Learning To Wait And Be Altruistic: Testing A Conversational Training In Economic Education For Primary School Children

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Abstract

Individual economic competence is important but increasingly challenging to manage due to the growing complexity of the nature of economic decisions people must make and the substantial impacts of some of these decisions on their lives. Decision-making ability develops from childhood and is closely related to specific economic components and prosocial behaviour such as fairness, altruism, and delay of gratification. However, while there are financial-education programs for children and young people focusing on financial products, few studies have examined training for the psychological abilities underlying economic decision-making. To promote those psychological skills that contribute to making decision-making more socially effective, we designed and tested a conversational-based training program for primary school children using reflective thinking. A total of 110 (male = 47) children aged 8 to 10 years (mean age = 9.71 years) from two schools in Northern Italy participated in the study with 55 children in a training group and 55 in a control group. All participated in pre-tests measuring their socio-economic background and economics-related skills and abilities. The training group were told stories relaying values of fairness, altruism, and delayed gratification. Both groups participated in task-based post-tests relating to fairness, altruism, and delayed gratification. Results revealed that children in the training group showed significant improvement at the post-test in altruistic and investment behaviour, showing the training efficacy, suggesting that similar programs could be implemented in elementary schools as foundational teaching of economics and fiscal responsibility.

Keywords

Decision making, training, altruism, intertemporal choice, investment, fairness, school-age children

Introduction

Economic education has become an increasingly important issue in the last decade, due to the numerous changes in the economic and social context. Literature has aimed at investigating economic and financial phenomena, particularly financial literacy (Lusardi & Mitchell, 2014), evidencing that a lack of economic-financial knowledge is disadvantageous to people lives (Bucher−Koenen, Lusardi, Alessie, & Rooij, 2017). Lower levels of such knowledge, as in the case of women, have an impact on the active participation within the economy, also within the household (Hung, Yoong & Brown, 2012), and makes people vulnerable. On the contrary, high levels of financial literacy result in positive economic outcomes, i.e. planning for retirement, paying bills on time, budgeting, saving, and setting financial goals (Grohmann, Kouwenberg, & Menkhoff, 2015), and positively correlate with day-to-day financial management skills, the participation in financial markets and investments and the capacity to undertake a retirement planning. These evidences highlight the need for providing children and young people with effective financial education programs since an early age to prepare them for understanding and experiencing the economic and financial occurrences (Aprea, 2015; Lombardi & Ajello, 2017).

The OECD (2014) defines financial literacy combining three aspects: knowledge of financial concepts; financial capacity (the ability to apply this knowledge in real life); and financial inclusion (describing the opportunities and motivations for inclusion in various financial scenarios). The second aspect directly connects to decision-making—a psychological process relevant to improve good financial literacy. In fact, both the first definition of financial education (OECD, 2005) and the most recent literature identifying the key features of financial education programs (Amagir, Groot, Maassen van den Brink, & Wilschut, 2018) focusing on the importance of being able to make appropriate economic and financial choices to achieve positive economic behaviours. Decision-making is a complex process, involving a number of psychological constructs, such as fairness , altruism, and the ability to delay a gratification; as for childhood, literature focuses on developing and educating decision-making skills in order to better manage goods, money and to become able to understand economic world (Castelli, Massaro, Bicchieri, Chavez, & Marchetti, 2014; Marchetti, Castelli, Massaro, & Valle, 2016; Castelli, Massaro, Sanfey, & Marchetti, 2017; Lombardi, Di Dio, Castelli, Massaro, & Marchetti, 2017).

Fairness can be defined through the inequity aversion concept (Fehr, Schmidt; 1999), i.e. people's tendency to resist inequitable outcomes. In economic transactions, fairness can lead people to give up possible profits in order to re-establish equity. This is considered a strategic approach to economic decision-making, because increases over time the chance of reciprocity: an individual can currently give up part of her/his assets to another knowing that in the future she/he will be treated fairly, thus gaining an advantage. The main task evaluating fairness is the *Ultimatum Game*, an economic interactive game involving one Proposer and one Receiver that have to share an amount of money. Fair Receivers accept fair offers, in which the amount of money is similar for the two players, and refuse unfair offers, in which one of the players receives

significantly more money than the other. Concerning childhood, around 3–4 years of age, children show aversion to disadvantageous inequity by rejecting offers that provide for a lower good for oneself and a higher good for the other; around 8 years of age, they show aversion also to advantageous inequity, rejecting offers that provide for a higher good for oneself and a lower good for the other (Smith, Blake, & Harris, 2013). Thus, the baseline for fairness shifts from an egoistic/egocentric perspective, oriented to maximize profit without considering others' perspectives, to an equal/multicentric perspective, which allows children to play considering the partner perspective on the fairness norm (Castelli et al., 2017).

Altruism is a predisposition of human beings to help others achieve their goals and to share valuable goods, services and information, with the long-term aim to improve the society well-being and consequently also one's own (Warneken & Tomasello, 2009). Children learn to act altruistic behaviours on the basis of their own culture' social norms, expecting of being reciprocated and thinking to their social reputation. Altruism is studied by the *Dictator Game*, where the Proposer decides how much to offer to the Receiver, who is obliged to accept. Children start helping others and share with others already during the second/third year of life (Warneken & Tomasello 2009; 2013), then propensity to altruism becomes stable at early school-age (Benenson, Pascoe, & Radmore, 2007).

Furthermore, people are often called to make decisions between choices that have an immediate benefit and choices that have a greater benefit in the future. This decision is named "intertemporal choice" and regards the behaviour to act when choices in the present influence future availabilities, as in the case of saving, investment, education, health care. Investigated through the delay of gratification paradigm (Marchetti, Castelli, Sanvito, & Massaro, 2014), the ability to wait for a higher award affects developmental psychology, because predicts school context adaptation, attainment of academic achievement, high salaries and good job positions in adult life (Casey et al., 2011). This ability surfaces at preschool age (a turning point is around four years) and continues to develop until 8–10 years of age, when children can inhibit an immediate impulse in order to obtain future gains (Lombardi et al., 2017).

In this research we tested the possibility of promoting more effective economic decision-making both from a personal and a social point of view through a conversational training, created ad hoc, about fairness, altruism, and delayed gratification.

Why a conversational training for decision-making components?

The decision-making and its components are crucial for the construction of good financial literacy. Analysing financial-literacy education programs, Amagir and colleagues (2018) suggest that most elements of these aim to improve financial literacy and capability. In terms of literacy, programs teach basic concepts and content of the economic and financial world. Authors argue that an educational approach based exclusively on knowledge has limited effectiveness (Perry & Morris, 2005): in order to obtain a significant improvement is important to consider financial capability. Hence, some existing programs focus training on some of personal aspects involved in economic and financial decision-making (i.e. self-confidence, perseverance, and "economic thinking", but also mathematic competency), transferable skills, willingness to invest in oneself to achieve economic improvements, and problem-solving skills. To become a good decision-maker (making effective decisions on a personal level that are socially acceptable from an

interpersonal point of view) is important making adaptive long-terms decisions, depending on a person's planning skills, ability to wait, and capacity to delay a gratification, all abilities studied in psychology as processes underlying the development of individuals' social skills. Moreover, a large part of daily decisions are the basis of the prosocial behaviour—costly to the individual and benefits others at the individual or group level (Yamagishi et al., 2012); examples include altruism, charitable donations, and helping behaviours. Böckler and colleagues (2018) identified three factors that constitute prosocial behaviour that can be trained: *altruistic motivated prosocial behaviours* (demonstrating individual desire to enhance other's well-being even at a cost to oneself and evaluated through, for example, the donation task or the DG); *norm motivated prosocial behaviours* (the tendency to enforce social norms using costly punishment) evaluated through second and third-party punishment tasks (a variation of the UG); *self-reported motivated prosocial behaviours* (perceiving oneself as moral and helpful) evaluated through self-reported scales. Trainings concerning prosocial behaviours focus on: individual affective components, i.e. compassion, gratitude, prosocial motivation; socio-cognitive skills, i.e. perspective-taking ability; mindfulness, i.e. compassion-based contemplative practices. These trainings may involve adults (parents or teachers) to train or to teach specific strategies to use with children or adolescents (for example, Šramová, 2004;Valle et al., 2016) or may be applied directly children and adolescents. Heck and colleagues (2018) proposed a training for primary school children focusing on the construct of fairness, demonstrating that training children in perspective-taking, influences their decisions in economic games.

In light of these considerations, we aimed to involve primary school children in a conversation-based training for enhancing prosocial behaviour and competencies by developing perspective-taking abilities. This conversational training applies methods used by financial education programs, such as group discussion and guided readings (Amagir et al., 2018), and focuses on metacognitive ability to think about self and perspective-taking ability (Böckler et al., 2018). Our training use conversations as a means of co-constructing knowledge (Siegal, 1999): children are guided to discuss each other's, with the aim of discovering and accepting multiple perspectives, in order to compare different points of view and promote reflection on experiences (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). In this way, this training supports the application of the decision-making and its components, i.e. altruism, fairness, and intertemporal choice, in children's daily life.

The aim of this study is to evaluate the effectiveness of training in promoting fairness , altruism, and delay of gratification ability (the basis of the investment propensity) on economic decisions in children from 8 to 10 years old. We hypothesize that reflections facilitated by a conversational methodology on the issues above-mentioned will lead children to change their behaviours in decision-making from pre- to post-test, compared to children in the control group. We expected that children evaluated at the end of the training would show more inequity aversion in the fairness test and would become more altruistic and better able to wait for a greater good than in the pre-test evaluation with respect to children of the control group.

Method

Participants

121 children were initially recruited for this study belonging to six classes (from 3rd to 5th primary school classes) from two schools in Northern Italy, near Milan, who took part in this study. Children who did not complete all the measures or children did not speak or understand Italian were removed from the main dataset. Six children assigned to the training group and three children assigned to the control group didn't complete pre- or post-test sessions and 2 children, assigned to control group, had moved to Italy for no more than 3 months and did not understand or speak Italian. The total of participants was 110 (Male= 47) aged between 8 to 10 years (Mean age = 116.51 months, SD = 10.49 months). Two classes for each age range participated and for every range one class was randomly assigned to the control group (CG, N=55, mean age = 118.15 months, SD = 10.31, male = 26) and one to the training group (TG, N = 55, mean age = 114.91, SD = 9.80, male = 21). The training group participated in the training program, while a control group followed only the regular school program of citizenship education. Children was made up of typically developing who were fluent in Italian and had not difficulties in taking part (and learn from) the activities of our training program. Parental informed consent was obtained from each participant. The research was conducted according to APA ethical standards and was approved by the local ethics committee.

Procedures

The study was organized into three steps:

Step 1 (Pretest): All children were tested firstly through a collective session and secondly through an individual one. The collective session, lasting about 50 minutes, included a guided-by-the-experimenter protocol to assess socio-economic families' level, linguistic and mathematical abilities of the children. The individual session tasks were randomized and evaluate children's inhibitory control, sensibility of fairness, altruism and the delay of gratification. During the two individual sessions, lasting about 25 minutes, children could play with and had the chance to win football players or puppies trading cards used as traded goods for the proposed games. Before starting each task, children were asked about their trading cards preferences. Each task was presented randomly.

Step 2 (Training): Only those children in the training group took part in the training sessions, which started one week after the end of the pre-test phase. Children in the control group only attended civics education classes, established in their state curricula. Both training and control group followed the school curriculum based on the Italian National Guidelines for the pre-primary school and the first cycle of school education curriculum (MIUR, 2012). It indicates that the general objective of the educational process in the school system is the achievement of some key competences for lifelong learning recommended by the European Parliament and the Council such as the sense of initiative and entrepreneurship, strictly linked with economic and financial education. According to these guidelines, every teacher individually and in a personal way shows the principles of the economic and financial education, explaining, for example, the economic trend of industry sector (Morselli & Ajello, 2016).

Step 3 (Post-test): all children took part in this session one week after training sessions end. They only attended the individual session in which they were re-tested about fairness, altruism and delay of gratification. Tasks were run in random order during one individual session lasting a maximum of 25 minutes. The post-test session ended at the end of the school year, after 4 months from the pre-test session.

Both pre-test and post-test individual sessions were conducted in a quiet room different from children's classes. The training sessions were conducted in the classroom. The three steps of researcher were conducted by independent researchers. As shown in table 1, we organized the variables in 'control variables', potentially confounding variables that are known to be related to fairness, altruism and delay of gratification and 'decision making variables', focus of the intervention. Decision making tasks were played for real, giving a final amount of trading cards.

Table 1 Target dimensions and tasks for the pre-test and post-test administrations

	Dimension	Task	Pre-test	Post-test
Control variables				
	Socio-economic background	*Family Affluence Scale (FAS, Currie et al., 2008)*	X	
	Verbal ability	*Primary Mental Ability (PMA, Thurstone, & Thurstone, 1982; Rubini & Rossi, 1982)*	X	
	Mathematical Ability	*AC-MT 6-11(Cornoldi, Lucangeli, & Bellina, 2012)*	X	
	Inhibitory Control	*Fruit Stroop Task (Archibald & Kerns, 1999)*	X	
Decision Making variables				
	Fairness	*Ultimatum Game (UG)*	X	X
	Altruism	*Dictator Game (DG)*	X	X
		Donation Task (DT)	X	X
	Delay of Gratification	*Intertemporal Choice Task*	X	X
		Investment Task	X	X

Decision-making variables

Fairness

A modified version of the Ultimatum Game (UG-Güth, Schmittberger, & Schwarze, 1982) was used to assess fairness. Children played a game in which they could be shared with another child represented by a drawing image up to 10 trading cards. Playing the role of Receiver, the child could decide whether to accept or refuse the proposed division. The children played three rounds as Receiver categorized as follows: *unfair* (8-2: eight trading cards for the Proposer and two trading cards for the Receiver); *hyperfair*

(2–8: two trading cards for the Proposer and eight trading cards for the Receiver); and *fair* (5-5: equal division). All rounds were presented randomly. The children scored 1 when the offer was accepted and 0 when refused. A total of 3 independent scores were hence obtained, one for each type of offer.

Altruism

The Dictator Game (DG-Kahneman, Knetsch, & Thaler, 1986), was used to assess altruism. The child (playing as Proposer/Dictator) decided how to distribute 10 trading cards, between him and a passive player, that did not have the option to decline the offer. Also, in this case, the other child (the Receiver) was presented as a drawing image and the Dictator has chosen between two different typologies of trading cards. The children played only one round, in which the offered amount was scored.

Based on the donation experiment run by Angerer and colleagues (2015), we used the Donation Task (DT), i.e. a DG-like experiment on donations to a charity. The experimenter first asked the child if he/she could see a box placed on the other side of the room. Once the child replied "Yes", the experimenter began to explain to him/her that the box contained all the trading cards donated by the children participating in the project to some children whose families didn't have money to buy them. Then the experimenter told the child he/she would have had 10 trading cards and he/she could decide how many of them donate and how many taking home. The child was informed that he/she could donate from 0 to 10 trading cards, inserting the donated cards in the box. Cards he/she would take home had to be put in a white envelope, without being observed by anyone. After a couple of control questions on the understanding of the right donated and taken-home trading cards' allocation, the experimenter accompanied the child in front of the box and gave him/her all the time waiting for him/her in another part of the room. Scores could vary from 0 to 10, depending on the number of trading cards donated.

Delay of gratification

The Intertemporal Choice Task (ICT-version of Marchetti et al., 2014), was used to assess the delay of gratification (Mischel, Ebbesen, & Raskoff Zeiss, 1972), asking children to decide whether to delay gratification in hopes of gaining larger future reward. Children were first told the following sentence: "You know, sometimes you can choose between receiving a small gift right away or a bigger one later" and then they had to answer the following question: "Do you prefer having a pack of trading cards now or wait four weeks, the day XX (showing the right day on a calendar) to have two trading cards' packs?". In case the child chose to take one pack of trading cards immediately, he was asked how long he would be willing to

wait to get two packs. The experimenter took to school in the right day after four weeks trading cards children won. The child scored 0 if could not wait four weeks and 1 if waited.

The Investment Task (IT-Angerer et al., 2015) assess the investment propensity as a part of the delay of gratification paradigm. Compared to the former task, the Investment Task requires to apply a more strategic thinking in the decision to delay an immediate gratification in favour of a greater future reward, because the child has to decide how many trading cards to take home immediately and how many to invest. In this case, the child has to manage the pursuit of two objectives, one immediate and one long-term, assessing whether and how much more important for her/him the immediate reward or the greater future reward is. In fact, in this task children were endowed with 10 trading cards and they were told they had to choose how many trading cards they could take home immediately and how many they want to put inside of "four weeks" box. Every card inserted in the box would have been doubled if children would have waited for four weeks (children had been shown the exact day on a calendar). To understand children's rule comprehension, they were asked to repeat it with some control question. Once the children real comprehension was verified, they were told to make their choice. The score was the invested trading cards number (range 0-10). The experimenter took to school in the right day after four weeks trading cards children invested.

Training

A new conversational training focused on fairness, altruism, and delay of gratification was created in order to train these skills. The conversational approach (Siegal, 1999) assumes that child is involved in conversational interactions, typical of social life, early in development. The conversational activity, in particular during the school-age period, allows transforming the implicit knowledge into explicit knowledge, discussing them with others.

The training was designed to have three one-hour sessions each, conducted in class by a researcher over a period of about two weeks of school time. For each topic (i.e. fairness , altruism, and delay of gratification ability), two stories have been invented or created based on children's (Varela, 2014) or on scientific literature (Larsen, Lee and Ganea, 2017), with the aim of stimulating group reflection and understanding of one's own and other points of view. According to literature about the training programs (Bianco et al., 2019), each story was followed by four multiple-choice questions create with the purpose of verifying child's actual understanding of the content, his/her ability to put themselves in the shoes of the story characters (perspective-taking) and to stimulate the subsequent discussion.

Results

Performance on the ICT as well as on the UG was evaluated through non-parametric statistics (binomial analysis and Mann-Whitney U test). We conducted some preliminary analyses to verify the homogeneity of the groups for the considered variables at the pre-test session. We controlled gender differences and no significant results emerged. To assess differences in the pre-test rate of acceptances of hyperfair, fair and unfair proposals and of intertemporal choice task's success the Mann-Whitney U test (Bonferroni corrected for multiple comparisons) by paired-group showed no significant differences between the two groups ($p >$ .05). For the other variables, we conduct the t-test for independent samples and it didn't show any statistically significant differences between children assigned to the TG and children assigned to the CG ($p>$ .05), with exception of the verbal abilities ($t_{(108)}$ = 2,376, p=.019). For this significant difference in subsequent analyses, we controlled verbal abilities scores.

Subsequently, in order to analyse the effect of training, we performed a GLM for repeated measures for each decision-making continuous variable explored, i.e. DG, DT, IT with time (pre-test and post-test) as the within-subjects factor and groups (training and control) as the between-subjects factor, and verbal ability as the covariate. Pairwise comparisons revealed that, as shown in figure 1, for the DG, children in the TG showed significantly higher post-test offers compared to the post-test offers in the control group ($F_{(1,108)}$ = 5.431, p = .022, $\eta 2$ = .071, θ = .700). Furthermore, for the IT children in the TG showed a significantly higher post-test investment compared children in the CG ($F_{(1,108)}$ = 4.270, p = .041, $\eta 2$ = .038, θ = .535), showing the efficacy of the training program (see figure 2). However, for the DT, GLM for repeated measures does not show significant effect of training ($F_{(1,108)}$ = 0.143, p = .706, $\eta 2$ = .006, θ = .130). In order to evaluate the effect of training for the dichotomous variables, i.e. the UG – fair, unfair and hyperfair proposals - and ICT, we used the McNemar's statistic in the two groups. This test was significant for both control group and training group for the Intertemporal Choice Task (TG, N = 55, $\chi 2$ = 10.9, p<.001; CG, N=55, $\chi 2$ = 10.9, p<.001), showing an effect of the time and it was no significant in the two groups for UG fair proposal (TG, N = 55, $\chi 2$ = .40, p =.527; CG, N = 55, $\chi 2$ =.50, p = .480), UG unfair proposal (TG, N =55, $\chi 2$ = .258, p =. 108; CG, N = 55, $\chi 2$ = .07 p =.796) and UG hyperfair proposal (TG, N = 55, $\chi 2$ = 1.0, p = .317; CG, N = 55, $\chi 2$ = .82, p = .366). These results show that the training had no efficacy in the performance of these tasks.

Figure 1 Dictator Game proposals for Training group and Control group at pre-test and post-test

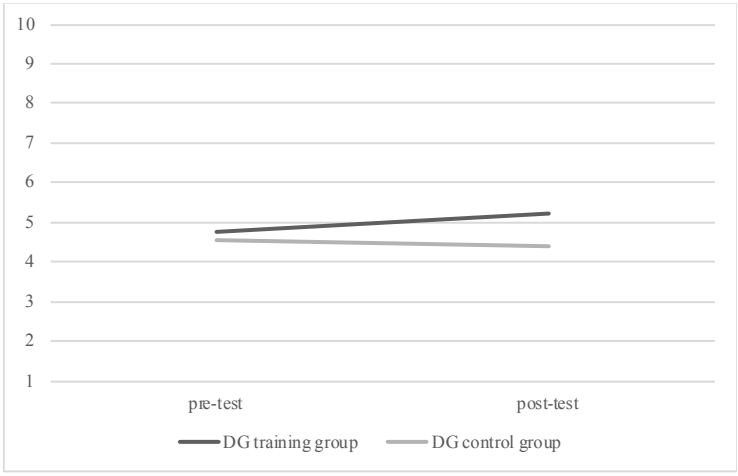
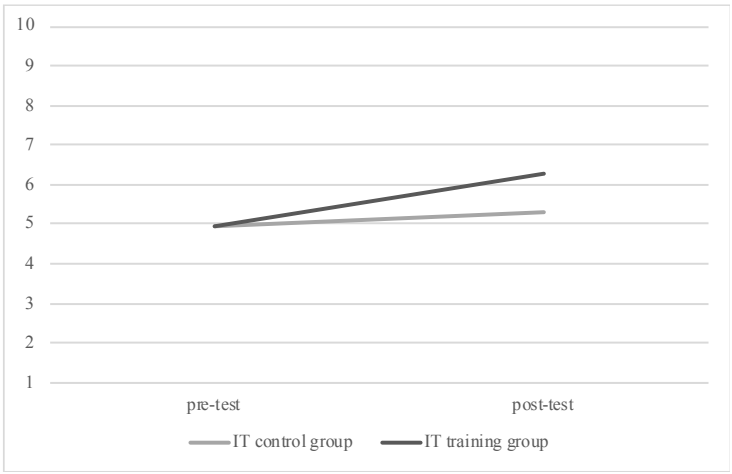


Figure 2 Investment Task performance for Training group and Control group at pre-test and post-test



Discussion

In this study, we tested the efficacy of a conversational training about fairness, altruism and the ability to delay gratification in children aged from 8 to 10 years. Results evidence that the training increases altruistic behaviour and the ability to delay gratification, whereas does not impact the fairness behaviour.

Regarding the altruism increase, the literature suggests that the propensity for altruism is already seen in early childhood (Warneken & Tomasello, 2009) and stabilizes in early school-age (Benenson et al., 2007). Nonetheless we find that the training modify altruistic behaviour in the late school-age: children who participated in the conversational training increase the number of the trading cards shared in the Dictator Game, but they didn't increase the number of the trading cards donated in the Donation Task. The latter explicitly evokes the construct of charity (a concept similar to that of a donation considered here) consisting of resources allocation to a recipient identified by need, not by personal characteristics (Niemi & Young, 2017). The Dictator Game requires children to play with another hypothetical - but well defined - child, because of a schoolmate depicted in a drawing, whereas the Donation Task asks to share some trading cards with an unfamiliar child. It is possible that children trained in the perspective-taking with their classmates become more able to assume the perspective of a specific child similar to them, then they based the choice of the number of trading cards to share on the assumption of a hypothetical relationship with her/him. In the Donation Task, charitable behaviour is based on the identification of a need, without implying or hypothesizing a direct relationship with the other; consequently, in this case the ability to take others' point of view may be less involved.

Regarding the ability to delay gratification, children of the training group increase the number of trading cards invested in the Investment Task, compared to the control group, but we do not find differences in the Intertemporal Choice Task. In the ability to delay a gratification are involved self-control (Kidd, Palmeri, & Aslin, 2013), used to inhibit the desire to obtain the gain immediately, anticipation, the capacity to anticipate the hedonic consequences related to the good in the future, and representation, the tendency to evoke specific interpretative frames about the salience of the delayed reward (Berns, Laibson, & Loewenstein, 2017) . We assumed that the application of these capacities during the training helped children to become more strategic in an investment task, a complex

situation that involves the ability to anticipate and represents both the immediate and the future gain and that requires to find an equilibrium between them (both ensured, the decision is about the amount of the rewards). Conversely, the intertemporal choice is less complex and less strategic because imply an "all or nothing" decision (a reward immediately or a reward in the future), then it is possible that children continue to apply their usual behaviour without benefiting from more complex reasoning.

Regarding fairness, we had assumed that after participating in a training focused on the fairness norm, children showed more inequity aversion that in the pre-test phase, by the increase of the rejections of unfair and hyperfair offers. Instead, results suggest that the training did not have an effect on the inequity aversion, in both directions. To understand this result it is useful refer to the overlapping of fairness and inequity aversion: indeed, the fact that to train fairness does not impact on inequity related behaviour may mean that in this age groups, social norm of fairness is something different from its behavioural operationalization in inequity aversion. This is in line with recent work of Engelmann and Tomasello (2019) that affirm that children decide about the resources' allocation on the basis of the social meaning attributed to this distribution and specifically on the basis of the desire that people are equally respected. In this perspective, children' decisions are not moved by an abstract norm of fairness (object of the present training), rather by the application of this norm involving an interpersonally based reasoning on the mutual respect, the merit (in the case of collaboration) and the resource's need. We can assume that to obtain a change in economic behaviour it might be useful to work on these social aspects, rather than on the norm itself, as proposed during the training.

Results showed that using guided conversations and training children to focus themselves on the reflective thinking about norms, values and possible different perspectives, altruism and investment decision-making behaviour are modified. Reflective thinking can help to monitor and display the solution/decision process, through the problem-solving with logical reasoning, in order to analyze and think about the options, choosing the most useful alternative. Decision-making requires to reflect knowingly on their own mental structures and procedures, emerging as a solution to interpret, delay and understand the issues of thinking in prediction and decision-making for the future (Rasyid, Budiarto & Lukito, 2018). We think that reflective thinking supports reflections and discussions and helps children to develop higher-order cognitive skills through the link of the new to their previous knowledge, the implementation of specific strategies for new tasks and the aware understanding of their own thinking processes and decision strategies. Many studies showed how learning occurs

through social and communicative processes, as forms of "dialogic" interaction, such as classroom discourse (Mercer & Littleton, 2007). In the training, each child discussing with other participants recognizes the diversity of voices, values, beliefs and perspectives and the meaning emerges from the tension between the perspectives in that "dialogic space" which develops through the social construction of meaning (Perret-Clermont, Perret, & Bell, 1991; Lombardi et al., 2018). Training helps children to reflect on their own thoughts and decision-making. Participating in shared reasoning and thoughts, and critically considering other points of view were useful to learn and generalize new forms of thinking. At the end of this training, new knowledge in children derived not only from materials prepared by the researcher, used just as a stimulus to start the discussion, but also from listening to mutual comparison, in a more active and interesting way. Furthermore, children learn something about the topic and something about aspects of this topic related to their social world and, putting themselves in the story protagonists' shoes, they may change their decisions. Children rely on previous knowledge and work to actively welcome new information to make sense of the story situation; they move from considering the concrete, action-oriented, context-specific details of the stories to building an understanding of the wider and longer-term emotional implications for their own situation (Immordino-Yang, 2015). The training may also have stimulated cognitive processes underlying thoughts and behaviours regulation in children, such as cognitive flexibility, refers to our ability to switch between different mental sets, tasks, or strategies (Diamond, 2013). The training group children refocus attention to relevant theme of the training session and simultaneously consider conflicting representations of information in order to modify one's thinking in response to changes in their own internal or external environment and in relation to their decisional process.

Limits, strenghts and conclusions

About the limits of this study, in the future it will be important to let children play as proponents of the Ultimatum Game: in fact, literature evidences that school-age children evaluate differently the fairness of the offers when they play as Proposer or Receiver (Castelli et al., 2014). It might be interesting to check whether playing as a Receiver can bring changes that are not appreciable when the children play as Proponents. Moreover, we did not evaluate the trust in the experimenter role: an experimenter tested all children in the pre-test and post-test phases, and she came back to deliver the gained trading cards during the games. It is possible that to verify the experimenter's reliability in the first phase has led the children to trust that person even in the second phase, influencing in some way decisions in the post-

test (about the importance of the reliability of the experimenter see Kidd et al., 2013). From the methodological point of view, another limit concerns the difficulty of discriminating the effect of learning in the post-test session, although the training group is significantly improved compared to the control group. In future studies, will be useful consider the transfer effect of our training in order to test its efficacy in producing improvements on practiced but also on transfer tasks. Moreover, the two groups followed normal school programs, future research should use a control training with the same structure as the experimental one, but with neutral contents.

A strength of the training concerns the applicability in the educational context in order to improve both specific and broad psychological dimensions. In fact, results showed that a training applying school methods, familiar for teachers and pupils, have an impact on very specific dimensions such altruism and delay of gratification, but also may promote more general psychological abilities, for example reflective thinking as discussed above.

In light of our results, we think that the application of this training at school might be useful for teachers and children. The training's structure, based on narratives' stimuli and guided discussion, is near to the teaching methods usually used at school, they might be easily accepted and applied in a classroom. Moreover, this training does not directly refer to the subject of economics, which is generally not included in primary school curricula, but its application provides foundational learning related to economic topics for this age group.

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References

Amagir, A., Groot, W., Maassen van den Brink, H., & Wilschut, A. (2018). A review of financial-literacy education programs for children and adolescents. *Citizenship, Social and Economics Education*, *17*(1), 56–80. https://doi.org/10.1177/2047173417719555

Angerer, S., Glätzle-Rützler, D., Lergetporer, P., & Sutter, M. (2015). Donations, risk attitudes and time preferences: A study on altruism in primary school children. *Journal of Economic Behaviour &*

Organization, *115*, 67–74. https://doi.org/10.1016/j.jebo.2014.10.007

Aprea, C. (2015). Secondary school students' informal conceptions of complex economic phenomena. *International Journal of Educational Research*, *69*, 12–22. https://doi.org/10.1016/j.ijer.2014.09.002

Archibald, S. J., & Kerns, K. A. (1999). Identification and description of new tests of executive functioning in children. *Child Neuropsychology*, *5*(2), 115–129. https://doi.org/10.1076/chin.5.2.115.3167

Benenson, J. F., Pascoe, J., & Radmore, N. (2007). Children's altruistic behaviour in the dictator game. *Evolution and Human Behaviour*, *28*(3), 168–175. https://doi.org/10.1016/j.evolhumbehav.2006.10.003

Berns, G. S., Laibson, D., & Loewenstein, G. (2007). Intertemporal choice – toward an integrative framework. *Trends in Cognitive Sciences*, *11*(11), 482–488. https://doi.org/10.1016/j.tics.2007.08.011

Berti, A. E., Ajello, A. M., Aprea, C., Castelli, I., Lombardi, E., Marchetti, A., Massaro, D., Sappa, V., & Valle, A. (2017). Adolescents' and Young Adults' Naïve Understandings of the Economic Crisis. *Europe's Journal of Psychology*, *13*(1), 143-161. https://doi.org/10.5964/ejop.v13i1.1187

Bianco, F., Lombardi, E., Massaro, D., Castelli, I., Valle, A., Marchetti, A., & Lecce, S. (2019). Enhancing advanced Theory of Mind skills in primary school: A training study with 7- to 8-year-olds. *Infant and Child Development*, *28*(6), e2155. https://doi.org/10.1002/icd.2155

Böckler, A., Tusche, A., Schmidt, P., & Singer, T. (2018). Distinct mental trainings differentially affect altruistically motivated, norm motivated, and self-reported prosocial behaviour. *Scientific Reports*, *8*(1), 13560. https://doi.org/10.1038/s41598-018-31813-8

Bucher‐Koenen, T., Lusardi, A., Alessie, R., & Rooij, M. van. (2017). How Financially Literate Are Women? An Overview and New Insights. *Journal of Consumer Affairs*, *51*(2), 255–283. https://doi.org/10.1111/joca.12121

Casey, B. J., Somerville, L. H., Gotlib, I. H., Ayduk, O., Franklin, N. T., Askrend, M. K., Jonides, J., Berman, M. G., Wilson, N. L., Teslovich, T., Glover, G., Zayas, V., Mischel, W., & Shoda, Y. (2011). Behavioural and neural correlates of delay of gratification 40 years later: Proceedings of the National Academy of Sciences, 2011,108 (36),14998-5003. *Annals of neurosciences*, *19*(1), 27–28. https://

doi.org/10.5214/ans.0972.7531.180407

Castelli, I., Massaro, D., Bicchieri, C., Chavez, A., & Marchetti, A. (2014). Fairness norms and theory of mind in an ultimatum game: Judgments, offers, and decisions in school-aged children. *PLoS One*, *9*(8), e105024. https://doi.org/10.1371/journal.pone.0105024

Castelli, I., Massaro, D., Sanfey, A. G., & Marchetti, A. (2017). The More I Can Choose, The More I Am Disappointed: The "Illusion of Control" in Children's Decision-Making. *The Open Psychology Journal*, *10*(1). https://doi.org/10.2174/1874350101710010055

Cornoldi, C., Lucangeli, D., & Bellina, M. (2012). Test AC-MT 6-11. Test Di Valutazione Delle Abilità Di Calcolo e Soluzione Di Problemi, 6–11. Trento: Erikson.

Currie, C., Molcho, M., Boyce, W., Holstein, B., Torsheim, T., & Richter, M. (2008). Researching health inequalities in adolescents: The development of the Health Behaviour in School-Aged Children (HBSC) family affluence scale. *Social Science & Medicine*, *66*(6), 1429–1436. https://doi.org/10.1016/j.socscimed.2007.11.024

Diamond, A. (2013). *Executive functions. Annual review of psychology,* 64, 135-168. https://doi.org/10.1146/annurev-psych-113011-143750

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, *82*(1), 405–432. https://doi.org/10.1111/j.1467-8624.2010.01564.x

Engelmann, J. M., & Tomasello, M. (2019). Children's Sense of Fairness as Equal Respect. *Trends in Cognitive Sciences*, *23*(6), 454–463. https://doi.org/10.1016/j.tics.2019.03.001

Fehr, E., & Schmidt, K. M. (1999). A Theory of Fairness, Competition, and Cooperation. *The Quarterly Journal of Economics*, *114*(3), 817–868. https://doi.org/10.1162/003355399556151

Grohmann, A., Kouwenberg, R., & Menkhoff, L. (2015). Childhood roots of financial literacy. *Journal of Economic Psychology*, *51*, 114–133. https://doi.org/10.1016/j.joep.2015.09.002

Güth, W., Schmittberger, R., & Schwarze, B. (1982). An experimental analysis of ultimatum bargaining. *Journal of Economic Behaviour & Organization*, *3*(4), 367–388. https://doi.org/

10.1016/0167-2681(82)90011-7

Heck, I. A., Chernyak, N., & Sobel, D. M. (2018). Preschoolers' Compliance With Others' Violations of Fairness Norms: The Roles of Intentionality and Affective Perspective Taking. *Journal of Cognition and Development*, *19*(5), 568–592. https://doi.org/10.1080/15248372.2018.1504052

Hung, A., J. Yoong & E. Brown (2012). "Empowering Women Through Financial Awareness and Education", *OECD Working Papers on Finance, Insurance and Private Pensions*, No. 14, OECD Publishing, Paris. http://dx.doi.org/10.1787/5k9d5v6kh56g-en

Immordino-Yang, M. H. (2015). *Emotions, learning, and the brain: Exploring the educational implications of affective neuroscience*. WW Norton & Company.

Kahneman, D., Knetsch, J. L., & Thaler, R. (1986). Fairness as a constraint on profit seeking: Entitlements in the market. *The American Economic Review*, 728–741.

Kidd, C., Palmeri, H., & Aslin, R. N. (2013). Rational snacking: Young children's decision-making on the marshmallow task is moderated by beliefs about environmental reliability. *Cognition*, *126*(1), 109–114. https://doi.org/10.1016/j.cognition.2012.08.004

Larsen, N., Lee, K., & Ganea, P. (2017). Do storybooks with anthropomorphized animal characters promote prosocial behaviours in young children? *Developmental Science*, *21*, e12590. https://doi.org/10.1111/desc.12590

Lombardi, E., Di Dio, C., Castelli, I., Massaro, D., & Marchetti, A. (2017). Prospective thinking and decision making in primary school age children. *Heliyon*, *3*(6), e00323. https://doi.org/10.1016/j.heliyon.2017.e00323

Lombardi, E., & Ajello, A. M. (2017). Crisi economica: Quali percezioni, quali conseguenze. *Ricerche di Psicologia*, *40*(1), 93–123. https://doi.org/10.3280/RIP2017-001005

Lombardi, E., Greco, S., Massaro, D., Schaer, R., Manzi, F., Iannaccone, A., ... Marchetti, A. (2018). Does a good argument make a good answer? Argumentative reconstruction of children's justifications in a second order false belief task. Learning, Culture and Social Interaction, 18, 13–27. https://doi.org/10.1016/j.lcsi.2018.02.001

Lührmann, M., Serra-Garcia, M., & Winter, J. (2015). Teaching teenagers in finance: Does it work? *Journal of Banking & Finance*, *54*, 160–174. https://doi.org/10.1016/j.jbankfin.2014.11.009

Lusardi, A., & Mitchell, O. S. (2014). The Economic Importance of Financial Literacy: Theory and Evidence. *Journal of Economic Literature*, *52*(1), 5–44. http://dx.doi.org/10.1257/jel.52.1.5

Marchetti, A., Castelli, I., Sanvito, L., & Massaro, D. (2014). Is a bird in the hand worth two in the future? Intertemporal choice, attachment and theory of mind in school-aged children. *Frontiers in Psychology*, *5*. https://doi.org/10.3389/fpsyg.2014.00483

Marchetti, A., Castelli, I., Massaro, D., & Valle, A. (2016). Combining Development and Education: Why Do Decision-Making and Social Norms Matter for Financial Education? In C. Aprea, E. Wuttke, K. Breuer, N. K. Koh, P. Davies, B. Fuhrmann-Greimel, & J. Lopus (Eds.), *International Handbook on Financial Literacy* (pp. 69–81). Singapore: Springer.

Mercer, N., & Littleton, K. (2007). Dialogue and the development of children's thinking: A sociocultural approach. Routledge.

Mischel, W., Ebbesen, E. B., & Raskoff Zeiss, A. (1972). Cognitive and attentional mechanisms in delay of gratification. *Journal of Personality and Social Psychology*, *21*(2), 204. https://doi.org/10.1037/h0032198

Ministero dell'Istruzione, dell'Università e della Ricerca (2012). *Indicazioni nazionali per il curricolo della scuola dell'infanzia e del primo ciclo d'istruzione.* Annali della Pubblica istruzione.

Morselli, D., & Ajello, A.M , (2016), Assessing the sense of initiative and entrepreneurship in vocational students using the European qualification framework, Education + Training, Vol. 58 Iss 7/8 pp. 797 – 814. https://doi.org/ 10.1108/ET-02-2016-0038

Niemi, L., & Young, L. (2017). Who Sees What as Fair? Mapping Individual Differences in Valuation of Reciprocity, Charity, and Impartiality. *Social Justice Research*, *30*(4), 438–449. https://doi.org/10.1007/s11211-017-0291-4

OECD. (2005). *Improving Financial Literacy Analysis of Issues and Policies: Analysis of Issues and Policies*. OECD Publishing.

OECD. (2014). PISA 2012 Results: Students and money Financial Literacy skills for the 21st century. Paris, France: *OECD Publishing*. https://doi.org/10.1787/9789264208094-en

Perret-Clermont, A. N., Perret, J. F., & Bell, N. (1991). *The social construction of meaning and*

cognitive activity in elementary school children. American Psychological Association.

Perry, V. G., & Morris, M. D. (2005). Who Is in Control? The Role of Self-Perception, Knowledge, and Income in Explaining Consumer Financial Behaviour. *Journal of Consumer Affairs*, *39*(2), 299–313. https://doi.org/10.1111/j.1745-6606.2005.00016.x

Rasyid, M. A., Budiarto, M. T., & Lukito, A. (2018). Junior high school students' reflective thinking on fraction problem solving: In case of gender differences. *Journal of Physics: Conference Series*, 947 (1) . doi:10.1088/1742-6596/947/1/012041

Rubini, V., & Rossi, M. A. (1982). Analysis of the psychometric characteristics of the Primary Mental Abilities Tests applied to a group of Italian subjects. *Bollettino Di Psicologia Applicata*, *161*, 87–105.

Siegal, M. (1999). Language and thought: The fundamental significance of conversational awareness for cognitive development. *Developmental Science*, *2*(1), 1–14. https://doi.org/10.1111/1467-7687.00048

Smith, C. E., Blake, P. R., & Harris, P. L. (2013). I Should but I Won't: Why Young Children Endorse Norms of Fair Sharing but Do Not Follow Them. *PLoSOnE*, *8*(3), e59510. https://doi.org/10.1371/journal.pone.0059510

Šramová, B. (2004). Cognitive training—Teacher's help. *Studia Psychologica*, *46*(3), 203–210.

Thurstone, L. L., & Thurstone, T. G. (1982). *Primary mental abilities*. Chicago: Science Research.

Valle, A., Massaro, D., Castelli, I., Sangiuliano Intra, F., Lombardi, E., Bracaglia, E., & Marchetti, A. (2016). Promoting Mentalizing in Pupils by Acting on Teachers: Preliminary Italian Evidence of the "Thought in Mind" Project. *Frontiers in Psychoogyl*, *7*, 1213. https://doi.org/10.3389/fpsyg.2016.01213

Van 't Wout, M., Kahn, R. S., Sanfey, A. G., & Aleman, A. (2006). Affective state and decision-making in the Ultimatum Game. *Experimental Brain Research*, *169*(4), 564–568. https://doi.org/10.1007/s00221-006-0346-5

Varela, S. (2014). *Fair is Fair*. Createspace Independent Publication

Warneken, F., & Tomasello, M. (2009). The roots of human altruism. *British Journal of Psychology*

(London, England: 1953), *100*(Pt 3), 455–471. https://doi.org/10.1348/000712608X379061

Warneken, F., & Tomasello, M. (2013). The emergence of contingent reciprocity in young children. *Journal of Experimental Child Psychology*, *116*(2), 338–350. https://doi.org/10.1016/j.jecp.2013.06.002

Yamagishi, T., Horita, Y., Mifune, N., Hashimoto, H., Li, Y., Shinada, M., Miura, A., Inukai, K., Takagishi, H., & Simunovic, D. (2012). Rejection of unfair offers in the ultimatum game is no evidence of strong reciprocity. *Proceedings of the National Academy of Sciences of the United States of America*, *109*(50), 20364–20368. https://doi.org/10.1073/pnas.1212126109

Appendix 1 - Decision making training

The focus aspects of the training stories are described below:

- The fairness stories talking about a) the difference between fairness/equity and equality (e.g. Espinoza, 2007) and b) the social norms (Bicchieri & Chavez, 2010);
- The altruism stories elicit *a)* the prosocial (Larsen, Lee, & Ganea, 2017) and *b)* the charity behaviours, considering altruism in terms of personal cost (Eisenberg & Shell, 1986);
- The delay of gratification stories are about the role of prospective thinking enabling the individual to anticipate future outcomes in response to current outcomes (Lombardi et al., 2017), as in the case of *a)* personal reward or *b)* common social good.

The structure of each training trial

1) *Initial phase*: at the beginning of every meeting, the experimenter handed over to all children a packet of sheets containing the first story followed by the questions created for each of them (at the end of the first story the researcher withdraws the sheets previously handed over to each child, while second story sheets are handed over);

2) *Story phase*: the researcher read the first story of the session aloud supported by the projection the story text and images in order to facilitate the content understanding;

3) *Multiple choice questions*: after the story reading, children were asked to answer the questions individually in order to stimulate children's reflections on the characters' perspective (Bianco, Lombardi et al., 2019). Each question had three answers: one option was completely correct, one was wrong but challenging because it is close to the correct answer and the third one was completely wrong. Being at school allowed us, using the individual response method, to create a situation similar to the children school habits; in addiction, in that way the experimenter was certain that each child focused her or his attention on the highlights of the story.

4) *Feedbacks*: once the questions have been answered, the researcher provided comments, explanations of incorrectness answers and feedbacks on whether the children's choices are correct or not (for the importance of feedbacks during a training see Melot & Angear, 2003): for each question, the conversation started on the basis of the answers content and reflections that have led the children to make a certain choice from the options provided. All children were involved, by rising up their hands to share the given answer.

5) *Discussion*: starting from the stimuli emerged and based on the story's target, the discussion was conducted by the experimenter who welcomed children interventions who voluntarily decided to speak by providing them positive feedback and expanding children's comments referring to the session topic. The researcher ensured to take part in the conversation all the children discussing their point of views on the story and providing corrective feedback when needed. During the discussion, the experimenter had three aims: she guided children to correctly interpret mental states at the basis of the decisions made by the characters, she stimulated children to apply their perspective-taking ability to understand classmates' point of view about the story, and guided participants to reflect on the topic of the meeting (fairness, altruism or delay a gratification). For each training trial, the class discussion was concluded when all participants showed a good understanding of the story's topic.

6) *Children's examples and final discussion*: at the end of the discussion, after the experimenter summarised contents emerged, children were asked to think or imagine an example about the story's topic, starting from their own personal experience (Durlak et al., 2011), to anchor child experience to the emerged learning in the discussion. All children are invited to participate, but, usually, one child volunteer start and then the researcher encourages others' participation.

Examples of training trials

Story	Type of story	Questions	Category of Answers
The line at the amusement park Every year, at the end of the school year, Federico, Davide, Giada and Sara's class organizes a school trip to an amusement park. Children are very close friends and spend a lot of time together at school and in their spare time. During the school trip, the amusement park is very crowded and the queues to get on each attraction are very long. The children are in line with many other people to get on the Panoramic wheel and spend the waiting time looking at the park map and chatting. Federico and Giada are looking for Sara and Davide among the many people who have left. "Where am I?" They ask. "Here they are. I knew it!", says Giada a little angry," Davide and Sara are trying to skip the line! ". "They never liked to wait!" Says Federico. "But I don't like to wait either!" Giada replies. The Panoramic wheel's owner calling for the next ride. Sara and Davide climb on the Panoramic wheel. "Sara and Davide skipped the line. That's not fair! We could have all skipped it!", Federico and Giada reply. In fact, the two children have to wait for the next ride to be able to climb on the Panoramic wheel. Federico and Giada are very sad and angry about the behavior of the two friends and think that what they have done is not fair. So, after the ride on the Panoramic wheel, they go t buy the candyfloss. They are in line, but they realize that it's getting late: it's almost time to go home and probably won't have time to take the candyfloss. In front of them, in line, they see Sara and Davide calling them. "Come on, guys, get close to us! If you don't,	**Fairness**	Is the amusement a crowded place?	*Correct* Yes, in all the attractions there is a queue. *Wrongs* - No, there are few people. - Yes, there is a queue in all the attractions except for the Panoramic Wheel. *Feedback:* Right! All the attractions are quite crowded.
		What do Federico and Giada think about Sara and Davide behavior?	*Correct* Federico and Giada think that Sara and Davide didn't behave in the right way. *Wrongs* - Federico and Giada think that Sara and Davide are clever compared to them. - Federico and Giada think that Sara and Davide are nice. *Feedback:* That's right! Federico and Giada think that Sara and Davide's behaviour was not correct because they skipped the line while the others wait their turn in line.

you will have to give up candyfloss! ”. Federico and Giada think about it and finally answer: "No, sorry, it's not fair to skip the line!". Then Davide and Sara reply: “Okay! Then we will join you and go home all together”.		Why do Sara and Davide decide not to buy candyfloss?	*Correct* Because they understood that what they had done before was not fair *Wrongs* - Because they got tired to stay in line. - Because they thought candyflow wasn't good. *Feedback:* Well done, right! Sara and Davide realized that skipping the line was not a fair behavior, thanks to Federico and Giada that told them.
		What do you think the meaning of these phrases in history is? "They never liked to wait!" “But I don't like to wait either!"	*Correct* Federico and Giada decided that although nobody likes to stand in line, they wouldn't skip the line because it's not fair *Wrongs* - Federico and Giada knew that Sara and Davide didn't like to wait. - Even Federico e Giada wanted to skip the line *Feedback:* Right! In fact Federico and Giada think that even though they don't like to stay in line, it's not fair to skip it and so they decided not to tbuy candyfloss.

Francesco learns to share Francesco's favourite word was "Mine!" He liked to keep his things close to him without ever sharing them with others. Sometimes, Francis wanted to be alone and one day he stayed to listen to his classmates and thought they were having a great time. "Yesterday with my mom, I cooked a lot of cookies. I can't eat all the cookies by myself", Ludovico said to Nicolò. " Why don't we all go back to my home after school time for a snack?", Nicolo replied. "Okay," said Alice, "I'll bring some jam!", "I'll bring some bread for jam!", Silvia said. Francesco also would to go, but he didn't want to share with their classmates the chocolate that he usually eat for a snack after the school time. His classmates didn't see him and didn't invite him to snack with them after school. Francesco walked home. He was very happy because as soon as he arrived home he could eat all the chocolate that his mother had bought him. Thinking about what had happened at school, however, he began to feel more sad than happy. Francesco told his mother about the snack at Nicolò's house: "We could bake some muffins with chocolate," suggested his mother. "You could take them to Nicolò's house and share them with your friends: it might be a nice surprise for them!". Francesco was not so sure he wanted to share his chocolate, but he loved baking sweets with his mother. So he saved in a bowl some chocolate to eat later and used the rest of chocolate to bake the muffins. Francesco couldn't decide what to do. In the end, he went to Nicolò's house to surprise his	**Altruism**	What did Francesco do when he was home with his mother?	*Correct* He baked the muffins withsome of the chocolate he had *Wrongs* - He baked the muffins with all the chocolate he had - He did his homework *Feedback:* Right! He saved some chocolate in a bowl and used the rest to bake the muffins.
		What was Francesco's worries in front of Nicolò's door?	*Correct* Francesco didn't think he'd eat the muffins. *Wrongs* - Francesco didn't think he'd have fun - Francesco had no worries *Feedback:* That's right! Francesco didn't want to share the muffins because he thought his friends would eat all the muffins and he wouldn't have any. In fact, he was very worried.

classmates. Once he arrived at the front door, Francesco could hear his friends inside, and they were talking. "Surely it will be fun to join them," you know. But then a worrying idea came to his mind: "If everyone eats my muffins," he thought, "there won't be enough left for me!" Soon after, Nicolò opened the door. "Francesco!", he exclaimed, "Come in and join us! How kind of you to have brought the muffins!" he said. Nicolò took the muffins, even though Francesco kept thinking that he would have preferred to eat them all by himself. When the classmates saw him, everyone came to greet him. Very soon Francis started having so much fun that he completely forgot about his muffins. It was a beautiful afternoon. Once back home, Francesco did nothing but tell his mother how much he was happy with his friends and how good the snacks that the others had brought were. The next day, at school, Francesco borrowed his suitcase with the new ruler and new glue to Ludovico, who was building some models of their favourite cars. When Ludovico comes back the suitcase still in excellent condition and without having ruined anything, he gave Francesco one of the models he had built.

How did Francesco feel when he shared muffins with his classmates?

Correct

Francesco felt happy because he hadn't thought about muffins while playing.

Wrongs

- Francesco felt sad because he could not eat all the muffin
- Francesco felt angry because he didn't want to share the muffins

Feedback:

Well done, right! Francesco felt happy because he had fun with his friends. The next day he decided to share his suitcase with Ludovico.

What do you think the meaning of this sentence: " Francesco borrowed his suitcase with the new ruler and new glue to Ludovico"

Correct

Francesco decided to share his suitcase with Ludovico.

Wrongs

- Francesco wanted to have one of the models that Ludovico was building.
- Francesco thought he was borrowing his suitcase with Ludovico.

Feedback:

Right! Right! Francesco made a decision to share his things with his friend Ludovico.

The holiday It's evening, mom Claudia and daddy Fabio, Marco's parents, are on the couch. They are very tired: "We are working a lot in this period, we need rest!" says mom. "It would be nice to have a holiday for a few days." Daddy answers: "You're right, I'd like it too and I think it is a good idea! But it's the end of October, Marco has to go to school and we have no money for another holiday after the summer's Cruise". The next morning, during breakfast, mom Claudia and daddy Fabio resume their speech: "I thought, Claudia, that we could organize ourselves to go to the mountains a couple of days next weekend" says daddy. "That would be wonderful...", replied Mom. "...Or we could decide to wait until the Christmas holidays and organize a skiing holiday", daddy continued. Mom looked at him, hesitated a little bit and said: "That would be even more beautiful! Come on, let's wait for Christmas! So we can enjoy a whole week together with Marco free from all our schedules of school and job. I'll make a reservation!" On December 26th, mom Claudia, daddy	**Delay of Gratification**	What does mom Claudia say to daddy Fabio on the couch?	*Correct* It would be nice to take an holiday because we're working a lot and we're tired... *Wrongs* - It would be nice to take an holiday because I saw an offer - It would be nice to go to the mountains fro skiing *Feedback* Right! In fact, mom Claudia tells daddy Fabio that they're really tired and that it would be nice to have holiday to rest.

reservation!" On December 26th, mom Claudia, daddy Fabio and Marco left for the skiing holiday. "It's really worth waiting all this time!", said Mom Claudia as soon as they arrived at their destination.

Daddy Fabio agrees with mom Claudia to take a holiday?	*Correct* Yes, but he reminds her that they don't have enough money and that Marco has to go to school. *Wrongs* - Yes, but he thinks that Claudia's overreacting. - No, he doesn't agree with her. *Feedback:* Well done! In fact, daddy Fabio agrees with mom Claudia. But he thinks to wait a little bit because now they don't have a lot of money and Marco has to go to school.
Why did mom Claudia hesitate when daddy Fabio proposed the skiing holiday?	*Correct* Because she was deciding whether to go to the mountains a couple of days in October or take a skiing holiday at Christmas. *Wrongs* - Because he didn't understand the question. - Because he thought Daddy Fabio didn't want to make the journey *Feedback:* Exactly! In fact, mom Claudia was deciding to give up the weekend in the mountains the following weekend for a skiing holiday at Christmas.

		What do you think the meaning of this sentence: “It's really worth waiting all this time!",	*Correct* It was really worth deciding to wait all this time *Wrongs* - It was really worth trying to wait all this time - It was really worth the thought of waiting all this time *Feedback:* - Right! In fact, mom Claudia decided to wait for a longer and more carefree holiday.

References

Bicchieri, C., & Chavez, A. K. (2010). Behaving as Expected: Public Information and Fairness Norms. *Journal of Behavioural Decision Making,* 23, 161-178. https://doi.org/10.1002/bdm.648

Eisenberg, N., & Shell, R. (1986). Prosocial Moral Judgment and Behaviour in Children: The Mediating Role of Cost. *Personality and Social Psychology Bulletin*, *12*(4), 426–433. https://doi.org/10.1177/0146167286124005

Espinoza, O. (2007). Solving the Equity-Equality Conceptual Dilemma: A New Model for Analysis of the Educational Process. *Educational Research, 49*, 343–363. https://doi.org/10.1080/00131880701717198

Larsen, N., Lee, K., & Ganea, P. (2017). Do storybooks with anthropomorphized animal characters promote prosocial behaviours in young children? *Developmental Science*, *21*, e12590. https://doi.org/10.1111/desc.12590

Lombardi, E., Di Dio, C., Castelli, I., Massaro, D., & Marchetti, A. (2017). Prospective thinking and decision making in primary school age children. *Heliyon*, *3*(6), e00323. https://doi.org/10.1016/j.heliyon.2017.e00323

Appendix 2 - Descriptive Statistics, Binomial analysis and Correlations

Descriptive Statistics on all continuous measures -Mean (Standard Deviation)

	Training group (N=55)	Control group (N=55)
Pre-test age in months	119.11 (10.59)	113.91 (9.8)
Socio-economic background (0-9)	6.29 (1.99)	6.33 (1.67)
Verbal ability (0-30)	25.14 (4.87)	26.98 (3.01)
Problems solving (0-2)	.49 (.66)	.71 (.79)
Judgment of numerousness (0-6)	5.89 (.31)	5.80 (.49)
Arrangement of series (0-12)	8.38 (1.86)	8.82 (1.32)
Inhibition	34.67 (7.81)	35.55 (7.74)
Pre-test DG	4.58 (1.19)	4.78(1.55)
Post-test DG	4.40 (1.48)	5.25 (1.57)
Pre-test DT	4.53 (2.20)	4.47 (2.35)
Post-test DT	4.35 (2.64)	4.93 (2.74)
Pre-test Investment task	4.93 (1.98)	4.95 (2.05)
Post-test Investment task	6.29 (2.3)	5.29 (2.22)

Binomial analysis of children's responses to the Ultimatum Game (UG) by type of proposal (hyperfair, fair, unfair) and group (control and trainings groups) at the pre-test and post-test

		UG pre-test					
		Unfair		**Fair**		**Hyperfair**	
Group	Response type	N	%	N	%	N	%
Control group	Accept	31	56	50	91	36	66
	Refuse	24	44	5	9	19	34
	Total	55	100	55	100	55	100
Training group	Accept	25	46	50	91	45	81
	Refuse	30	54	5	9	10	19
	Total	55	100	55	100	55	100

	UG post-test

Group	Response type	Unfair		Fair		Hyperfair	
		N	%	N	%	N	%
Control group	Accept	30	55	52	95	39	71
	Refuse	25	46	3	5	16	29
	Total	55	100	55	100	55	100
Training group	Accept	32	58	48	87	42	77
	Refuse	23	42	7	13	13	23
	Total	55	100	55	100	55	100

Binomial analysis of children who passed the Intertemporal Choice Task (ICT) at the pre-test and post-test

Group	Intertemporal Choice Task				
		Pre-test		Post-test	
		N	%	N	%
Control group	Waiting for 4 weeks	26	47	40	73
	No waiting for 4 weeks	29	53	15	27
	Total	55	100	55	100
Training group	Waiting for 4 weeks	34	62	48	87
	No waiting for 4 weeks	21	38	7	13
	Total	55	100	55	100

Correlations between variables at pre-test

	SES	VA	PS	JN	AS	SH	DG	DT	ICT	IT	UGf	UGu
SES	-											
VA	.288**	-										
PS	.150	.416**	-									
JN	-.057	.269**	.197*	-								
AS	.135	.144	.272*	.106	-							
SH	.096	.361**	.091	.116	-.087	-						
DG	-.080	.242*	.169	.117	.008	.123	-					
DT	.017	.192*	-.024	.088	-.155	.229	.322***	-				
ICT	.117	.175	.002	.067	-.095	.181	.043	.392***	-			
IT	.034	.210*	.117	.055	-.185	.192*	.155	.182	.143	-		
UGf	-.057	.067	.041	-.035	.193*	-.129	-.053	-.165	.042	-.098	-	
UGu	.055	-.170	.026	-.080	-.086	-.110	-.100	.120	-.146	.007	-.151	-
UGh	-.038	-.179	-.058	-.179	.049	-.176	-.190*	-.266	-.206*	-.049	.098	-.264

Note. SES, Socio-Economic Status; VA, Verbal Ability; PS, Problem Solving; JN, Judgment of Numerousness; AS, Arrangement of Series; SH, Shifting; DG, Dictator Game; DT, Donation Task; ICT, Intertemporal Choice Task; IT, Investment Task, UGf, Ultimatum Game fair proposal; UGu, Ultimatum Game unfair proposal; Ugh, Ultimatum Game hyperfair proposal. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.