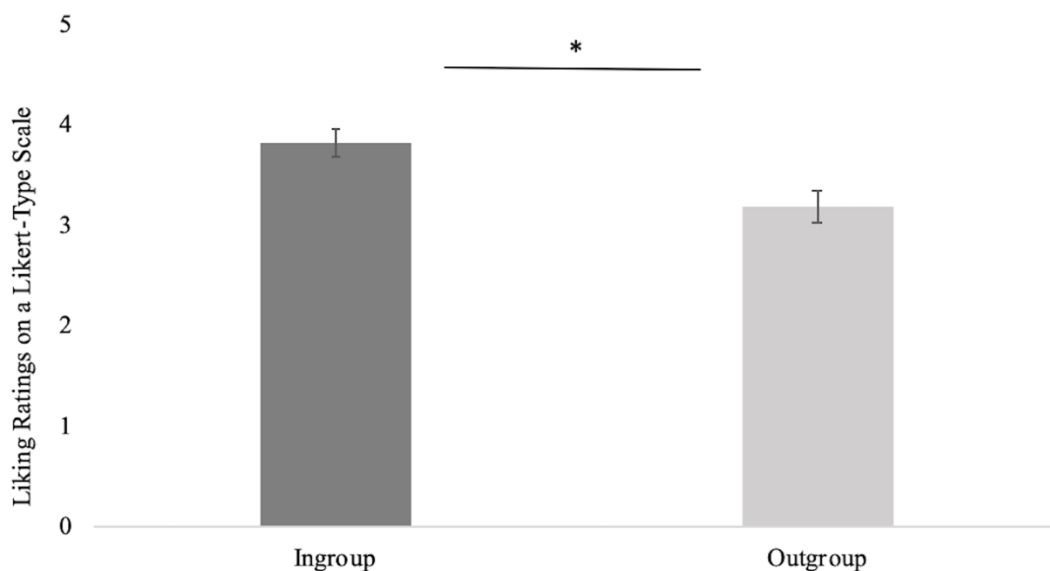


Figure 1. Children's average liking ratings for ingroup and outgroup members. Error bars represent standard errors, * = $p < 0.05$

Using a minimal group paradigm, Experiment 1, thus, showed that children gave significantly higher liking ratings to individuals that belong to the same social group as themselves. Thus, the minimal group manipulation successfully led children to exhibit group preference in line with the previous research (e.g., Dunham et al., 2011).

Building on this finding, the next experiment explored whether children would selectively teach ingroup members, and whether such a tendency would differ depending on the nature of the information to be transferred. For this, knowledge of social and moral norms were contrasted. The rationale behind this contrast was to understand whether children would choose to transfer knowledge to recipients depending on its relevance. Children at this age perceive social norms, but not moral norms as group-specific (e.g., Liberman et al., 2018; Mulvey, 2016; Schmidt et al., 2012). Accordingly, children might transfer social norms selectively to own-group members, however, even though children prefer ingroup members, they might teach others indiscriminately, that is regardless of what group they belong to, when the information to transfer is not group-specific (e.g., moral norms). Alternatively, children's knowledge transfer might not be affected by the type of knowledge. Given that children prefer ingroup individuals, they might also prefer to transfer both moral and social norms to individuals from their own group. These possibilities were explored in Experiment 2.

2.2 Experiment 2

Experiment 1 showed that children readily adapt to the membership of their newly assigned minimal group based on their color preference and display higher liking for the members of their own group. In Experiment 2, participants were assigned to

minimal groups in the exact same way as in Experiment 1. Then, participants were introduced to either a social-conventional norm (e.g., “One should be silent in the library.”) or to a moral norm (e.g., “One should help another person who needs help.”) and were presented with two target children differing in their group membership. The experimenter stated that neither of the target children knew about this particular norm to eliminate the assumption of knowledge gap between the recipients (Ziv & Frye, 2004). Participants were asked whom they would like to teach this rule: same group member, different group member, or both.

Following this, children were trained on the rating scale and were asked to rate how much they liked each of the eight potential recipients as in Experiment 1.

2.2.1 Participants

As in Experiment 1, parents received an informed consent form and a question form including questions about demographic information. In addition, the parents were also sent a list of social-conventional and moral norms and were asked to indicate whether or not their child was familiar with each of these norms. These questionnaires were later used to determine which norms to include in the teaching task (see Appendix C, for Turkish version see Appendix D).

The final sample included 64 ($n = 32$ per condition, 34 females) 5 and 6 years old children (Range = 5.08 – 6.58 $M_{age} = 5.88$). Data from an additional 12 children were not included in the final analyses, because these children either, failed to correctly identify their assigned group ($n = 2$), did not pass the rating scale training ($n = 9$), or due to experimenter bias ($n = 1$).

2.2.2 Materials

Materials used for introducing children to the groups and assigning them to one of them, as well as for measuring children's social preferences were identical to Experiment 1.

For the teaching task, the photographs with the most similar ratings on perceived age and positivity were matched into eight same-gender pairs. The photos in these pairs were rated once more by seven adults (Age range = 21-26 years; $M_{age} = 22.57$; four females) on the same dimensions. The ratings remained similar and these photograph pairs were retained as the final stimuli. These photographs were then arranged into four PowerPoint slides, separately for each gender. On each slide, photos of two children, one from the orange group and one from the green group appeared side by side in the middle of the screen. Along with each slide, either a social-conventional or moral norm was presented to the children by using norm cards (See below).

Norm Cards: The norms used in this study were chosen from a pool of norms that were used in previous studies on children's understanding of moral and social-conventional norms (Josephs & Rakoczy, 2016; Lahat, Helwig, & Zelazo, 2012; Liberman et al., 2018, Nucci, 1977 as cited in Turiel 1983, p. 59; Smetana, 1981; 2013). For each norm type (i.e., social and moral), six norm cards were prepared, each with a black and white drawing depicting the norm written on the card.

2.2.3 Design and procedure

The procedure was identical to the Experiment 1, except as follows: After children were assigned to groups, children were randomly assigned to social-conventional norm or moral norm condition. Children were always presented with norms that they

were familiar with. All participating children were reported to be familiar with at least four of the norms in the condition they were assigned to (social-conventional or moral). The experimenter chose four of the norm cards, based on children's familiarity with the norms, as reported by their parents. In cases when the child was reported to be familiar with more than four norms, the four norm cards were randomly chosen.

Participants were shown a norm card describing either a certain social/conventional or moral norm, and were asked: "You know that one should be silent in the library, don't you?". After the participant's response, the experimenter showed the participant the first pair of children, one from each group by pointing and said: "These children don't know that one should be silent in the library. Whom would you like to teach that one should be silent in the library? To the one from the orange group, to the one from the green group, or to both?" Once the participant made a choice, the experimenter proceeded to the next trial featuring a different norm and a novel pair of children.

During the teaching phase, pairs always remained together; but appeared in different orders across children. The appearance of pairs on the screen and the t-shirt color of the child on the left of the screen varied in "ABBA" order across conditions. Additionally, the matching of the t-shirt colors to photos of children was counterbalanced across children, such that each child photo was presented wearing both orange and green t-shirts. The norm cards used differed for each child depending on the child's familiarity with the norms. The norms that were reported as being unfamiliar to participating children were discarded and four of the remaining norms were used and were presented in random order. Participants received four teaching trials, each featuring a different norm.

Following the teaching task, participants were presented with each child one by one and rated how much they liked each child as in Experiment 1. The stimuli, procedure and the design of this phase were identical to Experiment 1.

Participants' choices were coded as "Ingroup", "Outgroup" or "Both" by the experimenter as the experiment proceeded.

2.2.4 Results

Teaching: Children's categorical choices across four trials were recorded for each trial separately for each condition. A preliminary analysis including participant gender as a factor did not yield any significant main effect of (Wald $\chi^2 = .714$, $df = 1$ $p = .4$) or interaction with gender (Wald $\chi^2 = 2.704$, $df = 1$ $p = .1$); therefore data were collapsed across gender. The relationship between children's choices and the type of knowledge was modelled through Generating Estimation Equations command in SPSS by entering Choice (ingroup, outgroup, both) as the outcome variable, Norm Type (social-conventional vs. moral) as the fixed factor and Participant as the random factor to control for repeated measures to a multinomial logistic regression analysis. The analysis revealed that participants' choices could be predicted by the Norm Type (Wald $\chi^2 = 6.71$, $df = 1$ $p = 0.01$, OR = 2.26), suggesting that children's choices differed depending on whether they were tested in the social-conventional or the moral norm condition.

In order to understand how children's teaching choices differed across conditions, participants' choices were averaged across four trials, separately for the social and moral norm conditions. Children's choices (i.e., ingroup, outgroup, both) were compared across conditions by using three one-way ANOVAs. In all comparisons Holm-Bonferroni sequential correction was used to adjust critical p-

values (Gaetano, 2013; Holm, 1979)¹. Children chose to inform ingroup members more in the social-conventional norm condition ($M = 2.00$, $SD = 1.22$) compared to moral norm condition ($M = 1.25$, $SD = 1.22$, $F(1,62) = 6.06$, $p = .017$, $\eta_p^2 = .089$). Children's choices of outgroup members did not differ across the social-conventional ($M = 0.69$, $SD = 0.74$) and the moral norm conditions ($M = 0.63$, $SD = 0.87$), $F(1,62) = 0.096$, $p = .76$, $\eta_p^2 = .002$). Lastly, children chose to inform both group members more in the moral norm condition ($M = 2.13$, $SD = 1.39$) compared to social-conventional norm condition ($M = 1.31$, $SD = 1.20$, $F(1,62) = 6.274$, $p = .015$, $\eta_p^2 = .092$)² (See Figure 2).

Finally, average scores for each condition were compared against chance (chance level = 1.33), using two-tailed one-sample t-tests. In the social-conventional norm condition, children chose ingroup members significantly more than expected by chance ($M = 2.00$, $SD = 1.22$, $t(31) = 3.111$, $p = .004$, $d = 0.55$). Children's choice of outgroup members was significantly below chance ($M = 0.69$, $SD = 0.74$, $t(31) = -4.926$, $p < .001$, $d = 0.87$). Children's choices of both members did not differ from chance ($M = 1.31$, $SD = 1.20$, $t(31) = -0.08$, $p = 0.94$, $d = 0.01$).

In the moral norm condition, the average of children's ingroup choices did not differ from chance ($M = 1.25$, $SD = 1.22$, $t(31) = 0.37$, $p = .71$, $d = 0.07$). The average of children's outgroup choices was significantly below chance level ($M = 0.63$, $SD = 0.87$, $t(31) = -4.58$, $p < .001$, $d = 0.81$). Children chose both members significantly more than expected by chance ($M = 2.13$, $SD = 1.39$, $t(31) = 3.25$, $p = .003$, $d = 0.57$).

¹ After Holm's sequential correction is applied, critical p -values for significance criteria are as follows: For "both" comparisons $p_{critical} = .0166$ "ingroup" comparisons, $p_{critical} = .025$, for "outgroup" comparisons $p_{critical} = .050$.

² Separate binomial logistic regression analyses were also conducted to follow up the effect arising from the multinomial logistic regression analysis. These analyses are presented in Appendix E.

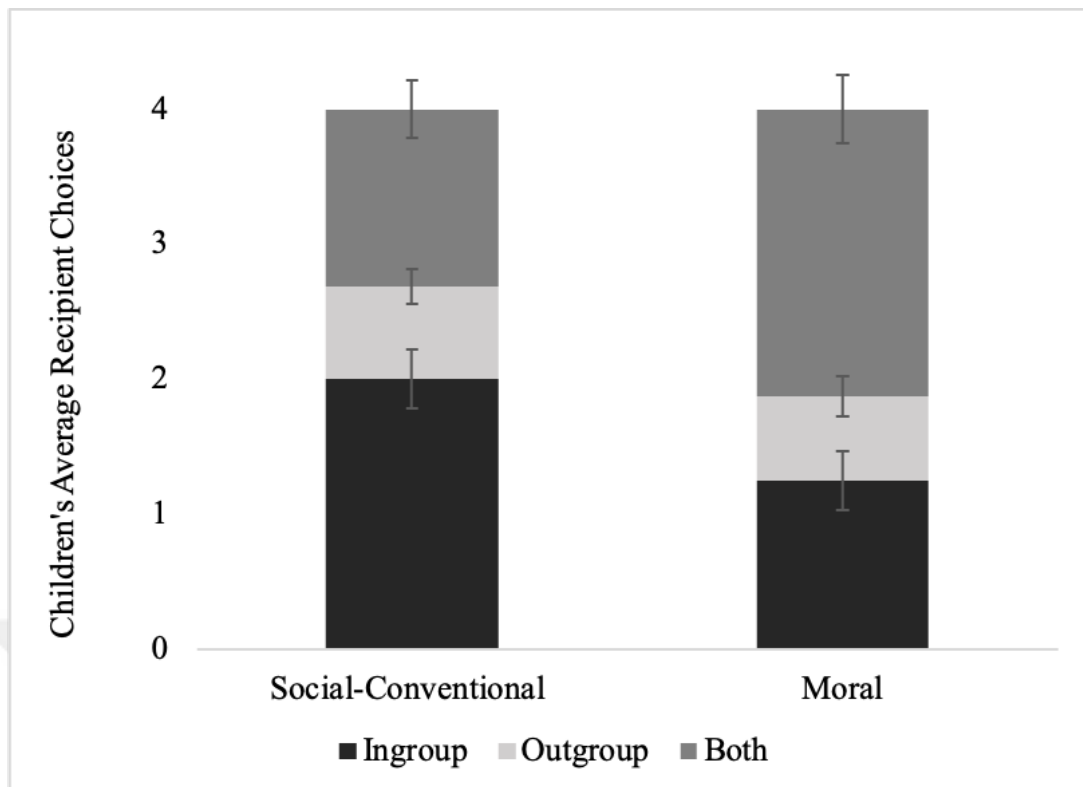


Figure 2. Children's choices of ingroup, outgroup or both members. Error bars indicate standard error.

Liking: Children's ratings of the photographs were averaged across trials separately for ingroup members and for outgroup members. By subtracting ratings given to outgroup members from ratings given to ingroup members, a difference score was calculated for each participant. A preliminary analysis revealed that liking scores did not differ depending on the participants' gender, $t(62) = -.936, p = .35$. Accordingly, the data were collapsed across gender.

Average liking ratings given to ingroup and outgroup members across conditions were analyzed using a 2-by-2 mixed ANOVA with Group Membership (ingroup vs. outgroup) as the within-subject variable and Norm Type (moral vs. social-conventional) as the between-subjects variable. The results revealed a significant main effect of the group membership, $F(1, 62) = 4.81, p = .032, \eta^2_p = .07$,

suggesting that overall children gave higher liking ratings to ingroup members ($M = 3.91$, $SD = 0.89$) compared to outgroup members ($M = 3.58$, $SD = 1.15$) (See, Table 1 for the descriptive statistics for each condition). In addition, there was a significant main effect of Norm Type, $F(1, 62) = 5.57$, $p = .021$, $\eta^2_p = .08$, suggesting that children in the moral norm condition gave overall higher liking ratings ($M = 3.98$, $SD = 0.14$) compared to children in the social-conventional norm condition ($M = 3.51$, $SD = 1.42$). However, there was no interaction between the Norm Type and Group Membership, $F(1, 62) = 1.23$, $p = .272$, $\eta^2_p = .02$.

Table 1. Descriptive statistics regarding children's liking ratings

Conditions	Group Membership	Mean	SE
Baseline	Ingroup	3.83	0.14
	Outgroup	3.18	0.16
Social-Conventional	Ingroup	3.77	0.18
	Outgroup	3.26	0.18
Moral	Ingroup	4.07	0.18
	Outgroup	3.90	0.18

The relationship between teaching and liking: Finally, the relationship between children's social preferences and their teaching decisions was examined. A difference score for each child was calculated by subtracting the average score given to the outgroup members from the average score given to the ingroup members. A correlation matrix was created to examine whether or not children's liking scores were related to their teaching choices (i.e., average number of responses for each option). There was a significant positive correlation between children's explicit liking for ingroup members and their decisions to teach ingroup members, $r(64) = .47$, $p < .001$. Additionally, there was a significant negative correlation between children's explicit liking for ingroup members and their decisions to teach to both

members, $r(64) = -.36, p = .004$ (See Table 2). These findings suggest that children who rated ingroup members more positively, were more likely to chose to teach ingroup members. Further, children who rated ingroup and outgroup members more similarly, tended to chose to teach both members.

Table 2. Correlations between children's recipient choices and ingroup liking scores

	Ingroup	Outgroup	Both	Liking Rating
Ingroup	-			
Outgroup	0.207	-		
Both	0.814***	0.399**	-	
Liking Rating	0.475***	0.150	0.356**	-

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

CHAPTER 3

GENERAL DISCUSSION

Using a minimal group paradigm, the current research explored the role of social group membership in guiding children's decisions about informing of others about social and moral norms. Previous studies using similar methods showed that both adults and children show ingroup preferences by attributing more positive characteristics to ingroup members after being assigned to groups based on arbitrary cues such as T-shirt color (e.g., Bigler et al., 1997; Dunham et al., 2011; Jordan et al., 2014, for reviews, see Dunham, 2018; Otten, 2016). As a first step, Experiment 1 aimed to establish that 5- to 6-year-old Turkish children would exhibit a similar preference to North American children who usually constituted the sample in the studies briefly mentioned above. Children were first assigned to green or orange groups depending on their own color preference and were then asked to rate photos of members of green and orange groups on a scale. Children tended to give higher explicit liking ratings to own-group members compared to other-group members in line with the previous findings (e.g., Dunham et al., 2011).

Building on the results of Experiment 1, Experiment 2 examined how same age children's teaching behavior would change depending on the group membership of the recipients and the type of knowledge to be transferred. In Experiment 2, participants were assigned to color groups as in Experiment 1, and were asked to choose one or both of two target children who differed in their group membership (i.e., one was an ingroup member and the other was an outgroup member) to teach either social-conventional or moral norms. Later, children saw all targets one by one and they indicated how much they liked each target as in Experiment 1. Children

were expected to be more likely to choose ingroup members, and that this preference was expected to be stronger when teaching social-conventional norms compared to when teaching moral norms. Further, in general, children were expected to give higher liking ratings to own-group members compared to other-group members.

The results were largely parallel to our predictions. When children were asked to inform others about social-conventional norms, they were more likely to choose ingroup members. However, when children were asked to inform others about moral norms, they chose to teach both individuals. Further, in both conditions, children evaluated ingroup members as being more likable compared to outgroup members. There was one finding that was somewhat unexpected: Children gave overall higher liking ratings when they taught moral norms prior to giving liking ratings. Based on this finding, we also examined whether there was a relationship between children's liking scores and their teaching choices. The result demonstrated that children who tended to choose to inform ingroup members, gave higher ratings to ingroup members compared to outgroup members. Further, children who were more likely to choose to inform both members, rated ingroup and outgroup members more similarly.

Children learn about different kinds of norms that are available in their social surrounding and their understanding of the nuances between these norms are structured in relation to their interactions with their immediate environment throughout their development (for a review, see Smetana, 2013). As children develop, they learn that norms are important and violations to these norms will have consequences. In line with this reasoning, children expect others to adhere to norms and enforce these norms on others (e.g., Hardecker, Schmidt, Roden, & Tomasello, 2016; Köymen et al., 2014; Rakoczy et al., 2008; Vaish, Missana & Tomasello,

2011). Additionally, children understand that violation of moral norms, compared to social-conventional norms, tend to have more serious consequences (e.g., Nucci & Nucci, 1982; Turiel, 1983). Thus, when they witness individuals breaking moral norms, children's emotional arousal increases (Hardecker et al., 2016), they object to and tattle on the rule-breakers (e.g., Hardecker et al., 2016; Ingram & Bering, 2010; Yucel & Vaish, 2018; Vaish et al., 2011), and they even lie to others to keep them away from breaking moral norms (e.g., Harvey, Davoodi & Blake, 2018). In light of these findings, informing others about norms might be quite important, even necessary, because lacking knowledge of these norms might lead to transgressions of these norms, and children do not seem to favor this. Especially, when moral norm violations -that have the potential to cause harm to others- are concerned, the transmission of norms might be of great importance to prevent others who do not possess this knowledge from causing harm. Thus, children might have preferred not to be selective when teaching moral norms because everybody must abide by these norms, and to do so, one must first know these norms. On the other hand, social-conventional norms are also quite crucial for individuals both for adapting to their social environment and for the continuity and transmission of group culture. Since each group has a different structure in terms of its functioning, and possesses different know-how, new members of a group should specifically be taught about these norms to protect the group structure and culture. This could be one of the potential explanations for children's selectivity in the current study.

On the other hand, children could also be expected to prioritize teaching ingroup members regardless of the domain of the norms, as we also initially predicted. In other words, social-conventional norms might be crucial for the group overall; however, members of a social group also have responsibilities toward each

other. According to several findings in the literature, children appear to reason that members of a social group are obliged not to behave in an immoral way (i.e., to harm) toward each other and this belief remains valid even when there are no external mechanisms such as rules dictating that harming people is wrong, whereas, children display a similar reasoning for outgroup members only in the presence of external rules (Rhodes & Chalik, 2013). Additionally, Chalik and Dunham (2018) found that when novel behaviors such as “wugging” is framed as being moral (i.e., being binding even when there are no explicit rules and being valid universally), children reason that a positively-valenced behavior would aim an ingroup member, whereas a negatively-valenced behavior would aim an outgroup member. One factor that might have contributed to children’s selectivity only in the social-conventional norm condition might be that, in the current study, children did not have to incur the cost of teaching, instead, they indicated their hypothetical teaching decisions with no actual teaching happening.

In terms of children’s liking ratings, findings of the current study were compatible with the previous findings showing that children favor ingroup members over outgroup members as indicated by their higher liking ratings (e.g., Dunham et al., Plötner et al., 2015; Richter et al., 2015). One unexpected outcome of this study was to find that children’s overall liking scores (regardless of the group membership of the targets) increased, when liking ratings were taken after children had informed others about moral norms. Once children were cued with morality, they might have felt more loving towards other individuals irrespective of their social affiliation which, in return, might have led children to give higher scores to outgroup as well as ingroup members. In the current study, there were only ignorant agents who had the potential to violate moral norms due to their ignorance, and once this possibility was

eliminated through teaching these norms to both recipients, children might have adopted a similar stance towards these individuals. Previous findings partially support this argument. In a study by Hetherington and colleagues (2014), even though children initially gave higher ratings scores to ingroup members, their ingroup preference score as indexed by a difference score between average ratings given to ingroup and outgroup members, decreased when they observed an ingroup member behaving in an immoral way. Also, in a recent study, by Schuhmacher and Kartner (2019), while children exhibited higher explicit liking for ingroup members over outgroup members, they evaluated immoral actions of both ingroup and outgroup members equally unacceptable, and reasoned that “bad” actions should face consequences regardless of the transgressors’ identity. A follow up study could explore whether children would give similar liking ratings, if the individuals shown to them are not the same ones as they have taught initially, but new members of the same groups. Nevertheless, these findings suggest that even though children favor ingroup members, when they make judgments about whom to inform, they are able to distance themselves from their social preferences to some degree, and selectively teach others depending on the relevance of the information they transfer.

3.1 Limitations and future directions

The current study has some potential limitations. First of all, in this study, we used minimal groups to avoid introducing other social inferences stemming from children’s prior expectations that might, in return, complicate the interpretation of children’s teaching decisions. Also, we used different types of norms as the information to be transferred with the assumption that children would be able to make relatively unbiased inferences about group membership and knowledge type

when teaching. However, preschool and primary school children are somewhat used to being in arbitrary groups at school while playing with each other or completing a task together. Also, social-conventional norms that were used in this study and other studies that we compiled these norms from, are quite similar to school rules such as waiting one's turn at the cafeteria or being silent at the library. On the other hand, children are exposed to moral norms such as avoiding harming others or others' belongings more frequently and in different contexts. Thus, children might have already been used to mapping the norms that we used as exemplars of social-conventional norms to their immediate social groups such as their class-mates in their school environment. Future studies could investigate whether similar effects would be observed with different sets of social-conventional norms, that children do not necessarily use, for instance, in their school settings.

Second, even though we know that children have different expectations regarding social-conventional and moral norms (for a review, see Smetana, 2013), we do not entirely know what motivated children's teaching decisions. Follow-up studies might ask children to state why they chose the particular individual(s) (i.e., ingroup, outgroup or both) to teach a particular norm (i.e., social-conventional vs. moral).

Third, the procedure in this study differed from the teaching events that children encounter in their daily life such that, in the current study, children faced a hypothetical teaching situation which incurred very little – or no – cost for them, and this is not typical in an actual teaching situation. Thus, the experimental set up might be revised to make the teaching task more similar to real-life teaching experience by using interactive videos or even maybe live demonstrations.

Additionally, the age range at which children were tested was relatively narrow to detect developmental changes. Further studies might address this issue by testing children from a wider age range to understand how their selectivity changes throughout the development.

Finally, in this study, we assume that what elicited children's teaching choices was that both of the potential recipients lacked the information to be transferred. Children's selectivity might differ, for instance, if both recipients still lacked knowledge and this lack of knowledge led them to transgression. Since transgression changes the aim of teaching - i.e., teaching for correction- children might demonstrate a different teaching behavior and selectively teach ingroup members when they teach moral norms with the concern that any potential rule transgression might reflect badly on their groups. Similarly, if children were not provided with any information regarding the knowledge states of the recipients, their teaching behavior might have been selective in favor of ingroup members and this pattern might be observed regardless of the type of information to be transmitted. This selectivity might be anticipated due to the concern that any potential transgression might influence the group prestige, and to avoid this outcome, children might choose to teach own-group members irrespective of the domain of norms.

3.2 Conclusion

The main motivation for this research was to understand the mechanisms involved in how we learn what we know, how this learning process is shaped in relation to different aspects of our immediate social environment and how the mechanisms that govern social learning transcends into the next generations in the more general frame.

Knowledge transmission might be one of the most crucial abilities our species is equipped with. Teaching, as much as learning, is an important part of this transmission process; however, it has attracted much less attention until recently. By now, we know that it is a species-specific capability; but extant in all human societies (for reviews, see Gergely & Csibra, 2006; Kline 2015). Children show rudimentary teaching behaviors starting from age one and their teaching abilities develop and become more elaborate, and by the time they go to school their behavior becomes more adult like (for a review, see Strauss and Ziv, 2012). Finally, they are quite selective in what they teach (e.g., Bridgers et al., in press; Gweon et al., 2014; Ronfard et al., 2016) and in their recipient choices (e.g., Kim et al., 2016; Kim et al., 2018). The aim of this study was to build upon the existing literature on teaching by exploring other factors such as the social group membership and the information type that could potentially influence children's selectivity in informing others. Findings showed that children selectively teach ingroup members when they are to teach social-conventional norms, whereas they teach own-group and other-group members equally when they are to teach moral norms. To our knowledge, this is the first study that investigated the role of abovementioned factors on children's teaching. Future studies should further investigate selective teaching behavior by addressing some of the previously discussed limitations of this research and extend the findings in the literature.

APPENDIX A

DEMOGRAPHICS FORM

Question Form

Participant number:

Parent's age: _____

Parent's gender: F M

Parental education

Primary School Secondary School High School
Bachelor's Degree Master's Degree Doctorate

Your spouse's education

Primary School Secondary School High School
Bachelor's Degree Master's Degree Doctorate

How long it has been since your child started school?

Language Information

Your child's native language(s):

Do you speak to your child with a language/accnt/dialect other than Turkish?

Yes No

If you do so, please indicate (which language/accnt/dialect, by whom and in which frequency):

Does your child see people with from different races of ethnic origins in their daily lives?

Yes No

If yes, please briefly indicate:



Think of this ladder as representing where people stand in Turkey.

At the top of the ladder are the people who are best off- those who have the most money, the most education and the most respected jobs. At the bottom are the people who are the worst off- who have the least money, least education and the least respected jobs or no job. The higher up you are on this ladder, the closer you are to the people at the very top; the lower you are, the closer you are to the people at the very bottom.

Where would you place yourself on this ladder?

Please place a large “X” on the rung where you think you stand at this time in your life, relative to other people in Turkey.

APPENDIX B

DEMOGRAPHICS FORM- TURKISH

Soru Formu

Katılımcı no:

Yaşınız: _____

Cinsiyetiniz K E

Eğitim düzeyiniz

İlkokul Ortaokul Lise Lisans Yüksek lisans Doktora

Eşinizin Eğitim düzeyi

İlkokul Ortaokul Lise Lisans Yüksek lisans Doktora

Çocuğunuz ne kadar süredir okula gidiyor?

Dil Bilgileri

Çocuğunuzun anadil(ler)i:

Çocuğunuzla Türkçe'den başka bir dil, aksan ya da lehçe ile konuşuluyor mu?

Evet Hayır

Eğer konuşuluyorsa lütfen kısaca açıklayınız (hangi dil/aksan/lehçe, kim tarafından ve ne sıklıkta konuşuluyor):

Çocuğunuz günlük hayatında farklı ırk ya da etnik kökenden insanlarla karşılaşılıyor mu?

Evet Hayır

Yanıtınız evetse, lütfen kısaca açıklayınız:



Bu merdivenin Türkiye’de insanların sosyal ve ekonomik olarak bulunduğu konumları temsil ettiğini düşünün.

Merdivenin en üst basamağında sosyo-ekonomik olarak en iyi durumda olan yani en çok paraya, en yüksek eğitim seviyesine ve en saygı duyulan mesleklere sahip kişiler var. Merdivenin en alt basamağında ise sosyo-ekonomik olarak en kötü durumda olanlar yani, en az paraya, en düşük eğitim seviyesine, en az saygı duyulan mesleklere sahip ya da işsiz kişiler var. Merdivende ne kadar üst basamaktaysanız, en iyi durumda olan kişilere o kadar yakınsınız, merdivende ne kadar alt basamaktaysanız, en kötü durumda olan kişilere o kadar yakınsınız demektir.

Kendinizi bu merdivenin hangi basamağına konumlandırırđınız?

Lütfen yaşamınızın bu döneminde Türkiye’deki diğer insanlara kıyasla kendinizi merdivenin hangi basamağında gördüğünüzü, o basamağı büyük bir “X” işareti koyarak belirtiniz.

APPENDIX C

ADDITIONAL QUESTION FORM

Please read the social/conventional and moral norms listed below and mark the norms what you think your child knows or does not know **without asking your child.**

Social/Conventional Norms	Knows	Does not know	I am not sure
One should be silent in the library.			
One should say “Please” when asking something from others and say “Thank you” afterwards.			
One should pick up their toys after playing with them.			
One should follow the rules when playing a game.			
One should wait for their turn while playing at the park or eating at the cafeteria.			
One should get permission from the teacher before speaking in class.			
Moral norms	Knows	Does not Know	I am not sure
One should help another person who needs help.			
One should avoid taking other’s belongings without permission.			
One should avoid harming others on purpose.			
One should avoid calling names and making fun of other people.			
One should avoid harming others’ belongings on purpose.			
One should share their belongings with other people.			

If you think there are other important social-conventional or moral norms that your child knows, please add these below.

APPENDIX D

ADDITIONAL QUESTION FORM- TURKISH

EK SORU FORMU

Lütfen aşağıdaki toplumsal ve ahlaki kuralları okuyarak, çocuğunuzun bildiğini ve bilmediğini düşündüğünüz kuralları **cocuğunuza sormadan** işaretleyiniz.

Toplumsal Kurallar	Biliyor	Bilmiyor	Emin Değilim
Kütüphanede konuşulmamalıdır.			
Bir kişiden bir şey isterken “Lütfen” denmeli ve sonrasında “Teşekkür” edilmelidir.			
Oyun oynandıktan sonra dağıtılan oyuncaklar toplanmalıdır.			
Bir oyun oynarken herkes oyunun kurallarına uymalıdır.			
Parkta oyun oynamak ya da yemekhanede yemek yemek için herkes kendi sırasını beklemelidir.			
Sınıfta konuşmadan önce parmak kaldırarak izin alınmalıdır.			
Ahlaki Kurallar	Biliyor	Bilmiyor	Emin Değilim
Yardıma ihtiyacı olan birine yardım edilmelidir.			
Başkasına ait olan bir şey izinsiz olarak kullanılmamalıdır.			
Başka insanlara bilerek zarar verilmemelidir.			
Başkalarına isim takıp, onlarla dalga geçilmemelidir.			
Bir başkasına ait bir eşyaya bilerek zarar verilmemelidir.			
Sahip olunan şeyler başka insanlarla da paylaşılmalıdır.			

Çocuğunuzun bildiğini düşündüğünüz, önemli gördüğünüz ve aktarmak istediğiniz toplumsal ve ahlaki kurallar varsa lütfen aşağıya ekleyiniz.

APPENDIX E

ADDITIONAL ANALYSES – BINARY LOGISTIC REGRESSIONS

For following up on the effect observed in multinomial logistic regression analysis, children were given three separate scores (Ingroup, Outgroup and Both) on each trial, depending on their choices. If, for instance, a child chose the ingroup member, she would receive “1” for Ingroup, and “0” for Outgroup and Both choices. Separate repeated binomial logistic regression analyses comparing these scores across the two conditions revealed that children’s choices of “Ingroup members” differed across social-conventional and moral norm conditions (Wald $\chi^2 = 5.88$, $df = 1$, $p = .015$, OR = .46), children’s choices of “Outgroup members” did not differ across these conditions (Wald $\chi^2 = .097$ $df = 1$, $p = .76$, OR= .89), and finally children’s choices for “Both members” differed across these conditions (Wald $\chi^2 = 6.17$, $df = 1$, $p = .013$, OR = 2.32).

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