

HOW STRESS AFFECTS PERFORMANCE AND COMPETITIVENESS ACROSS GENDER

Jana Cahlíková, Lubomír Cingl, and Ian Levely

SUPPLEMENTARY ONLINE MATERIAL: DETAILED PROTOCOL AND INSTRUCTIONS

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I. TSST-G PROTOCOL

Disclaimer: this is a slightly modified version of a protocol that was developed by Bernadette Von Dawans et al. When used, the resulting publication must include the citation of the original article this script was developed for:

von Dawans, B., Kirschbaum, C., & Heinrichs, M. (2011). The Trier Social Stress Test for Groups (TSST-G): A new research tool for controlled simultaneous social stress exposure in a group format. *Psychoneuroendocrinology*, *36*(4), 514–22.
doi:10.1016/j.psyneuen.2010.08.004

Procedures - detailed description

The experiment was carried out in February 2014 and May 2015, with 24 sessions in total. Subjects were recruited using a standard recruitment database, ORSEE (Greiner, 2004) and subjects made choices on computers, using the program z-Tree (Fischbacher, 2007). The final sample is composed of 190 subjects, 95 males and 95 females, primarily undergraduate students (82 %), majoring mostly in economics, business and related fields (61 %).¹ The study was approved by the Internal Review Board of the Laboratory of Experimental Economics in Prague, where the experiment took place. We obtained informed consent from all participants, emphasizing that they were free to leave during any time.

Each session consisted of eight subjects, four males and four females. The gender composition was not directly mentioned (following Niederle & Vesterlund, 2007) but the seating plan in the laboratory was such that it was easily observable.² Each session included only the stress treatment or control group, for logistical reasons. The order of sessions by treatment was randomized, balancing the day of the week and the time of the day. To avoid the intra-day variability of cortisol concentration, all sessions were held after 3PM (i.e. started at 3 PM and 5:30 PM). The experiment was conducted in the Czech language and sessions were administered by one experimenter (male), one assistant (female) and two separate "committee" members for the TSST-G procedure (a male and a female). The average length of the experiment was slightly less than 2 hours and the average payoff was 516 CZK. When recruiting subjects, we announced a two-hour experiment with an expected payment of 500 CZK (around 20 EUR) including a guaranteed show-up fee of 150 CZK. No details about the nature of the experiment were mentioned in the invitation in order to avoid self-selection based on relevant personal characteristics, such as aversion to stressful or competitive situations.

Online questionnaire

Two days before the experiment, subjects filled in an on-line questionnaire that included the trait anxiety inventory (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983), questions on risk-taking behavior (after Dohmen, Falk, Huffman, & Sunde, 2010), the BFI personality inventory (Rammstedt & John, 2007), and questions on personal behavior that would distort the measurement of cortisol (smoking, medication intake, psychiatrist/psychologist treatment or any disorder of this type). Only those who reported no problems were then allowed to participate. Subjects were given instructions to abstain from food, smoking and intake of any medical substances prior to the experiment, in order to avoid distorting cortisol measurement. Compliance with the instructions from the invitation email was checked once subjects arrived for the experiment in a short screening questionnaire.

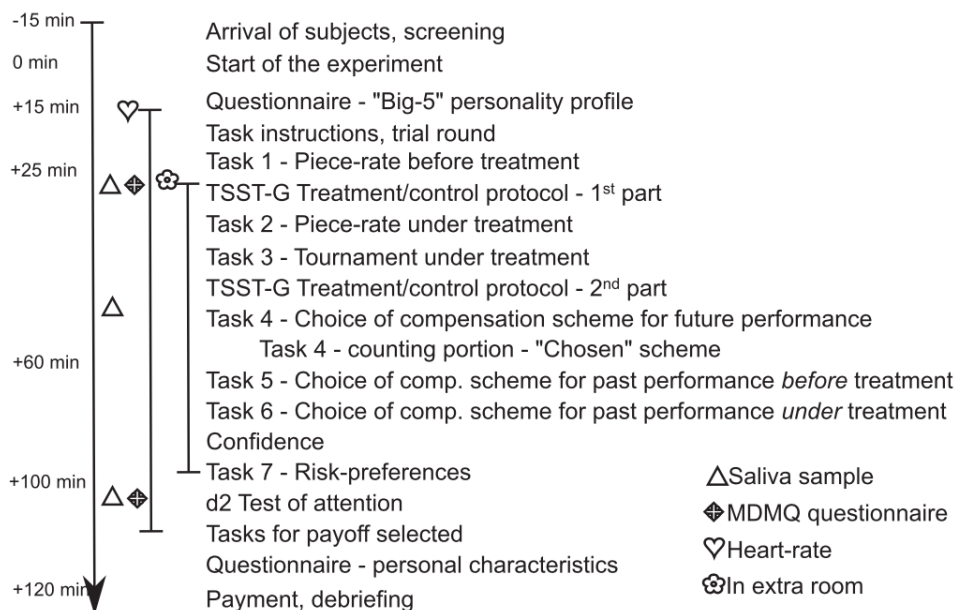
¹ In total 192 subjects participated in the experiments. However, one female subject is dropped from the analysis because she left the experiment early and one male subject is dropped because he did not meet the selection criteria; the other subjects in his session were unaware of this.

² In a questionnaire at the end of the experiment, the majority of subjects (80%) correctly reported the gender ratio of session.

Detailed timeline description

First subjects filled in a screening questionnaire asking about their compliance with the instructions to abstain from the above-described behaviors. Then they randomly chose their participant number and were seated at the computers. After hearing the general instructions about the experiment, they were asked to read and sign the consent forms. Then the experimenter explained how to attach the heart-rate monitors, subjects were asked to divide into two rooms of the laboratory, men and women apart, and put on the heart-rate monitors. When seated again at the computers, they were asked to put on headphones and calibrate the volume so that it would not be uncomfortable but they would not hear the experimenter speaking loud. With the headphones on, they completed the "Big 5" personality questionnaire (Goldberg, 2010), read the instructions to the Tasks on the screens, performed in the trial task and the Task 1. Then they were asked to take the headphones off, were instructed how to give saliva samples and were asked to give the first one. Then they answered questions from the first part of the Multidimensional Mood questionnaire (Steyer, Schwenkmezger, Notz, & Eid, 1997), received the instructions for the TSST stress or control procedure and had few minutes to prepare. After this they were led to a neighboring room by the experimenter where they had a working place prepared and labeled with their participant number and the TSST procedure started. The experimenter repeated the instructions for the first part of the TSST and left the room.

The timeline of the experiment



Subjects then performed in the first part of TSST protocol, and straight after were asked to sit down at the computers that were situated right behind them and proceed with Tasks 2 and 3. Then they stood up again and waited for the instructions for the second part of the TSST protocol, which was explained to all subjects together. After the second part of the TSST was performed, subject was asked to sit again at the computer, give the saliva sample No. 2 and follow the instructions on the screen which proceeded to Task 4 to 7. After completing all seven experimental tasks and filling the second part of the Multidimensional Mood questionnaire, subjects waited until everybody was finished and returned to the laboratory. There they first performed a standard d2 attention test (Brickenkamp & Zillmer, 1998), which is a simple but repetitive task that allows us to check for decreased concentration as a result of the treatment. Specifically, the d2 attention test consists of a series of characters, "d" and "p", with various combinations of dashes around the letters, and subjects are instructed to cross out only "d"s with two dashes around the letter and nothing else. A short questionnaire on personal characteristics followed. At the end of the experiment, two tasks were randomly selected for payment, subjects were paid, and in the *stress treatment*, subjects were collectively debriefed, signed a confidentiality agreement about not spreading information about the particular procedures of the experiment and the experiment ended.

TSST Treatment and control procedures

The stress treatment protocol consisted of two tasks: a public speaking task and a mental arithmetic task. Both tasks were performed by subjects one-by-one in front of a "committee" of 2 experimenters, who sat at a table in front of the participants wearing white lab coats, were instructed not to give any feedback and to maintain a neutral facial expression throughout the procedure. The procedure was recorded by a video camera that was prominently visible. These steps were intended to increase the stressfulness of the procedure. The setting of the room is depicted in Section 2. Subjects were separated by dividers and wore headphones with ambient traffic noise during the entire TSST-G procedure, except when speaking to the committee. This was done in order to prevent subjects from hearing the speeches of others and potentially developing subjective rankings in ability. In the public speaking task, participants were told to imagine a situation in which they had been caught cheating during an important academic examination and should defend themselves in front of a disciplinary committee. Subjects were instructed that they should do their best, despite the fact that this was a mock defense. This set-up required participants to talk extensively about their personal qualities. Subjects were interrupted if talking fluently for too long and were asked additional questions. Thirdly, in the second portion of our modified TSST-G procedure, subjects in the *stress treatment* were again called individually and asked to recite the alphabet backwards in steps of two, starting from a given letter. For example, if given a letter Z, they should recite Z, X, V,... Subjects had to recite for a minute and were corrected if a mistake was made.

The *control* procedure generally exposed subjects to similar conditions, both cognitively and physically, but with minimal stress attributes. Subjects were asked to read an article about academic dishonesty, silently for the first fourteen minutes and then aloud for two minutes. The timing of the control procedure is chosen to mimic the activities of the subject in the stress procedure chosen to speak last. In the second part of the procedure, they collectively recited the alphabet out loud for a minute. Two experimenters were again present in the room in the control procedure, but wore normal clothes and behaved naturally. The subjects in the *control* group also wore headphones with ambient noise and were separated with cardboard dividers, to mimic conditions in the *stress treatment* group.

Our version of the TSST-G modifies the standard protocol in several ways. To avoid deception, participants in the stress treatment were not told that the panel members were trained in behavioral analysis, or that the video recordings would later be analyzed as is in von Dawans, Kirschbaum, & Heinrichs (2011). We modified the speaking task due to possible priming effects: the original procedure is framed as a job-interview, which could have influenced competitiveness and performance in the experiment independently of the stress reaction. Likewise, in the second portion of the task, subjects were instructed to recite the alphabet rather than counting in intervals to avoid contaminating performance in the experimental tasks.

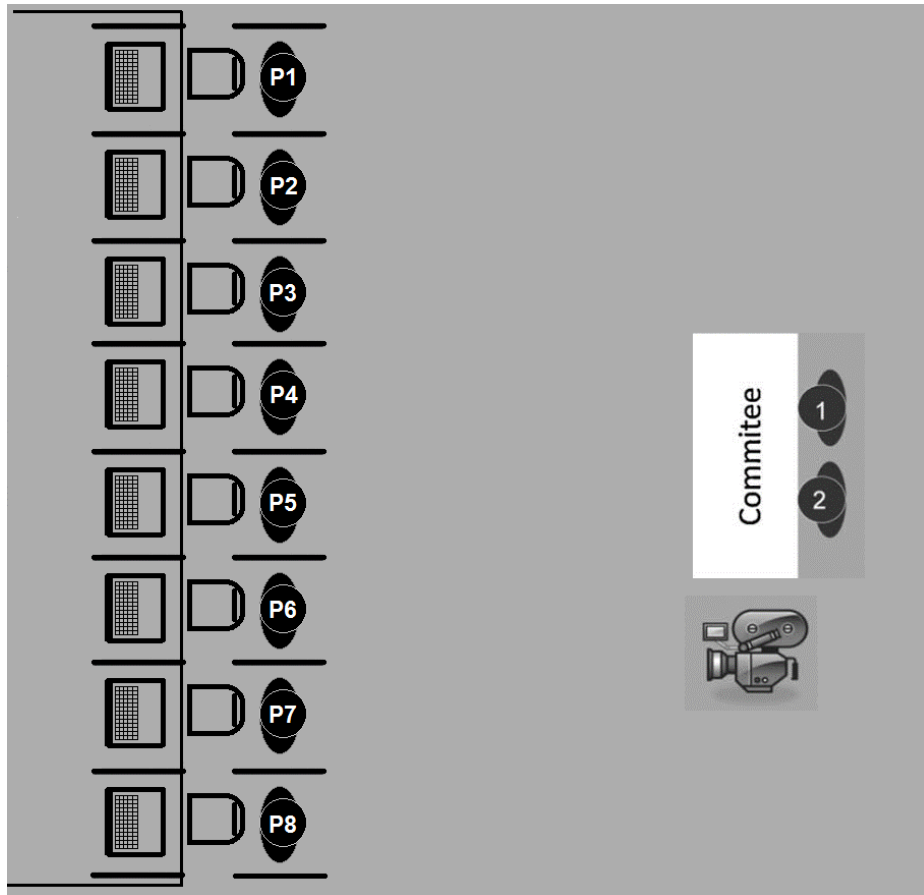


FIGURE B.I: TSST-G LAYOUT



FIGURE B.II: TSST-G SETTING

II.A TTST-G Script : Treatment group

Heart rate marker

1. Disciplinary committee interview

The participants are led into the TSST-room by the Experimenter and given a verbal introduction to the task by the Experimenter.

[Read aloud]

Now I will briefly repeat the instructions to the following part of the experiment. Each of you will now have 2 minutes to present your arguments against the termination of your studies due to the violation of the academic integrity. To avoid hearing each other, you will be asked to take headphones on when not speaking to the panel. The panel will call you by showing a card with your participant number. When you see your number being shown, please take off your headphones and start with your interview. After you finish, please take the headphones back on. You will be recorded by a camera for the whole time. The members of the panel will observe your behavior closely and will take notes during your talk. They may ask you follow-up and clarification questions, even during the interview of another person. Following your talk you will be asked to sit down, press the red button on your watch and proceed with an individual task at the computer. After this part of the experiment another will follow, which will be explained by the panel. Do you have any questions?

After the camera is turned on and all participants are standing at their correct locations, the Experimenter requests that they all press on the heart rate marker button.

- **Please press the red button on your watch now.**

Heart rate marker

The Experimenter then leaves the room, and the chairperson of the panel begins to call on participants randomly by their participant numbers and asks them to begin their speech.

- **Please take on the headphones.**

- **Number X: Please begin!** Time: 00:00

*Only the chairperson should address the research participant directly, so that coordination problems between the panel members can be avoided. The panel should let the research participant speak freely. In most cases the participant will come to the end of the talk before two minutes have passed. The panel should then give him/her time to continue. In this case, there should be a pause. The pause is important to elevate the participant's stress. After a ten to twenty-second pause, the chairperson can alert the research participant to the remaining time, as with the phrase "**You still have time, please continue...**". Should it appear after another ten seconds that the participant has nothing further to say, then the chair should ask questions until the end of the time period. The phrasing of these questions is left to the chair's discretion; they may also be based on the participant's previous statements.*

Typical questions in this context:

- **Why do you think you should be treated exceptionally?**
- **Do you cheat also in other situations than during the studies?**
- **What are your long-term career goals?**
- **How can you bring any benefits for the university under these conditions?**
- **Do you think that cheating in an exam is common?**
- **How would your family/friends describe you?**
- **According to you, how should such unethical behavior be treated?**
- **What are your worst qualities?**
- **Which qualities do you appreciate on other students?**
- **I have your grades here, but tell me more about your character/qualities.**
- **You were just talking about What do you think about ... instead?**

In some instances the research participant will speak calmly and fluently for first full minute. In this case, the chair wants to intervene between the first and second minute to ask questions to the research participant. This should also be dependent on what is being said by the participant and his/her stress level. For instance, it is not appropriate for the applicant to speak in great detail about one specific argument. Some research participants use their school-knowledge to avoid describing themselves. In that case the chair should certainly intervene, for example by saying "We believe that you know this part of argumentation well, so please present another one."

Other typical interventions in this context:

- **Thank you, but now we prefer to hear more about**

(The participants were asked to stay straight and with their hands next to their body when delivering the interview. In the case when the participants try to ease themselves by changing their posture, you may remind them not to do so.

- **Please, stay straight.**
- **Please, take your hands out of your pocket.)**

After two minutes, the participant is interrupted, the chair of the panel asks the participant to sit down, press the red button on the watch, use the plastic tube 2, put on the headphones and continue on the computer. Then the next participant is randomly selected and called by showing his/her number. The same procedure is followed until all participants have completed the task. The total time should be 16 minutes.

- **Thank you—that's enough. Now please put on your headphones, sit down and continue following the instructions on the computer screen.**

Ask all participants to take the headphones off.

Please press the red button on your watch.

<i>Heart rate marker</i>

2. Mental arithmetic task

It is the chair's duty to explain the second part of the stress protocol. All participants should take off their headphones to hear the instructions, then they should put them back on. A typical transition would sound like this:

We now want you to solve the following task. Please imagine the alphabet (the Czech alphabet without any extra symbols but with CH). I will give you one letter and your task is to say out loud letters of the alphabets in the backwards order, but always miss one in the sequence. If your letter were Z, you should say Z X V T R P and so on. Please do so as quickly and correctly as possible. Should you make an error, we will point it out and either you or another participant will have to try again or start over with another letter. We will call on you with your participant number. You may also be called on multiple times. Please take the headphones back on.

*Call the participants by showing their number: **Please begin now with the letter ___ and go backwards in steps when you miss one letter in the sequence.***

Time: 16:00

Each participant is given his or her own starting letter, as can be seen below and should work for about a minute. This list should be available to the panel members so that they do not have to calculate the letters themselves. If the participant miscalculates, the chair should respond with the standard phrase:

- **That is incorrect. Please try again. (two times) Please begin again with ____.**

*If the participant is calculating slowly/not making any mistakes: **Please continue faster (speak louder).***

End with:

Z X V T R P N L J C H G E C A Y W U S Q O M K I H F D B

Y W U S Q O M K I H F D B Z X V T R P N L J C H G E C A

N L J C H G E C A Y W U S Q O M K I H F D B Z X V T R P

R P N L J C H G E C A Y W U S Q O M K I H F D B Z X V T

S Q O M K I H F D B Z X V T R P N L J C H G E C A Y W U

J C H G E C A Y W U S Q O M K I H F D B Z X V T R P N L

O M K I H F D B Z X V T R P N L J C H G E C A Y W U S Q

T R P N L J C H G E C A Y W U S Q O M K I H F D B Z X V

U S Q O M K I H F D B Z X V T R P N L J C H G E C A Y W

Q O M K I H F D B Z X V T R P N L J C H G E C A Y W U S

L J C H G E C A Y W U S Q O M K I H F D B Z X V T R P N

V T R P N L J C H G E C A Y W U S Q O M K I H F D B Z X

W U S Q O M K I H F D B Z X V T R P N L J C H G E C A Y

- **Thank you—that's enough. Please put on your headphones, sit down and follow the instructions on the computer screen.**

Time: 30:00

Ask the participants to take the headphones off.
Please press the red button on your watch.

<i>heart rate marker</i>

- **This is the end of this task. The experimenter will take you back to the lab now. Please remember that you still may not speak to each other.**

The chairperson opens the door, and the experimenter (who should be waiting outside) leads the participants back to the laboratory.

II.B TSST-G Script: Control group

Heart rate marker

→ **NO CAMERA**

→ **NO LAB COATS**

1. Reading task

The participants are led into the TSST-room by the Experimenter and given a verbal introduction to the task by the Experimenter.

[Read aloud]

Your task in this experiment to read the given text aloud. Your group will read out loud for a total of 14 minutes, and then aloud for two minutes. Your reading and English ability will NOT be assessed during this task. You may take small breaks during this period and are free to choose your own reading speed. To avoid hearing each other, you will be asked to take headphones on when not asked to do else. Speak just loudly enough so that your voice can be heard. You are not required to speak so loudly that all the other participants can hear you. The two assistants will not be judging you; they will give you a sign when the 14 minutes pass and after the additional 2 minutes they will provide instructions for a following second part. Please do not walk during reading and keep standing. Do you have any questions?

After all participants are standing at their correct locations, the Experimenter requests that they all press on the heart rate marker button.

- **Please press the red button on your watch now.**

heart rate marker

The Experimenter then leaves the room, and the chairperson of the panel requests that the participants begin.

- **Please begin.** Time: 00:00

The participants should now all read the text aloud—not too loudly. A general “babble“ should be heard in the room. During this time, the panel should occupy themselves with their own papers and should NOT observe the participants. If the panel notices that a participant is not reading at all, the chairperson should ask him or her to continue reading.

- **Thank you, now please read 2 minutes the text aloud.**
- **Thank you, that’s enough. Please take on the headphones and continue with the instructions on your screens.**

2. Counting task

- **Now you have about 6 minutes break. Please keep standing in front of the computers and do not walk away. You can lean on the chair if you need. Please keep the headphones on.**
- **We now would like you to do a following task. Please imagine the alphabet (the Czech alphabet without any extra symbols but with CH). I will set one letter and your task is to continue in the sequence and say**

out loud the alphabet. You can do it in your own pace, it can be slow. This task is again not a test of your abilities and will not be assessed. Please start.

- Thank you, that's enough. Now please put on your headphones, sit down at the computers and follow the instructions on your screens.

This is the end of this task. Please press the red button on your watch. The experimenter will take you back to the lab now. Please remember that you still may not speak to each other.

The chairperson opens the door, and the Experimenter (who should be waiting outside) leads the participants back to the waiting room.

II.C TSST-G Written Instructions – treatment group (distributed before the subjects are led to the TSST-G room)

Your task is the following: Please imagine that you were caught cheating in an important exam and now you should defend yourself in front of a disciplinary committee. Normally you would be expelled. Now you have two minutes when you should persuade the committee why you should be allowed to continue to study.

You should primarily focus on your personal qualities—in other words, the personality traits that distinguish you from other students, rather than general arguments. Assume that the panel has already received information about your academic activities and grades.

The members of the panel will observe your behavior closely and will take notes during your talk. Please note that you will also be recorded by a camera. You should try to leave the best possible impression, and assume the role of the applicant for the duration of the talk as best as you can. You will be asked to talk in a random order and the panel may ask you follow-up and clarification questions, even during the talk of another person. Note that you should stay straight and with your hands next to your body for the whole time of the task. Following your talk you will be given a second task, which will be explained to you then by the panel. The entire procedure will last approximately 45 minutes. Please remember your participant number, since the panel will call on you using this number.

During the time when other participants speak, you will be asked to put on headphones to avoid hearing the other participants. When you have finished reading these instructions, please take the nametag with your participant number and place it on your chest. You now have few minutes to prepare. You may take some notes now, but you may not use them during your talk.

If you have any questions, please raise your hand and we will come to your seat. Please, do not communicate with other participants.

Debriefing (After Experiment)

Thank you for participating in the experiment. Before we proceed to the payments, we would like to say few things regarding Part 2 of the experiment – the oral part that you went through in the adjacent room.

Part 2 consisted of a standardized procedure, with the purpose to induce mild stress on you. The behavior of the panel in no way reflected what you were saying - the panel members were instructed to give absolutely no feedback and to act completely neutrally. Your behavior in the second part will not be analyzed in any way and the video recording will shortly be destroyed. (You may perceive the procedure as a good training for example for language exams, where the panel is also instructed to not give any feedback).

If you have any other questions regarding the challenge task, please stay here after the payments and we will talk to you then.

We need to ask you not to talk about any part of the experiment with anyone. This is absolutely essential for not spoiling our future results. This is why you are asked to sign a confidentiality statement, which we will now go through together:

Confidentiality statement

We would like to inform you that an essential prerequisite for the implementation of the experiment you have experienced today is the novelty of the situation. The scientific success of further studies depends essentially on the assumption that the situation is new and unknown to the study participants. We would therefore like to ask you not to describe any part of the experiment to potential future participants – that would be friends, classmates and so on.

I herewith declare that, in the interest of the development of scientific understanding, I will not pass on any information about the experiment to friends and acquaintances.

Date:

Signature:

II.D TSST-G Written Instructions – control group (distributed before the subjects are led to the TSST-G room)

Your task will be to read a text aloud. In a few minutes, you and the other participants will be asked to simultaneously read the given text aloud. Your reading and English ability will not be assessed during this task.

Your group will read quietly for a total of 14 minutes and then aloud for 2 minutes, but you may take small breaks during this period and are free to choose your own reading speed. Speak just loudly enough so that your voice can be heard. You are not required to speak so loudly that all the other participants can hear you. The two assistants in the room will not be judging you; they will simply signal when the 14 minutes are and then the 2 minutes are over and then provide instructions for the next part of the experiment. The entire procedure will last approximately 45 minutes. Please note your participant number (the number of your computer terminal). The panel will call on you using this number.

When you have finished reading these instructions, please take the nametag with your participant number and place it on your chest. You now have few minutes to prepare.

If you have any questions, please raise your hand and we will come to your seat. Please, do not communicate with other participants.

II. EXPERIMENT ON-SCREEN INSTRUCTIONS

Welcome

In the experiment today you will be asked to complete seven different tasks. None of these will take more than several minutes. Before each task we will describe in detail how your payment is determined in that specific task. Therefore, pay close attention to each task's instructions.

At the end of the experiment, we will randomly select two out of the seven tasks by drawing two numbers out of a bag containing numbers 1-7. Your payoff from the experiment will be based on your performance in these two tasks. Given that each task has the same probability of being selected, you should concentrate equally in all 7 tasks.

Your total earnings from the experiment are calculated as the sum of your payments for the two randomly selected tasks and the CZK 150 show up fee. At the end of the experiment you will be asked to come to the side room where you will be paid in private. All of your decisions in the experiment will also be treated as private.

Now please turn on the MP3 player and adjust the volume so that it is not uncomfortable, but at the same time you cannot hear anything else. You hear just a normal street noise. If you need an assistance, raise your hand and an experimenter will come to you. After that, please take the headphones off again and await further instructions.

Trial round

In the following task you will be asked to calculate the sum of four randomly chosen two-digit numbers. You will be given 2 minutes to calculate the correct sum of as many addition problems as possible. You cannot use a calculator, however you are welcome to use the provided scratch paper. The problems will appear one by one; a new problem appears every time you submit a result. At maximum, you can solve 20 problems in 2 minutes. Other participants will not learn about your answers. After the 2 minutes, you will learn how many problems you solved correctly.

Before we explain how you will be paid for this task, you will have 2 minutes to practice in a trial round.

[a trial round]

This is the end of the trial round, we now move to Task 1.

Task 1 – Piece Rate

As in the trial round, you will be asked to calculate as many sums of four randomly chosen two-digit numbers as possible within the time limit of two minutes.

Payoff: If Task 1 gets selected for payment, you get CZK 25 per problem you solve correctly in the 2-minutes time limit. At maximum, you can solve 20 problems in 2 minutes. Your

payment does not decrease if you provide an incorrect answer to a problem. We refer to this payment scheme as the *piece rate payment*.

Please do not talk with one another for the duration of the experiment. If you have any questions, please raise your hand.

Task 2 – Piece Rate 2

Task 2 is identical to Task 1. Again, you will be asked to calculate as many sums of four randomly chosen two-digit numbers as possible within the time limit of two minutes.

Payoff: If Task 2 is selected for payment, you get CZK 25 per problem you solve correctly in the 2-minutes time limit. Your payment does not decrease if you provide an incorrect answer to a problem. We refer to this payment scheme as the *piece rate payment*.

Please do not talk with one another for the duration of the experiment. If you have any questions, please raise your hand.

Task 3 – Tournament

You will again be given 2 minutes to calculate the correct sums of as many four 2-digit numbers as possible. However for this task your payment depends on your performance relative to another participant in today's experiment. You will be matched to this person randomly. Neither you, nor the other person will learn who is matched with whom during or after the experiment.

Payoff: If Task 3 is selected for payment, then your earnings depend on the number of problems you correctly solve compared to the number of problems the matched participant correctly solves.

- If you correctly solve more problems than the other person, you get CZK 50 per correctly solved problem.
- If you correctly solve fewer problems than the other person, you get CZK 0.
- If you correctly solve the same number of problems as the other person, it is a tie, and both of you get CZK 25 per correctly solved problem.

We refer to this payment scheme as the *tournament payment*.

You will learn about your performance in this task relative to the other participant only after all 7 tasks are finished.

Please do not talk with one another for the duration of the experiment. If you have any questions, please raise your hand.

Task 4 – Choice

As in the previous three tasks you will again be given 2 minutes to calculate the correct sums of as many four 2-digit numbers as possible.

However you will now get to choose how you would like to be compensated for this task. You will have a chance to **combine the piece-rate payment – as in Task 1 and Task 2 – and the tournament payment – as in Task 3 – in any ratio you like**. Let us remind you that in the piece-rate payment, you get CZK 25 per correctly solved problem. In the tournament

payment, your performance in this task will be compared to a performance of a randomly selected participant in **the previous task (Task 3)**. In Task 3, all participants were rewarded using the tournament payment. Therefore, your decision in this task will not determine the payoff of anyone else except yourselves. You can be matched to a different person than in the previous task.

Payoff: You have 100 points and you are asked to decide how many of these points (0-100 points) you want to invest in the *tournament payment* and how many you want to invest into the *piece-rate payment*.

For each correctly solved problem you get CZK 0.25 for each point invested into the *piece-rate payment*.

For each point invested into the *tournament payment* you get:

- CZK 0.5 per correctly solved problem if you correctly solve more problems than the other person did in Task 3.
- CZK 0 if you correctly solve fewer problems than the other person did in Task 3.
- CZK 0.25 per correctly solved problem if you correctly solve the same number of problems as the other person did in Task 3.

You can now tryout how much money you get per correctly solved problem for different combinations of the piece-rate payment and the tournament payment. Type in how you want to invest your 100 points and click on the button “Calculate”. In the right side of the screen, you can see how much money you get per correctly solved problem if you correctly solve

- more problems than the other person did in Task 3.
- fewer problems than the other person did in Task 3.
- the same number of problems as other person did in Task 3.

You can try different combinations, always type in the chosen numbers and click on the button “Calculate”.

When you want to submit your final decision, type in the chosen combination and click on the button “Submit decision”.

Decision

You have 100 points. How many points do you want to invest into the *tournament payment* and how many points do you want to invest into the *piece-rate payment*? These two numbers have to sum up to 100.

Investment into the piece-rate payment: _____

Investment into the tournament payment: _____

Task 5 – Choice for Task 1

You do not have to solve any more problems in this task. Instead you are asked to choose again how much you want to invest into the *piece-rate payment* and how much you want to invest into the *tournament payment*. Your payoff will be determined based on how many problems you correctly solved in Task 1 and on how many problems another randomly chosen participant solved in Task 1. Please be reminded that all payoffs in Task 1 were calculated using the *piece-rate payment* and the task took place while still in the adjacent room. You can be matched to a different person than in the previous tasks.

As in the previous task, you get 100 points and you are asked to decide how many of these points (0-100 points) you want to invest in the tournament payment and how many you want to invest into the piece-rate payment.

For each correctly solved problem you get CZK 0.25 for each point invested into the *piece-rate payment*.

For each point invested into the *tournament payment* you get:

- CZK 0.5 per correctly solved problem if you correctly solved more problems in Task 1 than the other person did in Task 1.
- CZK 0 if you correctly solved fewer problems in Task 1 than the other person did in Task 1.
- CZK 0.25 per correctly solved problem if you correctly solved the same number of problems in Task 1 as the other person did in Task 1.

Let us remind you that in Task 1 you correctly solved _____ problems.

Decision

You have 100 points. How many points do you want to invest into the *tournament payment* and how many points do you want to invest into the *piece-rate payment*? These two numbers have to sum up to 100.

Investment into the piece-rate payment: _____

Investment into the tournament payment: _____

Task 6 – Choice for Task 2

You do not have to solve any more problems in this task. Instead you are asked to choose again, how much you want to invest into the *piece-rate payment* and how much you want to invest into the *tournament payment*. Your payoff will be determined based on how many problems you correctly solved in Task 2 and on how many problems another randomly chosen participant solved in Task 2. Please be reminded that all payoffs in Task 2 were calculated using the *piece-rate payment* and the task took place while already in this room, after the first speaking task. You can be matched to a different person than in the previous tasks.

As in the previous task, you get 100 points and you are asked to decide how many of these points (0-100 points) you want to invest in the tournament payment and how many you want to invest into the piece-rate payment.

For each correctly solved problem you get CZK 0.25 for each point invested into the *piece-rate payment*.

For each point invested into the *tournament payment* you get:

- CZK 0.5 per correctly solved problem if you correctly solved more problems in Task 2 than the other person did in Task 2.

- CZK 0 if you correctly solved fewer problems in Task 2 than the other person did in Task 2.
- CZK 0.25 per correctly solved problem if you correctly solved the same number of problems in Task 2 as the other person did in Task 2.

Let us remind you that in Task 2 you correctly solved_____problems.

Decision

You have 100 points. How many points do you want to invest into the *tournament payment* and how many points do you want to invest into the *piece-rate payment*? These two numbers have to sum up to 100.

Investment into the piece-rate payment:_____

Investment into the tournament payment:_____

Additional questions

How many problems do you think you correctly solved in Task 1 compared to the other 7 participants? Please be reminded that all payoffs in Task 1 were calculated using the piece-rate payment and the task took place while still in the adjacent room.

In Task 1 you correctly solved_____problems.

I think that in Task 1 I correctly solved more problems than (type in a number 0-7) other participants:_____

(7 means that you solved the most problems among all participants, 0 means that you solved the fewest problems among all participants)

Additional questions

How many problems do you think you correctly solved in Task 2 compared to the other 7 participants? Please be reminded that all payoffs in Task 2 were calculated using the *piece-rate payment* and the task took place while already in this room, after the first speaking task.

In Task 2 you correctly solved_____problems.

I think that in Task 2 I correctly solved more problems than (type in a number 0-7) other participants:_____

(7 means that you solved the most problems among all participants, 0 means that you solved the fewest problems among all participants)

Additional questions

How many problems do you think you correctly solved in Task 3 compared to the other 7 participants? Please be reminded that all payoffs in Task 3 were calculated using the *tournament payment* and the task took place while already in this room, after the first speaking task.

In Task 3 you correctly solved_____problems.

I think that in Task 3 I correctly solved more problems than (type in a number 0-7) other participants: _____
 (7 means that you solved the most problems among all participants, 0 means that you solved the fewest problems among all participants)

Task 7 – a lottery

In this task, you are asked to decide thirteen times between the following two options:

- Option A: a fixed amount that you get for sure
- Option B: a lottery “all or nothing”, where you get CZK 240 with a 50% probability and CZK 0 with 50% probability

The lottery is identical in all thirteen “rows” (pairs of options); only the sure payment is increasing from one row to another. Start with the first row and proceed towards the bottom of the screen.

If Task 7 gets selected for payment, you will be paid depending on your decision in one of these 13 rows. A computer will choose one of the rows randomly for payment (you can imagine this as throwing a die with 13 sides) and then checks your decision in that specific row. If you opted for the fixed payment, you get it. If you opted for the lottery, then the computer “flips a coin”. If heads occurs, then you get CZK 240 for this task. If tails occurs, then you get CZK 0 for this task.

A sample decision:

- Option A: CZK 0 for sure o A
- Option B: CZK 240 with a 50% probability and CZK 0 with 50% probability o B

	A sure amount (Option A)		A lottery (Option B)	
1	<input type="radio"/>	CZK 0	<input type="radio"/>	CZK 240 with a 50% probability and CZK 0 with 50% probability
2	<input type="radio"/>	CZK 20	<input type="radio"/>	CZK 240 with a 50% probability and CZK 0 with 50% probability
3	<input type="radio"/>	CZK 40	<input type="radio"/>	CZK 240 with a 50% probability and CZK 0 with 50% probability
4	<input type="radio"/>	CZK 60	<input type="radio"/>	CZK 240 with a 50% probability and CZK 0 with 50% probability
5	<input type="radio"/>	CZK 80	<input type="radio"/>	CZK 240 with a 50% probability and CZK 0 with 50% probability
6	<input type="radio"/>	CZK 100	<input type="radio"/>	CZK 240 with a 50% probability and CZK 0 with 50% probability
7	<input type="radio"/>	CZK 120	<input type="radio"/>	CZK 240 with a 50% probability and CZK 0 with 50% probability
8	<input type="radio"/>	CZK 140	<input type="radio"/>	CZK 240 with a 50% probability and CZK 0 with 50% probability
9	<input type="radio"/>	CZK 160	<input type="radio"/>	CZK 240 with a 50% probability and CZK 0 with 50% probability
10	<input type="radio"/>	CZK 180	<input type="radio"/>	CZK 240 with a 50% probability and CZK 0 with 50% probability
11	<input type="radio"/>	CZK 200	<input type="radio"/>	CZK 240 with a 50% probability and CZK 0 with 50% probability
12	<input type="radio"/>	CZK 220	<input type="radio"/>	CZK 240 with a 50% probability and CZK 0 with 50% probability
13	<input type="radio"/>	CZK 240	<input type="radio"/>	CZK 240 with a 50% probability and CZK 0 with 50% probability