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Social orientation and cooperative pro-social behaviour of the Polish youthⁱ

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Abstract

We addressed three questions: (1) Polish young peoples' social orientations - individualistic, equal or altruistic, and their explanations for this, (2) whether this is related to gender or age, (3) whether social orientation influences the partner's behaviour. 362 students aged 11, 14 and 17 participated.

Introduction

In this paper the Ultimatum Game (UG) was analyzed to explore two kinds of social actions - social orientations and cooperative behaviours - and their explanations of the Polish pupils. Assuming that the two kinds of social actions can have different underlying mechanism (reciprocal fairness or unconditional fairness) the game was carried out in three age groups (11, 14 17), in face to face or in distance conditions, with Polish or Spanish distant partner. The aim of the study was to examine if social orientations and cooperative behaviours depend on game conditions and age.

Theoretical assumptions

The UG is an experimental tool designed to test economic theory (*homo economicus* conception) by Güth et al (1982). In this game two participants are asked to divide a sum of money. One of the two players (proposer) is given a role of offering a division, and the other (acceptor) is given a role of accepting or rejecting the proposal. If the acceptor accepts the offer, both players receive their portions. When the acceptor rejects the offer, neither gets anything. According to economic theory people should make rational decisions based on maximising personal payoffs: the proposer should offer the acceptor as little as possible, and the acceptor should accept this offer, because it is better than nothing. However, results of research among students show that the proposer usually offers more than a trivial amount, most often an equal division, and the acceptor frequently rejects unfavourable offers, preferring to get nothing at all (Güth et al, 1982; Larrick and Blount, 1997). Similar regularities are visible among adults in different societies (Henrich et al, 2005) and outside the lab (Güth et al, 2007).

Surowiecki (2004) and Telser (1995) claim that the proposal is rejected, if the offer is rather low. But, in some societies with non-integrated market, rejections are extremely rare while in other societies unequal offers are frequently rejected. Moreover, in these societies some people offer above 50% (Henrich et al, 2005). Zak et al (2007) explain such generous offers by empathy or by perspective taking (considering needs of others). According to Guala (2008) the UG is not a good design to test economic theory, but it is a heuristic tool for the observation of culture-specific norms.

Since 1982 researchers have attempted to find factors responsible for the anomalies from economics and game theory. The outcomes are explained by inequity aversion or preference for fairness (Walster et al, 1978), as well as concerns about fairness (Larrick and Blount, 1997; Telser, 1995). Pull (2003) distinguishes two factors connected with concerns about fairness: unconditional fairness and reciprocal fairness connected with calculations and with the fear of being rejected. Gintis et al (2003) postulate that behaviour in the UG should be explained by reciprocal altruism (the effect of individual socialisation associated with expectations of reciprocal relations) and by an evolutionary trait, which is associated with punishment for behaviours violating pro-social norms (Carpenter et al, 2004). These ideas provoke a supposition that the two factors of concerns about fairness are differently connected with two kinds of social actions explored in the UG.

In the UG there are two kinds of social actions: proposing the offer and making decision on the received offer. In literature both of them are called cooperative actions. Here, only the second one is treated as an index of cooperative behaviour, because it directly affects completing a transaction and maximising joint

outcome (Messick and McClintock, 1968, McClintock, 1972). Making the offer is an indicator of social orientation. The term ‘social orientation’ does not mean motivation underlying the behaviour, but it is restricted to the consequences of a behaviour. We can distinguish three forms of social orientation:

- Individualistic (selfish) – maximising one’s own profit (offers lower than 50%)
- Equal (egalitarian) – resulting in the same profit for both players
- Altruistic – maximising the partner’s profit (offers above 50%).

We propose distinguishing cooperative behaviour from social orientation, because the data show that the two kinds of social actions are quite independent (Grzelak, 2005; Larrick and Blount, 1997), they probably have different sources and underlying mechanisms. For example, contemporary research indicates that cooperative behaviour has biological roots, which are responsible especially for negative emotions regulation (Burnham, 2007; Enzoi et al, 2008). There is no such evidence for social orientations which confirms a supposition about different underlying mechanisms of the actions.

In this context we decided to explore the effects of game conditions on social orientations and cooperative behaviour, assuming that in a distance relation with Polish or Spanish partners unconditional fairness is more important, but in face to face relations reciprocal fairness plays the more important role (Ross, 2009). The first aim is to answer the questions: Do social actions in the UG depend on game conditions? How do the Polish pupils explain them?

If fairness strategies are inherited effects of evolution, the impact of age and culture can make them more rational in an economic sense (more selfish and cooperative). If fair behaviour is learned in some way by individuals we should observe higher ratio of the egalitarian orientation and less cooperative behaviour (higher ratio of rejection of unequal offers) among the older subjects than among the younger ones as a result of development and individual socialisation.

Results of research on adults (Eguiluz and Tessone, 2009; Henrich et al, 2005) and students (Brandstätter and Güth, 2002) show that age and gender do not influence social actions in the UG. Van Avermaet and McClintock (1988) claim that fairness rules increase with age. Data collected by Harbaugh et al (2002) confirm that younger children accept lower offers (are more cooperative) and make lower offers than older children. Murnighan and Saxon (1998) found out partly reverse regularity: 6 year olds make higher offers and accept lower offers than 9 and 12 year olds. Sutter (2005, 2007) provides evidence that children (7-10 years old) and teens (11-15 years old) reject unequal offers more often than students and adults. He interprets this as a pure inequality aversion, which becomes more sophisticated with age. As we can see the effects of age in social actions among children are inconsistent and the problem still needs systematic research. In the study we will explore the role that age plays for social orientations and cooperative behaviour in each experimental condition. So, the second aim is to answer the question: Do social actions in the UG depend on age in each game condition? How do Polish students explain them?

Resuming, we put the following specific questions:

- 1A. Do the three types of social orientations depend on game conditions?
- 1B. Do social orientations in each game condition depend on age of students?
- 1C. How do Polish students explain their offers in different game conditions?
- 2A. Does the cooperative behaviour (the decision of an acceptor) depend on game conditions?
- 2B. Do social orientations of partner influence the cooperative behaviour?
- 2C. Does the cooperative behaviour in each game condition depend on age of students?
- 2D. How do Polish students explain their decision?

Method

Subjects

652 students participated in the research – see: Table 1.

Table 1. Number of proposers (P), acceptors (A) and total (T) participants at age 11, 14 and 17 in different game conditions

	Face to face			Distant PL partner			Distant ES partner		
	P	A	T	P	A	T	P	A	T
11 (primary school)	54	+54	=108	25	+25	=50	27	+21	=48
14 (secondary school)	63	+63	=126	29	+29	=58	27	+27	=54
17 (college)	55	+55	=110	25	+25	=50	21	+27	=48

Total	172 +172=344	79 +79=158	75+75=150
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Indices in the Ultimatum Game

The offer (X) of a proposer is an index of social orientation: X<50% – individualistic (selfish), X=50% – equal (egalitarians), and X>50% – altruistic (altruists). The decision of an acceptor is an index of the pro-social cooperative behaviour: 0 – rejection, 1- acceptance.

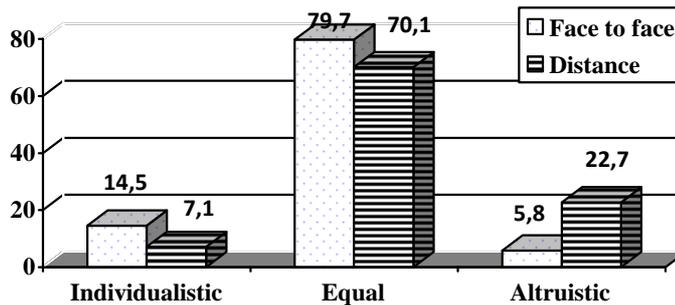
Procedure

The game was carried out in two steps. In both steps the divided sum was 10 PLN (week pocket-money). In the first step 172 games were played according to the standard procedure – participants were at the same age, they were pupils of the same school and they play their roles in the face to face conditions. 87 pairs lived in a city and 85 pairs in a town. In the second step the game was played in a distance condition. The players were at the same age but they were living in different niches. This step had two iterations. In the first iteration 41 proposers from city made offers to 41 students from town in the same country, and 38 proposers from a town made offer for 38 pupils from a city. In the second iteration 75 proposers from Poland (PL) made offers to the Spanish (ES) acceptors and 75 PL acceptors decided about the offers of ES proposers. In each condition, after the game proposers answered the question: “Why did you decide to make that offer?” and acceptors answered the question: “Why did you decide accept (reject) that offer?” Their responses were recorded on data sheets.

Results

Do social orientations depend on different game conditions and age?

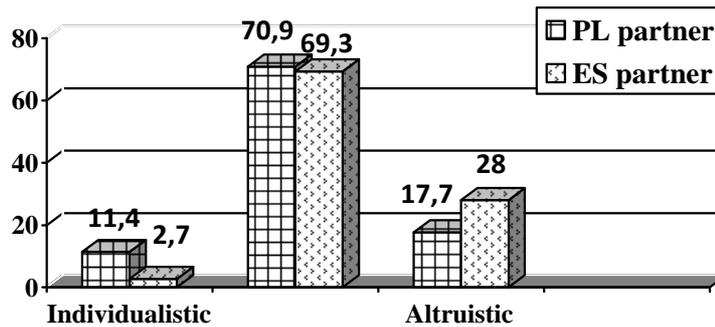
Figure 1. Percentage of social orientation in the face to face and distance conditions.



Note: *Chi-square* (2)=21,71, $p < 0,001$, Cramer's $V=0,26$.

The equal orientation is manifested by Polish students most often and more often in the face to face condition (about 80%) than in the distance condition (about 70%). The same regularity is visible for individualistic orientation. However, the altruistic orientation is manifested less often in the face to face than in distance condition.

Figure 2. Percentage of social orientation in the distance conditions towards PL and ES partners.



Note: *Chi-square* (2)=5,90, $p < 0,052$, Cramer's $V=0,20$.

In the distant condition the percentage of equal orientation is the same, independently of partner's nationality. But, the individualistic orientation is manifested more frequently towards the PL than the ES partners. A reverse regularity is visible for the altruistic orientation: it occurs more often towards the ES than the PL partners. One can say that the more similar the partner, the more frequent the individualistic but the less frequent the altruistic orientation.

In each condition the frequency of social orientations does not depend on age of students (face to face condition - *Chi-square* (4)=1,31, $p=0,860$; distant PL partner - *Chi-square* (4) =7,88, $p=0,096$; distant ES partner - *Chi-square* (4)=0,89, $p=0,926$). Still, it is possible that the students at different age will explain their social orientations in another way.

How the Polish students explain their offers in different game conditions?

The explanations were divided into three groups: Self-oriented, concerning personal control and gain, Common good-oriented, connected to fairness and equal division, Other-oriented, where the partner's perspective is mentioned.

The most frequent explanations are fairness and other reasons connected to common good. They are mostly connected to common-good orientation, and apart from that, they appear more frequently in individualistic than in altruistic orientation. 11 year olds who leave the bigger part of money for themselves tend to say the division is fair if they see their partner ('the divisions are more or less fair'), but they don't give such explanations when the partner is anonymous.

Self-oriented explanations are common for all orientations, but more frequent in face-to-face condition – pupils who see their partner are more prone to explain their offer by referring to themselves ('so that I get more', 'cause he's not going to reject if it is fair', 'I don't need so much money') than when the partner is anonymous.

Self-oriented justifications can be divided into two groups: rational economic strategies and explanations concentrating on one's own control or needs. 11 year olds' self-oriented attitudes are a form of concentrating on one's needs – wanting or ignoring profit - in case of all offers ('I don't need money', 'so that I get more', 'I gave less cause I'm the proposer'). Among 14 year olds the justifications connected to concentration on one's needs are less frequent but are qualitatively different. There are also some explanations mentioning personal attitude towards the partner ('I like that person'). 14 year olds give some explanations mentioning strategies that are not differentiated by the offer ('four is optimum, she wouldn't take less', 'they won't reject if it's equal'). Among 17 year olds comments about strategy are observed only for individualistic offers ('she won't take less', 'I have to gain, and she won't accept less').

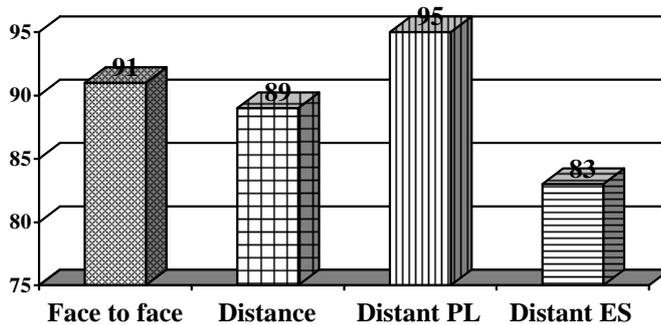
One may assume that self-oriented grounds of offers change with age. Fulfilling one's needs and need for control are a background present in 14 year olds' explanations and they are tinged with strategic calculation. They are not offer-specific. Among 17 year olds they are specific to individualistic offers.

Other-oriented explanations are rare in orientations different than altruistic and they are more common in distance condition than in face-to-face games – regardless of age the more distant the partner the higher tendency to assume the perspective of others ('maybe he's poorer', 'maybe he needs more'). In international games they mention their partner's general good ('it's for his own good', 'so that he gets more').

The justifications are mostly consistent with the offer (egalitarian orientation is justified by common good, individualistic with own gain and altruistic with the gain of others). On the other hand, in case of 27 offers (8%) we can observe discrepancies between behaviour and explanation. This is true for 14 altruistic offers (32% thereof), 4 individualistic (11%) and 9 egalitarian (4%) regardless of age. Altruistic offers are not always motivated by the good of others. They are sometimes justified egocentrically, such as strategy ('so that they accept', 'cause they wouldn't accept'), personal likes and dislikes ('cause he's my friend'), one's needs ('I don't need any money', 'I have lots of money', 'I don't want money'). Individualistic offers are connected to common good – in four cases the pupils offering less than 50% say the offer is fair. This was observed in distance condition among 11 and 14 year olds.

Does the cooperative behaviour depend on game conditions and age?

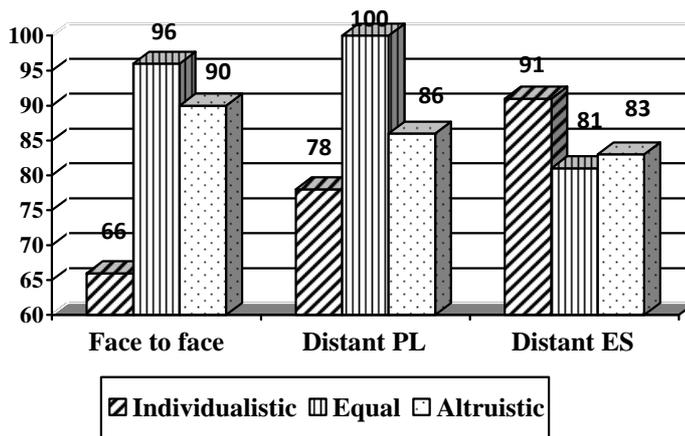
Figure 3. The cooperative behaviour (percentage of accepting decisions) according to game conditions.



The basic game conditions do not influence the cooperative behaviour of the Polish students -the decision of acceptor ($F/1, 324/0,49, ns$). In the face to face condition the ratio does not differ from the ratio in the distance condition (see: Figure 3).

The nationality of the proposer also does not influence the decision of the Polish students: acceptance ratio for the ES offers does not differ significantly from this ratio for PL offers – $F/1, 152/0,19$.

Figure 4. The cooperative behaviour according to social orientation of partner in each game condition.

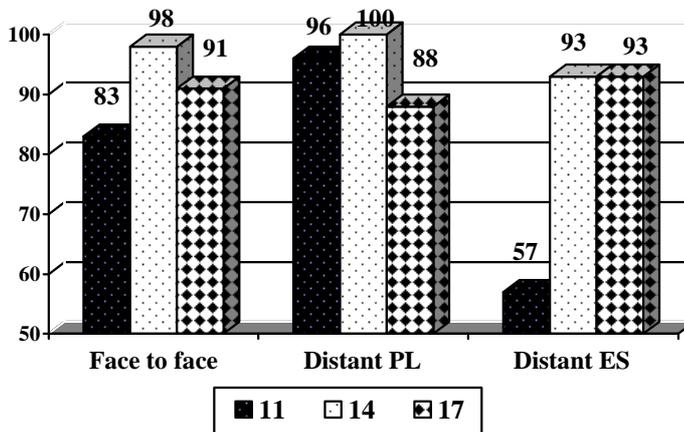


In the face to face condition the cooperative pro-social behaviour depends on social orientation of partner – $F(2,169)=11,30, p<0,001$. Students deciding on the offers of partners with individualistic orientation ($M=68, SD=48$) are less ready to cooperate than those whose partners manifest equal orientation ($M=96, SD=21$).

However, decisions of the Polish students depend on the interaction between social orientation and nationality of their partners - $F(2,152)=2,73, p=0,069$. When their partners show equal orientation the

students show higher index of cooperative behaviour toward Polish (100%) than Spanish partners (81%) – $F(1,152)=13,09$, $p<0,001$. When their partners are Polish the effect of orientation becomes significant – $F(2,76)=6,13$, $p<0,01$. The Polish students more often accept the offers of equally oriented partners (100%) than partners with individualistic (78%) or altruistic (86%) orientation. Moreover, they always behave cooperatively in response to offers of equally oriented Polish partners. Decisions of Polish students do not depend on social orientation of their Spanish partners – $F(2,152)=0,32$, ns.

Figure 5. The cooperative behaviour according to age in each game condition



In the face to face condition the cooperative pro-social behaviour depends on age: $F(2,160)=3,97$, $p=0,021$. Post-hoc Games-Howell test shows, that 11 year olds ($M=83$, $SD=38$) are less ready to cooperate than 14 year olds ($M=98$, $sd=13$) – $p=0,018$. 17 year olds ($M=91$, $SD=29$) do not differ from 11 and 14 year olds.

In the distance condition the cooperative behaviour towards PL partners does not depend on age: $F(2,76)=2,08$, ns. However, age influences the cooperative behaviour towards offers from Spain - $F(2,72)=7,73$, $p<0,001$. Results of post-hoc Tukey's test inform us, that 11 year olds ($M=57$, $SD=51$) accept fewer offers than 14 year olds ($M=93$, $SD=27$) – $p=,002$. 11 year olds ($M=57$, $SD=51$) also accept less offers than 17 year olds ($M=93$, $sd=27$) – $p=,002$.

How do the students explain their decisions of accepting or rejecting offers?

The analyses of decision justification include the same division into 3 categories: self-oriented, common good-oriented and other-oriented.

Fairness is the main cause for the decision, but it is mentioned more often when players accept than when they reject offer (Chi -square (1)=4,48, $p=0,034$, $V=0,17$). The nationality of partner is also a factor – fairness is mentioned more with PL partner than ES partner (Chi -square (1)=7,44, $p=0,006$, $V=0,22$). Finally it is mentioned more frequently with egalitarian than other offer types (Chi -square (1)=42,70, $p<0,001$, $V=0,53$).

Self-oriented explanations are more common in face to face condition, most of them are related to one's own needs ('I like getting presents', 'I wanted to get something', 'I like this person', 'I need money') and some with norms – the perception of accepting an offer as a socially legitimate behaviour ('one needs to accept in order to get', 'they give I take', 'because that's how one should behave'). Among 11 year olds accepting an offer is justified mostly by one's own needs and need for profit ('I don't want more', 'that's as much as I could get', 'I need money, this is a good offer'). Norms are manifested only in same-country distance condition ('They give, I take'). 14 year olds when accepting an offer tend to give reasons related to needs and profit ('that was the most I could get', 'that's a good offer') but among younger children norms are also mentioned ('They give I take', 'since they offer, I accept'). 17 year olds mention norms, but the most frequent justifications are related to personal gain ('that was the most I could get') regardless of the offer type.

Other-oriented explanations are more frequent in distance condition with a partner from abroad regardless of age and they mostly mention immediate gain for the partner ('so that they also get something', 'otherwise they don't get anything'), and sometimes they are related to general assumptions ('they are richer').

The lack of fairness is the main reason for rejection. It is connected mainly to individualistic offers, regardless of age. In case of younger children it is also the cause for rejection of altruistic offers.

Another important justification of rejections are norms mentioned on rejecting an egalitarian offer and is mostly present among younger children – 11 and 14 year olds ('I don't take money from strangers', 'I don't want someone else's money'). Among 17 year olds it is mostly related to general opinions ('nothing comes for free').

Conclusions

Results show that the two kinds of pro-social behaviours are connected to different factors. Social orientations do not depend on students' age. Probably they are shaped before the time of institutional learning (inherited or learnt by earlier socialisation). However, they depend on environment – on the game conditions. We conclude that unconditional fairness causes the altruistic orientation to manifest itself more often in a distance than in face to face condition. There are two effects of socialization. One of them is connected to reciprocal altruism that causes the equal orientation to occur more often in the face to face than in distance condition. The second one is connected to competition and development of rational economic thinking. It causes the individualistic orientation to be manifested more often in the face to face than distance conditions and is explained by strategy thinking (calculation).

Cooperative behaviours do not depend on game conditions, but they depend on age in extreme game conditions (towards ES partner or in the face to face). The youngest children (11 years old) reject the offers more often than older (14 and 17 years old) students. Moreover, they explain the rejection of unequal offers by inequity, which probably is caused by unconditional fairness (Pull, 2003) or inequity aversion (Sutter, 2005). Rejection of equal offers is explained by norms that result from socialisation.

We can distinguish two patterns of Polish students' socialisation in relation to social orientations: learned economic thinking (individualistic orientation) or learned reciprocity (equal orientation). We can also talk about two patterns of socialisation in relation to cooperative behaviour: learned economic thinking or learned norm flexibility.

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