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Research Article

Fair distribution in early childhood: Stuck between friends and needy strangers

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Abstract: Children distribute resources to recipients differentially regarding various factors such as 'need' or 'friendship' (social closeness). The aim of this study is to examine the interaction between these two variables by presenting children with two recipients who are a friend and a stranger varying on the number of materials they need. A distribution task with four different scenarios (conditions) was applied to 25 children (Mage =62.16, 15 males) aged 4-6 years. Across scenarios of four experimental conditions, the amount of needed materials was manipulated between the friend and the stranger. The participants were asked to distribute resources to the recipients in each experimental session. Allocation of all resources to the needy recipient to eliminate the need in the expense of the friend meant 'fair' distribution; while the allocation of all resources to the friend meant 'friend-favoring'. The results showed an interaction between 'need' and 'friendship' for their roles in allocation decisions. Children favored the friend when their friend is needier than the stranger and transferred the greatest amount of resources to the needy friend. In the condition that the stranger is needier, levels of friend-favoring decrease. The results indicated that preschool children have a tendency for favoritism but this preference weakens in presence of a needier stranger. Taken together, the findings suggest that children are capable of taking the two competing factors of friendship and neediness into consideration at a time and able to adjust their allocation to meet the needs of not only friends but also strangers. Preschool children's preference to support fairness occurs together with their developing helping behavior and moral reasoning as well.

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Introduction

One of the effective features in the ability of individuals to maintain collaborative relations with each other in society is 'fairness' (McAuliffe et al., 2017; Tomasello, 2018). Fairness considerations can serve as an efficient set of strategies to maintain cooperation within a social system where each member can function and benefit (Decety & Yoder, 2017; Deutsch, 1975). Fairness in the distribution of resources is one of the prominent current issues, as can be understood from the discussions on 'the universal basic income' or salary entitlements of societies (Essler et al., 2019). Inequality in ownership of resources is a phenomenon that human societies tend to eliminate (Dawes et al., 2007) or perpetuate (Starmans et al., 2017) for several reasons. Some of the reasons are people's preference for fairness over equality, a person's social class (Piff et al., 2018; Starmans et al., 2017). From infancy through early childhood and later, children take various distribution decisions in the face of inequality and the variability in decisions follows a common developmental trajectory (McAuliffe et al., 2017). In some studies, children were asked to distribute resources between recipients differing on several characteristics such as interpersonal closeness, material wealth, or need (Fehr et al., 2008; Moore, 2009; Paulus & Moore, 2014). The purpose of this study is to explore children's strategies for allocation when there are competing motives for distribution such as social closeness (friend vs. stranger) and recipient need.

Fairness in Distribution

Fairness in the distribution of resources is one of the milestones in moral development in early childhood (Killen & Smetana, 2015). It appears as early as infancy that babies develop a sense of equality

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in the distribution of resources, moreover, their conceptions of fairness change through early childhood as they start distributing based on other factors such as recipient qualities (Sommerville, 2022). Thus, it is significant to question the trajectory of how children's understanding evolves from equality toward fairness in conditions of need or material inequality. To recipients with different levels of need, children can allocate in three different ways: i) equally to different recipients (equal distribution), ii) more resources to those with fewer resources (equitable/fair distribution), and iii) enough to perpetuate existing inequality (un-equitable/unfair distribution). These distribution strategies aim at either eliminating (ii) or maintaining (i, iii) the inequality.

The development of fairness considerations is interconnected with the development of prosocial behaviors, as being fair has a moral side to it. The distribution between needy recipients in third-party allocation tasks is non-costly and thus is considered to associate with helping behavior (Paulus & Moore, 2014), while at the same time helping and fairness are considered to be simultaneously emerging separate concepts (Fehr et al., 2008). In early childhood, prosocial considerations like helping someone reach their goal or resource sharing can be observed even at 14-18-month-olds (Schmidt, & Sommerville, 2011; Sloane et al., 2012; Sommerville, 2015; Svetlova et al., 2010; Warneken & Tomasello, 2007). Endorsing fairness by rectifying the need via equitable distributions could be due to empathetic concerns toward the disadvantaged like understanding other people's emotions (Eisenberg & Miller, 1987; Paulus, 2014; Paulus & Moore, 2015). Not only understanding emotions but the development of the ability to understand the mental states of others -including needs or perspectives in situations of need- affects behaviors related to fairness preferences (Takagishi et al., 2010). Children's increasing capacities for the understanding of others' perspectives are in synchrony with their changing conceptions of fairness from equality to equity throughout early childhood (Imuta et al., 2016; Sommerville, 2015, 2022; Wellman et al., 2001). Besides social cognitive development, children's prosocial tendencies are shaped by the characteristics and culture specific-norms of their societies via the influence of parents, schooling, and institutions (Bronfenbrenner, 2005; Trommsdorff et al., 2007). This is also observable in the timing of changing conceptions of fairness. Equality is perceived as fair in early childhood andwith age, children start distributing equitably by considering other factors like deservedness (Sommerville, 2022). On the other hand, preference for equity emerges at different ages based on culture (Huppert et al., 2019). While this discussion provides us with an understanding of some social cognitive motivations behind fairness tendencies to eliminate need-based inequality; the following part presents alternative explanations with empirical results for why children may opt for maintaining inequality between recipients.

Alternative Explanations for Perpetuating Inequality

The reasons why children may perpetuate inequality have been discussed by some researchers and some alternative explanations exist (Essler et al., 2019; Paulus & Essler, 2020). First, young children perceive an existing inequality as the norm and accept this situation as an applied rule, thus they perpetuate the situation by distributing unequally (Roberts et al., 2018). Second, preschool children may prefer the advantageous ones over those with less quantity of resources and allocate in favor of the advantageous (Li et al., 2014). Third, preschool children may perceive the tasks simply as numerical matching; and instead of interpreting distribution tasks in the context of moral reasoning, they may distribute by matching the number of allocated resources with the existing ones (Chernyak et al., 2017). Alternatively, children's developing numerical knowledge seems to have an effect in calculating the amounts to generate sets for comparing/matching the amounts of resources (Schneider et al., 2022) as well as in distribution strategies to third-party recipients (Chernyak et al., 2016). Similarly, an intervention to promote number knowledge in preschoolers (aged 2.5-5.5) improved children's fairness in sharing (Chernyak et al., 2022). Therefore, the developing numerical cognition in early childhood may affect allocations. These ideas have been used to interpret situations where inequality is maintained or distributional justice is not achieved. The following discussions can build upon children's increasing capacity to evaluate some variables (such as need-based inequality between recipients) and distribute accordingly.

Role of Need: Inequality Between Recipients

Most research using the distribution paradigm has examined children's distribution decisions in the face of scenarios with recipients having unequal resources. Preschool children, towards the end of early childhood, distribute resources to recipients with unequal amounts of resources to equalize the outcome (Elenbaas et al., 2016; Rizzo & Killen, 2016). Besides inequality, children make distribution decisions based on various factors such as need, value, merit, and social justice (Schmidt et al., 2016). The need is a variable that can drive a preference for fairness strongly when compared with other factors like merit; children distribute according to differences in need robustly and in an increasing trend from age 4 to 11 (Huppert et al., 2019). The finding on the tendency for need-based allocation has been corroborated in several other studies (Essler et al., 2019; Paulus, 2014). To sum up, be it inequality or need, children are strongly inclined to favor the disadvantaged.

Inequality and need factors are either used interchangeably or as different constructs in different studies. The way those factors are presented varies across studies. For instance, resource inequality between recipients has been scripted by the dichotomy of being either poor or wealthy (in resource) (Paulus, 2014), and luxury/surplus of resources versus having the necessary amount (Rizzo et al., 2016) or by using the scenario of recipients with luxury (excess) and necessary (as much as required) resources dichotomy (Essler et al., 2019). Out of these three studies, only Essler et al. (2019) informed the participants openly that a lack of resources would bring 'disease or harm' to recipients. This turned the situation of inequality into a moral dilemma consisting of disadvantages, leaving little to participant's interpretation. Children need to know clearly who the disadvantaged and advantaged recipients are, for deciding how and to whom to transfer resources (Li et al., 2014). The notions of equality, inequality, and need have been conceptualized differently (Deutsch, 1975). By openly stating that the recipients are in need, the conclusion that children distribute based on need can safely be made.

Role of Social Closeness

One of the factors influencing children's resource allocation decisions is the closeness of the social relationship between recipients and participants. According to Shaw's (2013) 'partiality view', the allocation decisions of children and the amount of resources transferred are indicators defining the extent of the relationship between the distributor and the recipient. The following discussion aims at presenting findings that suggest the role of social closeness in the variability of allocated amounts.

In the context of adaptive behavior, the main elements of morality include being fair and loyal to the members of the same social group (Baillargeon et al., 2014). Prosocial behaviors are directed differently to individuals who are members of the same group and members of another group (Padilla-Walker & Carlo, 2014). It has been observed that children prefer allocating resources to the members of their social groups more than non-members (Fehr et al., 2008; Weller & Hansen-Lagattuta, 2013). In the study of Fehr et al. (2008), children aged 3-8 years were asked to distribute to their classmates and unknown peers in non-costly tasks and it was found that children distributed fairly regardless of group status. Moreover, children also showed a greater tendency to choose the fair option in their distributions for recipients who are classmates, than those who are not classmates. Similar findings were found in the study conducted by Lee et al. (2018) with children in the 2-4 age group. Young children distributed fairly without favoring their social circle if resources were not limited; this changed only to the advantage of their group when resources were limited. The common point of these studies is that from an early age, group status has no impact on fairness as long as the task is non-costly.

In addition to group status, distribution strategies among friends, familiar peers, and strangers have been subject to several studies. Moore (2009), who conducted a study with recipients who are friends with the distributor and those who are not, used costly and non-costly distribution tasks. According to the results, in costly situations, 4 to 6–year-olds distributed more to their friends than they did to strangers, but they allocated fairly in non-costly conditions. Paulus (2016) examined the role of social closeness and recipient's poorness/wealth on sharing, with 3 to 6-year-old children. They shared the most with their rich friends. The results of the studies of Moore (2009) and Paulus (2016) on distribution and sharing have

shown that children tend to favor their friends even if the friends do not need any extra resources, but the transferred amounts may equalize when the task is non-costly. Children showed a preference for reducing inequality when resources are scarce and when inequality creates a disadvantage for their friends (Moore, 2009; Paulus & Moore, 2014).

Overall, the findings suggest that children are inclined to favor their friends over non-friends or strangers in presence of cost. Some researchers explain the selectivity for whom to allocate resources by the principle of reciprocity. Individuals tend to allocate resources to those who are more likely to reciprocate those efforts (Warneken & Tomasello, 2009). Therefore, the underlying reason for causality between social closeness and distribution may be the possibility that the child can also benefit from comebacks in exchange for favoritism.

Role of Age

Prosocial behaviors are observable in infancy and develop throughout childhood and teenage (Eisenberg, 1989; Piaget, 1932; Schmidt, & Sommerville, 2011; Sloane et al., 2012; Svetlova et al., 2010; Warneken & Tomasello, 2007, 2009). They start perceiving equity as more just than equality as they pay attention to other factors (Sommerville, 2022). With age and increased sensitivity to needs or inequality, children become more generous or transfer more resources to eliminate inequality. From the age of 3 to 5, children opt for sharing with their peers more and become more generous as well as they are increasingly more responsive to the needs of peers in distress (Eisenberg et al., 1998; Rochat et al., 2009; Thompson et al., 1997). Another research conducted with 5- and 12-year-olds showed the positive effect of age on generosity in sharing resources with peers, seemingly robust across five cultures (Cowell et al., 2017). Similarly, the amounts allocated to the needy showed a steep rise from age 4 to 5 in another study (Huppert et al., 2019). Benenson et al. (2007) reported an increase in altruistic behavior, from age 4 to 9, in a distribution game that required the participants to share. The amount of resources allocated to the needy or the amount of generosity increased uniformly from age 2 to school years. Not only do children's fairness considerations change with age but also the amounts they allocate to friends or non-friends vary.

With age, children become selective about whom they distribute resources to and with the amounts. For instance, Paulus and Moore (2014) conducted a study in which 3, 4, and 5-year-olds were asked to allocate resources between friends and non-friends. At the age of 3, their distribution did not differ between friends and non-friends, however, the 4- and 5-year-olds tended to share most resources with a friend. Thus, towards the end of early childhood (around age 4-5) the likelihood to favor friends over others increased. Moore (2009), in a similar study, reported that children aged 4.5 to 6 allocated more to friends than to non-friends. Olson and Spelke (2008) asked 3.5-year-olds to help a puppet character distribute resources between a friend and a stranger and found that they transferred more to the friend. Those findings suggest the general conclusion that, children aged 4-5 prefer friends over others. Although children show traces of altruistic behavior early on, they become more selective with whom they allocate approximately after the age of three. This tendency is attributed to their emerging pursuit of reciprocity in allocating resources – by preferring social partners who had previously helped them or are likely to reciprocate in return (Warneken & Tomasello, 2009). In summary, there is ample empirical support to say that social proximity affects the allocation prominently after 4 years of age.

Role of Gender

One of the factors that may be linked to distribution is gender. There are contradictory findings on the role of gender in distribution. Benozio and Diesendruck (2015) reported that boys were biased to allocate more to boys. Similarly, Fehr et al. (2008) showed that males are biased in favor of their friends when they were given the chance of increasing the gains of either a friend or a member of their group; yet, in non-costly resource allocations, gender was not a significant predictor at the ages 3-8. On the other hand, several studies provided support for the absence of a gender effect in distributive justice. Likewise, gender was not found to have a role in generosity across five cultures from 3 to 5 years of age (Cowell et al., 2017). Again, children did not differ in their sharing decisions based on their gender both in China and the US (Benenson et al., 2007). To sum up, despite the contradictory findings, several studies -particularly the

cross-cultural evidence- suggest that distribution decisions do not differ by gender.

The Present Study

This study aims at investigating children's resource allocation strategies when the two variables come together in a way to create a dilemma: social closeness and need. Ample evidence and research are indicating that children are likely to favor friends over strangers in allocation (Moore, 2009) and that they are also inclined to distribute equitably to reduce the need of the needy (Huppert et al., 2019) by providing fairness. Those studies have investigated the direct roles of variables in distribution, however, whether another variable is in effect or able to change such causality is a question open for exploration. As far as is known, conversely, no research has investigated the joint effects of need and social closeness on distribution. On the other hand, daily life experiences are highly complex and complicated in that the effective factors are multi-faceted, and fairness considerations are not always affected by a single factor. For these reasons, task scenarios allowing to test of multiple factors for their joint effects would be reflective of situations close to reality. Furthermore, the use of scenarios with competing variables can help present -moral- dilemmas requiring children to reason. Would they prefer to favor friends by ignoring stranger's needs or would they allocate more to the needy recipient than the non-needy one? The answer to this question can help understand whether young children distribute fairly when disrupted by other factors like friend-favoritism. This way, it is also possible to understand the relative roles of each variable in children's decisions as well as their moral reasoning. The present study's results are expected to enrich the literature on fairness and contribute to the current understanding of cognitions behind the distribution. Overall, there is a gap in this line of research as the studies have focused on direct effects so far and children's distribution behaviors in complicated scenarios are yet to be understood. Moreover, in the literature, the role of the amount (of need) in distribution remains as unexplored. Studying the role of amount can shed light on the way children respond to varying amounts of resource need, hence, to fairness considerations.

The ultimate aim of the current study is to investigate children's distribution decisions when facing two competing factors: providing fairness or friend-favoritism. With this aim, third-party non-costly distribution tasks with different need scenarios were used. Children were required to allocate resources between a friend and a stranger whose resource needs vary across four experimental levels. Different from some previous studies using the wealthy/poor dichotomy, (Paulus, 2014), it was clarified openly in this study's tasks that lacking resources indicated a disadvantage for the recipient, so that the results could be confidently attributed to the role of need and/or moral reasoning (Rizzo et al., 2016).'Social closeness' of the recipients was determined on two levels: the stranger -unknown by the participant- versus the friend -who was identified by the sociometry test.

Second, the quantity of need was manipulated across experimental conditions and between recipients to see whether increasing amounts of need affect fairness. In the first experimental condition, participants were required to allocate resources between a non-needy friend and a needy stranger; while in the second condition, the amount of need is the opposite of the first condition for the friend and the stranger. These two conditions were designed to test the interaction between need and social closeness. A third condition was added for comparison with the first condition to see whether an increase in the amount of friend's need affect distribution. The fourth condition was included to contrast with the third condition to see whether high levels of increase in amounts of stranger's need –while the friend's need is constant- would change the distribution. Based on a 2x4 factorial design of the experimental levels, comparisons were utilized to test any interactive effects as well as to understand the role of amounts of need.

Lastly, the roles of age and gender in distribution were tested in the current research. Together with some contradicting findings (Benenson et al., 2007; Benozio & Diesendruck, 2015), gender stands out as an interesting factor to see whether boys and girls distribute differently in early childhood. Although children tend to distribute fairly in early childhood, they can distribute to peers with different levels of closeness differentially with age -preferring those who are more likely to reciprocate the help –i.e. friends over others (Moore, 2009; Paulus, 2016; Warneken & Tomasello, 2009). Therefore, additional questions addressed the

roles of age and gender.

In summary, the present study aims at the unanswered question of whether social closeness and need interact for their role in distribution fairness. Is fairness tendency disrupted by friend-favoritism? It is significant to understand the decisions children make when they are caught between their friends and needy strangers, as it is explanatory in terms of moral causality behind the distribution, as well. The findings are expected to increase our understanding of whether children prefer fairness at the expense of their friends. Hence, this study can expand the research in this field since it introduces a new perspective by testing the interactive roles of variables in fairness. Other contributions of this research consisted of investigating the role of need amount; utilizing a direct conceptualization of the 'need' variable by clearly stating it in the task; appointment of recipients in the distribution task from real friends determined by sociometry (rather than using puppets, pictures or characters for hypothetical recipients). The scarcity of similar studies conducted in early childhood as well as in collectivistic contexts increases the importance of this research.

Research Questions

There are two main questions. The first one is, "How do children allocate resources when fairness and friend-favoritism conflict?" Within the scope of this question, the tendencies for i) friend-favoring distribution, and ii) fair distribution under conditions where the resource needs of friends and strangers are in varying amounts, were examined as well. Additionally, the questions "What is the role of age on fairness and friend-favoring in distribution?" and "What is the role of gender on fairness and friend-favoring in distribution?" were addressed.

Method

Participants

The sample of the study consisted of 25 children (M_{age}= 62.16, *SD*= 8.09, 15 males). The data were collected from children aged 4-6 in a kindergarten in Istanbul, where students from different socioeconomic levels attend. The study classes were randomly selected and all the children in the selected classes were tested since sociometry requires testing of all the members of a group. Permissions were obtained before the research and all participants showed normal development.

Measures

Picture Sociometry Test

This test is used in early childhood to determine relationship dynamics such as children's sociometric status in a peer group. The pictorial sociometry scale was used in this study to detect pairs of reciprocated friends (who mutually nominate each other as their friends) in a class so that the friend recipient in the distribution task can be assigned from these sociometric selections. The sociometry test technique was developed by Moreno (1963) for adult and youth groups. McCandles and Marshall (1957) used the sociometry test with pictures for preschool children. Asher et al. (1979) conducted a reliability study of this scale with 19 participants aged 4 years. Accordingly, the participants were asked to choose 'the three children they would most like to play with' and 'the three children they would least like to play with' by showing the photos of their classmates. In addition, the participants were asked to indicate how much they wanted to play games with them (in a range of 1 to 3 points) by placing the photos of all their classmates in three boxes labeled with a smiling face, neutral face, or sad face. As a result of the test-retest performed with four-week intervals, the reliability coefficients were found as .56 for positive choices, and .81 for the rating scale (Asher et al., 1979). While the test-retest correlation coefficient of the scale, which was adapted into Turkish by Gülay (2008), was .98; the item-total correlation coefficient between the positive choices and the rating scale scores was found as .72.

Resource Distribution Task

The purpose of this task is to examine how children aged 4-6 will split resources between two

recipients with varying quantities of need. This task was adapted from a similar resource allocation procedure previously used by Fehr et al. (2008) and Moore (2009). In these tasks, the participants were asked to opt for one of the equal and unequal amounts of resource options to transfer to the recipients who are wealthy or poor in stickers (Paulus, 2014). Differently in the present study, to create a context of need, the scenarios of 'recipients who have craftworks complete or incomplete due to lack of resources' were presented in each condition. The situation of need was emphasized through the scenario of 'works that are complete and incomplete due to lack of resources'. Participants were asked to allocate resources according to these scenarios.

The researcher makes the following explanation to the participants (pointing to the photos and the envelopes):

> On this table, next to your friend's photo, is an envelope belonging to your friend. You do not know the child in this photo. His envelope is also here.
>
> Now we're going to play a selection game with you. I'm going to put two stickers here at a time. You will put, how many of these stickers you want to give to any child, in their envelope. When the game is over, we will give these stickers to their owners in their envelopes.
>
> You can give all of these two stickers to the child you choose, and if you want, you can give one to each child, equally.

A trial is made after the explanation:

> Let's try first. If you wanted to distribute the stickers here between these two kids, where would you put them? (The child responds.)

If the child's answer to the question is correct,

> "Yes, you will put them in the envelopes here."

if false, the instruction is repeated.

Then, the incomplete and complete craftwork pages are shown separately for each distribution condition and scenarios are given accordingly.

> (pointing to the craftworks) Here are the craftworks of these two kids. Children complete the caterpillar shape by gluing the stickers on the circles of the caterpillar's body. This is your friend's work, your friend's caterpillar is completed; this is the work of the child you don't know, he couldn't complete it because there are no stickers left. He needs stickers to complete it.
>
> (Two stickers are placed on the table in front of the participant) I want you to distribute these stickers however you want. You can give all of these two stickers to one child if you want, or you can give one to each, equally.

Participants were given the distribution task twice in four different scenarios with varying resource needs. The order of presentation of the scenarios to the participants was counterbalanced. The amounts of resource needed in the scenarios are in the table showing the task conditions (See Table 1).

Table 1. The experimental conditions for resource distribution and the amounts of need

	Number of stickers the friend needs	Number of stickers the stranger needs
Condition 1	No need	3 stickers
Condition 2	3 stickers	No need
Condition 3	1 sticker	3 stickers
Condition 4	1 sticker	5 stickers

Materials

The materials used as a resource in the study tasks are colored stickers of one type (16 pieces), two envelopes to collect the allocated stickers, photographs of the children for picture sociometry, complete and incomplete craftworks (4x2 pieces) for displaying the recipients' need for different conditions (see the 'supplements' for pictures of the craftworks). Colored stickers have been used successfully in the tasks of similar studies (Paulus, 2014; Prencipe & Zelazo, 2005).

Process

The tasks were administered individually in two sessions in a quiet room at the children's school. The children were informed and only those who gave consent were taken for the experiments. A table to place the task materials and chairs for both the participant and researcher to sit were used. Photographs of the friend and the stranger were placed next to the envelopes on both sides of the table so that the child can see easily. After detecting the pairs of friends with the sociometry test, the resource allocation task was administered.

Coding and Analysis

In each of the four experimental conditions, the stranger and the friend were told to be in need of different quantities of resource. The participants distributed in eight sessions in total (twice in four conditions). Participants get 1 point every time they give more (2 stickers) to the needy than the less needy recipient. So, they can get '*fair distribution*' scores ranging between 0-2 for each condition and between 0-8 across all sessions. The *'resource transfer*' score is the total number of stickers transferred to the recipient with a higher need. Scores range between 0-4 for each condition and between 0-16 across all sessions. The *'friend favoritism*' score is obtained when the participant allocates more resources to the friend than to the stranger. Participants received 1 point every time they give more (2 stickers) to a friend; thus, they receive scores ranging between 0-2 for each condition and between 0-8 across all sessions. The *'resource allocation to friend*' score is the total number of stickers transferred to the friend. Scores range between 0-4 for each condition and vary between 0-16 in total. The main hypotheses were tested by one-way repeated measures analysis of variance (ANOVA); also, one-way ANOVA and Pearson Product Moment correlation analyses were conducted using the SPSS 15.0 program.

Results

The first set of analyses in this section investigated children's preferences for fairness in distribution across four conditions where the amount of need and social closeness vary. The second set of analyses investigated children's tendencies for friend-favoring, across four experimental conditions. Lastly, the roles of age and gender were explored.

Preference for Fairness in Distribution

The analyses were conducted two-fold: first, children's preferences for fair distribution were compared across conditions and then, analyses were conducted to see the change in the amounts of allocated resources across conditions.

Fairness Across Experimental Conditions

One-way repeated measures ANOVAs were conducted to examine the change in fair distribution across conditions (See Fig. 1). According to the results, recipient need affects distribution, $F(3, 72) = 15.052$, $p < .001$, $\eta_p^2 = .385$. The tendency for fairness is higher when the friend's need is greater than that of the stranger (condition2, $M = 1.32$, $SD = .748$) compared to other situations where the stranger's need is greater (condition1 $M = .64$, $SD = .700$; condition3 $M = .32$, $SD = .627$; condition4 $M = .32$, $SD = .557$). In other words, participants distribute fairly the most when the needy recipient is their friend. The level of fairness in the condition2 is also higher than in condition1 where the friend does not need any resources but the stranger does. According to this finding, children's tendency to eliminate their need is higher when their friend is in need, despite the condition1 where the need of the stranger is high (See Fig. 1). Moreover, while the amount of the friend's need remains constant (conditions 3 and 4), an increase in the stranger's need does not change the tendency to reduce inequality across conditions 3 and 4 (respectively $M = .32$, $SD = .627$; $M = .32$, $SD = .557$). Between the two situations where the stranger's need for the resource is higher than the friend's (conditions 1 and 4), the children allocated more to the stranger in condition1, where the friend was not needy, than in condition4, $F(1, 24) = 4.571$, $p < .05$, $\eta_p^2 = .16$.

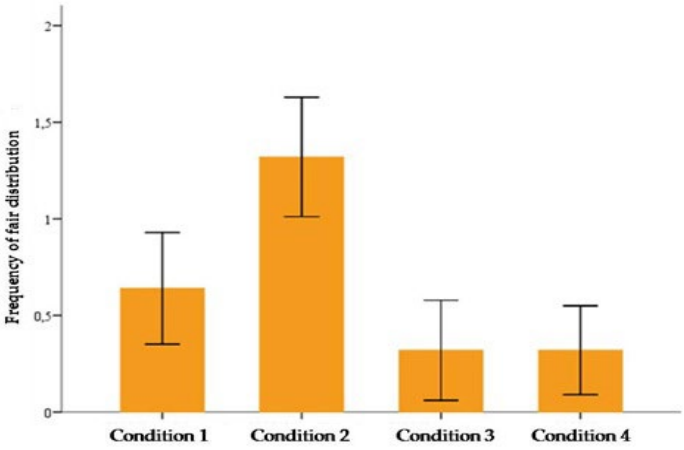

Figure 1. The mean number of instances all resources were allocated to the recipient with high need in four experimental conditions

In summary, the likelihood of fair distribution is at its highest when the needy recipient is the friend (1, 3, and 4 versus condition 2). Provided that the friend's need is constant, the stranger's increasing need does not change fairness scores (conditions 3-4). In addition, in conditions where there are strangers in need, fairness increases only when the friend is not needy (conditions 1-4). These findings suggest that preschool children are highly motivated for fairness if the needy person is their friend. In presence of the friend's needs –even little amounts- children are not sensitive to increases in strangers' needs. They are highly fair toward the stranger needs, only when the friend is not needy. In general, children's tendencies to be fair are negatively affected when a needy friend is among the recipients.

The Amount of Allocation to the Needy

A one-way repeated-measures ANOVA was conducted to understand how the amounts allocated to the needy change in different conditions. Variations in recipient need have an impact on the number of resources allocated, $F(3, 72)=11.39$, $p<0.001$, $\eta_p^2=.322$ (See Fig. 2). The children allocated fairly where the friend was needier than the stranger (condition2) compared to the other conditions where the stranger is needier ($M=.32$, $SD=.816$). This difference was found despite condition1 in which the friend was not needy while the stranger was ($M=2.16$, $SD=1.14$). As the friend's amount of need remained constant, although the amount of the stranger's need increased from condition 3 to 4, the number of allocated resources did not change, $F(1, 24)=.129$, $p=.72$, $\eta_p^2=.005$.

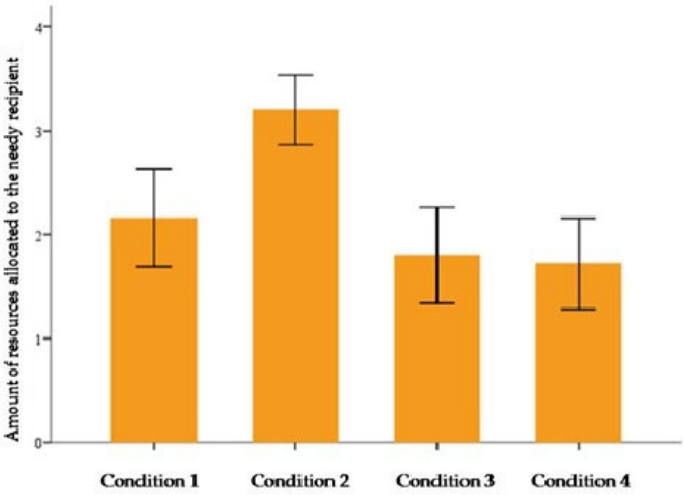

Figure 2. The mean of the total amount of resources that were allocated to the needy recipient in four experimental conditions

To sum up, participants allocate more resources to the needy when their friend is needier (condition 2) than the conditions the stranger is needier (conditions 1, 3, and 4). In addition, while the need level of

the friend remains constant, an increase in the stranger's need does not change the number of resources allocated (conditions 3-4). According to these findings, preschool children allocate the most resources to their friends when the friend is in need while the stranger is not needy (condition 2). Any variation in the amount of the need of the stranger does not change the finding that most resources are allocated to needy friends. These findings are largely in line with the findings obtained with the fair distribution scores. As a result, children's tendencies to distribute based on need is more pronounced when the needy recipient is a friend.

Preference for Friend-Favoring in Distribution

The analyses were conducted two-fold: first, friend-favoring allocations were compared across conditions and then, analyses were conducted to see the difference in the amounts of resources allocated to friends across conditions.

Friend-Favoring Across Experimental Conditions

The social relationship between the recipient and the distributor has a role in the allocation of all resources to the friend (friend-favoritism), $F(3, 72) = 10.551$, $p<.001$, $\eta_p^2=.305$ (See Fig. 3). Children allocated all resources to friends the most in the condition2 ($M=1.28$, $SD=.737$) where the friend is needier than the stranger, compared to condition1 ($M=.48$, $SD=.653$), condition3 ($M=.48$, $SD=.714$), and condition4 ($M=.60$, $SD=.816$) where the stranger is needier than the friend. In summary, while children want to transfer all resources to a friend in need; when the stranger is needier -regardless of the amount of need-, favoritism decreases.

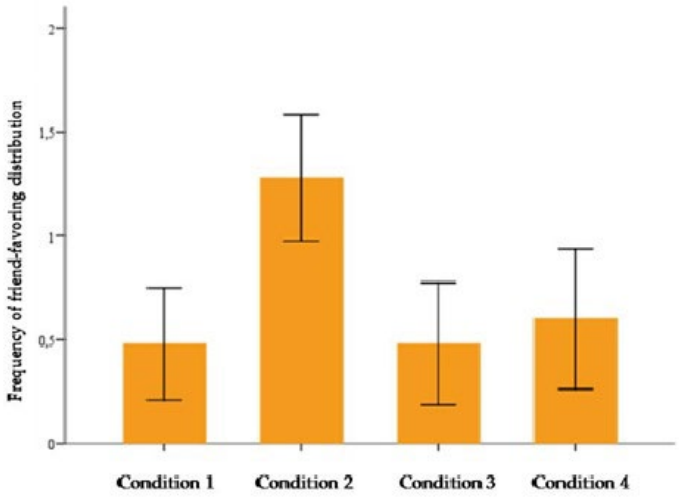

Figure 3. The mean number of instances all resources were allocated to the friend in four experimental conditions

As a result, the chances of equal distribution (1 for the friend, 1 for the stranger) or equitable/fair distribution (0 for the friend, 2 for the stranger in need) increase in case the stranger is in need.

The Amount of Allocation to the Friends

To understand the change in the total amount of resources allocated to the friend in the conditions, one-way repeated-measures ANOVA was performed. Social closeness affects the total amount of resources allocated to the friend, $F(3,72)=10.02$, $p<.001$, $\eta_p^2= .295$ (See Fig. 4). The greatest amount of resources was allocated to the needier friend rather than the stranger ($M=3.20$, SS=.816) in condition2, where the friend is needier than the stranger. The amount transferred to the friend in condition2 is greater than that of condition1, where the stranger is needier than the friend, $F(1, 24)=26.575$, $p<.001$, $\eta_p^2=.525$. Moreover, as the friend's need is constant, the amounts given to the friend did not change despite an increase in the stranger's need from condition 3 to 4, $F(1, 24)=.302$, $p=.588$, $\eta_p^2=.012$. To summarize, out of all scenarios, the friend received the most resources in the second condition where the friend is needier than the stranger. However, the amount allocated to the friend decreased in all cases (cond. 1, 3, and 4) where the need of the

stranger was greater. However, changes in the stranger's need in those conditions do not impact the allocated amounts.

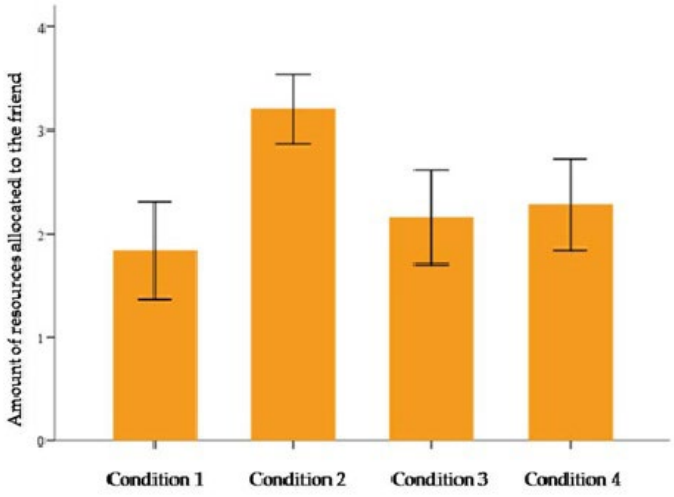

Figure 4. The mean of the total amount of resources that were allocated to the friend in four experimental conditions

To conclude, children are generous to friends when they are needier than the stranger, but the share for the friend is reduced in presence of a needier stranger. These findings suggest that distributors are highly sensitive to the needs of friends, but friend bias in distribution weakens in presence of needy strangers. Consequently, the findings regarding the transfer of all resources to the friend and the differences in the total amount of resources transferred to the friend support each other.

Other Analyses

Other analyses were conducted to explore the possible influence of gender and age. A one-way ANOVA was conducted to explore the role of gender on the amount of fairly distributed scores (in a total of sessions) and the amount of friend-favoring distributions (in a total of sessions). Gender did not have a role in transferring most resources to the high-need recipient, $F(1, 24) = .250$, $p=.622$. Similarly, the number of resources fairly distributed did not vary by gender, $F(1, 24)= .100$, $p=.755$. The tendency for friend-favoritism also did not differ by gender, $F(1, 24) = .110$, $p=.744$. According to these findings, gender does not have any role in fairness or favoritism.

To examine the relationship between age (in months) and the amount of fairly distributed resources as well as the amount of friend-favoring resources, the Pearson Moments product correlation coefficients were calculated. The amount of fairly allocated resources did not vary with age ($r = -.282$, $p>.05$, N=25). However, the number of resources transferred to the friend increased with age ($r = .428$, $p<.05$, N=25). The tendency of children to allocate more resources to friends increases from the beginning of the pre-school period to the beginning of school age.

Discussion

This study aims to examine distribution preferences for fairness or favoritism in conditions including a friend and a stranger differing in resource needs. The distribution task used was adapted for two purposes. The first aim is to utilize and highlight the theme of "need", which is one of the novelties of this research, and to manipulate the amount of need between recipients in experimental conditions. The second aim is to design a distribution task to create a dichotomy where amounts of need and social closeness interact so that children would have to prefer one of two ways of allocation: fairness versus favoritism. The allocation decisions were measured and analyzed on both distribution scores and the quantities of allocated resources, to make an alternative interpretation of the findings.

Preference for Fairness in Distribution

First of all, fair distribution was tested across conditions. It has been found that children distribute according to need. Children attempted to distribute fairly the most when their friends were in need (condition2) –compared to other conditions, particularly condition 1 where the stranger is needy while the friend is not. In one of the two conditions where the stranger is needier, the friend's need for a small amount affected fairness negatively (conditions 1 and 4). These findings provide support for the idea that children tend to meet the needs of their friends primarily. This result repeated the findings of previous studies showing that children distribute according to need (Essler et al., 2019; Huppert et al., 2019; Paulus, 2014). For instance, Paulus (2014) has found that the 5-year-old group tended to transfer more resources to the poor rather than the rich recipients. The reason for this finding was interpreted as children ensured fairness by balancing the accounts. Fairness tendencies were analyzed with another variable 'amount of allocated resources' as well. Corroborating the finding on fairness, the amount of resource transfer was the highest in condition2 where the friend is needier than the stranger. As a result, analyses with scores of fairness and distribution amounts both yielded similar findings.

Additionally, it was interesting to find that children were not sensitive to the increasing need of the stranger. For instance, from condition 3 to condition 4 the amount of need of the stranger increased, but the amount allocated to the stranger did not change. This finding can be attributed to children's developing numerical cognition. Children may not be able to perceive the relatively higher need of the stranger (Chernyak et al., 2016, 2022; Schneider et al., 2022). These views highlight the numerical skills in early years to bring an alternative explanation to why children may be blind to a relative increase in stranger's needs. According to Li et al. (2014), children prefer the advantageous ones over others and distribute them accordingly. Provided that children favored their needy friends the most, but not the needier strangers, the findings do not provide support to the opinion of Li et al. (2014). Alternatively, children's inadequacies in understanding possible expectations of needy others may undermine their ability to adjust the amounts of allocated resources fairly (Takagishi et al., 2010). Overall, while children are quite generous towards their friends in need; they do not give similar amounts to strangers in the same or greater need levels in presence of friends' conflicting interests. The findings on friend favoritism will be discussed in the next section.

Preference for Friend-Favoring In Distribution

It has been found that the tendency to transfer all resources to the friend is at its highest when the needier recipient is the friend (condition2). On the other hand, if the recipient with a high need is the stranger (condition1), friend-favoring distribution tended to decrease. This finding suggests that the need factor can disrupt favoritism. The same findings were repeated with the 'amount of transferred resources' score. The other three cases did not differ in terms of the amounts transferred to the friend. The results are in line with the findings in the literature that children opt for allocating more to their friends than children of other groups (Fehr et al., 2008; Lee et al., 2018) or non-friends (Moore, 2009).A possible underlying reason for the high sensitivity towards the needs of the friend may be an ongoing give-and-take balance or tit-for-tat strategy with the friend. Some studies have shown that children make decisions by evaluating the previous behavior of the recipients and that the distribution decisions are made according to the principle of reciprocity (House et al., 2013; Messer et al., 2017; Warneken & Tomasello, 2009). Friendship is a type of relationship characterized by reciprocity (Linden-Andersen et al., 2009). For this reason, children may prefer to show a higher sensitivity to friends' needs than to strangers' to look after their ongoing relationship.

Another important finding of the current research is that favoritism decreases whenever the stranger needs more than the friend, regardless of the amount. For example, children stopped transferring more resources to their friend when the friend needed less than the stranger. While the need of the friend is constant, an increase in the need of the stranger (from 3 to 5 units; conditions 3 and 4) does not change the allocation. This finding was corroborated in the analyses for fairness. As a result, children show a high level of sensitivity to their friends, but the presence of others in need eliminates this bias to some extent. The findings suggest that children distribute in a way that increases the well-being of their friends (friend

favoring) but not at the expense of needy strangers. They do not behave in a way that ends up in violation of fairness or moral expectations.

The Role of Age and Gender

Additional research questions examined the role of age and gender in distribution. While no effect of age was observed in need-based analyses, it was found that levels of friend favoritism in distribution increased with age. Children's allocation preferences in favor of the needy did not change with age and this finding may be explained by genetic predisposition (Eisenberg, 1989; Warneken & Tomasello, 2007, 2009). This finding also was in contrast with the findings of Benenson et al.(2007) which showed an increase in altruistic behavior from age 4 to 9. A possible reason could be that the age range in the current study was not as large. The finding that older children were biased in favor of their friends is in line with the discussion that after infancy children become selective with whom they respond and opt for those who are more likely to reciprocate their efforts (Warneken & Tomasello, 2009). In addition, the results of this study are similar to the finding that 3-year-olds do not take into account the social closeness of the recipients in distribution, but that the 4- and 5-year-olds choose equal distribution options for their friends (Paulus & Moore, 2014). Paulus and Moore (2014) explained that the reason why children are more generous to their friends after the age of 4 is their developing skills to empathize more with their friends. Children tend to share more resources when they anticipate that the recipient will develop negative feelings if they do not share resources with (Paulus & Moore, 2015). An alternative explanation might be the predictions that children make about their friends' expectations of them, thanks to their emerging social-cognitive skills (Takagishi et al., 2010). In this way, they can prefer allocating resources generously in line with anticipated resource expectations of their friends. To sum up, children did not differ in responsiveness to the needy across ages in early childhood –displaying a common tendency as well as possible conformity to social norms. On the other hand, the children, with age, were found to prefer to allocate more resources to friends -who are likely to reciprocate (Warneken & Tomasello, 2009).

It has been found that distribution decisions did not differ according to gender. This finding is in contrast to Benozio and Diesendruck's (2015) study showing that boysfavored the males in distribution. The finding of the present study is consistent with the finding of Fehr et al. (2008) that there was no gender difference in non-costly distributions. Similarly, the number of allocated resources was robust across genders and this finding also supports another study's finding that provides cross-cultural evidence (Cowell et al., 2017). The absence of gender difference suggests that distribution is not affected by gender roles. This is an expected finding considering the explanation that altruism is an inborn quality in human societies (Warneken & Tomasello, 2009).

General Discussion

The overall findings indicate the fact that children do not distribute equally –an allocation strategy expected early around 3 years of age (Elenbaas et al., 2016; Rizzo & Killen, 2016)- but they distribute purposefully (Li et al., 2014; Schmidt et al., 2016) for fairness or favoritism.

Distribution studies to date have generally used recipients with varying degrees of closeness, such as friends, unwanted peers, or strangers; or there are studies in which only the amount of need is manipulated across recipients. Because friendship and the amount of need are handled together in the present study, it has been possible to find out children's preferences for either one of two conflicting behaviors: fairness and favoritism. This is a moral dilemma that is highly likely to encounter in daily life. Thus, the distribution decisions made in experimental conditions can also be evaluated within the framework of moral causation. According to the picture created by all the findings, children aged 4-6 are most sensitive to their needy friends and they reduce inequality on the occasion of the least amount of their friends' needs, by transferring the largest amount to them. On the other hand, they start giving resources to strangers who are needier than friends, despite their friendship. The two factors disrupting each other indicate an interaction effect. In the present study, the combination of friend bias with sensitivity to strangers' needs suggests that children respond to their friends' needs as expected but, they also tend to

avoid ethical violations by allocating resources to the needy stranger. There is a view that fairness is an inborn quality and has neurological foundations in the architecture of the human brain. For example, some frontal brain regions are activated in the experience of injustice or when other people are victims of injustice (Corradi-Dell'Acqua et al., 2016; Dawes et al., 2012; Sanfey et al., 2003). Aside from the human species' capacity to react emotionally to painful experiences associated with injustice and unfairness, some researchers discuss the findings that norms of fair behavior exist from infancy, but that these norms become more enforced with learning and age (Smith et al., 2013). Overall findings suggest that, with the effect of factors such as social-cognitive skills or social/cultural learning, children can achieve distributive justice despite a strong adjustment pressure like favoring the socially close ones over others.

As a result, children favor their needy friends but they are inclined to fairness in presence of the needier strangers, as well. Thus, favoritism is preferred when there is a reason (need of friend) to do so; fairness in distribution is also preferred to avoid of moral violations like allocating more to the friend when the stranger is needier. This result is an important contribution of the current study to the literature and it is considered that the tendency of children to provide justice in conditions of need despite friends in the preschool period can be revealed thanks to the methodological innovation the current study has brought (experimental conditions where two tendencies of fairness and favoritism compete).

Implications for Policy and Practice

The findings of this study may bring some implications for policy and practice in early childhood education. The present study has provided evidence of a bias for friends in situations involving moral dilemmas such that children distribute to friends and strangers with different levels of need differentially. Needy friends are put first but needy strangers are not allocated as much amount of resources. Although this finding indicates that children take 'the need' factor as an allocation criterion, it also shows that children allocate to strangers and friends with different levels of need differentially. Friend-favoritism may result in injustice when non-friends cannot get necessary resources in presence of friends or socially close ones, therefore such a bias may be a source of injustice and disruption in society. Eventually, to reduce these tendencies, curriculum, and teaching, starting from early childhood can be enriched in a way to support moral reasoning and fairness cognitions (Ísaksson, 1979). The study's finding on friend-favoring also underlines the importance of schooling and character education for children to bear fairness in mind as a priority (Kohlberg & Hersh, 1977). Fairness plays an important role in providing a society where the rights of each individual are protected while interpersonal cooperation continues (Deutsch, 1975; Tomasello, 2018). Promoting moral education for fairness via schooling can contribute to building of a just society.

Limitations and Future Research

There is a number of limitations in this study and future studies should build upon these limitations and findings. Although it is not the main subject of the current study, analyses related to age and gender can be conducted with a larger sample in future studies. Within the scope of the experiments, children were tested cross-sectionally. Future research may collect longitudinal data from children to monitor how results change over time. In addition, the conflicting results of different studies on the tendency of 3-year-olds to transfer more to friends make it important to study this issue in more detail (Olson & Spelke, 2008; Paulus & Moore, 2014). Colored stickers were used as resources in the experiments. Future studies can examine whether the findings vary with using resources of different functions or values in the tasks. The change in behaviors of children in distribution throughout preschool and school years can be attributed to learning related to moral causality at school as an environment where social norms are reinforced (Eisenberg & Mussen, 1989; Xiao et al., 2019). So, attendance to school as well as attitudes of parents –as actors of the home learning environment- may be investigated for their role in distribution decisions. In addition, children, with age, can be more sensitive to what others think of them; and their beliefs about others' thinking are related to perspective-taking skills (Fehr et al., 2008; Takagishi et al., 2010). Therefore, future studies, by examining the role of such cognitive factors, may contribute to explanations for whether there are universal behavioral patterns in distributional justice.

Declarations

Author's Declarations

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***Competing interests**:* The author declare that they have no competing interests.

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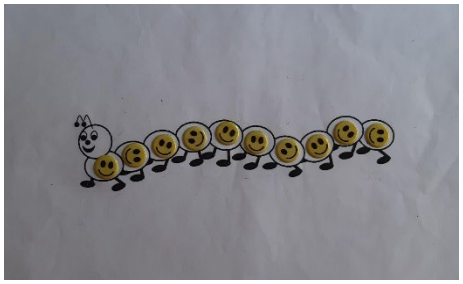
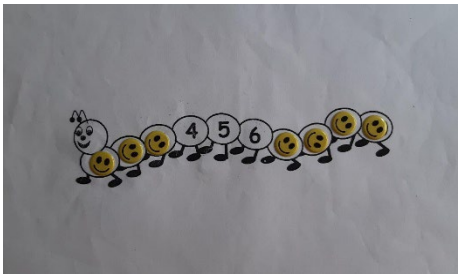
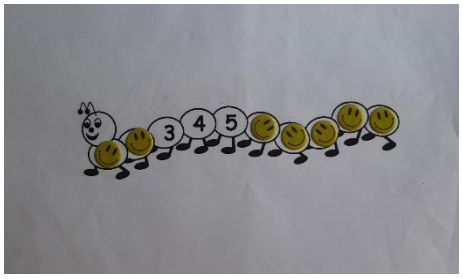
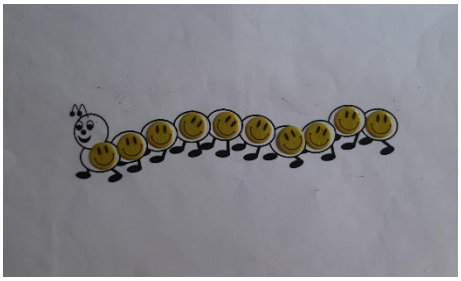
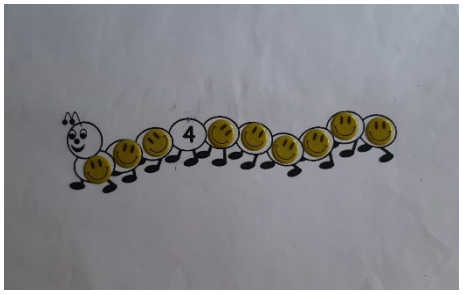
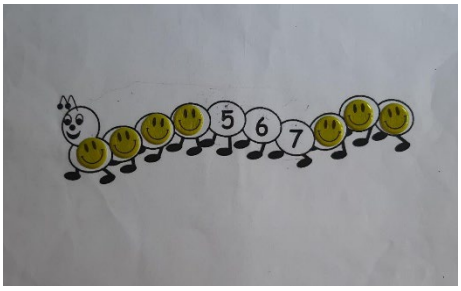
Appendix 1

Supplementary Material
The Pictures of The Craftworks of The Friend and the Stranger in Each Condition

Condition Number	Friend's Craftwork	Stranger's Craftwork
Condition 1		
Condition 2		
Condition 3		
Condition 4