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Faculty of Social Sciences

International Economic and Political Studies (IEPS)

Master Thesis

Preventing the optimal Outcome – Free-Riding at Charles University

Author: **Jonas Kibitzki**

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Supervisor**: PhDr. Václav Korbel**

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DECLARATION OF AUTHORSHIP

I hereby declare that I compiled this thesis independently, using only the listed resources and literature.

I hereby declare that all the sources and literature used have been properly cited.

I hereby declare that this thesis has not been used to obtain a different or the same degree.

The thesis as submitted is 97.369 keystrokes long (including spaces).

Prague 29.07.2016

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Jonas Kibitzki

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Abstract

Group work is pervading modern society's life with potentially huge advantages but also the peril of motivational losses. This master thesis focuses on the latter ones, namely on free-riding and social loafing, in the educational context. I conducted a field research at the Institute of Economic Studies at Charles University in Prague. The results are set into context with existing studies from the US, scrutinizing the generalizability of these studies. Students of this sample consider teamwork as relatively neutral, appreciate the possibility to learn from each other the strongest and consider free-riding as the biggest disadvantage. Free-riders are described as poorly prepared, having trouble to complete work at home and delivering poor quality work. As remedy, students prefer to be able to pick a team on their own. This thesis can partially confirm prior research but also contradicts some anterior findings since free-riders in this thesis are not described as behaving distractively and students do not primarily want instructors to grade them on their individual performance.

Keywords: Free-riding, social loafing, motivational losses, group work, university

Author's email: Jkibitzki@gmx.net

Master Thesis Proposal

Institute of Political Studies
Faculty of Social Sciences
Charles University in Prague

Date: 10.03.2015

Author:	**Jonas Kibitzki**	Supervisor:	PhDr. Václav Korbel
E-mail:	jkibitzki@gmx.net	E-mail:	vaskor@email.cz
Phone:	...	Phone:	...
Specialisation:	IEPS	Defense Planned:	January 2016

Proposed Topic:

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Topic Characteristics:

Working together in a team is common both in companies and in university courses. Working together has both advantages (specialization) and disadvantages (free-riding, social loafing). In my master thesis, I would like to focus mainly on these two disadvantages which result in a reduced effort of one or several team members. A similar phenomenon is the so-called "sucker-effect" which I would like to mention in the theoretical part. The difference between free riding and social loafing is the underlying intention: If the behavior is deliberately, the person is a free-rider and if the person is withholding unconsciously, the person is a social loafer[1]. My very research interest is lying on the question if perceived free-riding occurs and, if yes, how it changes the students' behavior and attitudes. Working hypothesis number five is additionally based on an article written by Jassawalla, Malshe and Sishatta (2008) who analyzed student perceptions of social loafing in the United States.

Working hypotheses:

1. The majority of the local students has already experienced (perceived) free-riding behavior in their group works
2. Nonetheless, they perceive group-work as a useful operating principle
3. Perceived free-riding occurs mostly in undergraduate courses
4. Students expect the excess of social loafing and free-riding at university bigger than at work
5. Students at Charles University choose a non-confrontational strategy towards the free-rider

Methodology:

As sample I would like to use both undergraduate and graduate students of Charles University of the Faculty of Social Sciences. Students are the easiest and cheapest way to gather new data and thus best suited for reaching a high number of participants. I would like to conduct the questionnaires

[1] In order to facilitate things, I will from now on only refer to "free-riding" when meaning both social loafing and free-riding

during some courses. The most suited time would be the first lecture in the winter semester 2015/2016. On the one side, lecturers can probably spare some 15 minutes of their first lecture in the semester and on the other side, some students tend to skip the lectures of the course after they have attended a lecture once or twice. By conducting my research in the beginning, I have the possibility of depicting the total population of the course. The potential courses should address students from the 2nd year Bachelor upwards as 1st year students cannot have any experience in free-riding at university (unless, they changed their subject). It would be the easiest to conduct the questionnaire at the IEP and the IPE but I am not sure if group assignments also are a common task at other faculties. The sample size should be around 200 students – 100 undergraduates and 100 graduates in order to be able to compare these groups.

For designing the questionnaire, I would like to acquire the necessary knowledge from a theoretical book but have not been to a library so far. A suitable book might be *Designing and Conducting Survey Research* by Louis M. Rea (2005). In the questionnaire, I would not list the difference between social loafing and free-riding but simply ask the participants if they assume that the free-rider was withholding his effort deliberately or not.

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    b. Social Loafing
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1. Introduction

Having always been essential for the success of a culture or society, cooperation and group work have become entirely indispensable in modern days' societies: For most of the time, human beings form groups, spanning across different aspects of their lives: Team sports such as soccer or ice hockey would not be possible nor could an orchestra present their repertoire. By cooperating together at work, employees are able to elaborate projects which would overstrain the capacity of a single employee and teamwork is furthermore, given specific group designs, increasing the productivity in the company. Consequently, being able to work efficiently and smoothly in groups is becoming an increasingly important skill, demanded by the employers. Thus also universities adopt group work in order to foster abilities such as communicational skills and assertiveness. Students who are experienced in group work are supposed to be better prepared for collaborative work.

Despite these obvious advantages, group work also causes problems, amongst them the problem of motivational losses. Different types of motivational losses can emerge, amongst them social loafing and free-riding. Despite not describing the same phenomenon and having different academic roots, both concepts result in a lower effort exerted by the individual which instead relies on its other group members. Studies have shown that these motivational losses are ubiquitous in team projects at universities and are strongly disliked by students. However, previous studies were principally aimed at exploring the causes of motivational losses but did mostly ignore what students think about motivational losses, how they responded and what they would like their instructors to do in order to raise the contribution of non-cooperative team members and to improve team work. Only one paper was covering students' perceptions (of social loafing) and the authors were explicitly

stating that they chose a way of stimulating new discussion and research over producing generalizable findings (Jassawalla et al., 2008).

Most of the research in the field of social loafing and free-riding took place in the United States. Expanding this research to a European university is helping to produce the widely generalizable findings of students' perceptions other authors did not gather. By constructing five hypotheses, based partially on the findings of Jassawalla et al. (2008), students' perceptions of motivational losses and their attitude towards group work in general are tested and analyzed. Four out of five hypotheses are supported by the sample, yet not all can be interpreted meaningfully. Some but not all of the findings of Jassawalla et al. (2008) can be confirmed: In this dataset, one aspect of free-riding behavior, the corresponding responses of other team members and wishes for remedying free-riding are reported differently. The hypothesis which could not be confirmed was indeed dealing with the responses towards free-ridings. For further analysis, these findings are split into four different, dichotomous grouping variables, namely degree, gender, the group work experience and free-riding experience of the students. Apart from the grouping variable group work experience, differences between the different variables occur. Tendentially, students at the IES consider the usefulness of group work as relatively neutral, have experienced free-riding and would like to pick their own teams as in order to avoid free-riding behavior in their group.

For reaching these results, the thesis firstly discusses the theoretical background of motivational losses (chapter 2). Within this chapter, three different concepts of motivational losses – social loafing, free-riding but also the so-called sucker effect – are discussed. Furthermore, this chapter provides both a distinction between the concepts of social loafing and free-riding and is presenting anterior findings of students' perceptions of social loafing. Following the theoretical background, in the 3rd chapter, the paper deduces five hypotheses which will later be tested. Chapter 4,

methodology, describes the selection of the courses and the sample as well as the process of designing the questionnaire. Chapter 5 presents the results of the survey, including the tests of the five hypotheses which were deduced in chapter 3. Chapter 6 discusses and interprets the gained results. The last part, chapter 7, contains both a summary both with limitations and implications for further research.

2. Theoretical Background of Motivational Losses

2.1. Free-Riding

The first motivational loss being illuminated is the so-called "free-riding" which is part of the area of economics and has been described for the first time by Olson (1965) in his famous book "The logic of collective action". Albanese and Van Fleet (1985) describe this phenomenon as follows: "The term 'free-rider' refers to a member of a group who obtains benefits from group membership but does not bear a proportional share of the costs of providing the benefits (p. 244)." Two assumptions are being linked with free-riding behavior: "(1) People are egoistic so that personal interests always surpass collective benefits of others, and (2) people are rational so that they tend to perform activities whose perceived benefits outweigh perceived costs" (He, 2012, p. 63). In the next section, this thesis discusses the provision of public goods and free-riding.

2.1.1. Experimental evidence

A public good is one of four possible kinds of goods which are distinguished by economic literature whereby a good is anything substantial or insubstantial that can

please an individual (Albanese and Van Fleet, 1985) and can vary in the degree of rivalry and excludability (Mankiw and Taylor, 2010). If a good is rival, the use of this good diminishes the use of this good for other persons whereas excludability results in the possibility of excluding individuals using that good. The differentiation of goods based on the two factors rivalry and excludability results in a fourfold table with four different kinds of goods (Four types of economic goods): Private goods are characterized by rivalry but also excludability so that free-riders cannot benefit from the good. A typical example is ice cream. It is rival because a second person eating from it would diminish the use of this use for the first person; but by not sharing the good, the owner can avoid this diminishment. When we remove the constraint of rivalry but still maintain the criteria of excludability, we end up with natural monopolies. Fire service and private sport channels belong to this category as an additional user of the good does not diminish the benefit of the good; an individual having used or having benefitted from it would not suffer from a lower benefit. By excluding a person who is not adhering to the costs, free-riding can once again be easily avoided.

The third good is common resources such as clean air or the meadow in a medieval village which the sheep of different families are using. Compared to natural monopolies, common resources are characterized by the inversion of the criteria: Instead of being not rival and excludable, common resources are rival and not excludable. Similar to public goods, common resources are linked to a specific problem rooted in the structure of the good: The so-called “tragedy of the commons” (Hardin, Garrett, 1968): As every person is assumed to be a rational utility-maximizer, all subjects are trying to exploit the common resource (such as above mentioned meadow in a medieval village) as heavily as possible; the common resource is overused which is in the long-term resulting in a suboptimal outcome for the whole society. The remaining good is the already described public good, neither rival nor excludable and hence susceptible for free-riding. A very typical good is

national defense as it does neither diminish the benefit for a group if an additional subject is benefitting from it nor can this person be excluded.

Figure 1: Four types of economic goods

		Rival	
		Yes	No
Excludable	Yes	Private Goods • Clothing • Congested toll roads	Natural Monopolies • Fire protection • Uncongested toll roads
	No	Common Resources • Fish in the Ocean • Congested nontoll roads	**Public Goods** • **National defense** • **Uncongested nontoll roads**

Source: Own depiction, based on Mankiw & Taylor (2010)

Dawes (1980) is defining this situation in which free-riding is the dominant strategy for self-maximizing individuals as 'social dilemma': "Social dilemmas are characterized by two properties: (a) the social payoff to each individual for defecting behavior is higher than the payoff for cooperative behavior, regardless of what the other society members do, yet (b) all individuals in the society receive a lower payoff if all defect than if all cooperate (p. 170)." To resolve this dilemma, he proposes a change of the payoff structure and calls both for an active role of the government along with the use of coercion.

In public good experiments, also another possibility for eliciting cooperative behavior was recognized: Punishment (Fehr and Gächter, 2000). The authors scrutinized the influence of punishment in a repeating public good game both with stranger and partner treatment. Already the introduction of a (costly) punishment opportunity was able to raise the cooperation levels significantly whereas the removal of this punishment opportunity lowered the cooperation levels significantly. This holds true for both the stranger and the partner treatment - in the stable group, even close to full cooperation reached. Interestingly, the cooperation level rose

already in the transition from no-punishment to punishment condition and where punishment has not yet been possible. On the other side, individuals actually use their possibility to punish free-riders although it is costly for them. This finding refutes the concept of the self-maximizing homo oeconomius but is in line with behavioral economics (Brzezicka and Wiśniewski, 2014). Also Albanese and Van Fleet (1985) reported that purely free-riding occurs rarely and thus suggest the use of the term “cheap rider” which is based on Stigler (1974). The observed punishment of free-riders got the stronger, the more the free-rider deviated from the average contribution which is explained by the existence of social norms (Fehr and Fischbacher, 2004). Irrelevant for being punished, however, was the height of the average contribution: It is the negative deviation from the average which causes the punishment. As a result, free-riders immediately adjusted their behavior in order to avoid further sanctions.

Whereas punishment thus was able to reduce free-riding efficiently, the role of the group size is less clear: Isaac et al. (1994) cannot find a significant correlation between their used group sizes. However, somewhat surprisingly, contributions seem to increase in larger groups whereby the authors varied the group size widely starting with 4 individuals ringing to groups with 100 individuals. This is in contrast to the statement of Albanese and Van Fleet (1985) who wrote that free-riding cannot occur in smaller groups. Carpenter (2007), however, found that in large groups, free-riding behavior might become more dominant as it is more difficult for punishing individuals to exert enough pressure to raise free-riders’ contributions. It remains to be said that the influence of group size on the provision of public goods need further empirical scrutiny.

2.1.2. Free-riding among students

A special case of free-riding affecting public goods is its existence at group work. Being as well as the provision of public goods a social dilemma, free-riding exerts a large negative effect on team performance, being fully mediated by team cognition – operationalized by expertise location and shared task understanding (He, 2012). Contrary to public good experiments, studies were able to show a small positive effect of group size on free-riding (He, 2012; Kerr and Bruun, 1983). Also task characteristics and the perceived dispensability in the group influence the impact of free-riding (Kerr and Bruun, 1983): On disjunctive tasks where only the best score in the group is counting, members with low ability exert less effort than members with high ability. On conjunctive tasks in which the least able member determines the outcome, high-able members felt dispensable and exerted less effort.

One way to reduce free-riding in randomly assigned groups is improving team morale or the "collective attitudes and shared commitments among members with regard to their team tasks" (He, 2012, p. 64). This effect was measured by a six-item instrument about members' attitudes and had a large negative impact on free-riding. Apart from reducing the group size, also the usage of peer assessment is able to reduce free-riding (Brooks and Ammons, 2003; Cheng and Warren, 2000; Poddar, 2010). Peer assessment is "an arrangement for learners to consider and specify the level, value, or quality of a product or performance of other-equal status learners (Topping, 2009, pp. 20-21)." Around the issue peer assessment, a wide amount of arrangements has emerged, suggesting peer review even for high school (Topping, 2009). By way of example, the thesis will now closer discuss two different methods which both elicited the cooperation within the group: Brooks and Ammons (2003) developed an evaluation system with three assessment points during the semester as prior research has shown that advantages provided by group assessments depend on timing (Druskat and Wolff, 1999). The scrutinized course was tripartite and at the

end of each section, the students were obliged to submit an evaluation package about each member of the group (including the assessing individual as well) which counted for 50% of the grade of the group work. In total, each subject assessed the commitment of the whole group three times. These reports were afterwards analyzed by the lecturers and given back to the students so that each student was able to see the anonymous comments of the other group members as well as the self-evaluation. This method was able to reduce free-riding significantly and improved the attitude of the students towards group work as well as the perception that the team members were working well together. Additionally, students perceived the early implementation of the peer assessment and the multiple evaluations as helpful. The disadvantage lies in the huge amount of additional work which needs to be done both by the students and the teaching staff. When considering e.g. group size of 5 students, 30 participants in the class and the above mentioned three assessments, the teaching staff has to evaluate 5*30*3=450 evaluation sheets.

A method which is resolving the problem of substantial additional effort is the so-called “you are fired!”-method (Abernethy and Lett, 2005). If a group member is not fulfilling the required tasks or is not attending meetings, excluding the person from the group is possible via the following mechanism: Another group member has to send the free-rider a mail listing the specific work the person has not been doing or the meeting the person has not attended. This mail also has to include a deadline for the required work or a specific meeting which needs to be attended and also needs to be sent in copy to a member of the teaching staff. If the admonished person does not manage to adhere to the deadline or does not show up at the meeting, a second mail is sent to the free-rider together with a copy to the lecturer declaring that the person is fired. Being fired equals getting zero points for the assignment. In the voluntary questionnaires, students were highly supportive about the method and the item “I think that all classes with group assignments should use this method to

encourage everyone to fully participate in the work done by the group (p. 52)" received light but significant support. The authors acknowledge, that the "you are fired!"-method abates free-riding but not social loafing which also is a motivation loss. Because of simple feasibility and potential applicability in a higher educational institution, this master thesis will use the "you are fired"-method as a suggestion in the questionnaire.

Supplementally, it needs to be mentioned that peer reviewing is not always successful. The so-called Individual Team Activity Diary e.g. failed to alter the students' behavior in group work and furthermore also used social loafing instead of free-riding as a measure (Dommeyer, 2007). The next session will now discuss this very motivation loss.

2.2. Social Loafing

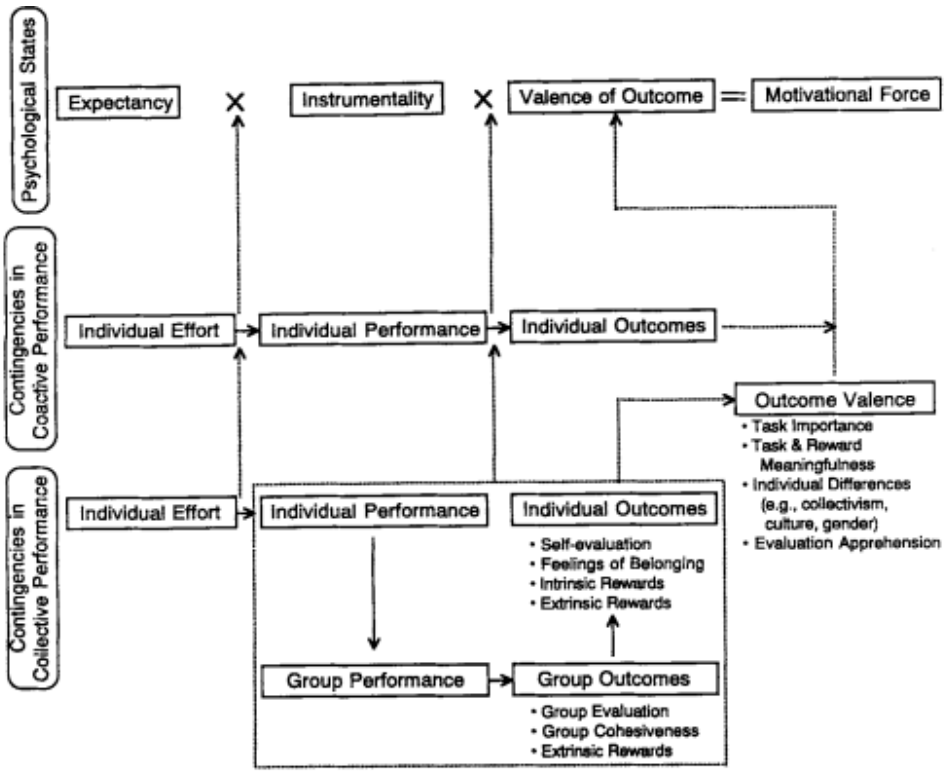
Social-loafing is rooted in the literature of social psychology and has been defined as "a decrease in individual effort due to the social presence of other persons (Latane et al., 1979, p. 823)." The first person who unconsciously described the phenomenon of social loafing, was the French agricultural engineer Ringelmann who conducted a series of experiments between 1882 and 1887 (Kravitz and Martin, 1986). He asked men to pull a rope alone, in a group of 7 people and in a group of 14 people and ascertained that the individual force decreased the more, the bigger the group was. Correctly, he explained this reduced individual performance with a coordination loss but discussed a motivation loss as well.

Almost a century later, Latane et al. (1979) achieved to distinguish the coordination and motivation loss and were the founding fathers of the research on social loafing. They worked with pseudo groups and asked students to shout as loud as possible alone and in groups. Students were blindfolded and had to wear headsets, did thus not notice that they were actually shouting both times alone but reduced their

effort when they were supposedly shouting in groups. The authors consequently defined the term 'social loafing' and even framed it as a social disease: "It is a disease in that it has negative consequences for individuals, social institutions, and societies (Latane et al., 1979, p. 831)." Another important step on the understanding of social loafing was the development of a theoretical model: The Collective Effort Model, based on Vroom's expectancy theory model is explaining individuals' motivational force in groups in difference to when working alone (Vroom in Karau and Williams, 1993). According to this model, an individual's motivational force is dependent on three factors: Expectancy, instrumentality and valence: Expectancy is the degree to which high levels of effort are anticipated to lead to high levels of performance, instrumentality is the degree to which high performance is perceived as instrumental in reaching an outcome and valence of the outcome or the degree to which the outcome is perceived as desired. The factors are multiplicatively linked with each other: If one factor equals zero, an individual's motivational force will also be zero – even if the other two factors are well-marked. In order to make this model fit to collective contexts, Karau and Williams (1993) enlarge this model in the collective level. Whereas they do not change the concept of expectancy and only rename it to "individual effort", they split instrumentality into a chain with the following three factors: (a) the perceived linkage between individual performance and group performance, (b) the perceived linkage between group performance and group outcomes and (c) the perceived linkage between group outcomes and individual outcomes. Hence, the model assumes that working on a collective task introduces additional contingencies compared to working individually so that the distance between the own input and the desired outcome is bigger. As the relation of instrumentality is a chain, one disrupted linkage such as the connection between individual performance and group performance causes the whole motivation to fail. Social loafing would be the consequence. In the following meta-analysis of more than 80 sources, the authors were able to find a moderate magnitude of social

loafing and also analyzed several moderating variables which can be grouped into three categories (Ohlert, 2009): Task characteristics, group and situation characteristics and individual characteristics.

Figure 2: The Collective Effort Model (CEM)



Source: Karau & Williams (1993, p. 685)

Task characteristics: Social loafing can only occur in collective tasks which labels tasks in which the individual effort is not clearly distinguishable – contrary to individual tasks and coactive tasks (Ohlert, 2009). If the own contribution is evaluated, individuals exert as much as effort as in coactive tasks where the individual input is clearly identifiable. Further factors are the perceived uniqueness of the individual contribution, the task complexity and the valence of the task for the individual (Harkins and Petty, 1982; Karau and Williams, 1993). Individuals were performing as good as in coactive tasks when they perceived their own contribution

as unique but immediately started to loaf when they were working on partially or completely redundant tasks. Similar to this finding is the influence of task complexity: In case of difficult tasks, individuals performed better when working collectively than when working coactively but performed better on simple tasks in the coactive mode. Likewise, individuals perform better when they can identify themselves with the task which is the so-called task valence. In case of a very difficult or very interesting task, social loafing can even vanish completely.

Group and situation characteristics: Karau and Williams (1993) were able to show with a linear regression that individuals exert the less effort, the bigger the group is. However, it seems likely that this effect is approaching asymptotically a maximal value as it appears to be unlikely that a change of group size from 50 to 51 persons changes the magnitude of an individual's social loafing (Ohlert, 2009). The magnitude is also lower in case of a high group valence which means that the well-being of the group is important to oneself. Yet it remains unclear whether group cohesion can prevent social loafing or not (Ohlert, 2009). Furthermore, punishment and rewards were able to influence social loafing (George, 1995; Liden, 2004).

Individual characteristics: Apart from the above mentioned characteristics of the task and group, also personal and demographical factors influence social loafing. Men have a greater tendency to loaf than women and "Western" individuals loaf more than individuals from "Eastern" cultures (Karau and Williams, 1993). Additionally to these findings, Wagner (1995) found out that more collectivistic persons loaf less than individualistic individuals - a paradigm which is more common in "Eastern" cultures. Fatigue also increases social loafing whereas even the knowledge about social loafing does not alter the loafing itself (Hoeksema-van Orden et al., 1998).

2.3. Distinction between Free-Riding and Social Loafing

Free-riding and social loafing both describe motivational losses in groups and seem to be similar concepts: Social loafing is the reduced effort of an individual in a group task whereas free-riding is the avoidance of costs at the expense of others (Ohlert, 2009). In special occasions, these two concepts might also overlap: In large groups with collective tasks, both free-riding and social loafing might occur. This conceptual proximity is also reflected in the overlapping of scientific literature: In a summary of free-riding, (Albanese and Van Fleet, 1985) also use studies which investigate social loafing (Harkins and Petty, 1982; Latane et al., 1979; Williams et al., 1981). Other studies investigate free-riding and frame social loafing as simply another term for it (Hall and Buzwell, 2013; He, 2012). Nonetheless, social loafing and free-riding are for the following reasons not identical:

Firstly, free-riding and social loafing are rooted in different fields of research. Free-riding is embedded in the domain of public goods and has been described already in the mid-1960s (Olson, 1965). The research on social loafing, however, unintentionally discovered in the 1890s, started in the end 1970s and is rooted in behavioral psychology. Apart from the field of research also conceptual differences exist: Social loafing does not occur when the individual effort of a person is made visible whereas free-riding can also occur if it is clearly visible how much a single persons contributed to the task (Ohlert, 2009). Thirdly, and most importantly, is the underlying intention of the person who is exerting less effort: Free-riding is a deliberate decision of an individual to reduce the contribution costs on other's expenses (Albanese and Van Fleet, 1985). On the other side, social loafing does not imply a deliberate decision of a reduced effort but assumes an unconscious reduction of effort. It is for example possible to find social loafing also in situations which have a high valence for an individual such at swim events (Williams et al., 1989). The subjects who participated at the study even reported that they were

exerting more effort in the collective than in the coactive task. Furthermore, social loafing continues to exist even when individuals are being told about the existence of social loafing and had been instructed not to loaf during the task (Huddleston et al., 1985).

Free-riding and social loafing are not the only motivation losses. If too many loafing or free-riding individuals exist in one team, this may result in another motivation loss: the sucker effect.

2.4. Sucker Effect

This particular loss of motivation does not result from a task-related factor but is a reaction towards the perceived coworker's performance. The sucker effort describes a withholding of effort in group work due to the fear or the feeling of being exploited by other group members (Schnake, 1991): "When individuals decide to reduce their own effort and input to group performance instead of being ‘suckers’ and letting themselves be exploited by free-riders" (Gil, 2004, p. 411). A motivational loss does not occur when the other team members are attributed as individuals with low task solving ability but are considered to be capable in solving tasks (Kerr, 1983). The sucker effect both occurs in literature based on free-riding (Kerr, 1983) and social loafing (Geen, 1991; Robbins, 1995).

Kerr (1983) lists three reasons why the sucker role is aversive to individuals: The first motive is the violation of an equity norm. It is seen as inappropriate that one individual is contributing more to the group but is rewarded the same than less contributing members. The second motive is that free-riding of others is breaking a norm of social responsibility. Every single group member is supposed to contribute and not adhering to this rule violates the mentioned norm. The third reason is that free-riding of others also violates a norm of social reciprocity: If I contribute to the group, and therefore also to the other's benefit, then the others are also obliged to

respond. Moreover, one other possibility mentioned is the problem of being once again exploited by the other group members. The aversion of becoming a sucker is so strong that even in coactive situations the individual motivation is negatively influenced although the performance is not measured on the group level but on the individual level (Schnake, 1991). When just considering the payoffs in the situation or the game, this kind of behavior seems to be illogical as it negatively affects the own performance only. But when including social values in the payoff calculation, the described behavior makes sense once again (Kerr, 1983).

Similar to free-riding, the possibility of raising the motivation appears to be simpler than it actually is: Still given the condition of other group members possessing a high task ability and now also performing well and working intensively, the situation may lead to free-riding because the own contribution is perceived as dispensable for the group performance (Kerr, 1983). Yet due to the close link towards free-riding and social loafing, mechanisms to prevent these two motivational losses also lead to a reduction of the sucker effect. The sparse literature suggests for instance goal setting, observing a coworker receiving punishment and increasing the reward for group success (Kerr, 1983; Schnake, 1991). The next section will discuss the links between the theoretical part and the contribution of this thesis which will result in five hypotheses.

2.5. Anterior findings of students' perceptions of free-riding

Jassawalla et al. (2008) recognized that, despite the comprehensive research in the field of motivational losses, the student perceptions of free-riding had not been addressed enough. Therefore, the authors could not directly start with testing hypotheses but firstly needed an explanatory study in order to derive hypotheses. Undergraduate American business administration students, aged 19-23, delivered the necessary data by participating in a course of one of the authors for which they

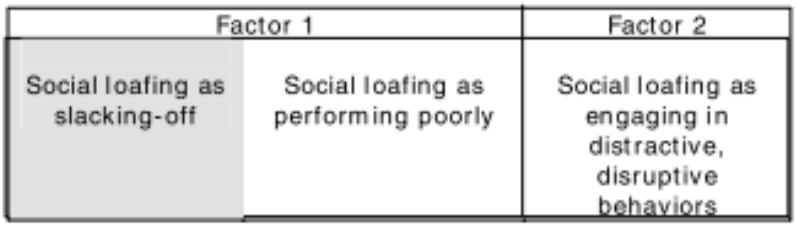
received participation points. They were presented the concept of social loafing with a brief overview about the literature and were asked to discuss their previous experience in groups with the help of the several central questions. Both the discussions of the students and their mandatory written description were content-analyzed in a two-step process. Three hypotheses were the resulting outcome of this procedure:

- H1: Students will view social loafers as people who: (a) slack off, (b) perform poor-quality work, and (c) are distracted and disruptive
- H2: Students will view social loafing behaviors as causing poor team performance
- H3: Students' response to social loafing will be to expect the instructor to grade their individual contributions

Once again, an undergraduate sample was used, with 394 full-time students participating. Only students, who have experienced social loafing, were asked to answer the survey. It turned out that the perceptions stated in the explanatory study could be confirmed in the survey. The authors could not only confirm their hypotheses by conducting the survey but also were able to show that students' perceptions of social loafing are more comprehensive than the literature view of social loafing: "…in their view, loafers are poor contributors in terms of quantity *and* quality of work. Moreover, students view social loafers as those who engage in distractive behaviors, that is, they engage in side conversations during team meetings, fail to focus on the process in which the team is engaged, and distract the team's focus from its goals (p. 414)." Two factors emerged: Poor quality work and distracted, distractive behaviors, 17. In students' views, so the authors, a loafer is a person who is negatively affecting the students themselves and less other factors such as team morale or creativity. The authors, however, fail to recognize that factor

two is actually describing free-riding behavior as social loafing occurs unconsciously and disruptive or distractive behavior are certainly not part of unconscious behavior.

Figure 3: Data derived versus literature's view of social loafing



Shaded box indicates the current literature's view of social loafing

Source: Jassawalla et al., 2008, p. 414

Students assumed that social loafing results in poor overall performance, operationalized by fewer good ideas, deadlines which are not made or presentations with lower quality. In order to compensate for that, students would like their instructors to provide possibilities to comment on their own contribution and thus on their own performance. In the discussion, the authors note the paradox that young intelligent individuals fail to confront the social loafer albeit knowing that the person is deteriorating the team performance and instead prefer that the lecturer is ex-post restoring justice in terms of individual contribution. Furthermore, they also wonder about a fact at which this thesis is contributing to the topic: In the explanatory study, which consisted of 23 undergraduate students, every single student or a 100% stated that they had experience with social loafing – although the authors did not specify whether the social loafing needed to have taken place at college.

This omnipresence combined with the other findings such as the reactions towards social loafing or the comprehensive perception of social loafing is the unique contribution of this master thesis: The authors themselves state that they did not try to reach widely generalizable findings: “Our attempt in this article is to present our

data-derived findings and stimulate new discussion and research – versus an attempt to produce widely generalizable findings (p. 404).” Exactly this is the starting point of this thesis.

Despite the beforehand elaborated differences between social loafing and free-riding, I will from now on summarize free-riding and social loafing only under the term free-riding as it (a) is easier to construct a questionnaire with only one concept, (b) as students cannot always estimate whether a fellow student’s motivation loss was intended or not and (c) in order to improve the readability.

3. Hypotheses

This master thesis empirically tests five hypotheses. The first hypothesis is addressing the general attitude towards group work at the Institute of Economic Studies (IES) at Charles University. Teamwork is getting increasingly important as modern organizations use the cooperation between employees widely. By working together, employees are able to elaborate projects which would overstrain the capacity of a single employee which is furthermore, given specific group designs, increasing the productivity in the company (Glassop, 2002). But students can already benefit from group work before they enter their professional career: They can, similarly to work situations, manage bigger projects and improve their learning by discussing what helps students to justify their ideas and understand new perspectives (Aggarwal and O’Brien, 2008; Webb, 1995). Also students reported positively about their experience with group work: In a case study of engineering students, the subjects positively emphasized a gain in communication skills, the connection with the professional practice and an increase motivation for learning (Lima et al., 2007) and, in a quantitative study, the students were significantly

favorable towards the item “I learn more from group assignments than in individual assignments”, albeit the approval itself was rather moderate. In a study conducted by Sobral (1997), students placed in groups received better grades than those in a control group, working individually. Hence I assume as following also for students at the Institute of Economic Studies:

H1: Students perceive group-work as a useful operating principle.

The next hypothesis is dealing with the (perceived) frequency of free-riding at the Institute of Economic Studies of Charles University of Prague. As mentioned above, Jassawalla et al. (2008) found an overwhelming rate of 100% in their explanatory study when 23 out of 23 students had already experienced ‘lazy’ or ‘unmotivated’ group members. As motivation losses occur within all kind of groups, it is highly likely that the majority of students at the have already experienced free-riding at the IES or at least at high school – if they have not yet participated in teamwork at the IES what might hold true for first-year students. One observation might additionally raise the percentage of students who have encountered free-riding: “Of all participants, graduate-level economic majors placed less importance on fairness as a behavioral norm in making decisions on contributing to a public good (Albanese and Van Fleet 1985, p. 248).” Given the omnipresence of free-riding and the sample mainly consisting of students majoring in economics, I hypothesize that the majority of students has already experienced or at least perceived social loafing.

H2: The majority (>50%) of students has already experienced (perceived) free-riding behavior in their group works.

The next hypothesis needs as prerequisite experienced/ perceived social loafing by students as it is focusing on the response of students towards a free-rider – if students do not have a lazy member in their group, they do not need to respond to this kind of behavior. Jassawalla et al. (2008) noticed that prior research in the field

of social loafing in work teams had not yet unveiled how students respond to the presence of social loafers and found out that their sample of American undergraduate students failed to confront loafers albeit being aware that they were lowering the team performance. Rather they wanted their lecturers to grade them individually, based on self-reports of individual contributions and assign a lower grade to loafers. It would make sense to assume that students at Charles University also chose instead the possibility to give a free-rider a bad evaluation at the end of the semester what however is not possible in every course. Therefore, I expect that students tend to either do nothing when they have a free-rider in their team or chose indirect ways of showing their disapproval of the free-rider's behavior.

H3: Students fail to confront the free-rider, preferring not to respond at all or choosing indirect ways of disapproval.

Whereas H3 was focusing on the response of other students on free-riding, the next two hypotheses are scrutinizing students' wishes concerning the alleviation of free-riding. In the study conducted by Jassawalla et al. (2008), students were expecting their instructors to grade the individual contributions and not the whole group project what is a less problematic way of dealing with a non-contributing person in the group instead of directly confronting the person. Hence, I assume the same for Czech students:

H4: Students would like to have the possibility to grade their individual contributions

The last hypothesis of this thesis is testing the wish for a very different kind of response. As H3 and H4 state that students will presumably rather not confront free-riders but rather prefer their instructor to grade the students' contributions individually, H5 hypothesizes that students would at least like to have the *possibility* to fire a team member from the group – what is still far away from applying this very drastic measure and of what students might be scared of in an actual situation.

Furthermore, if institutionalizing a possibility of firing a team member and telling the students that firing a non-contributing group member were justified, the inhibition threshold and the social costs should be lowered. In one study, American students were very favorable to the institutionalized method of firing a group member (Abernethy and Lett, 2005). In this setting, a group member needed to send an email to the free-rider listing which tasks had been ignored or which meeting they had not attended and until when the task needed to be fulfilled or which meeting they had to attend. An email needed to be sent to a faculty member. If the non-contributing student did not fulfill the task until the deadline or missed the mentioned meeting, the contributing group member sent an email to the free-rider that he was fired with a copy to a faculty member. This setting was applied in two different courses (one with a group size of four up to six students and another course with roughly 50 students, working together on one project and being split into five subgroups). In total, five to ten percent of the groups were using this tool in order to improve the group performance. What the authors did not discuss, however, was the small size of their project: Five to ten percent of the groups who were firing a student represent two out of 14 groups which were part of the study and the data was gathered from only 63 questionnaires (the total amount of students participating in these two courses was 68) – relatively low for a quantitative study. In general, the students were highly supportive, supporting every of the six items about the "you are fired" method and were even advocating the expansion of this method to all courses with group assignments. The difference to the study by Jassawalla et al. (2008) is striking: Where the students without an institutionalized method of dealing with free-riding were not willing to confront the free-riders albeit knowing that these individuals reduce the team's overall performance, students with the possibility of firing a team member were, if necessary, willing to use this drastic method. As this hypothesis is just measuring a theoretical disposability and not an

actual situation, I hence assume, despite a less individualistic, less on low-context based society the following:

H5: Students would like to have the possibility to fire a team member.

Before testing these five hypotheses, the next section describes the methodology which means the selection of the sample and the composition of the used questionnaire.

4. Methodology

4.1. Sample and selection of courses

As sample naturally serve students of the IES of Charles University in Prague, both at graduate and undergraduate level, ranging from their 1st year of studies to students who are studying in their master level for 3 three years and longer. 211 students participated in the survey, split into four courses. 54% of the participants were male, 46% were female. 70% of the students were undergraduates and the other 30% were on graduate level. The exact descriptives are shown in Table 1.

Table 1: Descriptives of the year of study

	Frequency	Percent
1st year Bachelor	58	27,5
2nd year Bachelor	20	9,5
3rd year Bachelor	53	25,1
4th year and more Bachelor	17	8,1
1st year Master	50	23,7
2nd year Master	8	3,8
3rd year and more Master	5	2,4
Total	211	100,0

Four obligatory courses were selected for this research in order to secure a sufficient amount of students and to have the possibility to split the sample into different grouping variables. Each of the four courses was targeting students of a different year, ranging from 1st year, 2nd year and 3rd year undergraduates to 1st year graduates. Descriptives of the courses are shown in the Table 2.

Table 2: List of courses chosen for the survey

Course	Designed for	Number of students enrolled
Principles of Economics I	1st-year undergraduates	137
Microeconomics II	2nd-year undergraduates	55
Econometrics II	3rd-year undergraduates	77
Advanced Microeconomics	1st-year graduates	110

All courses took place in the winter semester. The author was focusing on conducting the surveys as early in the semester as possible as there usually is no obligation in attending courses at the IES. By conducting the research in the first month of the new semester, it is more likely to also collect the questionnaires of students who might not attend the courses in the future of the semester.[2] Altogether, there were 379 students in these four courses enrolled. Given the 211 collected and filled out questionnaires, roughly 55% of the students who were enrolled in these courses participated in the survey.

4.2. Designing the survey

Due to time constraint given by lecturers, I designed the survey for a duration of 10 minutes. A shorter survey should furthermore increase the response rate and

[2] Concretely, the survey in Econometrics II took place in week 2 of the new academic semester and the surveys of Principles of Economics I and Advanced Microeconomics took place in week 3. The survey of Microeconomics II took place in week 4.

validity of student's answers.[3] As the above listed courses were taught in English, the language used for the questionnaire was English as well. In order to ensure the length of roughly ten minutes for the questionnaire, two students were testing the extent of the questionnaire beforehand. These two students were also non-native English speakers so that any time savings due to superior language skills could be ruled out.

For the general design of the questionnaire, I used the book "Questionnaire Design" (Brace, 2008). From an ethical point of view, participants of surveys should be aware what the broad subject of the survey is: Therefore, the survey started with introducing the topic "Survey on group work at Charles University." In order to make the students feel more comfortable to fill out the survey, the questionnaire featured a disclaimer, ensuring the anonymity of their answers.

The authors recommend to start with the more general parts of the questionnaire, continue with the more specific ones and finish with the classification questions. As I intended to place a crucial filter question, asking whether students have already experienced free-riding or not, at the end of the first page, it was however only possible to place classification questions first. Thus the first question was asking for the students' major, followed by a question concerning the year of study. For covering also students who might be studying longer than the regular duration of their major, the questionnaire provided boxes for a 4th year and more for the bachelor studies and 3rd year and more for the master studies.

The questionnaire provided for the course with the graduate students featured the question in which university the students were studying in their bachelor degree. In the following question, once again for all surveys, the students were asked to fill in

[3] Usually, participants' fatigue starts at about 30 minutes but in this case, students potentially already had to process the information of one whole lecture.

their gender. The next question covered rather sensitive issue as students might not, despite the anonymity of the survey, like to write down their GPA. Nonetheless, the GPA is a relevant information, e.g. for correlations. Thematically, it would have fit more to place the question concerning the GPA after the item asking for the students' major and there might appear as a little topical jump. However, it is advisable to ask sensitive questions rather in the end of the survey as some kind of relationship between the respondent and 'the survey' will be built on (Brace, 2008). First-year students were asked to fill in their GPA achieved at high school.

The next set of questions, items 5.1 up to item 5.4., was diving into the subject of matter of group work. The first item, question 5.1., was asking how often students were working together on group projects. This item was designed as a closed question, ranging from 0 to the maximum amount of 6 and more as, if experienced in group work, the participants might not remember the exact number of team projects. With the question following, students were for the first time facing a question concerning their attitudes in the questionnaire, measured by a scale which was ranging from 1 ("way less useful"/ "strongly disagree") to 8 ("way more useful"/ "strongly agree"). An even scale was chosen for the attitudal questions in order to avoid the error of central tendency which is one type of a respondent error. Additionally, respondents trying to reduce their response efforts frequently tick in the middle point of odd scales (Coelho and Esteves, 2007). Simultaneously, an 8-point scale allows for greater discrimination than a Likert scale.

Item 5.2. ("How do you evaluate group work in comparison with working individually?") was the first item using this scale and also featured the value 0 in case a student had no experience so far. For the 8-point scale, the extreme points were marked with "way less useful" and "way more useful." The term "useful" was chosen as "better" might also be related to aspects which are not necessarily related to what students actually learn from group work. In an extreme case, a free-rider

might consider group work as better as the student can rely on the efforts of the other group members. After asking for the general attitude towards group work, the survey was scrutinizing students' perceptions of potential advantages and disadvantages. Both for potential advantages and disadvantages, five characteristics were selected, each of them marked with the value 1 as "strongly disagree" and the value 8 as "strongly agree."

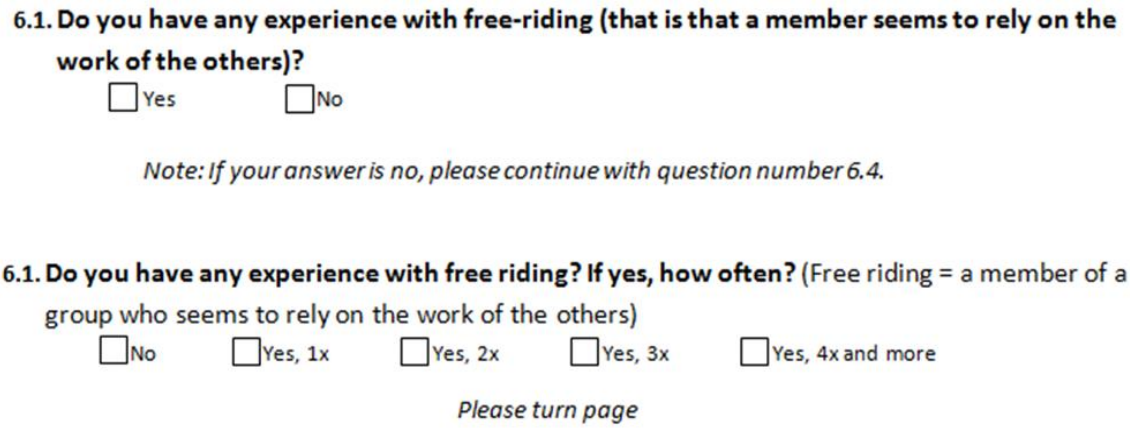
One of the basic concepts of economics is an increased well-being due to specialization (Mankiw and Taylor, 2010) which might also apply to a student group. Hence the first item is asking for this potential advantage. Because of different strengths and backgrounds of the individual members, participants of the group can learn from each and learn about each other (Aggarwal and O'Brien, 2008) which is why the second item ("Being able to learn from other group members") is included. Whereas most of the items focus on long term learning for the students, the third item is proposing the idea that group work reduces the personal amount of time which needs to be dedicated to the task. As already pointed out before, one reason of establishing group work at universities is the idea to prepare the students to their future job tasks and to provide them with skills necessary to successfully manage their career (Aggarwal and O'Brien, 2008; Brooks and Ammons, 2003). Consequently, the preparation for future job tasks is also part of the suggestions of advantages. The last item of the list of potential advantages was that group work might result in a better outcome than when working individually. One study suggested that group work outputs are better than individual outputs and were hence graded better (Sobral, 1997).

Similarly to the potential advantages, students also were asked to evaluate a list of five potential disadvantages. The same amount was chosen in order to not bias students who might have screened the survey before responding to the question dealing with the usefulness of group work. Item 1 and item 2 scrutinize if students

consider the grading of group projects as fair or not. As Jassawalla et al. (2008) demonstrated, there is not only the aspect that free-riders withhold effort on the others' expenses but they furthermore deliver poor-quality work. Hence, there are two items, distinguishing between the quality and the quantity. With the next potential disadvantage, the survey was asking for the problem of free-riding. For the first-year and second-year students, this item was operationalized as "Having a group member who seems to rely on the work of the others." For the third-year and first-year Master students, the term free-riding was used. The other two items have already been listed similarly in the potential advantages, this time pooled to "more time necessary because of holding meeting and additional organization" and "worse product quality."

After those questions dealing with teamwork, the survey focuses explicitly on free-riding. Hence also the advice to start with the general topic and to continue with the more specific one was considered (Brace, 2008). Item 6.1. is thereby crucial, asking whether the students have already experienced free-riding. For the questionnaire, free-riding was defined as situation in which a member seems to rely on the work of the others. Students from the 2nd year onwards have already dealt with this term in their studies but might already have forgotten about the concept again. The item is deliberately located at the end of the first page so that students could not be biased from the upcoming dichotomous filter, reducing the amount of work for students without free-riding experience. Two changes were made between the firstly conducted questionnaire for the 3rd year undergraduate students and the rest of the courses as problems occurred when conducting the survey (confer to section 4.3.). The filter was removed, asking students to imagine how they would imagine a free-rider to behave. Furthermore, the dichotomy was dissolved in favor of a scale featuring the amount of perceived free-riding ranging from "0" to "4 and more". Figure 4 presents the changes between the first questionnaire and the others.

Figure 4: Question 6.1. in its first and second version



6.1. Do you have any experience with free-riding (that is that a member seems to rely on the work of the others)?

☐ Yes ☐ No

Note: If your answer is no, please continue with question number 6.4.

6.1. Do you have any experience with free riding? If yes, how often? (Free riding = a member of a group who seems to rely on the work of the others)

☐ No ☐ Yes, 1x ☐ Yes, 2x ☐ Yes, 3x ☐ Yes, 4x and more

Please turn page

The following batteries are based on the work on Jassawalla et al. (2008), trying to examine the reliability of their results. Because of the above stated reasons, the Likert scale was replaced by the 8-point scale. Item 6.2. hence asks how the free-rider was behaving and lists a battery with 12 potential characteristics. A note was added, telling the students that in case of several experiences in free-riding, they should only refer to one situation. It is believed to deliver more valid results when students were reporting about one particular situation instead of trying to estimate means of different situations, not being able to remember all of them.

Also the next battery, with the question "how did you and the other team members react" was based on the study of Jassawalla et al., (2008), featuring boxes to fill in with 'yes' and 'no.' Once again, respondents were asked to only refer to one free-riding experience or imagine how they would respond (if they had not yet had any experience with free-riding and were not answering the first questionnaire). Similarly to question 6.2., the items were grammatically adjusted in order to suit also respondents without prior free-riding experience.

The last battery was equally based on Jassawalla et al. (2008), yet small adjustments were made and the Likert scale replaced. The item “make the team report *mid-semester* on ‘who is doing what’” was left out because of the contentual similarity to “let the team make a report on what each member did.” Because of the same reason, the item “give the team the power to assign 50% of the grade received by every member” was removed as there were already the items “evaluate individual effort on teams in more ways” and “let the team make a report on what each member did.” Instead, the item “enable the team to fire non-cooperative team members” was included in order to test H5. This battery is followed by the last question, asking “what would you otherwise suggest to improve team work.” In order to get as many responses as possible, a suggestive formulation was chosen. In the end, a note was attached, thanking the respondents for their participation. All four questionnaires can be found in the appendix.

4.3. Conducting the surveys

Before handing out the survey to the respondents, they were first provided with some information about it. I started by telling them that the survey will take them approximately ten minutes to fill in and that the data is used for this master thesis. Afterwards I showed them that the survey, albeit only on one sheet of paper, has a second page on the backside. Additionally, they were instructed that the contribution of this survey is voluntary and that the data, in according to the disclaimer in the beginning of the survey, is processed anonymously. Finally, I wrote down my email on the blackboard in case that respondents wanted to contact me ex post. Following the execution of the survey in the course Econometrics II, students were also asked to work individually and to not to communicate with their neighbors during the completion of the questionnaire.

As already mentioned beforehand, the first survey took place in the third-year course Econometrics II. In this course, the respondents filled out the questionnaire after the lecture and the lecturer needed longer for her lecture then it was agreed on. Hence the survey started almost together with the break after the lecture. As breaks at the IES are only 10 minutes long, the survey took almost until the beginning of the next lecture. The students were hence increasingly unsettled and started to mutter between each other. Some students used the filter dealing with their experience in free-riding in order to reduce their effort by correcting their answer from having experienced free-riding in their group to not having experienced free-riding in their group.[4] This behavior resulted in a removal of the filter for the other surveys (see section 4.2.). In the other three surveys, the conduct went smoothly. Similarly to Econometrics II, the conduct of the survey for the first-year master course Advanced Microeconomics took place after the lecture whereas the conduct of the two other courses took place before the lecture. Apart from Econometrics II, there were no special events occurring while the students were filling out their surveys and no student sent me an email.

[4] In this case, the answer was nonetheless coded as having experienced free-riding

5. Results

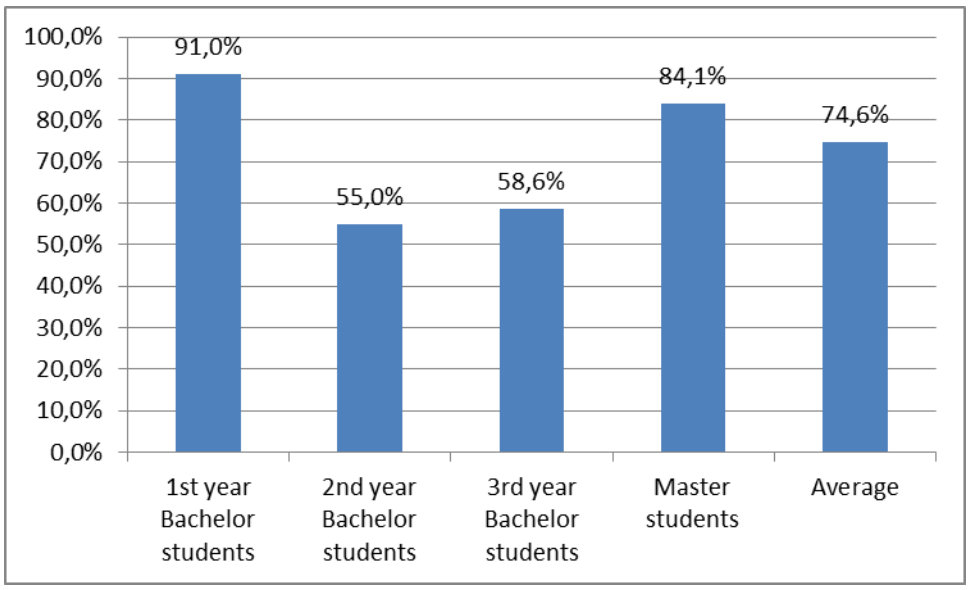
5.1. Testing the hypotheses

On a scale between 1 as worst assessment and 8 as best assessment, students rate the usefulness of group work on average with 4.92. The one sample t-test delivers, compared to the mean of 4.5, a 1% significance level so that the hypothesis assuming that students consider group work as a useful operating principle is supported. This value, however, actually means that students are rather indifferent towards group work instead of preferring it compared to working individually. Of the whole sample, roughly 75% of the respondents have already experienced free-riding. When filtering out 1st-year students who were not yet working in groups at the IES, this proportion is shrinking to 69%. Given the wrong statements of some of the participants in the 3rd year course, the survey conducted at Econometrics II needs to be filtered out as well. This results in 78% of the students having experienced free-riding. When considering only those students who were finishing their bachelor at Charles University (with only 29 relevant participants), this amount changes to 86%. The overwhelming majority of graduates having obtained their degree has hence experienced free-riding. Figure 5 shows the amount of students having perceived free-riding graphically, starting with a striking 91% of the freshmen who encountered a free-rider in their teamwork at high school. Only 20 second-year students participated in the survey but after one year at the IES, more than half of them have stated to have experience with this behavior. When being in their master degree, 84% of the students stated that they had already experienced free-riding.[5] The t-test, based on all non-first year students with a mean of 4.5 is significant on

[5] Master students are summarized here as only eight second-year master students participated and five students in their third year or higher

the .01 level. H2, hypothesizing that the majority of students at the IES has experienced free-riding is hence also supported.

Figure 5: Proportions of students having experienced free-riding, split by year of study



Concerning responses towards free-riding behavior, 25% of the students having experienced free-riding stated that they and their other group members did confront the free-rider whereas 23% of the respondents stated that they or their group members did nothing. 19% of the participants were using indirect ways of showing their disapproval. Compared with the item “doing nothing”, there was no significant difference compared to the item “confronting the free-rider.” When being compared with showing indirect ways of disapproval, there is a significant difference, which however is reversed compared to the expected difference: It was expected that more students show their disapproval indirectly than confronting a free-rider but in the sample, the difference is the other way. The third hypothesis is hence not supported. Contrarily, H4, assuming that students would like to have their contributions individually graded, is statistically significant, but once again receives only marginal support. The mean for evaluating individual effort is only 4.98.

Filtering out students without experience in free-riding does not alter the mean of the responses (4.97 and 4.98, respectively) but lowers the significance from the 1% to the 5% level. The last hypothesis, hypothesizing that students would like to have the possibility to fire a free-rider, is also significant on the 1% level and receives moderate support from the sample. When once again leaving out students without experience in free-riding, the mean is marginally reduced to 5.35.

5.2. Other findings

The participants are relatively experienced in group work. Without the first-year students, the mean is 4.7. Given that the last box to tick in was formulated as "6x and more", the actual amount of group work of the respondents is actually higher. Table 3 demonstrates the frequencies of the amount of group work.

Table 3: Frequencies of the amount of group work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	1	,5	,5	,5
	1x	5	2,4	2,4	2,9
	2x	15	7,1	7,1	10,0
	3x	34	16,1	16,2	26,2
	4x	31	14,7	14,8	41,0
	5x	17	8,1	8,1	49,0
	6x and more	107	50,7	51,0	100,0
	Total	210	99,5	100,0	
Missing	9	1	,5		
Total		211	100,0		

As already described, the usefulness of group work is considered by students as relatively neutral. There is furthermore no correlation between the year of study

and the perceived usefulness of group work. Bachelor students rated group work with a 4.91, master students with a 4.95. Interestingly, there is a significant difference in the perception of group work between first-year and second-year students, with first-year students being moderately positive towards teamwork and second-year students rather neutral with a 4.20. Similarly, there is a marginally significant difference between second-year students and first-year master students with first-year master students appreciating group work more (5.06 to 4.20).

As opposed to this, there is also no significant difference between males and females, although the mean of males is slightly higher with 5.05, compared to 4.76 for the females. A statistically significant correlation ($p<.05$) exists between the amount of group projects and the usefulness of group work but Pearson's r equals only .156 so that despite being statistically significant, there is no (linear) relationship. Students having worked at least 5 times in university groups, show moderate support for group work with a mean of 5.21. When considering only students who have worked six times or more in groups, the mean remains similar, at 5.24. Similarly, a correlation between the amount of free-riding experienced and the usefulness of group work is not significant. Students experienced in free-riding (three times and more, 42 students), gave group work with 4.64 a worse rating compared to students who are not experienced in free-riding (less than three times, 142 students). The latter group rated group work with a 5.04 what, however, is not a significant difference to students experienced in free-riding. The possibility to learn from other group members receives relatively strong support from the students with a mean of 5.92. Female students assess this possibility significantly higher than male students (6.18 compared to 5.71, $p<.05$) whereas neither the degree nor the experience in group work[6] nor in free-riding cause a significant difference. Students

[6] Experienced in group work is operationalized as having participated four times and more in group projects

also appreciate concerning group work that they need less time to fulfill their projects and that group work provides them with useful job skills.

The suggestions that teamwork results in a better product quality than when working alone and that students are able to specialize on their own strengths in a group project receive least support from the sample, still being above average. For the answer option “better quality”, students having experienced free-riding at least three times assess the item significantly worse than students with less experience (4.35 to 5.06, $p<.05$). Table 4 shows the means of the five items dealing with the positive aspects of group work together with the item usefulness of group work. In Table 6, the battery with the advantages of group work is split into different grouping variables.

Table 4: Assessment of the advantages of group work

	N	Mean	Std. Deviation
Usefulness of group work	210	4,92	1,727
Specializing	209	4,88	1,851
Learning from each other	210	5,92	1,707
Less time necessary	210	5,45	1,952
Providing useful job skills	210	5,19	1,758
Better quality	210	4,88	1,937
Valid N (listwise)	208		

Both items dealing with unfair grading receive slight support. Unfair grading because of qualitative reasons received a 5.36 and unfair grading because of quantitative reasons received a 5.28. Master students rate the unfair grading due to qualitative reasons as more problematic than Bachelor students, albeit the significance is only marginal (5.69 and 5.21). The item “more effort” also received marginal support, somewhat contradicting the likewise support of the item “less time necessary” in the battery of the advantages before. Master students consider more effort as

significantly more disadvantageous than Bachelor students, albeit only on the .1 level. More consistent is the students' answer towards the product quality as their support for better product quality is above the average of 4.5 and their support for worse product quality below 4.5, at 3.98. Respondents experienced in free-riding consider worse product quality a significantly bigger problem than inexperienced students ($p<.1$). Of the five items describing the disadvantages of group work, free-riding receives the strongest support with a score of 5.53. Most of the intergroup differences were once again negligible: Men rate the problem of free-riding as a 5.50, women rate it with a 5.57. Non-significant differences exist also between Bachelor and Master students (5.47 and 5.68). Similarly, there is no significant difference between students experienced in group work and inexperienced in group work – experienced students rated on average a 5.63 and inexperienced students 5.31.[7]

The only considerable intergroup difference is the experience in free-riding: Students having experienced free-riding three times and more consider free-riding as a significantly bigger disadvantage of group work than students with less experience and agree strongly with this item (6.48 to 5.28, 1% significance level). Whereas participants with little or no free-riding experience consider the item more effort due to additional meetings as a more problematic aspect of group work than free-riding, students with free-riding experience rate free-riding with a distance of .74 as the most problematic disadvantage (the item unfair grading because of qualitative reasons receives 5.74 for this subgroup). Students never having experienced free-riding assess the problem of free-riding on average with 4.7 and students having had a free-rider at least four times strongly supported the item by

[7] Students having participated four times and more in group work, are considered as being experienced

rating it with 6.39. Table 5 shows the battery of disadvantages concerning group work. Table 7 shows the same items split into different grouping variables.

Table 5: Assessment of the disadvantages of group work

	N	Minimum	Maximum	Mean	Std. Deviation
Usefulness of group work	210	1	8	4,92	1,727
Unfair grading quantity	208	1	8	5,28	1,906
Unfair grading quality	208	1	8	5,36	1,875
Free-riding	208	1	8	5,53	1,722
More effort	208	1	8	5,25	1,859
Worse quality	208	1	8	3,98	1,907
Valid N (listwise)	205				

Table 6: Advantages of group work (GW), split into grouping variables

	Entire sample			Grouping variable degree				Grouping variable gender			
	N	Mean	Std. Dev.	Mean Bachelor	Std. Dev. Bachelor	Mean Master	Std. Dev. Master	Mean ♂	Std. Dev. ♂	Mean ♀	Std. Dev. ♀
Usefulness of GW	210	4,92	1,727	4,91	1,700	4,95	1,806	5,05	1,794	4,76	1,640
Specializing	209	4,88	1,851	5,00	1,730	4,59	2,092	4,96	1,833	4,78	1,878
Learning from each other	210	5,92	1,707	5,88	1,742	6,02	1,631	5,71	1,746	6,18	1,633
Less time necessary	210	5,45	1,952	5,37	1,976	5,65	1,894	5,52	1,876	5,37	2,043
Providing useful job skills	210	5,19	1,758	5,12	1,738	5,35	1,806	4,99	1,868	5,41	1,599
Better quality	210	4,88	1,937	4,95	1,890	4,73	2,094	4,84	1,957	4,93	1,922
Valid N (listwise)	208										

	Entire sample			Grouping variable group work experience				Grouping variable free-riding experience			
	N	Mean	Std. Dev.	Mean inexp. GW	Std. Dev. Inexp. GW	Mean exp. GW	Std. Dec. exp. GW	Mean inexp. free-riding	Std. Dev. Inexp. Free-riding	Mean exp. free-riding	Std. Dev. exp. free-riding
Usefulness of GW	210	4,92	1,727	4,64	1,843	5,02	1,678	5,04	1,615	4,64	1,819
Specializing	209	4,88	1,851	4,80	1,721	4,90	1,901	4,96	1,819	4,77	1,850
Learning from each other	210	5,92	1,707	5,93	1,524	5,92	1,773	6,01	1,645	5,74	1,706
Less time necessary	210	5,45	1,952	5,57	1,808	5,41	2,005	5,52	1,842	5,07	2,120
Providing useful job skills	210	5,19	1,758	5,29	1,648	5,15	1,800	5,18	1,747	5,37	1,719
Better quality	210	4,88	1,937	4,55	1,858	5,00	1,957	5,06	1,906	4,35	1,963
Valid N (listwise)	208										

Table 7: Disadvantages of group work (GW) split into grouping variables

	Entire sample			Grouping variable degree				Grouping variable gender			
	N	Mean	Std. Dev.	Mean Bachelor	Std. Dev. Bachelor	Mean Master	Std. Dev. Master	Mean ♂	Std. Dev. ♂	Mean ♀	Std. Dev. ♀
Usefulness of GW	210	4,92	1,727	4,91	1,700	4,95	1,806	5,05	1,794	4,76	1,640
Unfair grading quantity	208	5,28	1,906	5,14	1,846	5,60	2,020	5,21	1,923	5,36	1,892
Unfair grading quality	208	5,36	1,875	5,21	1,824	5,69	1,964	5,20	1,940	5,54	1,788
Free-riding	208	5,53	1,722	5,47	1,703	5,68	1,772	5,50	1,666	5,57	1,793
More effort	208	5,25	1,859	5,08	1,880	5,63	1,763	5,29	1,818	5,21	1,913
Worse quality	208	3,98	1,907	3,98	1,846	3,97	2,055	4,03	1,938	3,92	1,879
Valid N (listwise)	205										

	Entire sample			Grouping variable group work experience				Grouping variable free-riding experience			
	N	Mean	Std. Dev.	Mean inexp. GW	Std. Dev. inexp. GW	Mean exp. GW	Std. Dev. exp. GW	Mean inexp. free-riding	Std. Dev. free-riding	Mean Exp. Free-riding	Std. Dev. Exp. Free-riding
Usefulness of GW	210	4,92	1,727	4,64	1,843	4,64	1,843	5,04	1,615	4,64	1,819
Unfair grading quantity	208	5,28	1,906	5,31	1,971	5,31	1,971	5,17	1,894	5,67	2,113
Unfair grading quality	208	5,36	1,875	5,15	1,870	5,15	1,870	5,24	1,800	5,74	2,139
Free-riding	208	5,53	1,722	5,27	1,830	5,27	1,830	5,28	1,718	6,48	1,518
More effort	208	5,25	1,859	5,44	1,751	5,44	1,751	5,34	1,772	5,23	2,114
Worse quality	208	3,98	1,907	4,13	1,564	4,13	1,564	3,78	1,841	4,42	2,096
Valid N (listwise)	205										

When scrutinizing the free-riding behavior, naturally only subjects who have reported about free-riders in their group are considered. Out of the 12 suggestions for free-riding behavior, six items received strong support and one item received moderate support. Strong support with a value above 6.00 received the items "being poorly prepared", "having trouble completing home work", "doing a poor job of the work" and "doing poor quality work." Moderate support received the item "contributing poorly to the team's discussion." The least supported item, "distracting from the team's focus", is negatively significant, assessed with a 3.92. Table 8 shows the means of the single items together with the significances in comparison to the mean of 4.5.

Table 8: Behavior of free-riders and corresponding one-sample t-test

	N	Mean	Std. Deviation	T test with test value = 4.5: Sig. (2-tailed)
Problems attending meetings	99	4,89	1,958	,051
Trouble paying attention	100	4,82	1,946	,103
Mostly silent	100	4,72	2,080	,293
Engaging in side conversations	99	4,46	2,072	,866
Poorly prepared	100	6,16	1,650	,000
Contributed poorly	99	5,72	1,697	,000
Trouble completing home work	100	6,33	1,870	,000
Declining work	101	4,58	2,099	,688
Doing poor job of the work	100	6,25	1,822	,000
Doing poor quality	101	6,27	1,760	,000
Distracting	100	3,92	1,952	,004
Not fully participate	99	4,40	2,236	,670
Valid N (listwise)x	95			

When facing a free-rider in their group, students mostly try to encourage the person (42%) but also respond by confronting the free-rider (26%) and are doing nothing (25%). The others items are used rather rarely, ranging from indirect ways of disapproval (17%) to leaving the team (2%). On average, students crossed 1.5 items.

The responses least chosen are leaving the team, “firing a team member” and “giving the free-rider a bad evaluation” with each below 10%. Table 9 shows the students’ responses towards a free-rider.

Table 9: Descriptives for the responses towards free-riders

	N	Times not chosen	Times chosen	Percentage of positive answers	Std. Deviation
Did nothing	102	77	25	25	,432
Talking to professor	102	91	11	11	,312
Leaving the team	102	100	2	2	,139
Ignoring the free-rider	102	88	14	14	,346
Engaging free-rider	102	59	43	42	,496
Confronting the free-rider	102	75	27	26	,443
Indirect ways of disapproval	102	85	17	17	,375
Firing member	102	94	8	8	,270
Giving a bad evaluation	102	93	9	9	,285
Valid N (listwise)	102				

All items dealing with the intention to prevent free-riding are significant, all for one on the .01 level, the only exception being “creating a team report” which is significant on the .05 level. However, not all items receive support from the students: Students explicitly do not want to be put into a group without choosing their teammates and furthermore do not want to write an evaluation of what their other group members were doing (3.76 and 3.89). The items which receive moderate support are the suggestions to let the students pick their group and to enable them to fire a non-cooperative team member with 5.59 and 5.40. This leaves three items concerning which the students are fairly neutral, despite being statistically significant.

Splitting the sample into the different grouping variables, results in some significant differences: Female students would like to have individual effort evaluated more than male students as well as creating a team report in which the members write exactly down which group member did what ($p<.01$ and $p<.05$). Moreover, there are differences between the students experienced in free-riding and not experienced in free-riding: Once again, it is the marginally significant suggestion to evaluate individual effort more. Additionally, students with a comprehensive experience of free-riding wish to be able to pick their group members more than students with only little or no experience in free-riding ($p<.05$). It does, on the other hand, neither matter whether students are studying in their Bachelor or Master Degree nor if they are experienced in group work or not. Similarly, no correlation between the GPA and the different suggestions to remedy free-riding receives statistical support.

The survey did not ask whether there were any special institutional rules for the group work. Instead, attitudes of students who used any institutionalized settings (evaluating the group members or firing the free-rider) were analyzed once again separately. 13 students have been firing a free-rider and advocate the possibility of firing a free-rider relatively strongly (6.54, $p<.01$). They also appreciate evaluating individual effort more (5,85, $p<.01$) and being able to pick a group on their own (6,23, $p<.01$). Similarly, those 12 students who had given the free-rider a bad evaluation were advocating the strongest to fire the free-rider (6.50, $p<.01$) and being able to pick a group (6,00, $p<.05$).[8]

[8] There were two students in the sample who both firing a team member and gave a free-rider a bad evaluation

Table 10: Students' wishes to prevent free-riding

	N	Mean	Std. Deviation	T test with test value = 4.5 Sig. (2-tailed)
Evaluating individual effort more	208	4,98	2,110	,001
Team report	207	4,84	2,202	,029
Right to leave the team	207	4,90	2,088	,000
Enable to fire the member	206	5,40	2,033	,000
Not picking the group	205	3,76	2,088	,000
Let me pick group	207	5,59	2,097	,000
Let me do a written evaluation	206	3,89	2,072	,000
Valid N (listwise)	203			

Out of the 211 respondents, 57 students or 27% answered the question how group work at the IES might furthermore be improved. The answers were content-analyzed and grouped into 11 categories. Within these categories, most comments – nine – were made about grading individual effort more. Eight students were requesting to reduce the amount of teamwork or even abolish it entirely and another seven students were suggesting some kind of hierarchy in the group or to choose a group leader. Introducing a team building, having smaller groups and being able to choose their group were suggested four times each. Another four students were actually not making suggestions to improve the group work but rather pointed out that group work and free-riding are part of real life and that it hence is crucial to have it at university level. The role of the lecturer was mentioned three times with the main suggestion that the professors should control the groups but should also be approachable in case of any problems. Two students each were asking for more group work, mentioning the necessity of a better communication and suggesting rewards. 10 comments remain which neither fit into any of these categories nor can be grouped together with other comments, covering a wide range of different suggestions. An overview of all comments grouped into the different categories can

be found in the appendix. Table 11 is hereby demonstrating how the qualitative statements were grouped.

Table 11: Qualitative statements, grouped into different categories

Category	**Amount of comments**[9]
Grading individual effort more	9
Less team work	8
Hierarchy/ team leader	7
Team building	4
Smaller teams	4
Choosing the team	4
Importance of group work	4
Role of the lecturer	3
Better communication	2
Rewards	2
More group work	2
Not grouped	10

[9] The total sum equals 59 as two comments are grouped into two categories

Table 12: Students' responses towards a free-rider, split into grouping variables

	Relevant sample					Grouping variable degree				Grouping variable gender			
	N	Times not chosen	Times chosen	Positive answers (PA)	Std. Dev.	PA Bachelor	Std. Dev. Bc.	PA Master	Std. Dev. Master	PA ♂	Std. Dev. ♂	PA ♀	Std. Dev. ♀
Did nothing	102	77	25	25%	,432	32%	,471	17%	,382	26%	,444	22%	,420
Talking to professor	102	91	11	11%	,312	14%	,351	8%	,269	9%	,285	13%	,344
Leaving the team	102	100	2	2%	,139	2%	,141	2%	,139	2%	,132	2%	,149
Ignoring free-rider	102	88	14	14%	,346	18%	,388	10%	,298	7%	,258	22%	,420
Engaging free-rider	102	59	43	42%	,496	26%	,443	58%	,499	42%	,498	42%	,499
Confronting the free-rider	102	75	27	26%	,443	22%	,418	31%	,466	21%	,411	33%	,477
Indirect ways of disapproval	102	85	17	17%	,375	14%	,351	19%	,398	16%	,368	18%	,387
Firing member	102	94	8	8%	,270	8%	,274	8%	,269	7%	,258	9%	,288
Giving a bad evaluation	102	93	9	9%	,285	4%	,198	13%	,345	7%	,258	11%	,318
Valid N (listwise)	102												

	Relevant sample					Grouping variable group work experience				Grouping variable free-riding experience			
	N	Times not chosen	Times chosen	Positive answers (PA)	Std. Dev.	PA inexp. GW	Std. Dev. inexp. GW	PA exp. GW	Std. Dev. exp. GW	PA inexp. free-riding	Std. Dev. free-riding	PA Exp. Free-riding	Std. Dev. Exp. Free-riding
Did nothing	102	77	25	25%	,432	27%	,452	24%	,428	12%	,331	27%	,458
Talking to professor	102	91	11	11%	,312	0%	,000	14%	,354	14%	,348	13%	,352
Leaving the team	102	100	2	2%	,139	0%	,000	3%	,161	2%	,124	7%	,258
Ignoring free-rider	102	88	14	14%	,346	23%	,430	11%	,309	12%	,331	13%	,352
Engaging free-rider	102	59	43	42%	,496	27%	,452	47%	,503	42%	,497	73%	,458
Confronting the free-rider	102	75	27	26%	,443	23%	,430	28%	,450	32%	,471	27%	,458
Indirect ways of disapproval	102	85	17	17%	,375	19%	,402	16%	,367	22%	,414	13%	,352
Firing member	102	94	8	8%	,270	8%	,272	8%	,271	9%	,292	13%	,352
Giving a bad evaluation	102	93	9	9%	,285	4%	,196	11%	,309	9%	,292	13%	,352
Valid N (listwise)	102												

Table 13: Students' wishes to prevent free-riding, split into grouping variables

	Entire sample			Grouping variable degree				Grouping variable gender			
	N	Mean	Std. Dev.	Mean Bachelor	Std. Dev. Bc.	Mean Master	Std. Dev. Master	Mean ♂	Std. Dev. ♂	Mean ♀	Std. Dev. ♀
Evaluating individual effort more	208	4,98	2,110	4,92	2,079	5,11	2,193	4,55	2,201	5,48	1,892
Team report	207	4,84	2,202	4,83	2,079	4,85	2,482	4,99	2,231	5,24	2,106
Right to leave the team	207	4,90	2,088	4,92	1,949	4,87	2,399	4,90	1,963	4,91	2,234
Enable to fire the member	206	5,40	2,033	5,40	1,955	5,42	2,222	5,20	2,111	5,64	1,926
Not picking the group	205	3,76	2,088	3,82	1,981	3,62	2,332	3,71	1,951	3,82	2,245
Let me pick group	207	5,59	2,097	5,45	2,020	5,92	2,249	5,56	2,092	5,63	2,114
Let me do a written evaluation	206	3,89	2,072	3,92	1,988	3,82	2,277	3,75	2,028	4,04	2,122
Valid N (listwise)	203										

	Entire sample			Grouping variable group work experience				Grouping variable free-riding experience			
	N	Mean	Std. Dev.	Mean inexp. GW	Std. Dev. Inexp. GW	Mean exp. GW	Std. Dev. exp. GW	Mean inexp. free-riding	Std. Dev. free-riding	Mean Exp. free-riding	Std. Dev. Exp. free-riding
Evaluating individual effort more	208	4,98	2,110	5,09	1,965	4,94	2,165	4,90	2,086	5,60	2,037
Team report	207	4,84	2,202	4,78	2,071	4,86	2,252	4,73	2,182	5,43	2,143
Right to leave the team	207	4,90	2,088	4,87	2,109	4,91	2,087	4,99	2,101	4,70	2,110
Enable to fire the member	206	5,40	2,033	5,56	1,922	5,34	2,075	5,35	2,049	5,30	1,982
Not picking the group	205	3,76	2,088	4,09	2,009	3,64	2,111	3,74	1,968	3,63	2,268
Let me pick group	207	5,59	2,097	5,65	1,992	5,57	2,139	5,76	1,973	4,91	2,448
Let me do a written evaluation	206	3,89	2,072	4,04	2,055	3,84	2,083	3,90	1,986	3,67	2,212
Valid N (listwise)	203										

6. Discussion

Out of the five hypotheses this thesis stated, four were supported with the third hypothesis, dealing with students' responses towards free-riding behavior and potential remedies as the only exception. Contrary to the observations of Jassawalla et al. (2008), students of this sample do not necessarily fail to confront the free-rider, wishing postpriori justice. Instead, the response mostly chosen by students is trying to engage the free-rider and their strongest wishes are being able to choose their team and being able to fire a non-cooperative group member. Moreover, students gave the option to evaluate individual effort more a fairly neutral grading. Potential explanatory factors might be the following: Differences in the sample, differences in the design of group work, a different behavior of the free-rider or cultural differences.

Students' overall opinions about the usefulness of group work are fairly neutral which is also reflected in the qualitative statements with eight students asking for less group work, four students explicitly recognizing the importance of teamwork and two students asking for more group work. This finding is inconsistent with a study asking students for the usefulness of group work (Lima et al., 2007) but consistent with the findings of another study which scrutinized students' satisfaction with group work (Abernethy and Lett, 2005). Different group work settings might explain the differences to the findings of Lima et al. (2007): Engineering students, traditionally not working in teams, participated in a project-led education course. Each group (with an average group size of six members) had one tutor guiding them through the project. In addition to this rather uncommon supervision, students might be able to learn more from their first cooperation in teams than a student now participating in his sixth group work due to a potentially diminishing marginal

utility. Abernethy and Lett (2005), on the other hand, asked for the general evaluation of group work, not being bound to one very well organized project.

Neither a considerable experience in group work persuades students of the usefulness of group work nor do Master students, being closer to their career entry, have a more appreciating attitude towards group work than their Bachelor counterparts. The indifference of students experienced in free-riding compared to those students with little experience is also potentially contradicting prior research, showing that free-riding was one of the two strongest predictors for teamwork satisfaction (Pfaff and Huddleston, 2003). It is difficult to assess to which degree the students' satisfaction and students' assessment of usefulness towards teamwork are correlated and this survey did not ask for the item group work satisfaction. Some students might consider group work as useful albeit disliking it which is also covered by the statement 51: "I do get why working in groups is important but do not enjoy it."

The strongest advantage for students concerning group work is the possibility to learn from each other, whereby females appreciate this possibility more than males. Female students might communicate more or communicate more openly and hence can learn more from each other than their male counterparts. Alternatively, female students might be more willing to learn from each other and adapt other solution processes whereas male students insist that their way of doing things is the most appropriate one. Another significant difference in the advantages of teamwork occurs in the item "better quality" for those students who experienced free-riding frequently and for those who experienced free-riding never or rarely. Given that free-riders are described as contributing poorly, being poorly prepared and having problems completing work at home a very logical finding. It generally needs to be stated that teamwork at the IES seems to fail to have any temporal effects as neither the degree nor the experience in group-work makes a difference in the perception

of the advantages of group work. Group work at the IES hence fails to convince students of the advantages which are associated with it.

Not surprisingly, students experienced in free-riding consider free-riding as a bigger disadvantage of teamwork than their counterparts with little or no experience. Furthermore, in accordance to the item "better quality" in the battery of the advantages and the descriptions of free-riding behavior, students experienced in free-riding consider the product quality of teamwork as worse than their counterparts on a 1% significance level. The differences between the first-year students and the second-year students on the one hand and the second-year students and the first-year master students on the other hand concerning the usefulness of group work seem surprising: No clear pattern is visible with the usefulness sinking substantially for the second-year students and afterwards rising again for the third-year and first-year master students. Furthermore, second-year students are the students with the lowest percentage of having experienced free-riding behavior (56%) compared to 91% of the first-year students and 84% of all first-year master students. Given that free-riding is reducing at least the group work satisfaction (not the usefulness), this is the second contradicting issue. This finding might occur because second-year students were asked to answer incidences from the last academic year whereas free-riding at high school (for the first-year students) and at the IES (for first-year master students) might be already some years ago and hence not that influential for the assessment. Prior findings additionally show that also the grade received influences the teamwork satisfaction (Pfaff and Huddleston, 2003) and might potentially also influence the consideration of the teamwork usefulness.

As hypothesized, the majority of students had experienced free-riding. Yet whereas Jassawalla et al. (2008) noted in their explanatory study with undergraduate students that all 23 of them had experienced free-riding, this number, even among

Master students, was not confirmed at the IES. Two reasons might contribute to the observed differences: As the authors presented the students the concept of social loafing beforehand, the students might have become biased when assessing situations retrospectively and attributed situations differently after they were told explicitly about free-riding. Students also received participation points for handing in their answers so that students probably felt urged to write that they already have experienced a free-rider. Nonetheless, a percentage of 86% for first-year master students who already graduated their Bachelor degree at the IES and 55% of second-year students is quite striking. Interestingly, the cohort with the highest percentage of reported free-riding is the group of first-year students. As high school classes are rather small with 20 to 30 pupils, free-riding should come along with higher social costs as in university with bigger courses. As the formulation for the item asking for the amount of free-riding remained the same for the different courses, differences because of wording are excluded. Elaborating this contra theoretical finding would, however, be very speculative and instead rather needs an explorative study as the current literature does not cover free-riding in high schools.

Free-riding behavior is described quite similarly between the participants in this thesis and by Jassawalla et al. (2008): In both cases, free-riders are described as being poorly prepared, do poor quality work, contribute poorly and fail to complete team-related work. As only difference, free-riders described in this sample are not described as engaging in side conversations, not supporting the second factor of the findings of Jassawalla et al. (2008) concerning students' description of free-riding behavior. In contrary, this item received the least support in the whole battery in this study. The observations for the first factor, however, seem to be widely generalizable.

In order to reduce the occurrence of free-riding in the future, students would primarily like to pick their group members whereas the suggestion "not being able

to pick up the team" received least support: Free-riding hence seems to occur rather between unknown students than between friends and acquaintances. The students' main wish is consistent among the variables degree, gender and experience of group work. Students with a lot of free-riding encounters rate this option higher than their counterparts with little or no experience as they certainly have the strong urge to not cooperate anymore with a group member who was free-riding on their expenses. The item which also receives moderate support to prevent free-riding is the item "enable me to fire a team member", receiving strong support of those 13 students having already fired a group member. This finding is consistent with the findings of the study scrutinizing this method as also in that study, students were supportive of this measure and believed that the method helped cut down free-riding (Abernethy and Lett, 2005). In this case, it remains unclear what students who had the possibility of firing a team member but did not need it think about this measure as the survey did not specifically ask for it.

The "you are fired"-method might hence also help to reduce free-riding at the IES, but to a potentially high price: A wrong attribution of bad quality work, one feature of a free-rider according to the students of this sample, might result in firing a member who might simply not be able to perform a given task properly. Moreover, students could theoretically also get rid of team members they do not particularly like and hence deteriorate conflicts amongst the students. The "you are fired"-method can also not prevent social loafing as it is an unconscious behavior. Yet this tool might be implemented as last, drastic measure if in any course there should be serious problems with free-riding at group work.

In the qualitative statements, several students furthermore suggested a hierarchy and a team leader, respectively to remedy the cause of free-riding. At the IES, it is relatively common that there is one group leader who can assess which team members cooperated properly and which team members did not. This thesis,

however, focused on the suggestions based on the literature and hence did not specifically ask for this measure. For improving teamwork, there is a trade-off between measures explicitly desired by students in order to prevent free-riding and the objective to prepare students for their future career. The most desired is the idea to pick the team which might, however, not be possible in the future job. On the other hand, being able to fire a group member is indeed a measure occurring at work yet an employee will probably not see the fired person anymore whereas at it is inevitable to be still in the same courses together. Therefore, introducing a hierarchy in which a student is rating the effort of the students might indeed be a good compromise.

Finally, it also needs to be stated that some results are likely to be biased because of free-riders participating in this survey. Contrary to social loafers, free-riders have an interest to answer differently than the rest of the students. Social loafers should be interested in functional groups and cooperation, yet a free-rider should be interested in maintaining the status quo in order to maximize his self-interest. Therefore, a distinct free-rider should e.g. answer the battery of suggestions to prevent future free-riding differently. Because of the problem of social desirability, the questionnaires were not asking whether students have already been free-riding or not.

7. Conclusion

Thanks to obvious advantages such as the possibility to deal with bigger projects, teamwork plays a crucial role in nowadays way of working. Teamwork, however, is also prone to problems, amongst them the motivational losses social loafing and free-riding. Due to the relevance of group work and the simple feasibility to

implement it, group projects are also frequently applied in universities. As the vast majority of research about group work and social loafing takes place in the United States, this thesis was aiming to get some quantitative insights from a non-American university.

Consequently, this master thesis analyzed different issues of free-riding and teamwork at the Institute of Economic Studies at Charles University in Prague. More than 200 students, ranging from first-year students to third-year Master students, participated in the study. The questionnaires were conducted in four different courses at the beginning of the academic winter semester and scheduled for roughly ten minutes. For the questionnaire, items of prior research of free-riding were captured and combined with general items scrutinizing students' perceptions about advantages and disadvantages concerning group work. Those items based on prior research were primarily based on one study analyzing students' perception of free-riding (Jassawalla et al., 2008). In their conclusion, the authors acknowledge that their findings are not widely generalizable which represents the starting point of this thesis.

Five hypotheses are constructed, dealing with the following: The perceived usefulness of group work (H1), the amount of students having experienced free-riding (H2), the reaction towards free-riders (H3) and the wishes for reducing free-riding (evaluating individual effort more (H4) and institutionalize to fire a team member (H5). As hypothesized, students indeed evaluate the usefulness of group work significantly higher than the mean but nonetheless, – potentially also triggered by the even scale chosen – the assessment remains in an area which is considered as neutral. There are no effects between the four grouping variables gender, degree, experience in free-riding and experience in group work. Being closer to a career entry, having a lot of teamwork experience and learned from other group members or having suffered from free-riding hence does not have any impact. This last

grouping variable is especially interesting since a prior study found out that free-riding is one of the two main influential variables for teamwork satisfaction (Pfaff and Huddleston, 2003). Differences occur, however, between the first-year students and the second-year students on the one hand and first-year Master students and second-year students on the other hand with second-year students assessing group work significantly lower than these two other cohorts.

Not surprisingly, the majority of students has experienced free-riding when working together on a team project. A striking 86% of the IES graduate students who had also graduated at the IES stated that they had experienced free-riding and after a year of studies at the IES, already 55% of the second-year students had experienced a free-riding behavior. Contrarily to prior findings, students of this sample do not necessarily fail to confront free-riders, and primarily would like to be able to pick their team instead of having their individual effort evaluated more. Reasons might be rooted in different behavior of the free-riders but also cultural differences or the design of the task might play a role. Further research is needed in order to explain these differences properly and being able to generalize. As stated, students' wished the strongest for being able to pick their own team members but also the suggestion to fire a team-member received moderate support from students and strong support from those students having already fired a team member. Firing a team member, however, also goes along with high social costs so that applying this measure should rather be used as last resort.

To sum up, it can be stated that some but not all prior findings can be confirmed. In the two-factored figure of Jassawalla et al. (2008), the first factor, describing free-riders as slacking off and performing poorly, was exactly reproducible and might hence be generalizable. Yet the second factor, describing free-riding behavior also as distractive and disruptive was not confirmed in this dataset. Further research is needed in order to find out which observation is consistent with the occurrences at

other universities and which factors influence both the free-riding behavior and the corresponding responses. Also unresolved remains the interesting finding that second-year students consider teamwork as less useful than their first-year and their first-year Master counterparts and generally rate teamwork less favorable. It is unclear whether this finding is widely reproducible and what the reasons for a drop of perceived usefulness of teamwork and a rise afterwards are. Furthermore, in the list of wishes to remedy free-riding, this thesis did not suggest the idea to introduce a hierarchy within a team and to introduce a team leader, respectively. Generally, there seems to be a trade-off between the students' wish to pick a team on their own and trying to prepare students for their future work life and it is up for the lecturers to decide which objective they want to pursue with teamwork in their course whereby it is up for the lecturers to decide which objectives they want to pursue with the teamwork in their course.

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Appendix

Qualitative statements

Category	Amount of comments
Grading individual effort more	9
Less team work	8
Hierarchy/ team leader	7
Team building	4
Smaller teams	4
Choosing the team	4
Importance of group work	4
Role of the lecturer	3
Better communication	2
Rewards	2
More group work	2
Not grouped	10

Qualitative statement	Grouped as
1. Assessment of the progress by the professor, submitting the project (half ready, e.g. by all the members?)	Role of the lecturer
2. Make the task of the project useful, there will be more free riders if people are not interested in the topic	Not grouped
3. I would prefer more actual working and less planning during the meetings; as for the organizations by the professors, nothing	Not grouped
4. Let students chose their team	Choosing group
5. Give time to do teamwork during the class, so everyone would attend	Not grouped
6. Try to choose the right team	Choosing group
7. Start choosing responsible team leaders for the right to assign and distribute work and ??? has the right to ??? team members as well	Hierarchy/ team leader
8. I would officially arrange a hierarchy in a team	Hierarchy/ team leader
9. Work in smaller groups (2 or 3 persons)	Small(er) teams
10. Nothing, it's a part of team work and life	Importance of group work
11. Set a maximum amount of members of a team and allow teams of fewer members/ one member	Small(er) teams
12. I don't think there is any other way; either you are a team player or not	Not grouped
13. Presentations can show how much each participant understands the problem (so how much effort was put in)	Grading individual effort (more)
14. Is team work really necessary? It has no real meaning since its just "play", it is not real world	Less group work
15. Impose a separate grading system for each team member, evaluating	Grading individual effort

his own contribution to the topic, not the overall results	(more)
16. There must be a team leader that will lead and motivate the team members	Hierarchy/ team leader
17. The project should both have parts that are done within a team and parts that are done individually; plagiarism rules apply	Grading individual effort (more)
18. Communicate better; free riders most of the time don't know they are free riders and if you talk to them, it gets better	Role of communication
19. Give the students the choice to select their jobmates	Choosing group
20. I think the evaluation within the group is really good → also penalty for non-consistent answers	Grading individual effort (more)
21. Less team work is better	Less group work
22. To 7.3.; the point of team work is to manage "team problems" (including free-riding); that is why we'll do that	Importance of group work
23. Work only in pairs (not more than 2 people)	Small(er) teams
24. Give separate grades based not only on the whole team work but taking individual contribution into account	Grading individual effort (more)
25. Provide suitable environment for meetings	Not grouped
26. Do more of it, people will get accustomed to it	More group work
27. Definitely less of it	Less group work
28. I have no suggestion because I would like to do less team work ☹ I rather work alone	Less group work
29. Let the team list down the distribution of the job; all the group members join in presentation	Grading individual effort (more)

30. Team building	Teambuilding
31. Make it mandatory for everyone to present the final product	Not grouped
32. Include team work in more subjects	More group work
33. Avoid it. Or let the best in team do it all → better results, less time spent on it	Less group work
34. To only require team work for projects where it is reasonable (everyone can study specific area and then combine their work, e.g. writing essays in a group makes no sense)	Less group work
35. Smaller teams; low weight on the group activities	Small(er) teams
36. Try to get some multinationality incorporated; pick a team leader, i.e. Int. Finance & Trade	Hierarchy/ team leader
37. Give well-structured assignments so it is easier to anticipate what the tasks will require and members can specialize more effectively	Not grouped
38. Try to cooperate in the team, communicate with each other and when the F-R problem appears tell it to your professors	Role of communication
39. Have a coach ☺ or at least a more experienced team leader (older student for example)	Hierarchy/ team leader
40. That reminds me of every work I have ever been a part of…but people still love me	Not grouped
41. Choose the colleagues more wisely	Choosing group
42. ???	Not grouped
43. Team buildings, efficient distribution of workload, team work improves by practicing, set a team leader responsible for the team	Teambuilding; Hierarchy/ team leader
44. Professors should control how the group cooperates (for example during lessons)	Role of the lecturer
45. Report of each individual, his approach and work should help the	Grading

situation	individual effort (more)
46. Teambuilding activities	Teambuilding
47. Say who is the leader	Hierarchy/ team leader
48. High school/ uni experience with free-riding is rather useful, I would say; it is something we will encounter in the "real" world and we at least learn how to deal with it; one can also improve their "leading" skills	Importance of group work
49. If there is an interview after the team work of a presentation, the teachers should ask questions to students in order to see their knowledge and thus involvement	Grading individual effort (more)
50. Everyone has to contribute equally, in case of some complications, have someone to help (professors etc.)	Role of the lecturer
51. I do get why working in groups is important but do not enjoy it; teacher could divide the project into specific segments which require similar amount of work; these segments would be divided among the group members and if one is done poorly we know whom to blame	Importance of group work; grading individual effort (more)
52. I would cancel team work	Less group work
53. I suppose that everything was told so far	Not grouped
54. I believe that team work would be enhanced in quality if the members actually got to know each other, their strengths and weaknesses; team building activities would certainly help	Teambuilding
55. I would give away candies for noticeable participation in the team work	Rewards
56. Do not have it at all	Less group work
57. Rewards	Rewards

UNIVERZITA KARLOVA

Survey on group work at Charles University

Disclaimer: All data of this survey will be processed anonymously. The supervisor of this thesis, PhDr. Václav Korbel, is guaranteeing for it.

2. In which programme are you enrolled? _____

3. In which year of study are you?

Bachelor: ☐1 ☐2 ☐3 ☐4 and more Master: ☐1 ☐2 ☐3 and more

4. What is your gender? ☐Male ☐Female

5. What is your average mark?

<u>If no average mark yet:</u> What was your average mark at high school? _____

6.1. How often have you worked on group projects at high school/ in university courses?

☐Never ☐1x ☐2x ☐3x ☐4x ☐5x ☐6x and more

6.2. How do you evaluate group work in comparison with working individually?

Way less useful *Way more useful* *No experience*

1 2 3 4 5 6 7 8 0

6.3. Which *advantages* do group projects have for you?

Strongly disagree *Strongly agree*

1 2 3 4 5 6 7 8 Being able to specialise on my own strengths
1 2 3 4 5 6 7 8 Being able to learn from other group members
1 2 3 4 5 6 7 8 Less time necessary because of division of tasks
1 2 3 4 5 6 7 8 Preparing me for future job tasks
1 2 3 4 5 6 7 8 Better product quality than when working alone

6.4. Which *disadvantages* do group projects have for you?

Strongly disagree *Strongly agree*

1 2 3 4 5 6 7 8 Unfair grading as not everyone was contributing with the same *amount of work*
1 2 3 4 5 6 7 8 Unfair grading as not everyone was contributing with the same *quality of work*
1 2 3 4 5 6 7 8 Having a group member who seems to rely on the work of the others
1 2 3 4 5 6 7 8 More effort because of holding meetings and additional organization
1 2 3 4 5 6 7 8 Worse product quality than when working alone

7.1. Do you have any experience with free riding? If yes, how often? (Free riding = a member of a group who seems to rely on the work of the others)

☐No ☐Yes, 1x ☐Yes, 2x ☐Yes, 3x ☐Yes, 4x and more

Please turn page

7.2. How did the free rider behave? *If several free-riding experiences, please only refer to one*

<u>If no experience:</u> How would a free rider behave?

Describes not at all — *Describes the most*

1 2 3 4 5 6 7 8 Member had/ would have problems *attending* meetings
1 2 3 4 5 6 7 8 Member had/ would have *trouble paying attention* to what was going on
1 2 3 4 5 6 7 8 Member was/ would be *mostly silent* during the team meetings
1 2 3 4 5 6 7 8 Member engaged/ would engage in *side conversations* a lot while the team was working
1 2 3 4 5 6 7 8 Member came/ would come *poorly prepared* to the team meetings
1 2 3 4 5 6 7 8 Member *contributed*/ *would contribute poorly* to the team discussions when present
1 2 3 4 5 6 7 8 Member had/ would have trouble *completing team-related home work*
1 2 3 4 5 6 7 8 Member mostly *declined/ would decline to take on any work* for the team
1 2 3 4 5 6 7 8 Member did/ would do a *poor job* of the work he/ she was assigned
1 2 3 4 5 6 7 8 Member did/ would do *poor quality work*
1 2 3 4 5 6 7 8 Member *mostly distracted*/ *would distract the team's focus* on its goals and objectives
1 2 3 4 5 6 7 8 Member *did*/ *would not fully participate* in the team's formal presentation

7.3. How did you and the other team members react? *If several free-riding experiences, please only refer to one* **/ <u>If no experience:</u> How would you react to a free rider in your team?**

☐ Did/ do nothing
☐ Talked/ talk with the professor about the problem
☐ Left/ leave the team with the professor's permission
☐ Ignored/ ignore the free rider during the team meetings
☐ Tried/ try to engage the free rider during the team meetings
☐ Confronted/ confront the free rider after class and asked him/ her to change behaviors
☐ Instead of confrontation, found/ find INDIRECT ways of letting him/ her know that we did not approve his/ her behavior
☐ Fired/ fire the member from the team
☐ Gave/ give the free rider a bad evaluation at the end of the semester

7.4. What should professors do to prevent free riding?

Strongly disagree — *Strongly agree*

1 2 3 4 5 6 7 8 Evaluate individual effort on teams more
1 2 3 4 5 6 7 8 Let the team exactly report what each member did
1 2 3 4 5 6 7 8 Give each member the right to leave the team if the others are not doing their work
1 2 3 4 5 6 7 8 Enable the team to fire non-cooperative team members
1 2 3 4 5 6 7 8 NOT let me pick up my group – as I cannot confront free-riders who happen to be my friends
1 2 3 4 5 6 7 8 LET me pick my own team, so I can avoid known free-riders
1 2 3 4 5 6 7 8 Let me make a formal written evaluation of what others are doing

8. What would you otherwise suggest to improve team work?

_____

_____

_____

Thank you for participating in the survey!

UNIVERZITA KARLOVA

Survey on group work at Charles University

Disclaimer: All data of this survey will be processed anonymously. The supervisor of this thesis, PhDr. Václav Korbel, is guaranteeing for it.

2. In which programme are you enrolled? _____

3. In which year of study are you?

Bachelor: ☐1 ☐2 ☐3 ☐4 and more Master: ☐1 ☐2 ☐3 and more

4. What is your gender? ☐Male ☐Female

5. What is your average mark? _____

6.1. How often have you worked on group projects in university courses?

☐Never ☐1x ☐2x ☐3x ☐4x ☐5x ☐6x and more

6.2. How do you evaluate group work in comparison with working individually?

Way less useful *Way more useful* *No experience*

1 2 3 4 5 6 7 8 0

6.3. Which *advantages* do group projects have for you?

Strongly disagree *Strongly agree*

1 2 3 4 5 6 7 8 Being able to specialise on my own strengths
1 2 3 4 5 6 7 8 Being able to learn from other group members
1 2 3 4 5 6 7 8 Less time necessary because of division of tasks
1 2 3 4 5 6 7 8 Preparing me for future job tasks
1 2 3 4 5 6 7 8 Better product quality than when working alone

6.4. Which *disadvantages* do group projects have for you?

Strongly disagree *Strongly agree*

1 2 3 4 5 6 7 8 Unfair grading as not everyone was contributing with the same *amount of work*
1 2 3 4 5 6 7 8 Unfair grading as not everyone was contributing with the same *quality of work*
1 2 3 4 5 6 7 8 Having a group member who seems to rely on the work of the others
1 2 3 4 5 6 7 8 More effort because of holding meetings and additional organization
1 2 3 4 5 6 7 8 Worse product quality than when working alone

7.1. Do you have any experience with free riding? If yes, how often? (Free riding = a member of a group who seems to rely on the work of the others)

☐No ☐Yes, 1x ☐Yes, 2x ☐Yes, 3x ☐Yes, 4x and more

Please turn page

7.2. How did the free rider behave? *If several free-riding experiences, please only refer to one*

<u>If no experience:</u> How would a free rider behave?

Describes not at all — *Describes the most*

1 2 3 4 5 6 7 8 Member had/ would have problems *attending* meetings
1 2 3 4 5 6 7 8 Member had/ would have *trouble paying attention* to what was going on
1 2 3 4 5 6 7 8 Member was/ would be *mostly silent* during the team meetings
1 2 3 4 5 6 7 8 Member engaged/ would engage in *side conversations* a lot while the team was working
1 2 3 4 5 6 7 8 Member came/ would come *poorly prepared* to the team meetings
1 2 3 4 5 6 7 8 Member *contributed/ would contribute poorly* to the team discussions when present
1 2 3 4 5 6 7 8 Member had/ would have trouble *completing team-related home work*
1 2 3 4 5 6 7 8 Member mostly *declined/ would decline to take on any work* for the team
1 2 3 4 5 6 7 8 Member did/ would do a *poor job* of the work he/ she was assigned
1 2 3 4 5 6 7 8 Member did/ would do *poor quality work*
1 2 3 4 5 6 7 8 Member *mostly distracted/ would distract the team's focus* on its goals and objectives
1 2 3 4 5 6 7 8 Member *did/ would not fully participate* in the team's formal presentation

7.3. How did you and the other team members react? *If several free-riding experiences, please only refer to one* **/ <u>If no experience:</u> How would you react to a free rider in your team?**

☐ Did/ do nothing
☐ Talked/ talk with the professor about the problem
☐ Left/ leave the team with the professor's permission
☐ Ignored/ ignore the free rider during the team meetings
☐ Tried/ try to engage the free rider during the team meetings
☐ Confronted/ confront the free rider after class and asked him/ her to change behaviors
☐ Instead of confrontation, found/ find INDIRECT ways of letting him/ her know that we did not approve his/ her behavior
☐ Fired/ fire the member from the team
☐ Gave/ give the free rider a bad evaluation at the end of the semester

7.4. What should professors do to prevent free riding?

Strongly disagree — *Strongly agree*

1 2 3 4 5 6 7 8 Evaluate individual effort on teams more
1 2 3 4 5 6 7 8 Let the team exactly report what each member did
1 2 3 4 5 6 7 8 Give each member the right to leave the team if the others are not doing their work
1 2 3 4 5 6 7 8 Enable the team to fire non-cooperative team members
1 2 3 4 5 6 7 8 NOT let me pick up my group – as I cannot confront free-riders who happen to be my friends
1 2 3 4 5 6 7 8 LET me pick my own team, so I can avoid known free-riders
1 2 3 4 5 6 7 8 Let me make a formal written evaluation of what others are doing

8. What would you otherwise suggest to improve team work?

_____

_____

_____

Thank you for participating in the survey!

UNIVERZITA KARLOVA

Survey on group work at Charles University

Disclaimer: All data of this survey will be processed anonymously. The supervisor of this thesis, PhDr. Václav Korbel, is guaranteeing for it.

2. In which programme are you enrolled? _____

3. In which year of study are you?

Bachelor: ☐1 ☐2 ☐3 ☐4 and more Master: ☐1 ☐2 ☐3 and more

4. What is your gender? ☐Male ☐Female

5. What is your average mark? _____

6.1. How often have you worked on group projects in university courses?

☐never ☐1x ☐2x ☐3x ☐4x ☐5x ☐6x and more

6.2. How do you evaluate group work in comparison with working individually?

Way less useful *Way more useful* *No experience*

1 2 3 4 5 6 7 8 0

6.3. Which advantages do group projects have for you?

Strongly disagree *Strongly agree*

1 2 3 4 5 6 7 8 Being able to specialise on my own strengths
1 2 3 4 5 6 7 8 Being able to learn from other group members
1 2 3 4 5 6 7 8 Less time necessary because of division of tasks
1 2 3 4 5 6 7 8 Preparing me for future job tasks
1 2 3 4 5 6 7 8 Better product quality than when working alone

6.4. Which disadvantages do group projects have for you?

Strongly disagree *Strongly agree*

1 2 3 4 5 6 7 8 Unfair grading as not everyone was contributing with the same *amount of work*
1 2 3 4 5 6 7 8 Unfair grading as not everyone was contributing with the same *quality of work*
1 2 3 4 5 6 7 8 Free-riding of group members
1 2 3 4 5 6 7 8 More effort because of holding meetings and additional organization
1 2 3 4 5 6 7 8 Worse product quality than when working alone

7.1. Do you have any experience with free-riding (that is that a member seems to rely on the work of the others)?

☐Yes ☐No

Note: If your answer is no, please continue with question number 6.4.

7.2. How did the free-rider behave? *(Note: If several experiences, please only refer to one)*

Describes not at all *Describes the most*

1 2 3 4 5 6 7 8 Member had problems *attending* meetings
1 2 3 4 5 6 7 8 Member had *trouble paying attention* to what was going on
1 2 3 4 5 6 7 8 Member was *mostly silent* during the team meetings
1 2 3 4 5 6 7 8 Member engaged in *side conversations* a lot while the team was working
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1 2 3 4 5 6 7 8 Member *mostly distracted the team's focus* on its goals and objectives
1 2 3 4 5 6 7 8 Member *did not fully participate* in the team's formal presentation

7.3. How did you and the other team members react? I/we… *(Note: If several experiences, please only refer to one)*

☐ Did nothing
☐ Talked with the professor about the problem
☐ Left the team with the professor's permission
☐ Ignored the free rider during the team meetings
☐ Tried to engage the free rider during the team meetings
☐ Confronted the free rider after class and asked him/ her to change behaviors
☐ Instead of confrontation, found INDIRECT ways of letting him/ her know that we did not approve his/ her behavior
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3. In which year of study are you?

Bachelor: ☐1 ☐2 ☐3 ☐4 and more Master: ☐1 ☐2 ☐3 and more

4. Where have you been studying for your Bachelor's degree? _____

5. What is your gender? ☐Male ☐Female

6. What is your average mark? _____

7.1. How often have you worked on group projects in university courses?

☐Never ☐1x ☐2x ☐3x ☐4x ☐5x ☐6x and more

7.2. How do you evaluate group work in comparison with working individually?

Way less useful *Way more useful* *No experience*

1 2 3 4 5 6 7 8 0

7.3. Which *advantages* do group projects have for you?

Strongly disagree *Strongly agree*

1 2 3 4 5 6 7 8 Being able to specialise on my own strengths
1 2 3 4 5 6 7 8 Being able to learn from other group members
1 2 3 4 5 6 7 8 Less time necessary because of division of tasks
1 2 3 4 5 6 7 8 Preparing me for future job tasks
1 2 3 4 5 6 7 8 Better product quality than when working alone

7.4. Which *disadvantages* do group projects have for you?

Strongly disagree *Strongly agree*

1 2 3 4 5 6 7 8 Unfair grading as not everyone was contributing with the same *amount of work*
1 2 3 4 5 6 7 8 Unfair grading as not everyone was contributing with the same *quality of work*
1 2 3 4 5 6 7 8 Free riding of group members
1 2 3 4 5 6 7 8 More effort because of holding meetings and additional organization
1 2 3 4 5 6 7 8 Worse product quality than when working alone

8.1. Do you have any experience with free riding? If yes, how often? (Free riding = a member of a group who seems to rely on the work of the others)

☐No ☐Yes, 1x ☐Yes, 2x ☐Yes, 3x ☐Yes, 4x and more

Please turn page

8.2. How did the free rider behave? *If several free-riding experiences, please only refer to one*

<u>If no experience:</u> How would a free rider behave?

Describes not at all — *Describes the most*

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1 2 3 4 5 6 7 8 Let me make a formal written evaluation of what others are doing

9. What would you otherwise suggest to improve team work?

_____

_____

_____

Thank you for participating in the survey!