

# **The effect of Nationality on two aspects of Collaborative Learning: the type of Grade and the Free-riding**

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### **Abstract**

This study investigated the role of nationality in Collaborative Learning. More specifically, it examines whether mixed-nationality or same-nationality groups influence students' perceptions of free-riding and whether it affects the preference for the type of grade. In particular, the two types of grades used in this research are group grades, meaning that all members of a group get the same grade, and a combined grade, which depends on both the group task and an individual one. A mixed-method approach was adopted, using both quantitative and qualitative data. A self-constructed questionnaire was used and distributed online, which contained open-ended and close-ended questions and vignettes that demonstrated scenarios based on Collaborative Learning. This study consisted of 100 students. The results showed that regardless of the group's homogeneity or heterogeneity in terms of nationality, most students preferred the combined grade over the group grade as a fairer solution. It also became apparent through the open-ended questions that free-riding depends on the individual's personality and not on the homogeneity or heterogeneity of the group in terms of nationality. An extra analysis was carried out that compared the preferences of Dutch and international students in terms of the type of group they preferred to participate in. Most Dutch students preferred the homogeneous group as collaboration is more effortless and with better results. Teachers can use this study to adapt their lessons based on the students' preferences to achieve a better engagement with the students.

*Keywords:* Collaborative Learning, mixed-nationality/heterogeneous group, same-nationality/homogeneous group, Free-riding, group grade, combined grade

## **The effect of Nationality on two aspects of Collaborative Learning: the type of Grade and the Free-riding**

Collaborative Learning is a 21st-century characteristic. We see it more promoted in schools that want to change the way educational challenges are treated and provide more excellent value for money while maintaining and improving the student experience (Melling & Weaver, 2013; Slater & Ravid, 2010). Although Collaborative Learning is so widespread, there are some difficulties in using it effectively, as the combination of two or more cultures can cause considerable difficulties (Slatter & Ravid, 2010). On the other hand, institutions build strength by working together and sharing information and skills, making Collaborative Learning critical for the success of schools, teachers, and students (Slatter & Ravid, 2010).

### **Collaborative Learning**

Nowadays, because of globalization, higher education students are increasingly traveling overseas to study and explore work prospects outside of their own country (Poort et al., 2019). In 2020, international students constituted 13% of the total student population in the Netherlands (Project Atlas, 2020). International learning settings allow students to improve their performance, allowing them to adjust to a “higher interconnected world” more easily and quickly (Poort et al., 2019, p. 218). Furthermore, Dutch higher education draws a large number of international students. Since the Dutch educational system requires many collaborative assignments, they are frequently requested to interact and collaborate with students of other nations who have different mother tongues, cognitive levels and views of the task’s needs (Deuze, 2005; Popov et al., 2013). These students’ perspectives of a collaborative activity may differ, as may their judgments of their conformity with task standards (e.g., the content, writing style, and language). Such challenges rely on students’ computational thinking, formed through experiences, feelings, facts, procedures, and

activity knowledge (Popov et al., 2013).

Collaborative Learning has been a common strategy employed in many courses in higher education during the past few decades (Strijbos, 2011). Students are encouraged to collaborate and share their ideas with their peers to attain academic goals and learn how to work well with others (De Hei et al., 2016). Every sort of collaboration aims to achieve mutual goals, and it is used as a method to successfully boost the learning process at both cognitive and social-emotional levels, such as self-confidence and intrinsic motivation (De Hei et al., 2016; Lei et al., 2010; Poort et al., 2019; Strauss & Young, 2011).

Collaborative Learning may always lead to challenges for students with both national and international backgrounds (Poort et al., 2019; Strauss & Young, 2011). Nevertheless, collaboration among students from different national origins can occasionally result in even more problems or obstacles for individuals (Strauss & Young, 2011). In this study, “mixed-nationality groups” is meant to be “a collaborative approach to learning in which three or more students from different cultural or national backgrounds work together on set tasks” (Poort et al., 2019, p. 218). On the other hand, the phrase “same-nationality groups” or “homogeneous groups in terms of nationality” refers to an approach in which all members have the same national or cultural background.

A challenge that mixed-nationality groups face is the need for markedly different coordination (e.g., task distribution), how each student approaches communication, and the various cultural perceptions of Collaborative Learning (Popov et al., 2013). Every student should acclimatize to the new learning environment, considering the differences that may arise while working in a mixed-nationality group and assigning tasks in the most efficient manner possible (Popov et al., 2013). As a consequence, the composition of nationality in groups has been demonstrated to have a significant influence on Collaborative Learning performance because same-nationality groups have greater opportunities to create

successful connections and, as a consequence, achieve higher academic achievement through collaboration (Lim & Liu, 2006; Popov et al., 2013). However, there is also a possibility of reducing misunderstanding and difficulties that may arise due to the group's heterogeneity. According to research, the establishment of mixed-nationality groups leads to better group effectiveness than homogeneous groups because different learning environments may motivate students to work harder (Strauss & Young, 2011).

Mixed-nationality groups have more communication misunderstandings than homogeneous groups in terms of nationality. They may have difficulty collaborating on activities because of differing expectations of the group's goals, the behavioral intentions of others, and the issues that may develop, which can be complicated and difficult to resolve (Popov et al., 2012; Strauss & Young, 2011). For instance, international students who have not had time to get to know each other choose to be in homogenous groups. Even if they have had success in mixed-nationality groups, they still prefer to be in a same-nationality group (Strauss & Young, 2011). However, there is a high likelihood that creativity and innovation will be increased in mixed-nationality groups due to the diverse experiences and opinions among the varied members of the groups (Poort, 2021).

### **Free-riding**

Collaborative Learning does not always work as desired. Several behavioral patterns may exist while working collaboratively, such as free-riding. Free-riding is a prevalent student behavior that may be noticed in Collaborative Learning. It occurs when one or more group members do not share the work equitably, owing to either a lack of motivation or confidence (Strijbos, 2011). According to Davies (2009), free-riding occurs when a group member does not complete his/her tasks as requested in Collaborative Learning but benefits from the tasks being completed by the other group members without putting considerable effort into the group work. Furthermore, nationality homogeneity decreases the possibility

of misunderstandings in Collaborative Learning, which is frequently one of the reasons for free-riding (Kets & Sandroni, 2016). As a result, it is probable that students in mixed-nationality groups, even though this kind of group can promote learning, might be resentful and reluctant to be part of a mixed-nationality group because they have already been refused by domestic students (Strauss & Young, 2011). That is, group members from the same country may speak their native language to communicate more quickly and easily. As a result, group members from other countries may miss out on participating in the conversation and Collaborative Learning process.

Students in mixed-nationality groups generally use English as their second language to communicate within the group, which might make expressing their thoughts difficult. Teachers at academic institutes should keep this in mind when organizing groups and marking group tasks to achieve higher levels of fairness (Kim, 2011). Furthermore, according to the motivation theory, if students feel that they do not meet the requirements of a mixed-nationality group (e.g., English proficiency), there is a strong likelihood of preferring same-nationality over mixed-nationality groups (Poort, 2021). From a student's standpoint, language can be crucial when selecting a homogeneous or heterogeneous group in terms of nationality because misunderstanding can occur due to different expectations and language abilities, such as specific language accents (Poort, 2021). Moreover, some students report that working in a mixed-nationality group can be challenging due to an imbalance of language skills among the group members, and their English proficiency might differ. Inadequate language skills might lead to the inability to question complex issues that are difficult to analyze in degree programs that are "beyond the linguistic capabilities of international students" (Baker & Clark, 2010, p. 265).

It has been demonstrated that when students of the same nationality use English in an international program (e.g., when their report must be written in English), they generate

a new language community known as an inter-language trading zone. It can be defined as “the development of in-between vocabulary through which communication can be accomplished” (Collins et al. 2007, p. 658). As a result, it may be simpler to collaborate with students of the same nationality, where you may utilize the developed inter-language. However, a significant advantage that students can gain when they collaborate in a mixed-nationality group and are required to use a common language is that the language abilities of non-native speakers are enhanced, as are the communicative skills of native speakers. Native speakers also practice communicating with people who do not share the same linguistic traits (Poort et al., 2019).

### **Students’ perceptions of Collaborative Learning**

There are several surveys that examine students’ perceptions of Collaborative Learning since they can give valuable information to the research community (Baker & Clark, 2010; Koh et al., 2007; Yazici, 2004). According to Yazici (2014), students reported gaining greater information on their subject of study when they were required to collaborate with their peers. When compared to individual assignments, they reported a higher knowledge of the assignment’s content (e.g., more skills and techniques) at the end of the Collaborative Learning, which may assist students in enhancing their social and communication skills, in addition to the cognitive benefits (e.g., more knowledge) that can be produced by encouraging student engagement (Koh et al., 2007; Yazici, 2004).

Furthermore, when students are required to collaborate, they might feel more confident in their problem-solving and strategic-thinking skills while their eagerness to achieve a thorough knowledge of understanding is heightened (Yazici, 2004). As reported by Yazici (2004), Collaborative Learning appears to boost students’ self-confidence in their abilities to articulate challenges and apply information to them competently. “This characteristic makes team members successful in the long run by teaching them to manage

their own learning and become independent learners.” (Yazici, 2004, p. 117).

### **Assessment**

When Collaborative Learning is used during the courses, both teachers and students should consider which assessment strategy is adequate for the learning objectives. Over the past decade, there has been increased attention to the assessment of Collaborative Learning, which as a research area, requires the integration of different fields, such as psychology and educational science (Forsell et al., 2020). Assessment of Collaborative Learning can be defined as what is measured and contains the necessary information regarding the quality of the Collaborative Learning concerning predefined criteria, which “are shaped by the purpose of assessment” (Strijbos, 2011, p 59). Regarding the fact that assessment of Collaborative Learning can be challenging for both teachers and students, there are two main challenges. The first problem is guaranteeing the construct validity of assessment methods; that is, whether an assessment measures students’ individual domain-specific abilities, which will assist the teacher in deciding whether a student deserves a degree (Meijer et al., 2020). The second problem stems from the tendency of evaluation systems to induce student behavior that is misaligned with collaborative learning goals. Assessment may induce student behavior that (a) contradicts the goals of Collaborative Learning, e.g., decreasing knowledge sharing among group members; and/or (b) increases, for example, free-riding behavior and/or undervaluing the importance of Collaborative Learning (Meijer et al., 2020).

There are two types of grading in Collaborative Learning used in this study: 1) the individual assessment and 2) the group assessment. When all students in a group receive the same evaluation, such as a group score, a group grade, or comments at the group level, this is referred to as group assessment (Meijer et al., 2020). Group grading is a very commonly used approach. All students in a group receive the same grade for a group assignment



regardless of their individual effort for this accomplishment (Smith & Rogers, 2014). According to Meijer et al. (2020), using individual assessment means that each student receives a personalized grade after all the responsibilities have been divided, enhancing the individual accountability and positive interdependence of each member (Forsell et al., 2020). As a result, although the Collaborative Learning assessment focuses on the final product, it is demonstrated that the individual student's progress matters and each student's contribution to the group assignment and should not be dismissed. When the final grade is based on group and individual work, teachers use the combined grade, which belongs to the individual assessment (Forsell et al., 2020). In particular, a common challenge in Collaborative Learning is that not all students put in the same effort, so they do not trust the assessment methods that grade only the final group product (Baker & Clark, 2010). Three general assessment rules that may be applied to Collaborative Learning assessment should be considered in order to make the assessment a purposeful process: (1) students ought to be aware of the purpose of the assessment and how this will assist them in accomplishing the objectives of each course; (2) an assessment is more effective when students participate in the assessing process with the willingness to share their work with their peers; and (3) a meaningful assessment provides a complete and clear vision of the future routes that the students will follow (Johnson & Johnson, 1996; Smith, 1998).

However, there are several issues to consider while applying Collaborative Learning assessment strategies. Students may express dissatisfaction with the fairness of their grades (Meijer et al., 2020). As a result of the assessment methods, some students avoid Collaborative Learning. When students have little experience in Collaborative Learning, they are more likely to believe that everyone in the group should be marked similarly. However, when they have a lot of experience, they do not believe that everyone in the group gets the same grade (Barfield, 2003). However, some students perceive that teachers

should use Collaborative Learning assessment only when it is the most suitable way to achieve the course objectives (Smith & Rogers, 2014). On the other hand, there are cases where a Collaborative Learning product is not assessed; in this case, students might assume that their efforts were wasteful. It might decrease the likelihood of taking a similar course with Collaborative Learning in the future (Hoffman & Rogelberg, 2001).

### **The current study**

While much research has been conducted on Collaborative Learning, not much consistency is found concerning students' perceptions of assessment of Collaborative Learning (De Hei et al., 2016), especially in combination with the homogeneity or heterogeneity of groups in terms of nationality. The goal of this study is to delve into Collaborative Learning assessment by exploring the effect of homogeneous or heterogeneous nationality groups that might influence the perceptions of students in higher education, given whether their fellow students are perceived as free-riders and their preferences for the type of grading.

Hence, the research questions are formed as follows:

1. To what extent does homogeneous and heterogeneous (in terms of nationality) grouping of students in higher education affect:
  - a) their perceptions of whether students free ride or not, and
  - b) their preferences for the type of grading?

### **Hypotheses**

#### ***Hypothesis 1a***

Based on previous research, we predict that if students are either in a heterogeneous/mixed-nationality group or in a homogeneous/same-nationality group, there is the same risk of free-riding since misunderstanding can occur in either group (Baker & Clark, 2010; Poort, 2021; Strauss & Young, 2011).

### ***Hypothesis 1b***

In most cases, students tend to prefer combined or individual grades and not group grades due to fairness issues (Smith & Rogers, 2014; Meijer et al., 2020). As a result, students' choices may vary depending on whether they are part of homogenous or mixed-nationality groups.

## **Method**

### **Research Design and Procedure**

The present study investigated to what extent the homogeneity or the heterogeneity of groups in terms of nationality affects (a) the perceptions of students on free-riding and (b) their preferences on the type of grading. The study adopted mixed-methods research (MMR), which was chosen because it allows the collection of accurate information and relevant data from a large sample size, both for qualitative and quantitative analysis on the subject of interest (Taherdoost, 2016). This approach broadened the amount of information available to comprehend and investigate students' perceptions and preferences toward Collaborative Learning by allowing them to relate to personal experiences that could have gone undetected or neglected in entirely quantitative or qualitative research. MMR has been carefully studied and regarded as increasing methodological flexibility, inclusivity, and pragmatism in the learning sciences (Dingyloudi & Strijbos, 2018). The data was gathered using an online questionnaire through the Qualtrics platform. Participants were solicited via social media platforms such as Facebook and WhatsApp groups and through the online research platform SurveyCircle (SurveyCircle, 2022). At the start of the questionnaire, the students were informed about the study (see Appendix A), and they were also asked for their active, informed consent (see Appendix B).

### **Participants**

A total of 150 participants accessed the questionnaire. However, 50 participants were not included due to an incomplete questionnaire. The final sample consisted of 100 students studying in higher education institutes, mostly in the Netherlands. Of these participants, 28% ( $n = 28$ ) identified as male, 72% ( $n = 72$ ) as female, and none identified as non-binary or did not prefer to disclose. Participants came from various countries, with the most common being Greece, the Netherlands, Turkey, and Belgium. Those who were not from the Netherlands were named after internationals for the study's purposes. Most of the participants were international students (61.0%,  $n = 61$ ), whereas fewer were Dutch students (39.0%,  $n = 39$ ). Of the 100 participants, 61% were enrolled in a master's program ( $n = 61$ ), and 39% were enrolled in a Bachelor's program (39.0%,  $n = 39$ ). Almost half of the participants (49.0%,  $n = 49$ ) studied at the faculties of the University of Groningen and 44% ( $n = 44$ ) at universities within the Netherlands, whereas only 7% ( $n = 7$ ) attended non-Dutch universities. These different levels of education and universities covered various fields of study with 34% ( $n = 34$ ) in the faculty of Behavioral and Social Sciences, 32% ( $n = 32$ ) in the faculty of Economics and Business, 12% ( $n = 12$ ) in the faculty of Arts, and even fewer in other faculties. Table 1 shows a full overview of the socio-demographic information of the participants.

**Table 1***Sample Socio-demographic Characteristics (N = 100)*

<i>Item</i>	<i>Category</i>	<i>n</i>	<i>f %</i>
<i>Gender</i>	Male	28	28.0%
	Female	72	72.0%
<i>Nationality</i>	Dutch	39	39.0%
	International	61	61.0%
<i>Educational Level</i>	Bachelor	39	39.0%
	Master	61	61.0%
<i>University</i>	Dutch – RUG	49	49.0%
	Dutch-NonRUG	44	44.0%
	Non Dutch	7	7.0%
<i>Faculty</i>	Economics and Business	32	32.0%
	Behavioural and Social Sciences	34	34.0%
	Arts	12	12.0%
	Medical Sciences	5	5.0%
	Law	3	3.0%
	Spatial Sciences	4	4.0%
	Science and Engineering	9	9.0%
	Philosophy	1	1.0%

*Note.* Dutch-RUG = University of Groningen, Dutch - Non RUG = Universities within the Netherlands except for the University of Groningen, Non Dutch = Universities out of the Netherlands

## **Materials**

The materials consisted of an online questionnaire distributed through the Qualtrics platform. The questionnaire included three sections. The first section gathered demographic data such as age, gender, university, faculty, level of study, and nationality. The second section mainly focused on general preferences and perceptions of students regarding (a) Collaborative Learning, (b) Free-riding, which is presented in two different dimensions (i.e., a homogeneous group in terms of nationality and a mixed-nationality group using vignettes), and (c) assessment of Collaborative Learning. The preferences for being in a homogeneous or

mixed-nationality group during Collaborative Learning, perception of free-riding, and preferences for assessment were measured with scales containing closed-ended questions. These were answered on a ‘visual analogue scale,’ which is labeled as a slider-scale in the Qualtrics platform (e.g., see Appendix C), which runs from 0 (*strongly disagree*) to 100 (*strongly agree*). The questionnaire was self-constructed for the purpose of the study; thus, open-ended questions were included to enhance our understanding of the scale scores.

### ***General Perceptions/Preferences***

**Collaborative Learning.** In this section, students’ preferences toward Collaborative Learning were measured by the scale of collaboration. On the slider scale, participants indicated their preferences towards mixed nationality groups and homogenous groups in terms of nationality. For instance, an item used in this scale was “I prefer to collaborate with students of a different nationality because I learn from diverse perspectives.” In addition, the study examines how students assess the amount of effort that can be put forward in these two situations and the homogeneity or heterogeneity of groups in terms of nationality during Collaborative Learning. This scale consisted of six items (see Appendix D). In order to perform reliability analysis, two items for this scale were reverse-scored (R) because they were reverse-phrased compared to the rest of the scale items, so all scale items have positive covariance between them. This scale had acceptable internal consistency with a Cronbach’s alpha of  $r = .68$ , which is  $> .6$  (Tavakol & Dennick, 2011).

**Free-riding.** This scale measured students’ perceptions of free-riding (see Appendix D). The questions were designed to look at both homogenous and mixed-nationality groups. In addition, students were asked whether they preferred working in a homogeneous (in terms of nationality) group or a mixed-nationality group. The free-riding scale consisted of five items, such as “Nationality does not play a role in the existence of free-riders in groups.” One item was eventually omitted from reliability analysis due to an

extremely low Cronbach's alpha when included. Therefore, only four items were used in the analysis. In order to perform reliability analysis, two items for the Free Riding scale were reverse-scored (R) because they were reverse-phrased compared to the rest of the scale items, so all scale items have positive covariance between them. However, the internal consistency was still too low (Cronbach's alpha of  $r = .35$ ). Therefore, this scale was excluded from the study.

**Assessment of Collaborative Learning.** This scale measures the students' perceptions of the amount of effort that students put in depending on the homogeneity or heterogeneity of groups in terms of nationality. This scale consisted of three items: "It is more common for group members to contribute their fair share in mixed-nationality groups than homogenous nationality groups." (see Appendix D). The Cronbach's alpha of  $r = .71$  showed acceptable internal consistency since it was  $> .6$  (Tavakol & Dennick, 2011). Apart from the three items, students were asked to indicate their preference for the type of grade in the case of being in a mixed-nationality group or a homogenous group in terms of nationality. They had to choose between the group grade (all students get the same grade) and the combined grade (the group assignment is combined with an individual task, and both contribute 50% to the final grade). They justified their answer through an open-ended question.

### ***Vignettes***

The third section consisted of two vignettes. Vignettes incorporate principles from traditional experiments and study methodology (Atzmuller & Steiner, 2010). A vignette is a concise, well-crafted description of a person, object, or circumstance that encapsulates a systematic set of features to whose situation the participant is invited to respond (Atzmuller & Steiner, 2010; Finch, 1987). Vignettes allow researchers to investigate complicated scenarios while controlling and manipulating the variables (Wasson et al., 2002). Vignettes

can be used to discover and evaluate the value of those characteristics that causally impact individual reactions to contextually relevant but hypothetical vignette circumstances (Atzmuller & Steiner, 2010). In addition, the vignette can provide more focus and uniformity in data, enabling evaluation among different studies (Wilks, 2004). Finally, it allows the development of specific questions within the study structure, which helps to avoid occasionally vague generalizations (Finch, 1987).

The vignettes (see Appendix E) in this study presented specific Collaborative Learning situations, and the respondents were asked how they would react if they were in the situation themselves. Because the indicated sex of the person represented in the vignette is an issue, gender-neutral names were chosen in the vignettes in order to avoid gender biases (Hannon et al., 1996). The respondents were asked which type of grade (group or combined) they would prefer if they were members of those groups with the question, “What type of grade should their professor use to assess them?” They had to elaborate on their preference within 75 words. Also, they were asked whether they perceived Charlie (in the first vignette; see Appendix E) and Skyler (in the second vignette; see Appendix E) as free-riders and how they would react if they were members of either group. Both open-ended and close-ended questions were used, such as “Charlie should receive a higher grade than the other group members” and “Do you think Charlie’s behavior is productive for the collaboration? Please briefly explain why or why not.”. The participants were requested to answer the vignettes’ open-ended questions within 100 words. The vignettes had the same scenario framework (see Appendix E). However, one variable was manipulated: Collaborative Learning between homogeneous groups in terms of nationality versus Collaborative Learning in mixed-nationality groups.

### **Analyses**

A mixed-method approach was adopted. The quantitative analysis consists of (a)



descriptive analysis, which showed possible differentiation in the participants' preferences within the two vignettes, and (b) inferential analysis to determine the relationship between core variables. For the preliminary results, a t-test test was performed to investigate the effect of gender on Collaboration and Assessment. A chi-square test was performed to investigate the effect of gender on the homogeneous or heterogeneous nationality grouping and the type of grading. A one-way ANOVA test was performed to examine the possible effect of the University on Collaboration and Assessment, and a chi-square test to examine the same effect on the homogenous/heterogenous nationality grouping and the type of grading. Both research questions were answered using data from quantitative and qualitative analyses.

### ***Statistical Analysis***

The statistical analysis was performed using SPSS version 26. In particular, the descriptive analysis included frequencies and percentages for the independent variables and counts, minimum, minimum value, mean, and SD for the dependent variables. The inferential analysis included an independent samples t-test, a one-way ANOVA for independent samples (LSD criterion was used for multiple comparisons), and a chi-square test. The level of significance (p-value, two-sided) was set to  $p < .05$ . In the case of statistically significant results, the effect sizes will be reported, following the rule for effect size, as 0.2 indicating a small effect; 0.5, a medium effect; and 0.8 indicating a large effect (Vacha-Haase & Thompson, 2004). The effect size "Cohen's d" will be used for the t-test, whereas the effect size " $\phi$ " will be used for the chi-square test (Cohen, 1988).

The qualitative part consists of a qualitative content analysis of the open-ended questions. The qualitative content analysis of the open-ended questions will be performed with open, axial, and selective coding and thematic analysis. Qualitative research is an inductive rather than a deductive approach (Williams & Moser, 2019). In this type of

research, coding refers to the methods that allow gathered data to be combined, classified, and thematically sorted, resulting in the construction of meaning and the construction of theories (Williams & Moser, 2019). The analysis will start from the first level, the open coding. At this level, the researcher identifies unique concepts and topics for further classification (Williams & Moser, 2019). The next step will be axial coding, which “refines, aligns, and categorises the themes” (Williams & Moser, 2019, p. 50). The third and last level of coding is called selective coding and allows the researcher to choose and combine categories of organised data from axial coding into coherent and meaningful phrases (Williams & Moser, 2019).

## **Results**

### ***Data Inspection***

The mean score for the Collaboration scale showed almost neutral to minimum agreement ( $M = 51.40$ ,  $SD = 14.86$ ,  $\min = 9.83$ ,  $\max = 80.67$ ). The mean score for the Assessment scale showed that they slightly disagreed ( $M = 41.61$ ,  $SD = 22.13$ ,  $\min = 0.00$ ,  $\max = 100.00$ ). In order to investigate whether the mean scores for the scales “Collaboration” and “Assessment” were normally distributed, histograms, Q-Q plots, K-S and S-W tests, and standardized skewness and kurtosis were examined. The visual inspection of the variables’ histograms (roughly better shaped for both variables), normal Q-Q plots (dots were approximately along the lines) and box plots showed that the Collaboration and Assessment scales were visually approximately normally distributed.

Table 2 shows the normality tests of the dependent variables (scales).

**Table 2***Normality tests*

Scales	Kolmogorov-Smirnov ( <i>df</i> = 100)		Shapiro-Wilk ( <i>df</i> = 100)	
	Statistic	<i>p</i>	Statistic	<i>p</i>
Collaboration	.088	.052	.967	.012
Assessment	.174	< .001	.923	< .001

Table 3 shows the normality tests for both scales. The analysis indicates that the Collaboration scale's distribution can be considered as normal,  $D(100) = .088$ ,  $p = .052$ . Although both the Kolmogorov-Smirnov and Shapiro-Wilk tests show that the Assessment scale's distribution has a statistically significant deviation from normal, Shapiro-Wilk's statistic value is very high, close to 1.00 ( $W > 0.90$ ), so the deviation could be considered relatively low, and the variable's distribution as normal. However, due to the fact that these two tests (Kolmogorov-Smirnov and Shapiro-Wilk tests) have a high sensitivity to the slightest deviation from normality, standardized skewness and kurtosis were calculated for each variable. Although both variables were a little skewed and kurtotic, each variable's standardized skewness and kurtosis values were between -3 and 3 (Tabachnick & Fidell, 2007), so both variables could be considered as approximately normally distributed.

**Preliminary Analysis for Gender**

A t-test for independent samples was performed to investigate the effect of gender on Collaboration and Assessment, which showed that there was a statistically significant difference for Assessment in relation to Gender with a medium effect size,  $t(67.295) = 2.264$ ,  $p = .027$ ,  $d = 0.44$ . Male participants reported increased assessment levels, indicating that students contribute equally to either mixed-nationality or same-nationality groups, showing their preference for the combined grade, compared to females (Male:  $M = 48.51$ ,  $SD = 17.03$ ;

Female:  $M = 38.92$ ,  $SD = 23.37$ ). No statistical differentiation of Collaboration was found regarding gender,  $t(98) = 0.312$ ,  $p = .756 > .05$ , Male:  $M = 52.14$ ,  $SD = 15.35$ , Female:  $M = 51.11$ ,  $SD = 14.77$ .

A chi-square ( $\chi^2$ ) test for independent samples was performed separately for each vignette to investigate the association between Gender, Heterogeneous/Homogeneous nationality grouping, and types of grading. The results indicate a statistically significant association between Gender and Type of Grading, with female participants in favor of a combined grade, proportionally at a higher frequency than males, in either mixed nationality groups,  $\chi^2(1) = 9.000$ ,  $p = .003$ ,  $\phi = 0.30$ , or homogeneous nationality groups,  $\chi^2(1) = 5.652$ ,  $p = .036$ ,  $\phi = 0.24$ .

### **Preliminary analysis for the University**

A one-way ANOVA test was performed to examine possible differentiation of Collaboration and Assessment in relation to the University the participants attended. No statistically significant difference was found on university affecting Collaboration  $F(2,97) = 2.647$ ,  $p = .076 > .05$ , or Assessment  $F(2,97) = 2.022$ ,  $p = .138 > .05$ .

### ***University effect on group Assessment (Vignette 1/2)***

Chi-square ( $\chi^2$ ) for independent samples test was performed to investigate the effect of Nationality on Heterogeneous/Homogeneous nationality group, type of grading. No statistically significant difference was found on University affecting either heterogeneous nationality group assessment  $\chi^2(2) = 0.112$ ,  $p = .946$  or homogeneous nationality group assessment  $\chi^2(2) = 0.646$ ,  $p = .724$ .

### **Analysis**

#### ***Collaboration***

Students agreed that they preferred to collaborate with students from different nationalities ( $M = 61.62$ ,  $SD = 24.55$ ). However, they also agreed with the fact that conflicts

during collaboration are more likely to occur in mixed-nationality groups than in same-nationality groups ( $M = 58.38$ ,  $SD = 21.09$ ). They also disagreed with the fact that Collaboration is easy in mixed-nationality groups ( $M = 43.16$ ,  $SD = 23.85$ ). Overall, the participants' perceptions of collaboration between mixed or homogeneous nationality groups showed almost neutral to minimum agreement ( $M = 51.40$ ,  $SD = 14.86$ ).

### ***Assessment of Collaborative Learning***

Participants were undecided to a minimum disagreement on whether it is more common in mixed-nationality groups for a member to invest equal effort compared to the other group members ( $M = 47.82$ ,  $SD = 28.99$ ). They also disagreed slightly on whether it is more common for group members to contribute their fair share in mixed-nationality groups compared to homogenous nationality groups ( $M = 40.05$ ,  $SD = 28.36$ ). Also, they slightly disagreed on whether it is more common for group members to contribute their fair share in homogeneous nationality groups compared to mixed-nationality groups ( $M = 36.95$ ,  $SD = 26.03$ ). Overall, the total mean score of the scale indicates that they slightly disagreed on Assessment scale and there was not a significant differentiation among the items ( $M = 41.61$ ,  $SD = 22.13$ ).

### ***Homogenous-Heterogeneous/Type of grade (Vignettes 1-2)***

Table 3 shows the participants' views on grading a group assignment in a heterogeneous (Vignette 1) and a homogeneous (Vignette 2) nationality group.

**Table 3***Frequencies in grading a group assignment by nationality group*

Nationality Group	Grade Type	n	%
Heterogeneous	Group grade	34	34.3
	Combined grade	65	65.7
Homogeneous	Group grade	17	17.7
	Combined grade	79	82.3

Participants were more in favor of combined grading (65.7%,  $n = 65$ ) in the case of a mixed-nationality group than of group grading (34.3%,  $n = 34$ ). Moreover, they agreed with the item that “Charlie deserves the same grade as the others in the other group” as far as grading a mixed-nationality group assignment ( $M = 78.14$ ,  $SD = 23.98$ ). They were between disagreement and strong disagreement on the item “Charlie should receive a higher grade than the other group members” ( $M = 16.09$ ,  $SD = 22.10$ ) and also on the item “Charlie should receive a lower grade than the other group members” ( $M = 16.51$ ,  $SD = 22.42$ ).

Most of the participants were in favor of combined grading (82.3%,  $n = 79$ ) of the homogeneous nationality group assignment assessment compared to group grading (17.7%,  $n = 17$ ). Participants disagreed with the item “Skyler deserves the same grade as the other group members” as far as grading a homogeneous nationality group assignment ( $M = 35.20$ ,  $SD = 31.94$ ). They strongly disagreed with the item “Skyler should receive a higher grade than the other group members” ( $M = 9.77$ ,  $SD = 15.70$ ). They were neutral on the item “Skyler should receive a lower grade than the other group members” ( $M = 53.54$ ,  $SD = 35.05$ ).

### ***Posthoc analysis for Nationality***

Given the results of the participants’ preferences for the homogeneity or heterogeneity of groups in terms of nationality, a post hoc question was proposed to explore the differences

between Dutch and international students. This question is mainly focused on possible differences that might appear not only in the preferences of a mixed-nationality or homogeneous group but also in their preferences for the type of grading. A t-test for independent samples was performed to investigate the effect of nationality on Collaboration and Assessment. Table 4 shows the Means and Standard Deviations of Collaboration and Assessment in relation to Nationality.

**Table 4**

*Means and Standard Deviations of Collaboration and Assessment by Nationality*

Variable	Nationality	n	M	SD
Collaboration	Dutch	39	44.86	14.90
	International	61	55.58	13.35
Assessment	Dutch	39	41.49	24.20
	International	61	41.68	20.91

There was a statistically significant difference for Collaboration by Nationality with a large effect size,  $t(98) = -3.741$ ,  $p < .001$ ,  $d = -0.77$ . More specifically, international students ( $M = 55.58$ ,  $SD = 13.35$ ) reported a higher level on the collaboration scale compared to Dutch students ( $M = 44.86$ ,  $SD = 14.90$ ). On the other hand, no statistical differentiation of Assessment was found regarding nationality,  $t(98) = -0.043$ ,  $p = .966$ .

A chi-square ( $\chi^2$ ) test for independent samples was performed to investigate the effect of Nationality on Heterogeneous/Homogeneous nationality group Assessment. Table 5 shows the frequencies of Group Assessment by Nationality.

**Table 5***Frequencies of Group Assessment by Nationality*

Type of group	Type of grade	Nationality			
		Dutch		International	
		n	%	n	%
Heterogeneous nationality group (Vignette 1)	Group	9	26.5	25	73.5
	Combined	30	46.2	35	53.8
Homogeneous nationality group (Vignette 2)	Group	4	23.5	13	76.5
	Combined	34	43.0	35	57.0

No statistically significant difference was found on nationality, affecting either heterogeneous nationality group assessment  $\chi^2(1) = 3.622, p = .057$  or homogeneous nationality group assessment  $\chi^2(1) = 2.226, p = .136$ .

**Qualitative Results**

***RQ1a: To what extent does homogeneous and heterogeneous (in terms of nationality) grouping of students in higher education affect their perceptions of whether students free ride or not?***

Regarding the mixed-nationality vignette, most of the students did not perceive Charlie as a free-rider since Charlie did not choose not to use English. Specifically, 80% (n = 80; 33% Dutch students, 47% international students) of the participants stated Charlie is not a free rider because it is not his/her fault that s/he is unable to engage in the Collaborative Learning. The respondents thought it would be wiser if Charlie suggested his/her thoughts to the group members, but there is nothing further s/he can do to ameliorate the situation. The



80% mentioned above believe that free-riding occurs when a student does not actively participate in Collaborative Learning on purpose. On the other hand, only 20% (n = 20; 6% Dutch students, 14% international students) of the respondents agreed that Charlie was a free rider since he did not contribute equally, although unwittingly.

Regarding the homogenous nationality group vignette, most participants (71%, n = 71; 27% Dutch students, 44% international students) thought Skyler was a free-rider. Skyler was regarded as a free-rider mostly because of his/her uneven participation in group tasks. As the participants reported, this is primarily due to a refusal to study harder or an inability to use the English language.

A smaller proportion of individuals (19%, n = 19; 8% Dutch students, 11% international students) indicated that Skyler was not a free rider. They claim that it is not Skyler's fault that s/he does not speak English well and that the job was completed even though it is occasionally late. Skyler's behavior cannot be used to justify free-riding as long as the collaboration is successful. However, 10% (n = 10; 4% Dutch, 6% international students) of the participants were unable to determine whether Skyler was a free rider or not. The majority of them reported that they needed additional information about the circumstance and the reasons for this conduct.

***RQ1b: To what extent does homogeneous and heterogeneous (in terms of nationality) grouping of students in higher education affect their preferences for the type of grading?***

In terms of the vignette with the mixed-nationality group (see Appendix E), 66% of the respondents (n = 66; 31% Dutch students, 35% international students) chose the combined grade as the best assessment method. To be fair to everyone, a combined grade would be preferable to demonstrate both group and individual capabilities. To accurately evaluate the quality of group performance, each individual's contribution must be considered. The weighting of the individual task and group tasks does not have to be 50/50. However,

there should always be a proportion for individual evaluation to be fair to everyone's unique work (to avoid inequalities in the case of a free-rider in the group). However, the person who grades students should be cautious. For example, if a group member does more than they should, it could be unfair. On the other hand, the group grade was chosen by 34% of the students ( $n = 34$ ; 8% Dutch students, 26% international students). They believe that it is up to the group to decide whether or not to split the tasks equally when collaborating. As a result, they believe that the group grade is more equitable for all students because it was not Charlie's fault that s/he did not contribute equally. Therefore, the entire group should have explored collaboration methods rather than excluding one student from the process.

As for the vignette with the homogeneous in terms of nationality group (see Appendix E), the combined grade was chosen as the best type of grade by the majority of participants (82%,  $n = 82$ ; 35% Dutch students, 47% international students), and the reasons for this choice were consistent across all 82 students. A combined grade is mainly fair in Collaborative Learning since the teacher may evaluate group and individual efforts. Everyone may demonstrate his or her contribution to Collaborative Learning and his or her ability as an individual when both the group and the individual effort are taken into account. It encourages students to invest more effort in Collaborative Learning. Some participants stated that the combined grade is suitable regardless of the situation, country, or group homogeneity or heterogeneity. Two Dutch students were against Collaborative Learning in general, and therefore they chose the combined grade as the only fair way of grading. However, only 18% of the participants picked the group grade ( $n = 18$ ; 4% Dutch students, 14% international students). The disparity between Dutch and international students supports the premise that group members should be graded equally because this is a group effort. The fact that Skyler does not contribute as much as the others should not be a worry for the teacher but rather an issue that should be tackled within the group.

In both vignettes, most of the participants chose the combined grade as representative of Collaborative Learning, as they considered it the fairest way of grading. Collaborative Learning is essential, but it should be combined with assessing individual skills to avoid unfairness and make the whole process more objective. However, one participant also stated that students should be aware of the assessment's goal and which elements are being assessed, so s/he was hesitant to pick either the group or combined grade.

***Post-hoc question: To what extent do international students differ from Dutch students in their preferences for Collaborative Learning?***

There was a question regarding the participants' preferences regarding the type of group (heterogeneous/homogenous nationality group) as a part of the Collaboration scale. There are three sorts of participants in this section: those who picked a homogenous group in terms of nationality, those who chose mixed-nationality groups, and those who did not have a preference. The sample was more or less evenly distributed among these responses, as 29% of the students (n = 29; 20% Dutch students, 9% international students) picked the homogeneous group, 39% (n = 39; 8% Dutch, 31% international) chose the heterogeneous group, and 32% (n = 32; 11% Dutch students, 21% international students) chose both. The majority of the Dutch students preferred homogenous groups in terms of nationality, whereas international students preferred mainly mixed-nationality groups. All of the students who did not have a specific preference stated that nationality is insignificant in Collaborative Learning and that the key goal is equitable contribution. Others said that while it is easier to relate to and connect with the group when all members are of the same nationality, it is also more intriguing to interact with students of other nations because they can learn how others think and perceive things. Each student's temperament and enthusiasm, being consistent, and meeting deadlines and appointments were essential to those students who had no preference. They also reported that as long as communication in the cooperation is successful, nationality

does not matter because there will always be a free-rider, regardless of the group's homogeneity or heterogeneity.

The participants who picked the homogenous group (29%, n = 29; 20% Dutch, 9% International) in terms of nationality did so primarily for communication reasons. They believe that speaking the same language and coming from the same cultural background makes communication easier and collaboration more fruitful. Most Dutch students, in particular, stated that international students have a much lower academic level compared to themselves. Thus, they considered it a factor that held them behind and did not let them make the anticipated progress.

Students who favor mixed-nationality groups, on the other hand, are eager to learn about other cultures and collaborate with students from all backgrounds since this method is more beneficial to the group and the individual. Generally, they indicated that being a part of a mixed-nationality group is a constructive learning opportunity.

There was a consensus on why students put less effort on a group project. The causes range from refusal to laziness and a lack of motivation. Some students indicated that a group member might not be contributing equally due to personal reasons such as illness, family concerns, or a hectic schedule besides the university's duties. There were also responses showing that the effort that someone puts into a group task relies on this person's character, with some students just taking advantage of the group's desire to accomplish the assignment and staying behind without attempting it. Fewer students agreed that differing cultural origins might cause a student's unwillingness to work hard. Their knowledge levels are so diverse that some pupils lose motivation by comparing themselves to their classmates.

### **Discussion**

This study investigated the differences when a student is part of a homogeneous or heterogeneous group. More specifically, how homogeneous and mixed-nationality grouping

influences students' perceptions of whether or not fellow students free-ride in higher education and whether one of these groups influences students' preferences for grading. The final topic investigated was whether Dutch students differed from international students (those from various countries who came to study in the Netherlands) in their preferences for homogenous and mixed-nationality groups. A mixed-method approach was used.

### **Perceptions of Free-riding**

The qualitative results indicated that free-riding is not affected by the homogeneity or heterogeneity of nationality grouping. In both vignettes, the respondents considered the student's misaligned behavior more than his/her country of origin. What counts most to both Dutch and international students is the student's commitment to contribute meaningfully to collaboration. On certain occasions, a student may be unable to contribute as much as the others in the group due to unforeseen circumstances, but this does not imply that s/he is a free rider.

As part of the reasons why a student might free ride, most of the respondents replied that this behavior might occur when a student is not confident in his/her abilities or because s/he might be unmotivated. This response is in line with the literature on free-riding, which states that it occurs when one or more group members do not distribute the workload evenly due to a lack of motivation or confidence (Strijbos, 2011). According to the literature, it is suggested that there are fewer misunderstandings in same-nationality groups in Collaborative Learning than in mixed-nationality groups (Kets & Sandroni, 2016; Strauss & Young, 2011). However, the results showed that the student (Skyler) in the second vignette (same-nationality group) is more likely to be labeled as a free-rider because s/he does not contribute even though all group members speak the same language. There are no language barriers, as in the first vignette. According to the literature, the students did not agree that there is a reason to free-ride when there are misunderstandings within a group. However, on the

contrary, when all group members have the possibility of equal participation but do not take advantage of it, then there are many chances that this student will be driven to misaligned behaviour.

Language barriers may exist in mixed-nationality groups, and as a result, certain students may not feel comfortable being members of such groups. However, when a student encounters difficulties with the language used, s/he is not a free rider because it is not his or her fault if the group employs a language other than the agreed-upon one (e.g., English). The respondents agreed that there is no evidence of free-riding unless the English language is utilized in a mixed-nationality group. They stated that while organizing a group to achieve a common goal, instructors should consider these hurdles, which is in line with the literature. According to Kim (2011), teachers at academic institutes should consider that English is the second language of the majority of students, and issues may develop throughout the group process. They should also check whether the group follows the mixed-nationality group's norms, such as conversing in English. Overall, as Strijbos (2011) described, the students' personalities influence misaligned behaviors such as free-riding and not the student's origin, as was also reported by the participants. According to the literature and the study's participants, teachers should take into account free-riding and find strategies to counterbalance its occurrence (Albanese & van Fleet, 1985).

### **Preferences for the type of grading**

The descriptive analysis showed that most participants agreed that the combined grade was the most adequate for assessing a group assignment. In the mixed-nationality group, the difference between the group grade and the combined grade was not so distinctive compared to the homogeneous nationality group. This was the case because, in the homogeneous group, a more considerable number of students considered the student who was not contributing as a free-rider compared to the mixed-nationality group. The participants

explained this behavior because, on the first occasion, the student could not contribute due to language barriers. In contrast, the student had the opportunity to participate on the second occasion, but s/he chose not to. As Baker & Clark (2010) mentioned, students did not trust the grading system, as not all students invest the same effort into Collaborative Learning. Therefore, the preferences of students changed accordingly. They were influenced by the misaligned behavior of Skyler (2nd vignette), and most of the participants chose the combined grade, whereas, in the case of Charlie (1st vignette), the difference between the students who chose the group grade and those who chose the combined grade was not so distinctive.

The qualitative analyses showed similar results, with most participants selecting the combined grade as the fairest for Collaborative Learning. This method is more equitable for everyone since individual skills are considered. When questioned about their preferred type of grading, students answered that the evaluation process should measure the students' skills both in groups and individually, as misaligned behaviors might occur. Meijer et al. (2020) also mentioned that professors sometimes implement assessments that might cause students to misalign; therefore, the grading system is not always fair for everyone. It is also stated that students should be informed of the goal of the assessment and what parts are being examined, which is in line with the literature which mentions that an assessment should be a worthwhile procedure to provide satisfactory results. This can be accomplished by presenting students with a comprehensive and clear picture of the objectives and paths that they will take (Smith, 1998; Johnson & Johnson, 1996). Collaborative Learning assessments should only be used when necessary for the course's objectives (Smith & Rogers, 2014).

Furthermore, the decision of the combined grade might be supported by the students' experience. According to the socio-demographic findings, 61% of the respondents studied at the master's level. As a result, they have extensive expertise in collaborative projects.

Students with a lot of Collaborative Learning experience do not think that everyone in the group deserves the same grade. In contrast, students with less experience, such as Bachelor's students, are more inclined to hold the view that everyone should be graded equally (Barfield, 2003).

Overall, the findings support Hypothesis 1b regarding grading preferences. The quantitative and qualitative findings indicated that the combined grade is usually ideal and fairer in every circumstance. We can conclude that being in a homogeneous or mixed-nationality group does not influence the preference of the type of grade. The members' contributions to Collaborative Learning were crucial in their preference. Indeed, most of the responses to the open-ended questions emphasized that national consistency had no bearing on the type of grade they preferred.

### **Differences between Dutch and international students in their preferences for Collaborative Learning**

The findings revealed that international students expressed a stronger desire for collaboration than Dutch students, indicating that they are more willing to participate in Collaborative Learning. On the other hand, no statistically significant differences were found for the influence of nationality on the type of grading, meaning that both Dutch and international students had similar preferences for the type of grading by agreeing on the combined grade.

According to the qualitative data, most Dutch students who participated in the survey preferred to participate in a homogeneous group in terms of nationality. Dutch students stated that the international students' level is lower than theirs. As a result, they are unable to keep up with the rest of the group, which stems from the fact that Dutch students have more experience in Collaborative Learning. This is in line with the literature that suggests that students with significant experience in Collaborative Learning are inclined to believe that



Collaborative Learning is not always fair. Not everyone in one group should be equally graded (Barfield, 2003). It has been found that several international learners are not adequately prepared to begin their master's programs. Consequently, they typically do not engage as required in Collaborative Learning (Rienties et al., 2014). As educational systems fluctuate from country to country, variations may exist across continents and even within European countries (Rienties & Tempelaar, 2013).

On the other hand, international students preferred mixed-nationality groups or did not have any particular preference when it comes to collaboration. This can also be explained by the t-test, which showed that international students are more willing to collaborate than Dutch students. This willingness to cooperate and socialise may stem from international students may experience a cultural shock when they need to study abroad. Therefore, there is a high need to find people in the same situation (Rienties & Tempelaar, 2013).

To conclude, we can point out that most Dutch students who participated in the study prefer to participate in a homogeneous group in terms of nationality. In contrast, most international students prefer to participate either in mixed-nationality groups or have no preference, and therefore both options are well-liked. However, no other notable pattern was observed in this study.

### **Limitations/Recommendations for future studies**

The present study, however, has some limitations. Initially, the questionnaire was self-constructed, which necessitated the presence of open-ended questions to understand better the scales in the case of the very low internal consistency. As a result, the questionnaire was more extensive than intended. The ideal size would have been a questionnaire that could be completed within ten minutes without being tiring, which was not the case. It required 20–25 minutes, which resulted in many participants dropping out of the study before it was

completed. Only 100 out of approximately 150 participants who accessed the study completed it.

A second limitation is an omission in the definition of free-riding throughout the questionnaire. It was vital to clarify if free-riding conveys to students that they do not engage on purpose and to maintain the definition in all parts of the questionnaire and not just at the beginning. It was observed through the open-ended questions that some participants had not memorized this definition and, as a result, could not answer the question. Something important to mention is gender-neutral names. The names in the vignettes were chosen so that there were no male and female names but instead neutral names. Several participants commented that the choice of names was confusing as they did not know which pronoun to use. On the one hand, these remarks support that the goal of gender neutrality was achieved and that neutrality prevailed throughout the vignettes.

Finally, the free-riding scale should be enhanced in terms of internal reliability. In particular, this study used only the qualitative data for the free-riding variable since the free-riding scale was removed from the quantitative analysis due to low internal reliability.

A suggestion for future studies is that if it is decided to compare two nationalities, it would be more valuable to have an equal number of participants from both nationalities for more reliable results, as Tielman et al. (2012) indicated in their research. Hence, as here, both the qualitative interpretation of the themes that emerged and their relative importance constitute just a preliminary signal or trend that will need to be confirmed in subsequent, possibly larger-scale research.

### **Implications for Practice**

Teachers can use this research to find solutions to combat or avoid free-riding in group work to increase students' active participation, which will yield better results. These changes should concern the final product and the process of Collaborative Learning, as Hall

& Buzwell (2013) mention in their research. Using, for example, peer assessment and the combined grade will bring better results as both students will be more willing to participate as they will know that they will be assessed throughout the collaboration. Teachers will have a clearer picture of the group and each member's contribution (Hall & Buzwell, 2013).

### **Conclusion**

In conclusion, Collaborative Learning is a vital element of our everyday lives as it accompanies us in every aspect of our lives. Collaboration at school, at university, in the workplace, and even in our personal lives is crucial. However, Collaborative Learning at a university has its own way of being evaluated, which teachers and students should give special attention. Suppose the credibility of this process is to be preserved. In that case, teachers must consider many factors, such as possible barriers that the group may face or even the group's national consistency.

According to the results, most students preferred the combined grade as the fairest type of grade. This preference was not affected by whether they would collaborate in a homogeneous or heterogeneous group in terms of nationality. According to the results, reasons that promote misaligned behaviours such as free-riding are not affected by the homogeneity or heterogeneity of the groups in terms of nationality. It is the character that influences such behaviours, not the group's national consistency. Finally, some differences were observed between Dutch and international students regarding their preference for mixed-nationality or same-nationality groups. Dutch students mainly prefer homogeneous groups. They believe that working with Dutch people will have better results than being in a heterogeneous group, where there will be other difficulties such as language and lower knowledge levels.

Overall, this research can contribute to the academic community by giving teachers a deeper insight into how higher education students perceive group work. Teachers can adapt

their courses based on these results to create course specifications that are very close to the students' requirements to create a more efficient engagement of the student with the university and thus with the academic community.

## References

- Albanese, R., & van Fleet, D. D. (1985). Rational behavior in groups: the free-riding tendency. *The Academy of Management Review*, 10(2), 244–255. <https://DOI-org.proxy-ub.rug.nl/10.2307/257966>
- Atzmüller C., & Steiner, P. M. (2010). Experimental vignette studies in survey research. *Methodology*, 6(3), 128–138. <https://doi.org/10.1027/1614-2241/a000014>
- Baker, T., & Clark, J. (2010). Cooperative learning - a double-edged sword: a cooperative learning model for use with diverse student groups. *Intercultural Education*, 21(3), 257–268. <https://doi.org/10.1080/14675981003760440>
- Barfield, R. L. (2003). “Students’ Perceptions of and Satisfaction with Group Grades and the Group Experience in the College Classroom.” *Assessment & Evaluation in Higher Education* 28 (4): 355–370. <https://doi.org/10.1080/0260293032000066191>
- Collins, H., Evans, R., & Gorman, M. (2007). Trading zones and interactional expertise. *Studies in History and Philosophy of Science*, 38(4), 657–666. <https://DOI.org/10.1016/j.shpsa.2007.09.003>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.
- Davies, W. M. (2009). Groupwork as a form of assessment: Common problems and recommended solutions. *Higher education*, 58(4), 563-584. <https://doi-org.proxy-ub.rug.nl/10.1007/s10734-009-9216-y>
- De Hei, M., Strijbos, J. W., Sjoer, E., & Admiraal, W. F. (2016). Thematic review of approaches to design group learning activities in higher education: The development of a comprehensive framework. *Educational Research Review*, 18, 33-45.

<https://doi.org/10.1016/j.edurev.2016.01.001>

Deuze, M. (2005). Multicultural Journalism Education in the Netherlands: A Case Study.

*Journalism and Mass Communication Educator*.

<https://dx.doi.org/10.1177/107769580506000407>

Dingyloudi, F., & Strijbos, J. W. (2018). Mixed methods research as a pragmatic toolkit:

Understanding versus fixing complexity in the learning sciences. In F. Fischer, C. E.

HmeloSilver, S. R. Goldman & P. Reimann (Eds.), *International handbook of the*

*learning sciences* (pp. 444-454). New York: Routledge.

Finch, J. (1987). The vignette technique in survey research. *Sociology*, 21(1), 105–114.

<https://www.jstor.org/stable/42854387>

Forsell, J. K., Forslund Frykedal, E., & Hammar Chiriac, E. (2020). Group work

assessment: Assessing social skills at group level. *Small-Group Research*, 51(1), 87-

124. <https://doi.org/10.1177/1046496419878269>

Hall, D., & Buzwell, S. (2013). The problem of free-riding in group projects : looking

beyond social loafing as reason for non-contribution. *Active Learning in Higher*

*Education*, 14(1), 37–49. <https://doi-org.proxy->

[ub.rug.nl/10.1177/1469787412467123](https://doi-org.proxy-ub.rug.nl/10.1177/1469787412467123)

Hannon, R., Kuntz, T., Van Laar, S., Williams, J., & Hall, D. S. (1996). College students'

judgments regarding sexual aggression during a date. *Sex Roles : A Journal of*

*Research*, 35(11-12), 765–780. <https://doi.org/10.1007/BF01544091>

Hoffman, J. R., & Rogelberg, S. G. (2001). All together now? college students' preferred

project group grading procedures. *Group Dynamics: Theory, Research, and Practice*,

5(1), 33–40. <https://doi.org/10.1037/1089-2699.5.1.33>

- Johnson, D. W., & Johnson, R. T. (1996). *Meaningful and Manageable Assessment Through Cooperative Learning*. Edina, Minn.: Interaction Book Company.
- Kets, W., & Sandroni, A. (2016). *Challenging Conformity: A case of Diversity*. Northwestern University. <http://dx.doi.org/10.2139/ssrn.2871490>
- Kim, H. Y. (2011). International graduate students' difficulties: graduate classes as a community of practices. *Teaching in Higher Education*, 16(3), 281–292. <https://doi.org/10.1080/13562517.2010.524922>
- Koh, C., Tan, O. S., Wang, C. J., Ee, J., & Liu, W. C. (2007). Perceptions of low ability students on group project work and cooperative learning. *Asia Pacific Education Review*, 8(1), 89-99. <https://doi.org/10.1007/BF03025835>
- Lei, S. A., Kuestermeyer, B. N., & Westmeyer, K. A. (2010). Group composition affecting student interaction and achievement: Instructors' perspectives. *Journal of Instructional Psychology*, 37(4), 317–325. <https://web-p-ebSCOhost-com.proxy-ub.rug.nl/ehost/pdfviewer/pdfviewer?vid=1&sid=5e807ce6-5d30-4e95-9470-cf636c052c4b%40redis>
- Lim, J., & Liu, Y. (2006). The role of cultural diversity and leadership in computer-supported collaborative learning: a content analysis. *Information and Software Technology*, 48(3), 142–153. <https://doi.org/10.1016/j.infsof.2005.03.006>
- Melling, M., & Weaver, M. (Eds.). (2012). *Collaboration in Libraries and Learning Environments*. Facet. <https://doi-org.proxy-ub.rug.nl/10.29085/9781856049511>
- Meijer, H., Hoekstra, R., Brouwer, J., & Strijbos, J. W. (2020). Unfolding collaborative learning assessment literacy: A reflection on current assessment methods in higher education. *Assessment & Evaluation in Higher Education*, 45(8), 1222-1240. <https://doi.org/10.1080/02602938.2020.1729696>

- Poort, I., Jansen, E., & Hofman, A. (2019). Intercultural group work in higher education: Costs and benefits from an expectancy-value theory perspective. *International Journal of Educational Research*, 93, 218–231.  
<https://doi.org/10.1016/j.ijer.2018.11.010>
- Poort, I. (2021). Prepared to engage? factors that promote university students' engagement in intercultural group work. University of Groningen.  
<https://doi.org/10.33612/diss.177739351>
- Popov, V., Biemans, H. J. A., Brinkman, D., Kuznetsov, A., & Mulder, M. (2013). Facilitation of computer-supported collaborative learning in mixed- versus same-culture dyads: Does a collaboration script help? *Internet and Higher Education*, 19, 36-48. <https://doi.org/10.1016/j.iheduc.2013.08.002>
- Popov, V., Brinkman, D., Biemans, H. J. A., Mulder, M., Kuznetsov, A., & Noroozi, O. (2012). Multicultural student group work in higher education: an explorative case study on challenges as perceived by students. *International Journal of Intercultural Relations*, 36(2), 302–317. <https://doi.org/10.1016/j.ijintrel.2011.09.004>
- Project Atlas. (2020). A quick look at global mobility trends.  
<https://iie.widen.net/s/rfw2c7rrbd/projectatlas-infographics-2020>.
- Rienties, B., Luchoomun, D., & Tempelaar, D. (2014). Academic and social integration of master students: a cross-institutional comparison between dutch and international students. *Innovations in Education and Teaching International*, 51(2), 130–141.  
<https://doi.org/10.1080/14703297.2013.771973>
- Rienties, B. C., & Tempelaar, D. T. (2013). The role of cultural dimensions of international and Dutch students on academic and social integration and academic performance in the Netherlands. *International Journal of Intercultural Relations*, 37(2), 188–201.  
<https://doi.org/10.1016/j.ijintrel.2012.11.004>



- Slater, J. J., & Ravid, R. (2010). Collaboration in education (Ser. Routledge research in education, 35). Routledge. <https://doi.org/10.4324/9780203854709>
- Smith, K. A. (1998). Grading cooperative projects. *New Directions for Teaching and Learning*, 1998(74), 59-67. <https://doi-org.proxy-ub.rug.nl/10.1002/tl.7406>
- Smith, M., & Rogers, J. (2014). Understanding nursing students' perspectives on the grading of group work assessments. *Nurse Education in Practice*, 14(2), 112–116. <https://doi.org/10.1016/j.nepr.2013.07.012>
- Strijbos, J.-W. (2011). Assessment of (computer-supported) collaborative learning. *Ieee Transactions on Learning Technologies*, 4(1), 59–73. <https://doi.org/10.1109/TLT.2010.37>
- Strauss, P., U, A., & Young, S. (2011). ‘I know the type of people I work well with’: student anxiety in multicultural group projects. *Studies in Higher Education*, 36(7), 815–829. <https://doi.org/10.1080/03075079.2010.488720>
- Tabachnick, B. G., & Fidell, L. S. (2007). Using multivariate statistics (5th ed.). Boston, MA: Allyn & Bacon. <https://www.pearsonhighered.com/assets/preface/0/1/3/4/0134790545.pdf>
- Taherdoost, H. (2016). How to design and create an effective survey/questionnaire; A step by step guide. *International Journal of Academic Research in Management (IJARM)*, 5(4), 37-41. <https://ssrn.com/abstract=3224226>
- Tavakol, M., & Dennick, R. (2011). Making sense of cronbach's alpha. *International Journal of Medical Education*, 2, 53–55. <https://doi.org/10.5116/ijme.4dfb.8dfd>
- Tielman, K., den Brok, P., Bolhuis, S., & Vallejo, B. (2012). Collaborative learning in multicultural classrooms: a case study of dutch senior secondary vocational education. *Journal of Vocational Education & Training*, 64(1), 103–118. <https://doi.org/10.1080/13636820.2011.622448>

- Vacha-Haase, T., & Thompson, B. (2004). How to estimate and interpret various effect sizes. *Journal of Counseling Psychology*, 51(4), 473–481. <https://doi.org/10.1037/0022-0167.51.4.473>
- Yazici, H. J. (2004). Student Perceptions of Collaborative Learning in Operations Management Classes, *Journal of Education for Business*, 80:2, 110-118. <https://doi:10.3200/JOEB.80.2.110-118>
- Wasson, K. D., Polonsky, M. J., & Hyman, M. R. (2002). Designing vignette studies in marketing. *Australasian Marketing Journal*, 10(3), 41-58. [https://doi.org/10.1016/S1441-3582\(02\)70157-2](https://doi.org/10.1016/S1441-3582(02)70157-2)
- Wilks, T. (2004). The use of vignettes in qualitative research into social work values. *Qualitative Social Work*, 3(1), 78–87. <https://doi-org.proxy-ub.rug.nl/10.1177/1473325004041133>
- Williams, M., & Moser, T. (2019). The art of coding and thematic exploration in qualitative research. *International Management Review*, 15(1), 45-55. <http://www.imrjournal.org/uploads/1/4/2/8/14286482/imr-v15n1art4.pdf>

## **Appendix A**

### **Information Letter**

Dear student,

During the study, so-called "collaborative learning", also known as "group work", plays a major role. For example, students work together on a project or a research report. The final grade for a course (or part of it) is often based wholly or partly on an assessment of the group work, but there are large differences in the way this is done.

In order to find out more about how students experience the assessment of group work, students at the University of Groningen are questioned in this study. This concerns a broad survey among students of different years and faculties.

What does participating in the study mean for you?

By means of a questionnaire, we examine how students from different faculties experience the assessment of group work. We use fictitious situation sketches and ask students to put themselves in that situation and indicate how they would experience the assessment of group work. Completing the questionnaire takes about 20 minutes.

Prior to the study, we will ask you to indicate that you would like to participate in the study. Participation in the study is completely voluntary and you can stop at any time. So if you do not want to continue while filling in the questionnaire, you can stop. Of course, we hope that you will participate.

All answers given while filling in the questionnaire will be treated confidentially. This means that the questionnaires and answers are kept secure and that only the researchers can see the completed questionnaires.

The Qualtrics programme automatically collects the IP address of the person completing the questionnaire, but this information will be deleted immediately at the start of data processing. This means that the research results can never be traced back to you.

If you no longer wish to participate in the study, you can indicate this to the researchers by contacting the project leader. Your data will then be removed from the data files. This is possible until the data are analyzed (from 30 March 2022). If you have any questions about privacy, you can also contact the researchers. If the researchers cannot answer your question, you can submit it to the Data Protection Officer of the University of Groningen (via [privacy@rug.nl](mailto:privacy@rug.nl)).

If you would like to know more about the study, please contact the undersigned.

With kind regards, on behalf of the research team,

Panagiota Zogopoulou, Student Rijksuniversiteit Groningen, [p.zogopoulou@student.rug.nl](mailto:p.zogopoulou@student.rug.nl)

Prof. dr. Jan-Willem Strijbos, Rijksuniversiteit Groningen, [j.w.strijbos@rug.nl](mailto:j.w.strijbos@rug.nl)

## **Appendix B**

### **Consent form**

Dear student,

Via this form, you can indicate whether you want to participate in the questionnaire about how students experience the assessment of group work.

I have read the information letter and the explanation of the questionnaire carefully. I understand what participation in the study entails.

I understand that participation in the questionnaire is voluntary. I choose to participate. I can stop participating at any time. If I decide to stop participating, I do not have to give a reason.

I indicate below whether I want to participate in the questionnaire or not.

I, a student at a higher educational institution in the Netherlands, consent to my participation in the questionnaire about how students experience the assessment of group work.







- Yes, I consent to participate in the study; this permission runs until December 2022.
- No, I do not consent to participate in this study.

## Appendix C

### An example of the “visual analogue scale”

For the close-ended questions, a visual analogue scale will be used, where 0= strongly disagree to 100= strongly agree

0 10 20 30 40 50 60 70 80 90 100

I prefer to collaborate with students that have a different nationality because I learn from diverse perspectives. ()	
I collaborate better when my group consists of students of the same nationality. ()	
Collaboration is more productive in mixed nationality groups. ()	
Collaboration is easy in mixed nationality groups. ()	
Conflicts during collaboration are common in homogeneous nationality groups. ()	
Conflicts during collaboration are more likely to occur in mixed-nationality groups ()	

## Appendix D

### Scales

#### Collaboration

- 1a) I prefer to collaborate with students that have a different nationality because I learn from diverse perspectives.
- 1b) I collaborate better when my group consists of students of the same nationality. (Reserved)
- 1c) Conflicts during collaboration are more likely to occur in mixed-nationality groups
- 1d) Conflicts during collaboration are common in homogeneous nationality groups.
- 1e) Collaboration is easy in mixed nationality groups.
- 1f) Collaboration is more rewarding in mixed nationality groups. (Reversed)

#### Free-riding

- 2a) I prefer to cooperate with international students on group assignments when students can self-select their group members.
- 2b) I prefer to cooperate with same nationality students on group assignments when students can self-select their group members. (Reversed)
- 2c) It is more common to have free-riders in mixed-nationality groups. (Reversed)
- 2d) Nationality does not play a role in the existence of free-riders in groups.

#### Assessment

- 3a) It is more common for group members to contribute their fair share in mixed-nationality groups compared to homogenous nationality groups.
- 3b) It is more common for group members to contribute their fair share in homogeneous nationality groups compared to mixed-nationality groups.
- 3c) It is more common in mixed nationality groups for a group member to invest equal effort compared to the other group members.

## Appendix E

### Vignettes

#### 1st Vignette

Sacha is a Dutch first-year student in Law and attends the course “Criminal Law” at a Dutch university. The teacher requires the students to complete an exam and carry out a group assignment. They are free to select their collaboration partners. Sacha enrolls in a heterogeneous group in terms of nationality, with two Dutch students, Bo and Robin, and one Polish student named Charlie. The first meeting was fine but rather short because communication had to be in English, which is not the mother tongue of any of the students. In the remaining meetings, Sacha often speaks Dutch with Bo and Robin to speed up the collaboration. Sacha is aware that Charlie will not be able to follow and briefly summarize at the end of each meeting the issues that were discussed in Dutch, which Sascha thinks should allow Charlie to contribute equally to the group assignment.

#### 2nd Vignette

Finley is a German first-year student in Psychology and attends the course “Cognitive Psychology” at a Dutch university. The teacher requires the students to complete an exam and carry out a group assignment. They are free to select their collaboration partners. Finley enrolls in a homogeneous group in terms of nationality, with three more German students (Axel, Briar, and Skyler). Since they are all German, they decide to use their mother tongue for all communication and make the collaboration easier; except for the assignment report, which has to be written in English. Throughout the collaboration, Finley observes that Skyler participates less actively in group discussions, and in particular, the written contributions are late and the quality of English is poor compared to the other group members. As a result, Finley feels that the other group members are doing the majority of the work, but decides not to confront Skyler.