

# A Students' Preferences-Based Approach to Select Methods for Detecting and Handling Free-Riding

Journal of Marketing Education  
1–11

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DOI: 10.1177/0273475321992109

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Else-Marie van den Herik<sup>1</sup> and Tim M. Benning<sup>1</sup> 

## Abstract

Free-riding is a serious challenge in group projects. While there are various methods to reduce free-riding, marketing educators still face a difficult task when selecting an appropriate method for their course. In this study, we propose a students' preferences-based approach that supports marketing educators with the selection of methods to detect and handle free-riding. To measure these preferences, students completed an online survey based on a choice task about two methods to detect free-riding and a ranking task about four methods to handle free-riding ( $n = 254$ ). Their answers were analyzed using chi-squared tests, Borda scores, and rank-ordered logit models. The results show that (a) neither Dutch nor international students have a clear preference for one of the two detection methods (the reporting system vs. the process evaluation system), (b) grade discussion (a possible reduction of the free-rider's grade based on a conversation with the course coordinator about each student's contribution) is the most preferred method to handle free-riding, and (c) international students have a stronger preference for stricter handling methods. Marketing educators can apply the proposed approach, or use our specific findings, for designing methods to reduce free-riding in their courses.

## Keywords

free-riding, social loafing, group project, teamwork, student preferences, multicultural groups

Group projects are frequently used by marketing educators because of their important educational benefits (Huff et al., 2002; McCorkle et al., 1999; Strong & Anderson, 1990). For students, group projects create opportunities to analyze questions from different points of view, which could increase learning from peers (Aggarwal & O'Brien, 2008; Batra et al., 1997; Hammar Chiriac, 2014; Johnson & Johnson, 2004). They also help develop communication and collaboration skills (Dommeyer, 2007; Hall & Buzwell, 2012; Williams et al., 1991), which are highly desired in future marketing jobs (Hansen, 2006; Johnston & Miles, 2004; Schlee & Kams, 2017; Yeoh, 2019).

However, the multitude of benefits to group projects may fail to materialize if group collaboration is damaged by free-riding. The marketing education literature has defined free-riding (also referred to as "social loafing") as "a behavior pattern wherein an individual working in a group setting fails to contribute his or her fair share to a group effort as perceived by group members" (Aggarwal & O'Brien, 2008, p. 256; Hall & Buzwell, 2012, p. 38). Free-riding may decrease key learning opportunities for students—especially when non-free-riding students opt to strategically reduce their efforts (Comer, 1995; Webb, 1982, 1997; Williams et al., 1991). A possibility to address free-riding is by the use of smaller groups as its incidence increases with group size

(Aggarwal & O'Brien, 2008). However, as the present study shows, the use of small groups does not sufficiently reduce free-riding, and therefore, further actions against free-riding are needed.

Previous research proposed various methods for this purpose such as peer evaluations (Dommeyer, 2007; Goldfinch, 1994; Johnston & Miles, 2004), grade consequences for free-riding students (Lejk et al., 1996; Mello, 1993; Rust, 2001), and "firing" noncontributing members from their group (Abernethy & Lett, 2005; Strong & Anderson, 1990). But despite the availability of numerous studies, marketing educators still face a difficult decision when they need to design a suitable method for their own course. A useful comparison between various methods can often not be made because most studies tested only one method within a specific course (e.g., Maiden & Perry, 2011). Furthermore, it is often uncertain whether results of a specific method will also apply for different groups of

<sup>1</sup>Department of Applied Economics, Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam, The Netherlands

## Corresponding Author:

Tim M. Benning, Department of Applied Economics, Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam, The Netherlands.  
Email: [benning@ese.eur.nl](mailto:benning@ese.eur.nl)

students. For instance, whereas international students' preferences have been shown to diverge from domestic students regarding learning methods (Abeysekera, 2008), little is known about the possible differences in preferences between domestic and international students for various methods against free-riding. Investigating these potential differences is particularly interesting given the increasing internationalization of universities (Hudson, 2016).

To address these concerns, this study proposes a students' preferences-based approach that helps marketing educators with the selection of methods to further reduce free-riding in their courses. The two essential steps in the proposed approach include selecting various methods to detect and handle free-riding based on the relevant educational literature and measuring students' preferences for these methods through choice or ranking tasks. The resulting findings allow educators to develop a well-founded understanding of the students' perspective, enabling them to select and implement an appropriate method for a certain course as well as customize this method to the needs of specific groups of students (i.e., taking note of possible heterogeneity in preferences—here, between Dutch and international students). Aligning students' preferences with educational decisions is important because it likely improves students' course satisfaction (Bridges, 1999; Taylor et al., 2004).

Key benefits of the proposed approach are the possibility to directly compare various methods and to measure preferences prior to the beginning of the course—which is of practical importance for timely decision making. This article further demonstrates this approach and specifically aims to answer the following research questions: “What are students' preferences for methods to detect and handle free-riding in small groups?” and “How do these preferences differ between domestic (i.e., Dutch) and international students?”

In the next sections, an overview of methods to detect and handle free-riding and free-riding in multicultural groups is provided. Then, the study's educational setting, the proposed preferences-based approach, and the statistical techniques are discussed. Subsequently, the results of our approach are presented. Finally, the limitations of our approach and implications for marketing educators are discussed.

## Theoretical Framework

### *Methods to Detect and Handle Free-Riding*

A first problem educators often encounter with regard to the free-riding issue is the challenge to adequately determine whether free-riding problems are actually present (Johnston & Miles, 2004). To solve this “detection issue,” educational studies have examined the use of peer process evaluations.

Multiple peer process evaluations throughout a project (focusing on aspects of collaboration rather than the project's content) can create early awareness of possible free-riding

problems (Aggarwal & O'Brien, 2008; Brooks & Ammons, 2003; Dommeyer, 2007; Pfaff & Huddleston, 2003) and allow underperformers to improve their working attitude (Aggarwal & O'Brien, 2008). Peer process evaluations also stimulate communication and openness throughout the entire project, enhancing cooperation among group members (Strong & Anderson, 1990). The importance of including multiple peer process evaluation moments during the project has been demonstrated empirically in several articles (Aggarwal & O'Brien, 2008; Brooks & Ammons, 2003; El Massah, 2018). In an experiment that included peer process evaluations at three points in time, Brooks and Ammons (2003) found that group assessment scores stabilized over time and that group experiences were more favorable. Furthermore, Aggarwal and O'Brien (2008) investigated how various factors affected free-riding problems for marketing and nonmarketing students and found a negative correlation between the number of peer process evaluations and free-riding.

Although not all free-riders may be detected, it is essential for marketing educators to adequately deal with free-riding when it arises to ensure a fair treatment of all students involved. Numerous methods to handle free-riding have been suggested by researchers throughout the years. For example, students' individual efforts can be taken into account by using peer evaluations as input for students' grades (Goldfinch, 1994; Johnston & Miles, 2004). This form of peer appraisal can be distinguished from the earlier mentioned “peer process evaluation,” which (for the purposes of this article) only constitutes a communication mechanism of students' views on the collaboration during the course. While peer evaluation can be quite effective in increasing fairness, the method's success often also depends on how well it is executed (Ahmed, 2018) and the time investment of instructors—which can be substantial (Abernethy & Lett, 2005; Maranto & Gresham, 1998).

Another method to handle free-riding is to focus on grade consequences for the reported free-riding students (Lejk et al., 1996; Mello, 1993; Rust, 2001). This could be done, for example, by lowering the grades of students who do not adapt their behavior after a first warning (Rust, 2001). It is possible to announce the magnitude of the consequence beforehand, but an instructor could also take on the role of mediator and negotiate the allocation of points among group members (Lejk et al., 1996). However, there is an important disadvantage to this method as free-riders could be reported falsely, for example, because students' lack of involvement may not always be voluntary (Freeman & Greenacre, 2011; Hall & Buzwell, 2012) and student biases could exist (Kao, 2013). These side effects can be mitigated by using more objective grade adjustments based on a test of the suspected free-rider's knowledge of the group project, as suggested by Maiden and Perry (2011).

Alternatively, free-riding may be handled through the use of a “divorce option,” which puts more responsibility into the hands of the complaining group members (Abernethy & Lett, 2005; Strong & Anderson, 1990). For example, Abernethy and Lett (2005) considered the option of unilaterally excluding unmotivated students from the group as a credible approach to tackle students’ failure to contribute equally to a project. In their two-step process, a student could be expelled from the group if he or she failed to hand in the required work after a warning from the instructor—an approach that found high support among students (Abernethy & Lett, 2005).

In contrast with the majority of the aforementioned studies, Maiden and Perry (2011) investigated six different approaches to handle free-riding on six different courses, one for each course. More specifically, they used four methods that have been described above—two versions of peer evaluation, a method combining the lowering of grades and expulsion of free-riders (“two-card trick”), as well as the method in which a grade adjustment is based on a formal test (“viva warning”). Most of the business school students felt reasonably positive about the method used to handle free-riding in their course, and any effort to decrease free-riding was appreciated (Maiden & Perry, 2011).

### *Free-Riding and Multicultural Groups*

While group work can give rise to problems such as free-riding, culturally related differences could result in additional complexities in multicultural groups (Brett et al., 2006; Popov et al., 2012; Strauss et al., 2014). These complexities may be caused by different cultural norms (Cox & Blake, 1991; Li & Campbell, 2008; Popov et al., 2012). For instance, Li and Campbell (2008) showed that Asian students disliked common grade-based group projects, partly because of cultural differences between group members. Payan et al. (2010) found that collectivist students are more likely than individualist students to engage in unethical collaborative behavior, such as free-riding. Therefore, they specifically warn for free-riding issues in groups that include a combination of students from different cultures and recommend (but do not empirically test) the use of peer (process) evaluations to detect free-riding early and (if needed) “fire” free-riders or reduce their grades accordingly (Payan et al., 2010).

Although the literature suggests that multicultural groups may be more vulnerable to free-riding, this issue has received relatively little attention in the development of methods against it. As such, it remains unclear to what extent cultural differences also translate into a need for different methods to address free-riding. One rare exception is the article by Sridharan et al. (2018), who found that international students tended to agree (more than domestic students) that peer process evaluations with a halfway evaluation prevented free-riding and improved communication among group members.

This literature gap is especially pressing, since it could mean that developed methods to reduce free-riding do not fit with the characteristics of certain groups of students. Our proposed approach specifically addresses this potential concern by investigating whether preferences differ between domestic (i.e., Dutch) and international students.

## **Method**

### *The Course and its Group Project*

The proposed approach was applied within an obligatory first-year academic skills course for economics students at a Dutch university. During this academic year (2019-2020) the course was taught fully online due to the Covid-19 crisis. There were two versions of the course that only differed in communication language (Dutch vs. English) and student composition (mainly Dutch vs. mainly international students). Over a period of 7 weeks, all students completed various assignments in randomly assigned groups, which eventually cumulated into a full academic research paper about the marketing-related concept of economies of scale. The standard group size was two students but could be (randomly) increased to three members. Randomization allowed for a more realistic reflection of students’ future job setting, in which they likely will also not be able to choose their coworkers.

At the beginning of the course, all students were asked to hand in a plan of action, detailing the division of the tasks and some general rules for the group work. In online tutorial sessions, students received personal feedback on their project. Any free-riding problems had to be reported to the teaching assistant, who then asked students to formulate action points to improve the collaboration. If no changes ensued, the group was invited for a conversation with the course coordinator. No formal consequences for free-riding were announced beforehand.

### *Selection of Methods to Detect and Handle Free-Riding*

In line with our proposed approach, free-riding methods were selected based on the aforementioned literature, our standard practice, and their practicability within the setting of small randomly assigned groups of two or three students. To deal with the possibility of mutual dislike among students (which might be higher in small groups), the teaching assistant was allocated an active role in the detecting methods (Ruël et al., 2003). In the end, the following two options were selected to detect free-riding:

- *Reporting system* (RS; current situation): During the course, students have to actively identify a poor or noncontributing group member by making a case to

the teaching assistant. Then, the teaching assistant has a conversation with the groups that are struggling to help them improve the collaboration. Students who appear to be free-riding are given an official warning.

- *Process evaluation system* (PES; derived from Brooks & Ammons, 2003; Dommeyer, 2007; Strong & Anderson, 1990): At the beginning of the course, students complete an extensive plan of action. In Weeks 2 and 4, students fill in a peer process evaluation form that will serve as feedback for the other group member(s). Then, based on these peer process evaluations, the teaching assistant has a conversation with the groups that are struggling to help them improve the collaboration. Students who appear to be free-riding are given an official warning.

For handling free-riding, four possible methods were chosen. One of these methods refers to our status quo, while the other methods were derived from the literature, especially the article by Maiden and Perry (2011):

- *Status quo* (SQ; current situation): If the offending student did not amend his or her ways by an agreed date, the group has a conversation with the course coordinator to formulate further action points to improve the collaboration. Continued failure to contribute a fair share can have consequences.
- *Grade discussion* (GD; derived from Lejk et al., 1996; Maiden & Perry, 2011; Rust, 2001): If the offending student did not amend his or her ways by an agreed date, the group has a conversation with the course coordinator to discuss how each student contributed to the assignment. Based on this conversation, the offending student can receive a lower grade than the rest of the group.
- *Contribution test* (CT; derived from Maiden & Perry, 2011; Rust, 2001): If the offending student did not amend his or her ways by an agreed date, this student must meet with the course coordinator to answer questions on the group submission and the process leading to it. Unsatisfactory responses lead to the individual's grade being adjusted downward from the group grade.
- *Member expulsion* (ME; derived from Abernethy & Lett, 2005; Lejk et al., 1996; Maiden & Perry, 2011; Rust, 2001): If the offending student did not amend his or her ways by an agreed date, the group has a conversation with the course coordinator. Based on this conversation, the offending student can be told to work alone. In a group of two, this means that both students have to work individually from that point onward. In a group of three, only the offending student has to work alone. The two nonoffending students keep working together.

A conscious decision was made to exclude peer evaluations from the list, as this would lead to the undesirable situation of two students de facto grading each other—a scenario that is especially unattractive since research on peer evaluations indicates that measuring performance in this way can be quite imprecise (Mayfield & Tombaugh, 2019). Note that in all included methods, the ultimate decision of any consequence for a suspected free-rider remained with the course coordinator (Cook, 1981).

### Survey

At the end of the course (June 2020), students were asked to participate in an anonymous online survey in which they were presented general questions related to free-riding, a choice task about the two methods to detect free-riding, and a ranking task to rank in order of preference the four methods to handle free-riding. Potential order bias was eliminated by randomizing the order of answer options. The study was approved by the university's internal review board. Furthermore, all participants provided informed (written) consent at the start of the survey. Students were incentivized to participate with the chance to win one of the two prizes of 50 euro when the survey was fully completed.

### Analysis

Students' choices for the two different methods to detect free-riding were analyzed by means of chi-squared tests, differentiating between Dutch and international students. The Borda count method (Fishburn & Gehrlein, 1976; Saari, 1990) and rank-ordered logit models (Dolan & Tsuchiya, 2005) were used to investigate students' preferences regarding the handling of free-riding. The Borda count method is commonly used to determine the outcomes of elections (Saari, 1990), but can also be applied to determine individuals' preferences for free-riding methods. After individuals were asked to rank in order four methods, four points were assigned to the method an individual prefers most, three points to the second-best method, two points to the third-best method, and one point to the method an individual prefers least. Then, aggregate scores for each method were calculated by taking into account the points of each method for all individuals in the sample (Fishburn & Gehrlein, 1976; Saari, 1990). The resulting "Borda scores" indicate the relative importance of each method under the assumption that rank scores can be treated as cardinal data (Dolan & Tsuchiya, 2005).

To confirm these results and to identify possible differences in preferences between subgroups of students, we also estimated several rank-ordered logit models in Stata 15.1. In all reported models, the dependent variable was represented by students' ranking of the four methods to handle free-riding. Furthermore, the three independent variables (in our base model) were dummy variables representing (the

**Table 1.** Descriptive Characteristics of the Sample.

Characteristics	Dutch	International	Total
Gender			
Male	70.5% (91)	54.4% (68)	62.6% (159)
Female	29.5% (38)	45.6% (57)	37.4% (95)
Age in years (average)	19.29	19.25	19.27
Number of group members			
Two members	76.7% (99)	81.6% (102)	79.1% (201)
Three members	23.3% (30)	18.4% (23)	20.9% (53)
Type of group <sup>a</sup>			
Monocultural	89.1% (115)	5.6% (7)	48.0% (122)
Multicultural	6.2% (8)	90.4% (113)	47.6% (121)
Unknown	4.7% (6)	4% (5)	4.3% (11)
Individualism value (average)	77.65	55.18	66.64
Individualism difference within groups (average) <sup>b</sup>	1.54	31.39	15.77

<sup>a</sup>Based on whether a respondent is from the same reported country of origin as his or her group member(s). Students who indicated that at least one group member came from a different country than their own country were assumed to have formed a multicultural group. <sup>b</sup>Based on the maximum difference in the individualism values of any two or three members within a group. Groups where only one country of origin was known were excluded in this calculation ( $n = 17$ ).

presence of) a specific method to handle free-riding (coded 1 if the method is present, and 0 otherwise) with SQ as a reference category. As a robustness check for the Borda score results, probabilities of first rank were calculated. Then, several extended models were estimated, which also included interactions of the dummy variables related to the free-riding methods with the dummy variables “international” (coded 1 for international students, and 0 otherwise) and “free-riding experience” (coded 1 for students who experienced free-riding during the course, and 0 otherwise), respectively, to investigate the presence of preference heterogeneity.

To check the validity of our assumption that international students are subject to more intercultural encounters, we directly compared students’ self-reported country of origin and that of their group member(s). Following Popov et al. (2012), we also drew on Hofstede’s (2001) cultural dimension—an analytical framework to study cultural diversity that distinguishes (inter alia) between individualist and collectivist cultures. All countries in our sample were indexed on a range of 0 (most collectivistic) to 100 (most individualistic). By using information on the (self-reported) country of origin of both the student and his or her group member(s), we linked each student and group member(s) to an individualism value. Then, we calculated an average individualism value for both the Dutch and the international courses as well as an average score that represents the within-group difference in individualism values in the two courses.

## Results

### Respondents

Of the 435 students that followed the Dutch course, 181 started the online survey, compared with 162 of the 329

students in the international course. In the end, a total of 254 respondents answered all survey questions of whom 129 (29.7%) followed the Dutch course (Dutch students) and 125 (38.0%) the international course (international students). For the purpose of consistency, we decided to only use the data of the fully completed surveys.

The descriptive statistics (see Table 1) show that 62.6% of the respondents were male and 37.4% were female. The average respondent age was 19.27 years and ranged from 17 to 28 years. Importantly, while only 6.2% of the respondents in the Dutch course reported to be in a multicultural group (i.e., the respondent reported his or her group member(s) to be from a different country/region of origin), this figure was much higher (90.4%) for the international course. This indicates that the difference in multiculturalism within groups between the Dutch and the international courses is very high. Note that respondents in the Dutch and international courses were from five and 48 different countries, respectively.

As an additional check, Hofstede’s (2001) individualism index was used to calculate an average individualism value for both courses. The average value of 77.65 in the Dutch course (very close to the individualism value of the Netherlands, which is 80) differs from the international average of 55.18. The higher average within-group difference in individualism values among group members in the international course also reflects the higher level of cultural diversity among group members compared with the Dutch course (31.39 vs. 1.54).

In total, 27.2% (69) of the respondents indicated that they experienced free-riding problems to some extent (see Table 2). When asked about the most important cause, 59.4% of the respondents attributed the problems mainly to differences in time commitment among group members,

**Table 2.** Free-Riding Experiences.

Questions	Dutch	International	Total
I experienced free-riding problems in my group <sup>a</sup>			
Yes	23.3% (30)	31.2% (39)	27.2% (69)
No	76.7% (99)	68.8% (86)	72.8% (185)
The most important causes of free-riding problems in my group <sup>b,c,d</sup>			
Difference in time commitments	66.7% (20)	53.8% (21)	59.4% (41)
Difference in motivation levels	56.7% (17)	35.9% (14)	44.9% (31)
Difference in skill levels	40% (12)	46.2% (18)	43.5% (30)
Difference in attitude toward deadlines	50% (15)	35.9% (14)	42.0% (29)
Difference in ambition	30% (9)	41% (16)	36.2% (25)
Other causes	30% (9)	23.1% (9)	26.1% (18)
I asked for help in solving the free-riding problems <sup>b</sup>			
Yes, the teaching assistant	16.7% (5)	12.8% (5)	14.5% (10)
Yes, the coordinator(s)	3.3% (1)	2.6% (1)	2.9% (2)
No	80% (24)	84.6% (33)	82.6% (57)

<sup>a</sup>Based on a Likert-type scale, where Yes = *agree* or *strongly agree* and No = *strongly disagree*, *disagree*, or *neither agree nor disagree*. <sup>b</sup>Based on students who answered *agree* or *strongly agree* to the statement "I experienced free-riding problems in my group" ( $n = 69$ ). <sup>c</sup>The numbers indicate how many students noted that this particular cause was important in their free-riding problems. The percentages do not add up to 100% since students could give more than one answer (up to a maximum of three). <sup>d</sup>The causes were partly derived from Popov et al. (2012).

**Table 3.** Choice Task Results of Students' Preferences for Methods to Detect Free-Riding.

Respondents	Dutch		International		Total	
	RS	PES	RS	PES	RS	PES
All students	45% (58)	55% (71)	53.6% (67)	46.4% (58)	49.2% (125)	50.8% (129)
Experienced free-riding <sup>a</sup>	40% (12)	60% (18)	59% (23)	41% (16)	50.7% (35)	49.3% (34)

Note. RS = reporting system; PES = process evaluation system. <sup>a</sup>Based on students who answered *agree* or *strongly agree* to the statement "I experienced free-riding problems in my group" ( $n = 69$ ).

although differences in motivation levels, skill levels, attitude toward deadlines, and ambitions were also considered important factors. Other causes such as attitudinal problems (including mutual dislike) were found to play an insignificant role. Overall, Dutch and international students experienced quite similar free-riding issues. Interestingly, a vast majority of the respondents who experienced free-riding problems claimed that they did not ask for help in solving their issues (82.6%). These findings highlight the need for an efficient system that discourages free-riding.

### Detecting Free-Riding

The results (see Table 3) show that students do not have a clear preference for either RS or PES to detect free-riding (49.2% vs. 50.8%). There is also no significant preference for one of the two methods when we only consider the Dutch course (45% vs. 55%) or the international course (53.6% vs. 46.4%). Furthermore, the difference in preferences between the Dutch and the international courses is also not significant. Focusing exclusively on students who experienced free-riding does not change the equal distribution of students

who preferred RS and those who preferred PES (50.7% vs. 49.3%). This also holds when we only consider the Dutch course (40% vs. 60%) or the international course (59% vs. 41%). Chi-squared tests confirmed that all the aforementioned results are not statistically significant.

Table 4 shows that the main reason for choosing RS was that it would be less time-consuming (40.8%), while students who chose PES mainly noted that it would help prevent group members from slacking off on their duties (33.3%).

### Handling Free-Riding

The results of the Borda count method regarding the different methods to handle free-riding are presented in Table 5. Overall, GD had the highest Borda score (2.93), followed by CT (2.45), ME (2.37), and SQ (2.26). In both the Dutch and the international courses, about one-third of the respondents selected GD as their most preferred method. These findings show a clear preference for a method that lowers the grade of free-riding students based on a group conversation in which each student's contribution to the assignment will be discussed with the course coordinator. Interestingly, whereas

**Table 4.** Reasons of Students for Choosing a Method to Detect Free-Riding.

The most important reason for choosing RS or PES is	Percentage
<b>RS<sup>a</sup></b>	
The RS is less time-consuming	40.8
I fear the information provided in the PES is not accurate	20.8
Having to complete the PES makes me feel uncomfortable	14.4
I do not see the need or purpose for the PES	13.6
Other reasons	10.4
<b>PES<sup>b</sup></b>	
The PES helps prevent group members from slacking off on their duties	33.3
The PES makes people more aware that they are being watched	20.2
The PES clearly documents who performs well and who does not	19.4
The PES helps my teaching assistant understand how my group functions	14.7
Other reasons	12.4

Note. RS = reporting system; PES = process evaluation system. The reasons were partly derived from Dommeyer (2007).

<sup>a</sup>Based on students who chose “reporting system” (n = 125). <sup>b</sup>Based on students who chose “process evaluation system” (n = 129).

**Table 5.** Borda Scores of Students’ Preferences for Methods to Handle Free-Riding.

Rank	Dutch				International				Total			
	SQ	GD	CT	ME	SQ	GD	CT	ME	SQ	GD	CT	ME
Rank 1 (%) <sup>a</sup>	27.9	<b>34.9</b>	18.6	18.6	18.4	<b>29.6</b>	23.2	28.8	23.2	<b>32.3</b>	20.9	23.6
Rank 2 (%)	20.9	34.9	28.7	15.5	12.0	39.2	24.0	24.8	16.5	37.0	26.4	20.1
Rank 3 (%)	20.9	21.7	27.1	30.2	25.6	21.6	31.2	21.6	23.2	21.7	29.1	26.0
Rank 4 (%)	30.2	8.5	25.6	35.7	44.0	9.6	21.6	24.8	37.0	9.1	23.6	30.3
Borda score <sup>b</sup>	2.46	<b>2.96</b>	2.40	2.17	2.05	<b>2.89</b>	2.49	2.58	2.26	<b>2.93</b>	2.45	2.37
P(first rank) <sup>c</sup>	.21	<b>.39</b>	.22	.17	.15	<b>.37</b>	.24	.25	.18	<b>.38</b>	.23	.21

Note. SQ = status quo; GD = grade discussion; CT = contribution test; ME = member expulsion. Most preferred methods are in bold. <sup>a</sup>Rank 1 = most preferred; Rank 4 = least preferred. <sup>b</sup>The Borda score indicates the relative order of preference for methods to handle free-riding. <sup>c</sup>P(first rank) = predicted probabilities of first rank, based on the (base) rank-ordered logit model (Table 6, Model 1).

international students ranked ME second (2.58), Dutch students considered this method to be the least attractive (2.17).

Table 6 (Model 1) shows the estimates of the base rank-ordered logit model with SQ as the reference category. The rank ordering of the predicted probabilities of first rank (shown in Table 5) mirrors the rank ordering based on the Borda scores closely, as is also reflected by a Pearson correlation coefficient of 0.983. Inclusion of the two-way interaction terms between the dummy variables that represent the methods to handle free-riding and the dummy variable for international students (Table 6, Model 2) indicates that attitudes of international students are more favorable toward CT and ME—although GD remains the favorite option. Students who reported to have experienced free-riding issues in the course (Model 3) exhibit a stronger preference for GD and ME.

Most students selected “a fair way of arriving at grades for group work” as the most important reason for ranking GD first (58.5%). In contrast, other methods appear to have

been preferred mainly because they were considered an effective way of dealing with free-riders (see Table 7).

## Discussion

This article proposed and demonstrated a students’ preferences-based approach to support marketing educators with the selection of methods to detect and handle free-riding in small groups. Several important results were found after applying the proposed approach.

First, the results show that students do not have a clear preference for either RS or PES to detect free-riding. This lack of preference for PES—which was found to be effective in previous studies (Aggarwal & O’Brien, 2008; Brooks & Ammons, 2003)—is somewhat unexpected since Payan et al. (2010) recommended this as an effective solution to address free-riding in international groups. A possible explanation for this divergent finding is that students took more factors into account than just a method’s possible

**Table 6.** Rank-Ordered Logit Models for Students' Preferences to Handle Free-Riding.

Variables	Model 1 (base)	Model 2 (international)	Model 3 (free-riding experience)
Grade discussion	0.77*** (0.12)	0.61*** (0.16)	0.59*** (0.13)
Contribution test	0.27** (0.11)	0.04 (0.16)	0.13 (0.13)
Member expulsion	0.15 (0.12)	-0.22 (0.16)	-0.10 (0.13)
Variable × grade discussion <sup>a</sup>		0.32 (0.23)	0.67** (0.27)
Variable × contribution test		0.46** (0.23)	0.51* (0.27)
Variable × member expulsion		0.76*** (0.23)	0.94*** (0.27)
Likelihood ratio chi square	50.97	62.11	64.26
Degrees of freedom	3	6	6
Log likelihood	-781.74	-776.17	-775.09

Note. The dependent variable is the ranking of the methods to handle free-riding. The reference category is status quo (in all reported models). Standard errors are in parentheses. <sup>a</sup>“Variable” represents the particular background variable that is used as interaction in the model.

\* $p < .10$ . \*\* $p < .05$ . \*\*\* $p < .01$ .

**Table 7.** Reasons of Students for Preferring a Method to Handle Free-Riding.

The most important reason for preferring a method (first rank)	SQ (%)	GD (%)	CT (%)	ME (%)
This method is an effective way of dealing with free-riders.	<b>33.9</b>	34.1	<b>49.1</b>	<b>51.7</b>
This method is a fair way of arriving at grades for group work.	32.2	<b>58.5</b>	43.4	25
This method is time efficient.	6.8	2.4	5.7	10
I do not see the need or purpose for the other methods.	8.5	0	0	5
Other reasons	18.6	4.9	1.9	8.3

Note. SQ = status quo; GD = grade discussion; CT = contribution test; ME = member expulsion. The most important reason for each method is in bold. The reasons were partly derived from Maiden and Perry (2011).

effectiveness in detecting free-riding—usually the most important indicator of “success” in previous studies. Our results indicate that time considerations may be even more important for some students.

Second, the results indicate that grade discussion is the most preferred option to handle free-riding. Students who attended the international course and students who experienced free-riding during the course had a stronger preference for stricter handling methods (such as ME) and a dislike for SQ. This finding is in line with indications in the literature that students in multicultural groups may be especially vulnerable to free-riding issues (Popov et al., 2012) and may therefore desire stricter methods.

### Limitations

The proposed approach has two important general drawbacks. In practice, the application of our approach may be time-consuming, since it requires marketing educators to select a number of relevant methods to detect and handle free-riding, create a survey to measure students' preferences, analyze the data, and determine the method that will be used in the course. Moreover, it may turn out that students lack a clear preference, complicating the educator's decision.

We also address the specific limitations of our application of the proposed approach in this study. First, one should be cautious when generalizing our findings to group projects based on larger groups as the consequences of the free-riding methods could be different (and more critical) in groups of two. For example, if a free-rider in a group of two students is “fired” (ME), this would mean that the non-free-riding student also needs to work individually from that point onward, whereas this would not be the case in larger groups. Therefore, the method of “firing” a group member could be perceived as more popular by students when groups are larger than two. Furthermore, implementation of ME as a method to handle free-riding in groups of two could result into an underreporting of free-riding occurrences because some students (who do not want to work alone) may decide not to report a free-rider.

Second, we used a relatively small number of methods for handling free-riding. In line with the practicability of implementing methods in small groups, we did not include other options such as peer assessments or individual examinations, which could also be very effective methods in different settings. Relatedly, only methods to detect and handle free-riding were considered, while other more direct methods to reduce free-riding—such as allowing students to choose their own partners (Chapman et al., 2006) or assigning



students based on their availability and willingness to devote time to the course (Harding, 2018) or proclivity to procrastinate (Harding, 2020)—may also be effective. Future studies could consider including more advanced methods to create a more complete picture of students' preferences when applying the proposed approach.

Third, Hofstede's (2001) individualism index was used as an indicator of cultural diversity in the Dutch and international courses. However, the assumption that people from a particular country all have the same cultural characteristics is somewhat unrealistic. Therefore, it would have been better to do this kind of analysis on a per individual basis using scales for individualism/collectivism.

Fourth, not all students completed the survey. However, the distribution of our sample regarding gender and country/region of origin is in line with the actual distribution of all students in both the Dutch and the international courses—indicating that the sample is representative.

### Implications for Marketing Educators

The application of the proposed approach in the context of our first-year academic skills course leads to several insights for marketing educators who wish to develop methods against free-riding in university courses where group projects play a role. First, the results emphasize the need for a clear policy regarding free-riding, since many students opt to not disclose any free-riding issues with teaching staff. Second, students do not have a clear preference for methods to detect free-riding. Students who prefer RS note that this choice is mainly based on time considerations rather than concerns about its usefulness. Since supporters of PES emphasize its effectiveness, we recommend implementation of this method—provided that required reports are short. Third, we recommend GD for the handling of free-riding. Our results indicate that students deem this method not only as an effective way of dealing with free-riders but also as a fair way of arriving at grades for group work. Fourth, the aforementioned recommendations apply to students who followed the domestic (Dutch) course as well as the international course.

However, to be sure to select a method against free-riding that best fits a specific course and its students, we advise marketing educators to apply the proposed approach in their own courses and publish the results. This will lead to more insights on what methods can best be used in specific contexts (i.e., different courses and student populations) and could thus simplify the marketing educator's life a little bit.

### Acknowledgments

The authors would like to thank Bas Karreman, Teresa Bago d'Uva, and Max Coveney for recommendations regarding the survey and Aurelien Baillon for his helpful feedback on an earlier version of the article. Furthermore, the authors would like to thank

the editor and the three anonymous reviewers for their constructive feedback.

### Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

### ORCID iD

Tim M. Benning  <https://orcid.org/0000-0003-1302-3132>

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