Minimum Effort Game Experiment With Children

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December 28, 2012

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Abstract

The study examines the behavior of children in a minimum effort game experiment. Children age 7-10 years from 5 Austrian primary schools played a minimum effort game adopted from the Van Huyck, Battalio and Beil (1990) experimental setup. The data suggests that children aim for relatively high effort levels throughout the game. Some groups of two, three, four and five players are able to coordinate on high effort levels. However they are not able to coordinate on the high effort equilibrium over time. We further find that the larger the groups are the harder it gets for subjects to coordinate on the same effort level.

1 Introduction

There are many situations where the performance of a group depends on the effort of the weakest group member. Think about a manufacturing process in production, where the slowest worker at an assembly line determines the speed of the assembly line. Or think about sports, where the performance of a rowboat is only as good as the performance of the weakest rower on that boat. Or think about music, where the performance of a classical orchestra is only as good as the performance of its worst member.

The minimum effort game is a coordination game where n players simultaneously choose an action e_i. The player's payoff depends on the own effort level chosen as well as on the smallest effort level chosen within the group. Coordination of all players on the same action level results in a Nash equilibrium. However, these multiple equilibria can be Pareto ranked with coordination on the action with the highest associated effort leading to the Pareto dominant equilibrium. In the economic literature on minimum effort game experiments we see that coordination on an action with a low associated effort level is a common phenomenon. One explanation for this type of coordination failure is that low effort levels are attractive as they secure a high payoff when others also choose low effort levels or there is strategic uncertainty about the actions of the other. The larger this uncertainty (large groups) and the more risk averse the agents are, the more attractive the low effort levels will become.

The literature on the development of children's cooperative and competitive behavior suggests that the capability of balancing one's own needs and the need of others starts to be generated as early as the first year of life. It develops further during preschool years when children start to have more intense social interactions. Further a child's risk behavior might be different from an adult's risk behavior. Studies show that younger subjects tend to be less risk averse. Combining the facts that social skills have already been

developed to a certain degree when attending primary school and the tendency to be less risk averse than adults might affect children's behavior in the minimum effort game setup.

Since coordination is an important aspect in economics and a child's ability to cooperate with others is a fundamental component of social behavior, the experiment tries to bring those two aspects together. It aims to compare existing data on adult behavior in the minimum effort game with the behavior a younger subject pool. The experiment closely follows the existing design of the Van Huyck, Battalio and Beil (1990) experiment on the minimum effort game and asks whether young children behave different than adults and whether coordination behavior can be found with children as young as age 7.

2 The Game

The minimum effort game is a coordination game with multiple Pareto rankable equilibria. There are $n \geq 2$ players who simultaneously choose an effort level $e_i \in \{c_1, \dots c_n\}$. A player's payoff is determined by the player's own effort level e_i and the lowest effort level chosen within the group $\underline{e}_{-i} = min\{e_1, \dots, e_{i-1}, e_{i+1}, \dots, e_n\}$. The payoff function is of the following form

$$\Pi_{e_i, \underline{e}_{-i}} = a\left[min\left(e_i, \underline{e}_{-i}\right)\right] - be_i \;\; where \;\; a > b > 0$$

The best response to action profile (e_i, e_{-i}) is to play $\underline{e}_i$. Whenever there is coordination on the same effort level by all players, we are in a Nash equilibrium. The multiple equilibria can be Pareto ranked, with coordination on the highest effort level giving the highest payoff to each player. If players can't negotiate, they face a nontrivial coordination problem and two types of coordination failure might occur.

First, players might not be able to forecast the minimum group effort level correctly and therefore choose an effort level different to the minimum group effort. In this case

$$e_i \neq \underline{e}_{-i}$$

and there is no coordination. Second, since the Nash equilibria can be Pareto ranked, we might find players who give a best response and coordinate but fail to do so on the highest Pareto ranked effort level. In this case

$$min\left\{e_1, \ldots e_n\right\} \neq max\left\{c_1, \ldots c_n\right\}$$

Hence, players face the dilemma that the highest feasible effort level maximizes the collective efficiency, whereas the lowest feasible effort level maximizes individual security.

Table 1: Payoff matrix

			Minimum Group Effort					
		7	**6**	**5**	**4**	**3**	**2**	**1**
	7	13	11	9	7	5	3	1
Individual	**6**	-	12	10	8	6	4	2
Effort	**5**	-	-	11	9	7	5	3
	4	-	-	-	10	8	6	4
	3	-	-	-	-	9	7	5
	2	-	-	-	-	-	8	6
	1	-	-	-	-	-	-	7

The experiment adopts the minimum effort game design of Van Huyck et al. (1990) where players can choose an effort level $e_i \in \{1, 2, \ldots 7\}$. This corresponds to the payoff function above with $a = 0.2$ and $b = 0.1$. Further a constant of 0.6 is added to ensure strictly positive payoffs for all actions. These parameters were chosen such that players have an incentive to coordinate on a high effort level on the one hand and such that any player choosing

a higher effort level than the group's minimum is penalized on the other hand. The payoff structure is given in table 1.

3 Literature

The idea for the minimum effort game experiment with children is based on the results of two strings of literature.

Economic literature on the minimum effort game

Van Huyck et al. (1990) was the first paper dealing with a minimum effort game experiment conducted in the lab. In their experiment there were 7 different treatments which vary in the parameters influencing the individual payoff, the number of periods, feedback information and the number of subjects per group. The subject pool consisted of 107 undergraduate students. The treatment most discussed and copied in the succeeding literature was treatment A with parameter a=0.2 and b=0.1 and an added constant of 0.6. These numbers secure a positive payout throughout the game with a payoff as high as \$1.30 for coordination on the high effort level and \$0.70 on the low effort level. The treatment lasted for 10 periods and was played by groups of 14-16 subjects. No pre-play negotiation was allowed and feedback information was limited to a public announcement of the group minimum. With this number subjects had to calculate their own payoff for the previous period and decide on an effort level for the next period. Data on treatment A shows that coordination on a low effort level is the common outcome.

The seminal paper of Van Huyck at al. (1990) triggered a vivid discussion in the literature. Many others replicated their results, some introduced mechanisms, which might help to overcome coordination failure.

- Introducing (costless) signaling (Blume and Ortmann, 2007)

- Different costs for choosing a high effort level (Cachon and Camerer, 1996)
- Allowing for pre-play communication or announcements (Chaudhuri et al, 2006, Brands and Cooper, 2007)
- Varying group sizes and group composition (Dufwenberg and Gneezy, 2005, Engelmann and Normann, 2010)
- Allowing players to enter the game at a later stage (Weber, 2006)
- Introducing a real effort task (Bortolotti et al., 2009)
- Financial incentives for high effort coordination (Brands and Cooper, 2006)

One of the most recent papers is by Engelmann and Normann (2010). Their experiment was conducted in Denmark and the results show that the Danish subject pool is somehow special and that Danish people are more able to coordinate on a high effort equilibrium than other country's subject pools, like in the US or Israel. This points into the direction that different subject pools might behave differently.

Economic and Psychological literature on the behavior of children

In contrast to the large number of economic experiments with adult participants there is a smaller number of papers addressing economic questions in experiments with a younger subject pool. A lot of these papers adapt existing experimental setups and make them understandable and suitable for children.

Among these papers are experiments on children's altruistic behavior in the dictator game (Benenson et al., 2007). They show that there is altruistic behavior as early as at age 4 and that this behavior does increase with age. A classic public good game experiment shows that the contributions of younger children tend to increase over time in contrast to decreasing contribution of adults and older children (Harbaugh and Krause, 2000). Further there are experiments focusing on the difference in competitive behavior of girls and boys (Gneezy and Rustichini, 2004, Booth and Nolen, 2012, Dreber et al., 2010, Sutter and Rützler, 2010) giving mixed results on the difference in performance of the two sexes. A paper on the development of risk behavior with age looks at a subject pool aged 5 to 64 years (Harbaugh et al., 2002). The results suggest that younger subjects might be less risk averse than adults. Fehr et al. (2008) study egalitarianism in young children. They show that at the age of 3 to 4 an overwhelming majority of children behaves selfishly, whereas a much bigger fraction of children age 7-8 are willing to share and care about the co-player's preferences.

In addition to the economic literature there is a wide range of psychological literature on questions related to child behavior and development. A comprehensive literature review by Green and Rechis (2006) states that children who depend on the cooperation of others might act under the norm of equality. Children try to ensure an equal distribution of resources regardless of their input. This among other aspects inspired us to run a minimum effort game with a subject pool of relatively young children.

The experiment aims to replicate Van Huyck et al.'s (1990) design as closely as possible with a subject pool of school children age 7 to 10. This allows for a comparison to the results in the existing literature.

4 The Experiment

Subjects

The study was conducted in 5 elementary schools in Vienna, Austria. The subjects were 151 children age 7 to 9. The subjects were recruited by sending emails to the headmasters and (if possible) to the third grade class teachers in around 200 Viennese schools, explaining that we wanted to conduct an economic experiment on children's decision making. With the permission of the Viennese School Authority the experiments were conducted during summer term 2011.

Procedure

The experiment was conducted as pen and paper experiment within the familiar environment of the classroom. Upon arrival in the classroom the children's tables were arranged to face the blackboard and partition walls were put up on the tables to deter children from looking at each other's decision sheets. The instructions were read out aloud. Each participating child was told that he would get a 3 Euro voucher for the Austrian chain store Libro where he could buy books, CDs, DVDs and stationeries for sure. We further told them that they will have the opportunity to earn more vouchers during the game. In addition to a large payoff table on the blackboard, each child was handed a print of the payoff table to keep on her desk at all times. After giving the instructions on the game itself we carefully explained the Van Huyck et al. (1990) payoff matrix. We did so by going through 12 different mock scenarios that were drawn randomly before the experiment. We further let the children work out their payoff in four example situations. If a child answered a question incorrectly, one of the assistants would help her go through the solution process before giving away the next example

situation. Children were allowed to ask private questions throughout the whole instruction procedure. [1]

The game lasted for 10 periods. We used an Excel program to calculate payoffs and to gather and print feedback information. In each period we first provided the children with the feedback/decision sheet that gave information about their own effort level chosen, the minimum group effort level and the corresponding payoff. Each period, we gave them 30 seconds to go through the previous period's information and choose an effort level (except for period 1, where information on the previous period was not available and children had 30 seconds to decide on the effort level only). In-between these decision periods children were allowed to either read a comic or color something on sheets of paper that were provided beforehand. After the last period, they were handed a questionnaire, which was filled in with our assistance. At the end of the experiment each child was handed an envelope with his final number of points and the corresponding number of vouchers.

Treatments

The experimental setup consists of four treatments that differ in the number of group members only. The game itself (instructions, payoff tables, feedback information) was the same in all treatments. The only difference in the game explanation process was the usage of different numbers for the size of a group (2, 3, 4 and 5) and the numbers on co-players (1, 2, 3 and 4). Treatment N2 consists of 12 groups of two players. Treatment N3 consists of 28 groups of three players. Treatment N4 consists of 22 groups of four players and treatment N5 consists of 5 groups of five players.

[1] For full instructions see Appendix.

5 Experimental Results

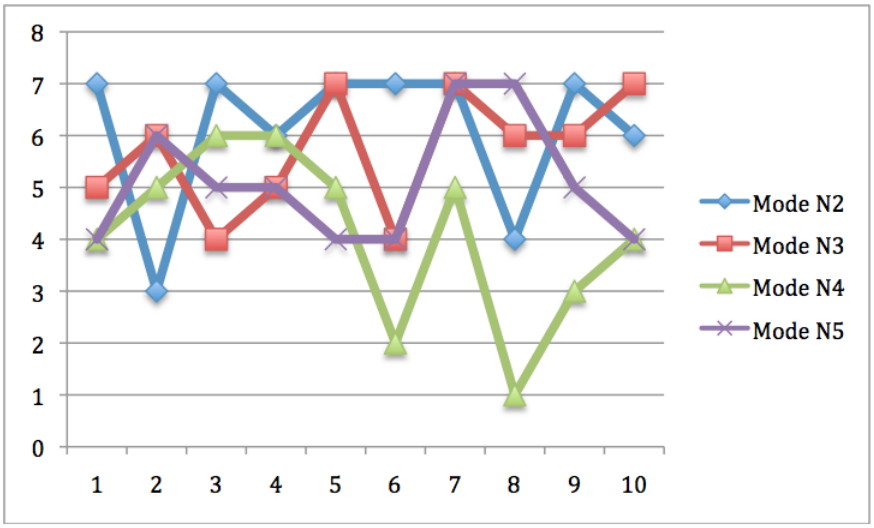
Individual effort levels

The data on individual minimum effort levels shows that high effort levels are more popular than low effort levels throughout the game and across treatments. Table 2 gives the percentage numbers of players choosing a certain effort level for each period. One can see that the children's most popular effort level is never less than 5. Detailed numbers for each treatment show that more than 1/3 of all children chose an effort level strictly higher than 5 at the beginning of the game. Treatment N4 shows a decreasing trend in effort levels over time whereas the effort levels chosen in treatments N2 and N3 stay at a very high level until the last period. Figure 1 shows the mode of the individual effort levels chosen over time for each treatment. The graph suggests that players in smaller groups aim for higher effort levels throughout the game.

Table 2: Choice frequencies for all treatments

Effort Level/Period	1	2	3	4	5	6	7	8	9	10
1	2,65	5,96	8,61	11,26	10,60	13,91	11,26	11,26	11,26	13,91
2	5,96	7,28	9,27	12,58	9,93	10,60	4,64	9,93	5,96	4,64
3	8,61	17,22	9,27	8,61	16,56	11,26	11,92	9,93	15,89	13,91
4	22,52	11,92	17,88	16,56	14,57	16,56	16,56	17,22	13,91	15,89
5	23,84	17,22	17,22	17,22	18,54	17,88	17,22	15,89	13,25	12,58
6	17,22	23,18	19,87	15,89	9,27	11,92	15,23	19,87	19,87	17,88
7	19,21	17,22	17,88	17,88	20,53	17,88	23,18	15,89	19,87	21,19

Figure 1: Mode of individual effort levels over time for treatments N2-N5



Minimum group effort levels

Following the trend of the individual effort levels, the numbers on minimum group effort levels show that the bigger the group the smaller the average minimum group effort level. Figure 2 compares the mean of the minimum group effort levels over time.

Coordination

Previous minimum effort game experiments with adults showed a tendency to coordinate on high effort level equilibria in small groups (2-3 players). Larger groups (more than 4 players) tend to coordinate on the lowest possible effort level. Data on the children's behavior shows coordination on the highest effort level in small groups only.

Some 2-player groups in treatment N2 are able to coordinate on high effort levels such as 6 and 7. There is also a number of groups in treatments N3,

N4 and N5 which show coordination on high effort levels 5 and 6. However there isn't any coordination on the highest effort level.

Figure 2: Mean of the minimum group effort level over time for treatments N2-N5

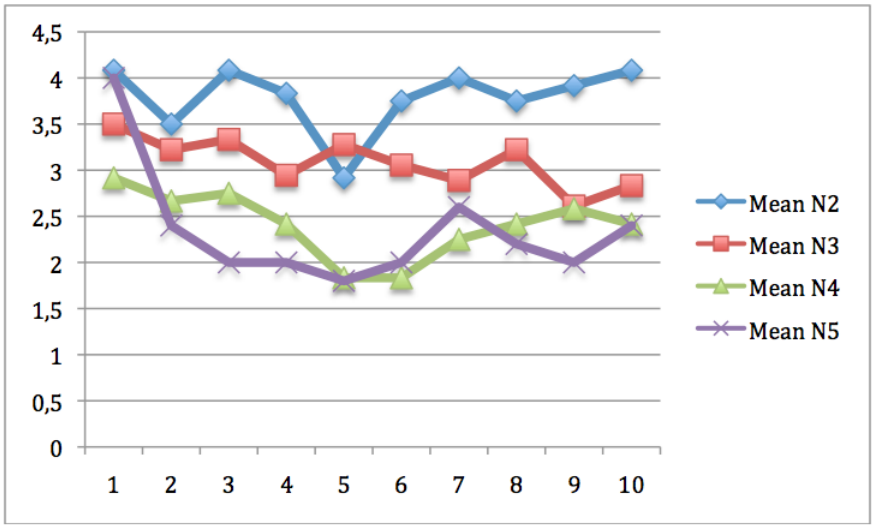
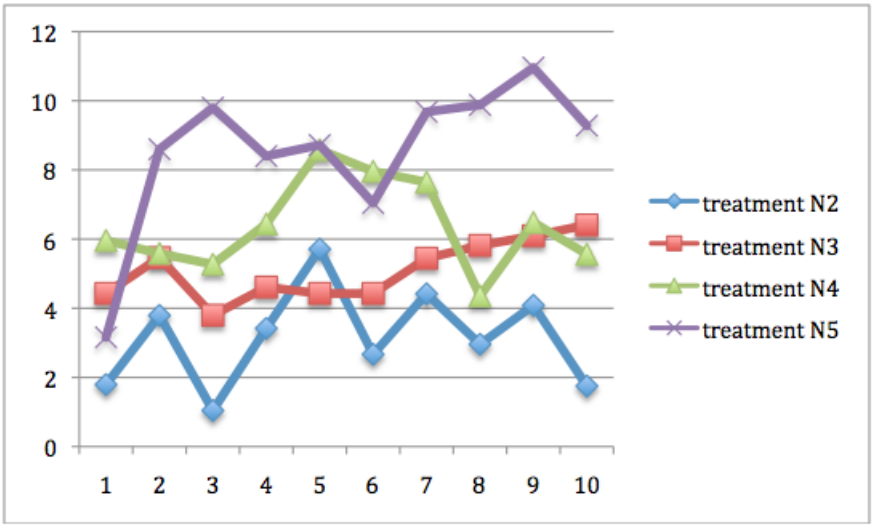


Figure 3: Deviations from the group minimum effort level per player over time for treatments N2-N5



If one looks at the sum of deviations per player from the group minimum effort level for different treatments in figure 3, one can see that the larger the group, the more deviation there is. Meaning it is harder to coordinate on the same effort level.

Minimum effort player's behavior

A. Increase/decrease/stay with effort level

The overall number of players who determine the minimum group effort in one single period varies between 51 and 71% of all players. Table 3 shows the percentage figures on their actions after having determined the minimum group effort level in period t.

There is a large and stable fraction of minimum group effort players who choose to increase their effort level in period t+1. This positive drive seems to be especially strong in treatments N3, N4 and N5.

Table 3: Behavior of minimum effort players over time (percentage numbers)

All treatments									
Period	**1-2**	**2-3**	**3-4**	**4-5**	**5-6**	**6-7**	**7-8**	**8-9**	**9-10**
Absolute number of players determining minimum in t	62	58	57	61	56	58	58	71	60
Players sticking to their effort in t+1	11,3	13,8	17,5	13,1	16,1	17,2	20,7	29,6	25
Players increasing their effort in t+1	62,9	65,5	59,6	65,6	64,3	65,5	60,3	53,5	60
Players decreasing their effort in t+1	25,8	20,7	22,8	21,3	19,6	17,2	19	16,9	15

Compared to this overshooting behavior, the number of minimum group effort players who decrease their effort in t+1 is lower and decreasing over time. At the beginning around 25% of minimum group effort players choose

to decrease their effort level in t+1. This number drops by 10% until the end of the game.

In contrast to the declining number of minimum group effort players who decrease their effort in t+1 there is an increasing number of players choosing to stay with the same effort level in period t+1. While 11% of all minimum group effort players stick to their effort level in the following period at the beginning of the game, the number increases to 25% in the last period. Data on individual treatments shows that this trend is even stronger in small groups of 2 players (35%).

B. Minimum effort players in consecutive periods

There are 2 players who determine their minimum group effort level throughout the whole game. Further, there is a number of players who determine the group minimum in more than 5 consecutive periods. Their effort level choices show that they are choosing very low effort levels 1 and 2 throughout the game. However there are also players in groups with a very high average effort level that determine the minimum with effort levels as high as 3 or 4.

Non-minimum effort player's behavior

A. Increase/decrease/stay with effort level

The number of players not determining the minimum group effort level in period t varies between 52 and 62%. At least 48% of players who choose an effort level higher than the group minimum in t will decrease their effort level in period t+1. In contrast to the large number of players decreasing their effort level, there is a very small fraction of players who stick to the same effort level in t+1. Since the number of players who stick to their effort level is increasing from 8 to 18% over time, players seem to get more positive

towards the end of the game. The number of overshooting non-minimum group effort players who increase their effort level even further after not having determined the minimum lies between 22 and 38%.

Table 4: Behavior of non-minimum group effort players over time (percentage numbers)

All treatments									
Period	**1-2**	**2-3**	**3-4**	**4-5**	**5-6**	**6-7**	**7-8**	**8-9**	**9-10**
Absolute number of non min group effort players in t	89	93	94	90	95	93	93	80	91
Players decreasing their effort in t+1	64	63,4	62,8	61,1	62,1	48,4	59,1	51,3	59,3
Players sticking to their effort in t+1	7,9	9,7	10,6	12,2	15,8	12,9	16,1	17,5	17,6
Players increasing their effort in t+1	28,1	26,9	26,6	26,7	22,1	38,7	24,7	31,3	23,1
BR/non min effort players – all treatments	15,8	22	37,3	29,1	32,2	20	36,4	31,7	38,9
BR/non minimum effort players – treatment N2	20	33,3	50	37,5	33,3	20	28,6	25	33,3
BR/non minimum effort players – treatment N3	19	19	45,8	13,3	28,6	23,8	58,8	31,3	41,2
BR/non minimum effort players – treatment N4	9,5	27,8	21,1	35	33,3	21,4	35	40	47,4
BR/non minimum effort players – treatment N5	20	14,3	41,7	33,3	36,4	0	9,1	27,3	25

B. Best response to last period's minimum

Over time, between 15 - 38% of the non-minimum group effort players who choose a lower effort level in t+1 will give a best response to the observed minimum group effort level in period t. Table 4 shows that this number is increasing towards the end of the game for treatment N2, N3 and N4. The

figures seem to be exceptionally high in treatment N4. This numbers might suggest some learning over time.

6 Conclusion

In this paper we looked at the behavior of children age 7-10 in a Van Huyck et al. (1990) minimum effort game experiment setup. We find that children aim for high effort levels throughout the game with the most popular effort level never being less than effort level 5. Further, data suggests that children in smaller groups of 2 and 3 players choose higher average effort levels than children in bigger groups of 4 and 5 players. The same trend can be found in the data on the average minimum group effort levels. The bigger the group the smaller is the group minimum effort level.

Previous research showed that adult subjects in bigger groups coordinate on the low effort equilibrium after a few periods only. We find that the children's ability to coordinate on the same effort level is limited. Coordination on the high effort equilibrium can be found in groups of 2 players only. Data on bigger groups of 3 to 5 players does still show some coordination on intermediate effort levels. However children playing in bigger groups are not able to reach the high effort equilibrium.

Further research might be necessary to find out at what age children start to behave more like adult subjects. It would be interesting to find out at what point in their development they start to loose interest in the high payoff options and focus on the lower but secure payoff related to coordination on the lowest available effort level.

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8 Appendix

Instructions

Hello, my name is (Name of Instructor) and this are (Name Help 1) and (Name Help 2). Thanks for letting us visit you in class today. Maybe your teacher has already told you, we're working at the University of Vienna and we would like to play a game with you today.

In our game you will have the possibility to earn points. These points will be transferred into LIBRO vouchers at the end of the game. Do all of you guys know the LIBRO store? You can buy pencils, CDs or little toys there. For your participation in the game you will get a 3 Euro voucher for sure. In addition to that you can earn points that will be transferred into further vouchers by the end of the game. 10 points in the game will give you an extra 1 Euro voucher. The voucher look like this (*Show some sample vouchers to the children*). The colorful vouchers are worth 1 or 5 Euros. The more points you earn in the game the more vouchers you will get by the end of the game and the more vouchers can you yourself spend in the shop.

Before we can start to play the game, I will explain the rules.

From now on, I would like to ask you not to talk to any of you classmates anymore. If one of you is talking to any other child in class we will exclude this person from the game and he or she will not get any vouchers at the end of the game. Please listen carefully to my instructions. The better you listen to me and understand the game the more points you can earn and the more voucher can you spend in the store afterwards.

Please raise your hand, if you do have a question concerning the game. One of us is going to come to your table and answer this question in private. Otherwise you just stay silent and listen carefully.

- For the game we will put all children in class randomly into a group of 2/3/4/5 players. This means that each of you is going to play with one/two/three/four

other child(ren) in this classroom. You will play with the same child(ren) throughout the whole game. However we will not tell you who the other child(ren) in your group is (are). Who your co-player(s) is (are) will stay a secret throughout as well as after the game. No one will ever get to know with whom he or she played the game.

- Further no one in this classroom will ever learn which decisions you're making during the game. In order that no other child can read your name, each of you is going to play with your own number. This number will be displayed on every single decision sheet that we will hand out later.

- After we've finished the game we will fill in a questionnaire together and each child will get an envelope with his vouchers.

Everything ok so far?

Let us talk about the game itself then.

• The game is going to last for 10 periods. We will remind you when the last period starts.

- Your task in each period is to pick a number between 1 and 7. The number of points that you can earn in each period depends on the number you decide to pick yourself and the lowest numbers chosen by any player within your group, including yourself.

- There aren't any right or wrong answers in this game. The only important thing for you to understand is that you can earn a different number of points when picking a different number.

- We have provided each of you with a payoff table where you can look up the number of points you can earn with different numbers. (*Show payoff table to the children*)

- You can see the numbers that you can pick from in the left column of the table. You can see the term "My number". The first row of the table shows the

smallest number picked within your group. You can see the term "Smallest number within my group".

- The payoff table is the same for every player. The number of points that you can earn always depends on the row that your own number indicates and on the column that indicates the smallest number within your group.

Let's practice reading the payoff table with some examples. I will provide you with an example of numbers and you will try to find the according number of points. If you know the answer, raise your hand please.

Read out 4 examples of the following form and show the solution way on a large payoff table that is provided on the blackboard. (The numbers where drawn randomly before the experiment and where the same throughout a treatment)

In the situation where I am part of a group of three players and I decide to choose number 7 and the other two players in my group choose numbers 6 and 3. Then I will find my number of points when looking at the row where my number is 7 and the column where the smallest number within the group is 3. How many points will I earn? 5 - *After 4 examples erase the large payoff table.*

I will erase the large payoff table from the blackboard now such that you have to use your own paper payoff table. We will go through some more examples where I provide you with your own number and the smallest number within your group.

Read out 8 examples of the following form.

How many points do I earn if I choose number 6 and the smallest number within my group is 1. In this case I will look for the row that indicates my number 6 and the column that indicates 1 as the smallest number chosen within my group. How many points will I earn? 2

- At the beginning of each period we will provide you with a decision sheet. (*Show a period 1 decision sheet to children*) On top of the sheet you will find your unique player's number, the period in which we're in and the number of children in your group. Underneath you can see the payoff table that we just

used to practice finding the points you can earn. Your task in each period is to look at the payoff table and decide which number you would like to pick. If you've decided on a number, you tick of your number in the according row of the column marked "my number". After that you wait until we collect the decision sheet.

- Starting with the second period you will find some additional information on your decision sheet. The decision sheet looks like this (*Show a period 2 decision sheet to the children).* On top of the paper you will again find your individual player's number, the period in which we're in and the number of children in your group. Underneath, there are three lines.
  - In the first line you can check again which number you've chosen in the previous period. It reads: My number in the previous period.
  - In the second line you can check what the smallest number chosen within your group was. It reads: The smallest number within my group in the previous period.
  - The third line will tell you how many points you've earned. It reads: My points in the previous period.
- Please make sure that you go through this information very carefully. Afterwards, have a look at the payoff table and think about which number you want to choose next.

Before we start to play the game, we will give each of you four more examples to solve on paper. The examples are similar to the ones we used to practice reading the payoff table. Read carefully through the provided information, have a look at the payoff table and write down the number of points on the paper. We will watch you solving the examples, check whether you get the write answers and help you in case that there is a problem or a question.

Good, now everybody has solved the problems. Before we start to play the game each of you is going to be provided with a comic book and some sheets of paper. Whenever there isn't any decision sheet on your table you're allowed to

read the comic or to color on the blank sheets of paper. You will have to close the comic books, put away the drawings and concentrate on the new decision sheet as soon as I tell you that a new period of the game is going to start until we pick up the decision sheet again.

In every period of the game you will have 30 seconds to read carefully through the previous period's information, look at the payoff table and choose a number. Remember, in each period you can choose a number between 1 and 7. There are no guidelines which number to choose when or how often. It is completely up to you if you want to choose a different number in each period or if you want to go for the same number in some consecutive periods.

Remember, the more points you earn in the game, the more money in form of voucher you will get by the end of the game. If anybody has any more questions raise your hand now. Otherwise I wish you the best of luck and don't forget not to talk to any other children.

Before handing out the decision/feedback sheet each period: Please close the comic book and put away all the drawings. (*Wait for some seconds*) We will now provide you with the decision sheets for the next period. You will play the same game with the same co-players. Please read carefully through the information's provided. Have a look at the payoff table and decide which number you would like to choose in this period. After the last period: The game's last period is now over. First, we will collect the comic books. Second, we will provide you with a questionnaire. Since we will fill it in together, please wait until everybody was provided with the questionnaire. In the mean time, the computer is going to calculate your earnings. When we are finished filling in the questionnaires each child is going to get an envelope with his vouchers.

Before giving away the envelopes: Before each of you is going to get his envelope we would like to thank you that we were able to be with you today and also say thanks to your teacher that she/he allowed us to visit your class. We will now hand each of you an envelope with your player's number on the outside. Inside the envelope you will find a sheet of paper that tells you how many points you've earned in the whole game and how many vouchers this number of points is going

to give you. The vouchers look like that (*show them sample vouchers*). They are labeled 5 Euro or 1 Euro. We wish you a lot of fun with you envelopes and the vouchers.