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PEDAGÓGIAI ÉS PSZICHOLÓGIAI KAR

Exploring how preschool-aged children reason about the community-bound nature of cultural conventions

PhD dissertation - Theses

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Introduction

Upon entering the world, children need to learn about a number of different rules and regularities and their complex interrelations in order to competently navigate in their environment. Many regularities—especially the ones that determine how one ought to behave in the social world—are rooted in cultural practices. These are often referred to as *cultural* or *social conventions* (Lewis, 1969). These forms of behavior have a number of unique attributes which make them challenging to learn and understand for children (Lewis, 1969; Diesendruck & Markson, 2011; Rakoczy & Schmidt, 2013). With regards to the content of conventions, these are characterized by a certain extent of *arbitrariness*—which may vary from one form to another. This means that their exact form "could have been different" (Lewis, 1969; Diesendruck & Markson, 2011)—but ended up being a certain form as a result of some processes (such as social agreements or repetition). Moreover, these forms of behavior are characterized by *cognitive opacity*. This means that upon observing someone being engaged in a conventional form of behavior, it is usually not possible to disentangle how the action itself is causally related to the goal.

Another attribute of social conventions is their *prescriptive nature*. This means that these set the standards of appropriateness both in connection with one's own behavior and the behavior of others. Importantly, a proper understanding of this prescriptivity entails that these are applicable in an agent-neutral way to people in equivalent circumstances (Nagel, 1970 in Rakoczy & Schmidt, 2013). (Note, however, there are forms of conventions that are not normative, but could be described as social regularities shared by a community (Lewis, 1969)—such as conventions about clothing.) In addition, conventional forms are *inherently social*: they come to existence through shared assignment and acceptance, and are acquired from social partners—thus, are *conveyed socially*. Relatedly, conventional forms are bound to *certain communities*. In other words, these forms are *context sensitive* and are applicable only within certain contexts. This context may be determined by the number of factors (for e.g., a convention could be tied to a physical location, or to a particular circumstance or community). Thus, the above mentioned prescriptivity has its boundaries. All in all, grasping these properties is necessary in order to have a proper understanding of conventions. In the further sections, we will expand upon children's understanding of the contextually bound nature of conventions, and the fact that these are socially conveyed, since these are the two attributes more specifically related to the questions addressed in the dissertation.

The question of how children come to identify conventional forms of behavior has been addressed in a number of previous investigations. Among other factors, it has been shown that children tend to consider information from certain domains as conventional—such as in the case of artifacts (for e.g Casler & Kelemen, 2005; Casler & Kelemen, 2007; Casler at al., 2009), language (for e.g. Graham et al., 2006; Henderson & Graham, 2005; Diesendruck & Markson, 2001; Diesendruck, 2005) and games (for e.g. Rakoczy, 2008; Rakoczy et al., 2008; Rakoczy et al., 2009; Wyman et al., 2009a, 2009b). Thus, in the case of this type of information, children are likely to believe that these are shared by other people, but only within limits (for e.g., only by members of a cultural community, Schmidt et al., 2012; Diesendruck, 2005). Furthermore, it has been demonstrated that certain cues in the behavior of others may prompt children infer conventionality—for example, if something is demonstrated to them in a communicative context or as an intentional action by others, this seems to signal to children that the observed behavior is the way "things need to be done" (Csibra & Gergely, 2009, 2011; Király et al., 2013; Egyed et al., 2013; Diesendruck & Markson, 2011). Finally, as conventions are conveyed socially, some attributes of others (such as their expertise in the child's culture) may also lead children to consider acts performed by cultural experts as representing conventional knowledge (Diesendruck & Markson, 2011). Indeed, it has been demonstrated in a number of studies that children are more likely to reproduce the behaviors of others if they are adults (Zmyj et al., 2012, Experiment 1; McGuigan et al., 2011; Rakoczy et al., 2010) or if they speak their Native language and thus, presumably, are knowledgeable with regards to the child's own culture (Buttelman et al., 2014; Altınok et al, 2022; Kinzler et al., 2011).

Further questions remain with regards to children's reasoning about conventional information. On the domain of games, it has been demonstrated that children learn rules of novel games quickly and extend these to others (for e.g. Rakoczy et al., 2008; Rakoczy et al., 2009; Rakoczy, 2008). However, one important aspect of novel games is that their stipulations are only known by the players - in other words, these are context dependent (similarly to social conventions). On the one hand, children seem to take this into account and do not extend stipulations to those who do not wish to play (Wyman et al., 2009b) or were not part of the process during which the rules were created (Schmidt et al., 2016). However, one study shows in some cases, children extend pretend game rules to ignorant others (Rakoczy, 2008). This raises the question whether they understand that knowledgeability in these cases is an important aspect when discerning whether a stipulation is applicable to another person. Related studies show that children can adequately follow both their own and others' false

beliefs about pretend stipulations (Hickling et al., 1997). To elucidate these seemingly contradictory findings, we designed a study to further explore how children reason about their partner's knowledgeability with regards to pretend stipulation (*Study 1*).

Furthermore, as mentioned previously, a number of studies have demonstrated that children are more likely to reproduce the actions of cultural experts who speak their Native language (such as Buttelman et al., 2014; Altınok et al., 2022; Kinzler et al., 2011). However, these studies often employ an immediate imitation paradigm, thus, it has not yet been studied how a demonstrator's cultural group membership may impact children's long term memory (*Study 3*). This is an important question, since it could elucidate how information shared by in- or out-group members gets integrated into children's long term semantic memory. In addition, children's memory for sources of their knowledge has not been studied in an intergroup context either. On the one hand, related investigations show that children are able to re-evaluation information learnt from sources who turn out to be unreliable in hindsight (Luchkina et al., 2020; Schütte et al., 2019; Dautriche et al., 2021). This suggests that they are able to identify the relevant persons as sources of their knowledge based on memory processes. Nevertheless, no study has included cultural group membership in a similar study for children. There is one previous study which targeted adults and which has demonstrated that participants show superior source memory performance in the case of in-group members (Greenstein et al., 2016). Thus, a study for children investigating this question would be warranted (*Study 2*).

Theses

Building on these previous findings, in this Thesis, our aim was to explore how preschoolers reason about some aspects of conventions; namely, that these are conveyed socially and are bound to certain communities (context dependence).

1, On the one hand, we propose that three-year-old children grasp the context dependent nature of information that could be considered conventional. Previous studies show that children understand a number of aspects of this context dependence, for example, that game rules are applicable to certain locations and to those who wish to participate in a game (for e.g., Wyman et al., 2009b, Schmidt et al., 2016). Importantly, since pretend stipulations are only known by the ad hoc group of the game participants, children should also limit the applicability of these to knowledgeable others. In *Study 1*, we explored whether children

understand that those not part of a game would not have knowledge about a recent pretend stipulation. We hypothesized that 3-year-old children already consider the constraints of jointly created, ad hoc social rules and will refrain from generalizing knowledge about pretend stipulations to those who did not participate in the pretend game.

2, On the other hand, as conventional knowledge is usually conveyed by other people, one important task in childhood is to identify those who would possess the relevant knowledge with regards to children's own culture. We propose that children are able to identify teachers who may share culturally relevant, conventional knowledge with them, and that this will impact their memory both for the information sources themselves, and for the long term retention of the thus shared information.

Relatedly, in *Study 2*, we explored whether there is a difference in how accurately children remember the source of their knowledge (an adult) depending on the source's cultural group membership. We hypothesized that 4-year-old children could be better at identifying out-group members as sources of novel information, compared to in-group sources. We believe this could be the result of children's tendency to assume that information shared by in-group members is generalizable and universal, which may hinder their performance when it comes to identifying specific others as sources of their knowledge.

In *Study 3*, we aimed to uncover whether children retain more information following some time delay, in case this information was previously demonstrated to them by a member of their cultural community (as opposed to when it was shown by a member of another community). We hypothesized that while 4 year-old children would be similarly accurate in reproducing the actions of adults regardless of their cultural group membership if they were allowed to do so immediately after the demonstrations, they would perform better after a delay in case the teacher is a member of their own group. We assumed this to be the case because previous findings are suggestive that information shared by community members is more likely to be integrated into children's generic semantic knowledge.

Study 1

Study 1 was designed to test whether children grasp that pretend stipulations are only known by those who were part of the game.

Methods

3-year-old children (57 participants, age range: 42-48) participated in 4 games scenarios with two experimenters. From the 4 game scenarios, 2 games included the same object (a key or a pencil) with two different games connected to each, involving two different props (the pencil game either included a pencil sharpener or a matchbox, while the key game included a lock or a small cup). All games were proposed by E1, and constituted pretend play. For example, in the first game connected to the pencil, E1 and the children pretended to sharpen the pencil and draw something on the table. In the second game, the pencil was endowed with the pretend identity of being a match and the game included lighting the match with the help of the matchbox. The games connected to the key had a similar structure (one game connected to the conventional use of the object, while another, connected to a pretend function). The experimental manipulation was whether a second experimenter (E2) observed these games (*E2 Present condition*) or left the room before the first game (*E2 Absent condition*). The study had a within subject design, thus all participants took part in both conditions. Following the two game scenarios with each object, E2 joined the child and E1 (from outside or from another part of the room), and declared it was her turn. She looked at the object (the key or the pencil), and asked for the child's help for a missing prop ("Something is missing! Can you give it to me?"). Children's prop choices were recorded.

Results

Condition had a significant main effect on object choice with a higher proportion of participants choosing the prop connected to the pretend identity in the E2 Present condition (56.14%) compared to the E2 Absent condition (31.58%) (F [1, 112] = 6.706; p = .011) (see Figure 1.). The same effect of condition was present with the comparison of proportions (occurrence of the two prop type choices in the two conditions) using McNemar's test ($\chi2[1]$ = 6.036; p = .014). Thus, children were less likely to select the prop connected to the pretend identity of the object in the E2 Absent condition, suggesting that they refrained from generalizing knowledge about the object's pretend identity to ignorant others.
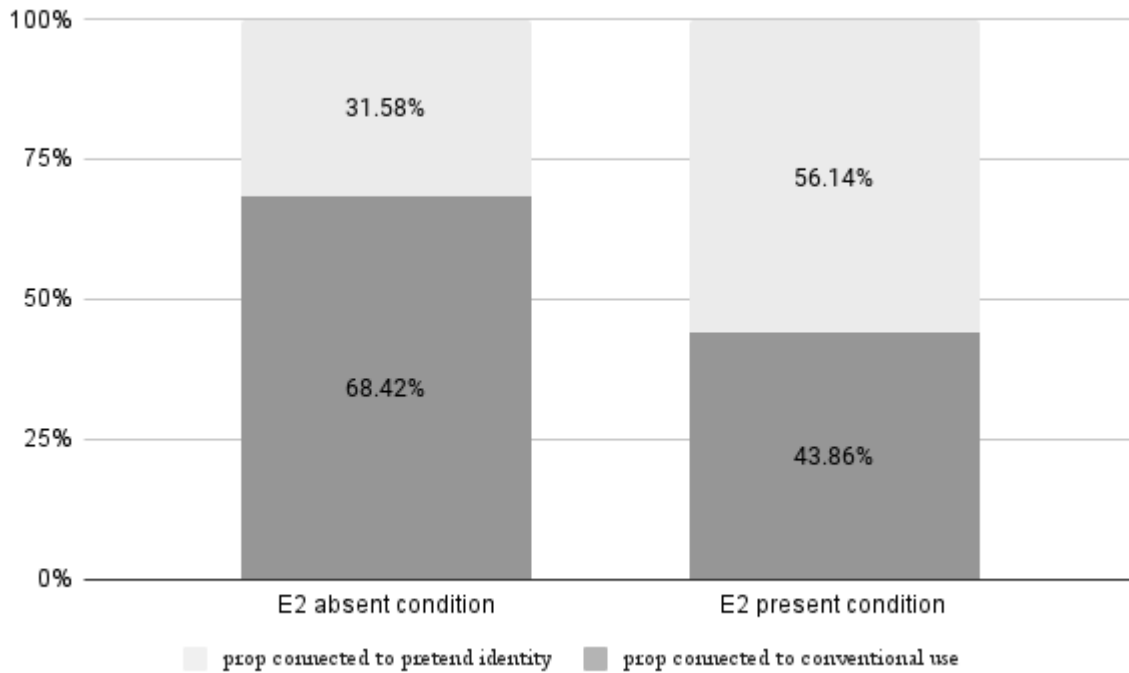
Figure 1. *Proportions of prop type choices in the two conditions*

Study 2

In Study 2, we aimed to explore whether children's external source memory is influenced by the cultural group membership of such sources.

Methods

4-year-old children (63 participants, age range: 48-60; 34 children in the subgroup who passed the manipulation check) participated in an online experiment led by a female experimenter. All participants were tested remotely, via the software called Zoom. During the sessions, children played the games with one female experimenter. First, children got acquainted with four characters, of whom they saw images and short videos. Two of these characters belonged to the cultural in-group of the child (Hungarian speaker, living close by) (*In-group condition*), while two belonged to another cultural group (speaking French, living far away) (*Out-group condition*). Since all participants saw both in-group and out-group members, the study had a within subject design. Following the introduction of the characters, the participants saw 8 short videos of the same characters, performing short actions with

different objects sets. In the first test phase, children were asked to indicate by pointing which characters had shown the objects depicted on the images (8 images in total). In addition to measuring children's memory for the source, we also tested whether they remembered the group membership of each person (4 questions in total). We included those children in the group which passed the manipulation check who indicated the group membership correctly in at least 75% of the cases. During the final phase of the experiment, children's memory for the object sets was also probed in a free recall situation (upon seeing an image of the object, they were asked what it was for; 8 images in total).

Results

When analyzing the source memory performance on the whole sample ($n = 63$), we found no significant main effects or interaction. We also analyzed the effect of condition separately, and found no significant effect ($\beta = -.173$, $z = -.940$, $p = .347$). However, in the case of the smaller subgroup, we found a trend of condition ($\beta = -.446$, $z = -1.775$, $p = .079$). The pairwise comparison has shown that children tended to identify a higher number of sources accurately in the out-group condition compared to the in-group condition (1.73 (0.43 in proportion) and 1.32 (0.33 in proportion) in the out-group and in-group conditions, respectively) ($z = 1.755$, $p = 0.079$) (see Figure 2). Thus, the results show the predicted pattern, but we could not confirm our hypothesis since the difference is not statistically significant.
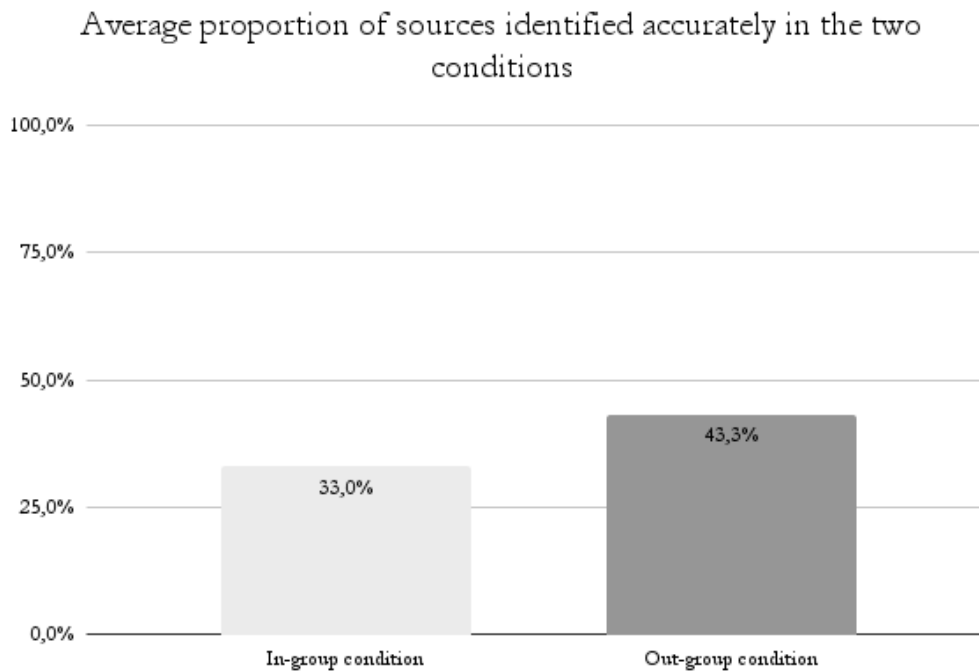
Figure 2. *The pattern of results in the source memory task showing the comparisons between the in-group and the out-group conditions. Showing the subgroup in which the participants passed the manipulation check (n = 34)*

In the case of children's memory for the object sets themselves, while analyzing the whole sample (n = 63), we found a main effect of manipulation check (β = 1.571, z = 2.574, p = *p* = 0.01). Children who passed the manipulation check recalled more information (average proportion = 0.711) compared to those who did not do so (average proportion = 0.460) (z = -2.574, p = 0.01). We also found a trend for condition (β = 0.490, z = 1.829, p = 0.067). In addition, children tended to recall recall more information about the objects from the videos in case these were introduced by an in-group member (average proportion = 0.625) compared to their performance following out-group demonstrators (average proportion = 0.548) (z = -1.829, p = 0.067) (see Figure 3). Importantly, this pattern was found in the sample which included both those who passed the manipulation check and those who did not. We found no effect of condition in the smaller subgroup (n = 34) (β = .359, z = .966, p = .334). Thus, children tended to recall more information following the in-group characters demonstrations, but since this was only found in the whole sample, the findings are challenging to interpret.
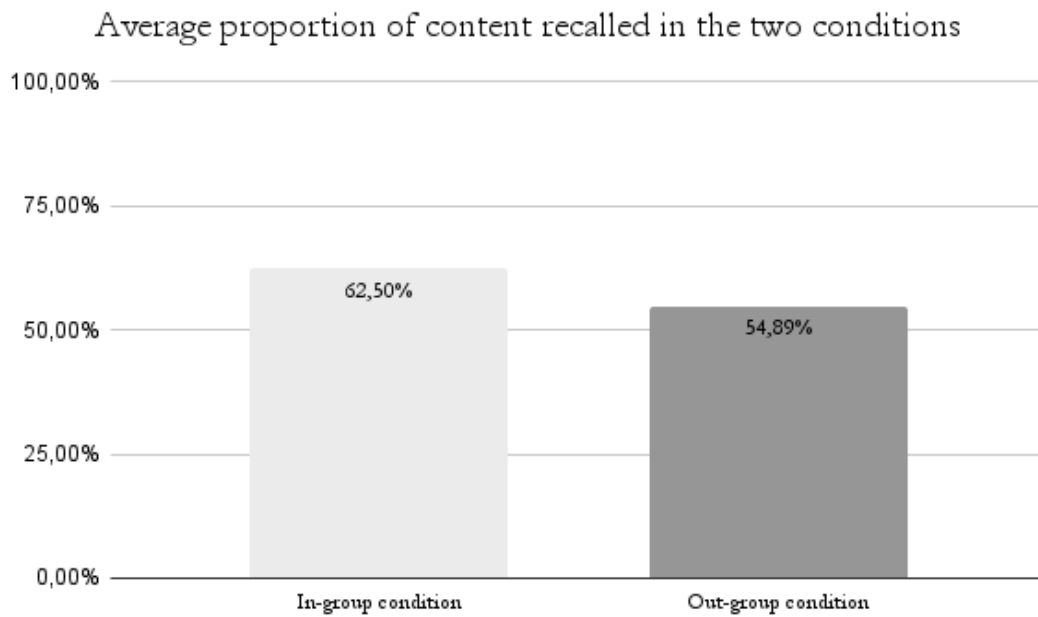
Figure 3. *The pattern of results in the content recall task showing the comparisons between the in-group and the out-group conditions. Showing the whole sample (n = 63)*

Study 3

In Study 3, we investigated whether the long term retention of novel, potentially conventional information is influenced by the group membership of the demonstrator.

Methods

4-year-old children (127 participants, age range: 48-60 months) participated in 2 experiments (56 participants in each) and a baseline condition (15 participants). Both experiments were led by two experimenters and included demonstrations about 3 object sets. In *Experiment 1 (Immediate recall)*, children met an experimenter (E1) who escorted them to the testing room. Here, they saw 3 event sequences demonstrated by another experimenter who, before showing the object sets, spoke either the Native language of the child (*Native condition*) or a Foreign language (*Foreign condition*). Following the demonstrations, E1 gave the object sets to the participants one by one, and they were instructed to play with the objects. We measured the extent to which children's own behavior with the objects matched those of the experimenter (both when it comes to its content and the order in which the actions were carried out). The children were either assigned to the Native or the Foreign condition, thus,

the experiment had a between subject design. *Experiment 2 (Delayed recall)* had a similar procedure, but with an important difference: children were only allowed to manipulate the objects following a week of delay. At this point, their behavior was coded based on the same criteria as in Experiment 1. A baseline condition was also included, in which children saw no demonstrations, but were given the object sets in order to explore whether they would spontaneously demonstrate similar behaviors included in the demonstrations. Children's performance was compared both between experimental conditions, experiments and to the no instruction baseline.

Results

In Experiment 1 (Immediate recall), we found a significant main effect of trial number both when it comes to the content of children's reproductions ($F = 6.274$, $p = 0.002$) and the order in which children carried out the steps of the event sequences ($F = 6.342$, $p = 0.002$) (see Figure 4 and 5). Pairwise tests revealed in both cases that children reproduced the behavior of the demonstrator more accurately in the case of two more recent demonstrations. When it comes to how accurately children followed the order of steps in which the actions were carried out, we found a trend towards an effect of condition ($F = 3.356$, $p = 0.069$). Thus, children tended to reproduce the order of steps more accurately following a Native speaker's demonstration.

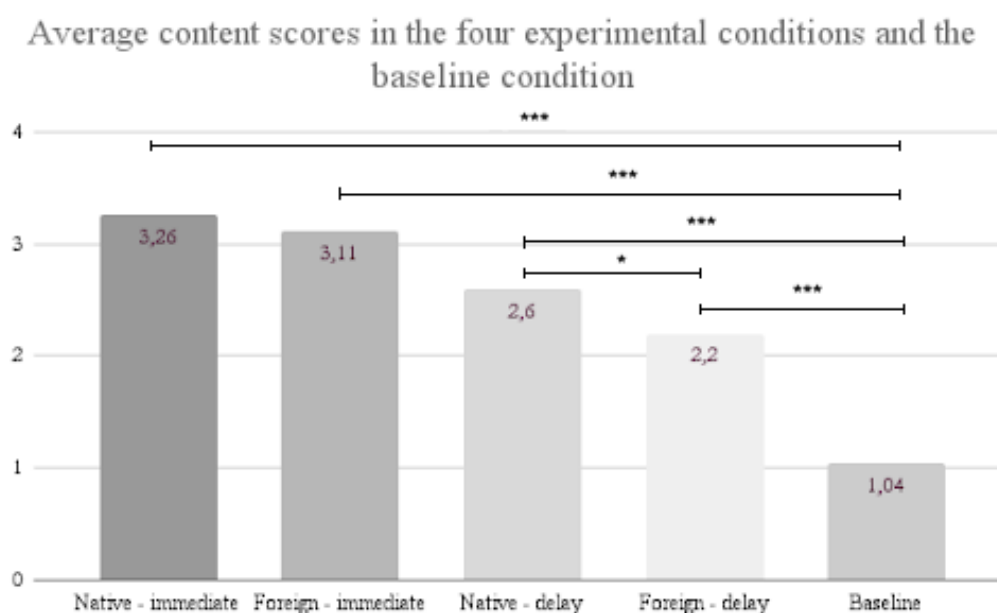Average content scores in the four experimental conditions and the baseline condition

Figure 4. *Average content scores in experimental conditions of Experiment 1 (Immediate recall), Experiment 2 (Delayed recall) and the Baseline condition.*

In Experiment 2 (Delayed recall), we found a significant main effect of condition. In other words, children reproduced the demonstrator's actions (both the steps themselves and their order) more accurately after a delay following the demonstration of a Native speaking adult (content score: (F = 4.824; *p* = 0.030; order score: (F = 4.813; *p* = 0.030)), compared to an adult who speaks a Foreign language (see Figure 4 and 5).
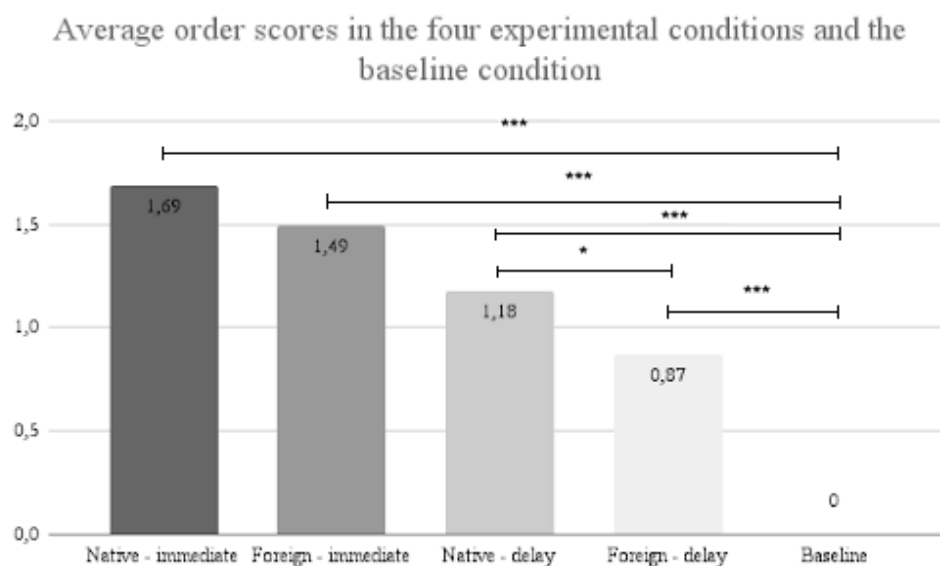

Figure 5. *Average order scores in experimental conditions of Experiment 1 (Immediate recall), Experiment 2 (Delayed recall) and the Baseline condition.*

Children's behavior differed from the no instruction baseline in all experimental conditions. The overall analysis of the two experiments found that in the case of how accurately children reproduced the steps of the model's actions, there was a significant main effect of timing of imitation (F = 43.835, *p* < 0.001) and condition (F = 5.809, *p* = 0.017). However, we found no interaction between these two variables (F = 0.727, p = 0.394). We found the same in the case of the order of steps: there was a main effect of timing of imitation (F = 42.014, *p* < 0.001) and condition (F = 7.194, *p* = 0.008), but no interaction between these variables (F = 0,809, p = 0.369). These patterns show that timing of imitation had an overall effect on the

behavior of children: children reproduced the behavior of the model more accurately if they could imitate it right away, compared to when they only had the opportunity after a week of delay. Condition also had an overall effect: the participants reproduced more details and in the correct order following a demonstration by a Native speaker, compared to a Foreign speaker.

General Discussion

In this current Thesis, our aim was to introduce three empirical studies which contribute to our knowledge about how preschool-aged children understand certain aspects of conventional behaviors. The studies have focused on two aspects of these forms of behaviors: first, that these are community-bound—in other words, context dependent—and second, that these forms are usually conveyed by knowledgeable others. In *Study 1*, we employed a pretend play based paradigm, the engagement in which has been proposed to reflect children's reasoning about forms of behaviors that could be considered conventional—due to pretend stipulations and conventional norms sharing a number of attributes (Rakoczy & Schmidt, 2013; Rakoczy, 2007; Wyman & Rakoczy, 2011; Wyman, 2014). All in all, findings of this study show that 3-year-old children consider others' ignorance while reasoning about the validity of context dependent information (i.e., a pretend stipulation). Based on the findings of Study 1 and other findings (such as Hickling et al., 1997; Wyman et al., 2009b; Schmidt et al., 2016)—, in the dissertation, we introduced a proposal about how engaging in social pretend play may figure into the social development of children—with a special emphasis on grasping that the validity of their knowledge may change from context to context—and outlined potential empirical implications of such a proposal.

In *Study 2*, we investigated whether how accurately children remember others as sources of their conventional knowledge is influenced by the cultural group membership of such sources. We hypothesized that children could be better at identifying out-group sources—potentially as a consequence of considering information shared by in-group sources as generalizable and relevant, thus hindering the retention of the source itself. At the same time, we hypothesized that they will be more likely to remember the information shared by in-group members (conventional knowledge about how objects are used). The pattern of findings did not firmly confirm the first hypothesis; we did find a tendency that children were better at identifying cultural out-group members as sources of novel information compared to in-group members. This difference was only found in the subgroup which consisted of the

children who remembered the group membership of the demonstrators more accurately. Thus, it is possible that treating information from in-group sources as generalizable and culturally relevant does hinder children's memory performance about the source—but these findings are not fully conclusive. Furthermore, we also found a tendency in how well children recalled the previously shared conventional information. More specifically, they tended to recall more information about the objects when these were presented by in-group members, compared to when they were shown by out-group members. This is in line with other findings which show that children are more likely to learn from in-group sources. Importantly, this pattern of results was only found in the overall analysis, which also included participants who performed worse in identifying the group membership of the sources. Due to these limitations as well as limitations to the experimental design and the process of data collection (online setting), in the dissertation, we suggested modifying the experiment in some aspects. Overall, the findings from this online study seem promising with regards to the initial assumptions, and we believe a modified experiment could result in more conclusive findings.

In *Study 3*, we built a on an imitation paradigm during which children could observe how another person—either a Native or a Foreign speaker—used novel object sets, and we measured how accurately they reproduced these actions 1, if they had the opportunity to do so immediately, or 2, if they themselves could only use the object sets following a week of delay. If children indeed grasp that conventional forms are conveyed by knowledgeable others, they should reproduce and retain information shared by in-group members more accurately (since they are supposedly more knowledgeable with regards to conventional knowledge, compared to members of a different culture). The findings show that children retain the shared information more accurately following a delay if it was shown by an in-group member (Experiment 2). However, we did not find such an advantage in case they were allowed to try the objects immediately (Experiment 1)—although we did find that children tended to recall the order of steps more accurately following an in-group demonstrator. These results partly align with previous literature which shows that the acquisition of conventional forms is greatly shaped by cues of cultural knowledgeability. We argue that the difference we find in the delayed imitation paradigm is the consequence of children inferring that information shared by culturally knowledgeable others is relevant generic knowledge that they may need to use in the future. This results in a better consolidation of the thus shared information.

To conclude, children are members of multiple, wider or smaller communities—such as their family or their kindergarten. Customs and rules may vary in these communities, therefore, they often need to adjust their behavior while navigating between these contexts. Thus, learning what knowledge is valid in these different contexts and flexibly switching between these is important in order to successfully interact with others. In the dissertation, we have proposed that engaging in pretend play may allow children the exploration of both how to create and participate in such social contexts with others and to grasp the importance of contextual boundaries. A related study has shown that children consider others' ignorance about a pretend stipulation as a contextual boundary of its validity. Furthermore, we have also extended previous findings by showing that children rely on cues about the cultural group membership of others to guide them in what to integrate into their long term semantic knowledge. Thus, it seems that children build on information about whether another person belongs to their cultural community in order to identify conventional knowledge that is valid in their own culture. However, the question remains whether considering information shared by members of one's own cultural community as relevant and generalizable may hinder children's memory for the specific sources.

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