

**The Effect of Writing a Group Agreement on Cooperation and the Influence of Social
Cohesion on this Relationship**

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Abstract

Research has shown that cooperation among students has many positive effects including enhanced learning, performance, and motivation. In the current study, writing a group agreement was introduced to bachelor thesis students to stimulate cooperation. It was investigated whether the group agreement, in which goals and expectations about cooperation were written down by each group, did stimulate the perceived level of cooperation during the bachelor thesis project. Additionally, it was examined whether social cohesion influences the strength of this relationship. To achieve this, the results of an online questionnaire were compared between bachelor students who did not write a group agreement (2021; $N = 57$) and those who did (2022; $N = 67$). The data showed that the group agreement did not significantly increase the perceived level of cooperation. Moreover, social cohesion did not have a moderating role on this relationship. However, a regression analysis showed that social cohesion did explain part of the variance in the perceived level of cooperation independent of the group agreement. Further research about different and adapted interventions should be conducted to stimulate cooperative learning. This study shows that although the group agreement seems promising, it needs to be adapted and investigated in order to work.

Keywords: Cooperative Learning, Group Agreement, Social Cohesion, Group Work, Bachelor Thesis Students

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“[...]Cooperative learning is one of the greatest success stories in the history of educational research” (Slavin, 1996, p. 43). Cooperative learning is integrated into most schools and universities worldwide. Many benefits have been investigated which led to the wider use of cooperative learning in educational settings and the workplace (León-del-Barco et al., 2018). Research has shown that cooperative learning enhances learning and achievement (Slavin, 1996), leads to increased psychological health and self-esteem (Johnson & Johnson, 2009), and better performance on, for example, tests (Kennett et al., 1996; León-del-Barco et al., 2018), higher productivity (e.g., Johnson & Johnson, 2008; Forsyth, 2014), and motivation (e.g., Leslie, 2017). Since many benefits are known, it is important to focus research on the investigation of factors and variables influencing and promoting cooperative learning.

Although cooperative learning is used at universities, often the organization of a course does not leave much space for it (e.g., León-del-Barco et al., 2018). Therefore, it is important to further create the environment for possible cooperation between students and investigate interventions to facilitate cooperative learning in an environment where most students work and learn alone. In the current study, a group agreement was introduced to facilitate cooperative learning in a bachelor thesis project at the university. However, due to a research gap around such group agreement, the outcomes can only be hypothesized and research about the effect of contracts to foster cooperation (e.g., Markovits, 2004) are used as a basis. The group agreement was a document filled in by all group members together stating their goals and expectations on how to work together and what they plan to achieve as a group. The purpose of this agreement

was to stimulate students to think about group work and their expectations of their own and their group members' cooperation as well as their communication as a group (Barkley et al., 2014).

A vital factor when investigating cooperative learning is social cohesion also known as sense of belonging (e.g., Garrison, 2009), which is the degree to which one feels like they belong to a group and how closely connected the members are (e.g., Forsyth, 2014). Research suggests that a good atmosphere in the group and a sense of belonging are crucial for successful cooperation (Strahm, 2007). Consequently, one could expect that social cohesion makes the difference when it comes to the aforementioned relationship. Namely, if the group agreement leads to higher cooperation, the perceived level of cooperation may increase, especially, when social cohesion is also high. This study aims to shed light on the effect of a group agreement as an intervention to stimulate cooperative learning and to investigate whether social cohesion plays a moderating role in this relationship.

Cooperative Learning

The importance of cooperation in various educational settings has been widely shown for multiple decades (e.g., Johnson & Johnson, 2009; Slavin, 1996). Cooperating successfully is crucial for good teamwork and the level of cooperation depends on multiple aspects. According to Johnson and Johnson (2009), there are five basic elements of cooperation, namely, positive interdependence, individual accountability, promotive interaction, appropriate use of social skills, and group processing. The authors define the concepts as follows: positive interdependence exists when the students believe that the outcome of a task or goal is affected by their own and others' actions. Individual accountability describes that it is known to what extent each student contributes and that this feedback is given to the student and the other group members. Promotive interaction means in order to achieve group goals the students need to help

and support each other. Interpersonal and group skills need to be known and used by the students for successful cooperation. Lastly, group processing, evaluation, and reflection on past group work and approaches to achieve group goals are needed for cooperation (Johnson & Johnson, 2009).

Another theory that provides insight into the aspect of cooperative learning is the Communities of Inquiry (CoI) framework. It concentrates on the features of an educational experience that motivate the formation of learning communities that actively and collaboratively pursue an investigation, create meaning, and verify understanding (i.e., inquiry) (Garrison, 2009). More specifically, CoIs include three main aspects, namely social, cognitive, and teaching presence. Social presence involves connecting with the community (e.g., areas of study), communicating in a secure atmosphere, and building relationships by expressing their unique personalities (Garrison, 2009). Cognitive presence describes the process where students work together on a certain goal, or to solve a problem. Discussing, evaluating, and helping each other understand are the most important aspects which are included in cognitive presence (Garrison, 2009). Lastly, the teacher or instructor i.e. teaching presence, plays a large role. The unifying power of teaching presence brings together the social and cognitive components of a learning environment, creating a community of learners that functions efficiently (Garrison, 2009). By structuring the guidelines and tasks, providing support and possibilities, and instructing how to work together, teachers can facilitate cooperative learning (Garrison, 2009). These three aspects combined build the groundwork for meaningful cooperation.

Most research on cooperation in an educational context focuses on elementary or high school students, where the more structured settings and tasks used for cooperation can be easily monitored. However, at the university level students work more independently and cooperation

in groups is, therefore, more difficult to monitor (Kennett et al., 1996). More than two decades ago it was observed that only very few students at the university level engage in cooperative learning because it is not possible to demand cooperation from students as it might be in school settings (Kennett et al., 1996). Although the latter might still hold, research has shown that positive outcomes of cooperation at the university level lead to more students engaging in cooperative learning (León-del-Barco et al., 2018). Additionally, it is up to the instructors and coordinators at the university to make space for successful cooperation. Since many skills acquired through cooperative learning, e.g., critical thinking, tolerance, solidarity, and teamwork are requirements in the job world (León-del-Barco et al., 2018), it is important to further practice them in higher education.

In the bachelor program of the department of psychology at the University of Groningen, students work in groups of approximately six students on one topic for their bachelor thesis project. Depending on the topic and organization of each group and project, there is space for cooperation among the group members. It is, for example, possible to write most parts of the method section, decide on a way to study the chosen topic, and develop and execute a certain method together as a group. If the named tasks are completed as a group, research suggests that the group would perform better (e.g., León-del-Barco et al., 2018) and will be more productive (Johnson & Johnson, 2008) and motivated (e.g., Leslie, 2017) to complete the project compared to individual work.

Group Agreement

A contract is a promise in which all parties agree on a common ground or goal and everyone has to hold up their end of the deal (Markovits, 2004). In most cases, especially in formal contexts, contracts do not involve working cooperatively but everyone should do their

part to fulfill the contract, hence, a group agreement is more like an informal contract. It is important to include and define to what extent and how all group members want to cooperate. One could expect that writing a group agreement collectively might facilitate cooperation because it is discussed and agreed upon what the cooperation as a group should look like and what everyone expects. Writing a group agreement as well as adhering to it helps students to improve their skills for cooperation (Byrd & Luthy, 2010). Studies have demonstrated that in situations where it is hard to recognize individual members' contributions, people may become less active in working towards a shared goal (Johnson & Johnson, 2008). Therefore, it might help to write this down in a group agreement because writing down what is, *inter alia*, expected from each member helps in identifying the responsibilities of each (Aaron et al., 2014; Tornwall et al., 2021). A group agreement, *i.e.*, a contract also implies public commitment (Markovits, 2004), if everyone in the group knows and agrees on certain rules and procedures one might feel more obliged to adhere to them as if they had not been written down and discussed.

The current study aims to examine the effect of such group agreement using a questionnaire completed by students who wrote their bachelor thesis in the current (2022) or the previous year (2021). This year it was established that every group should write a group agreement to stimulate (awareness of) cooperative learning among the group members. It included how the group wants to cooperate, what their goals and expectations are, and how often they want to meet and communicate (see Appendix A). It could be expected that the perceived level of cooperation is higher for the group that wrote a group agreement because it is more like a binding contract, and everyone should try to keep to it and might therefore be more involved in the processes as a group. To achieve a certain task, it is important to understand it, set a goal, and plan how to reach it (Schnaubert & Vogel, 2022). Without such an agreement one could assume

that there is a lower level of cooperation because it has not been specified how the group should work together. Therefore, considering past research and their findings, it is expected that (**H1**) the scores for the perceived level of cooperation are higher for the year in which students had to write a group agreement in comparison to the group of students who did not write it.

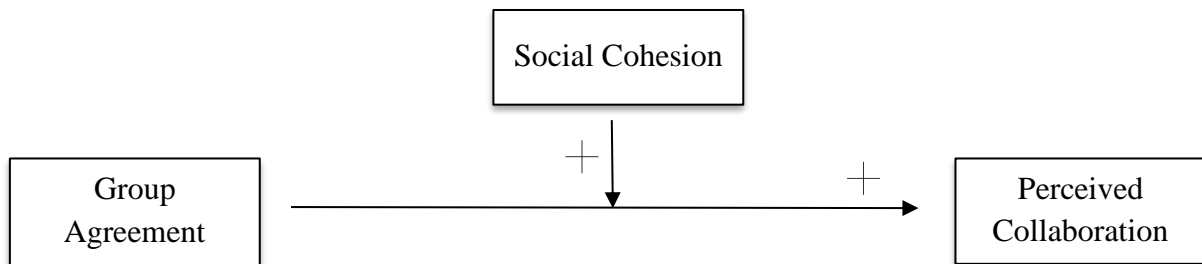
Social Cohesion

Social cohesion refers to the number of favorable attitudes shared among members of a group, as well as the level of intensity of those attitudes (Lott & Lott, 1965), meaning that it describes how strong the relationships are between group members and to the group itself (Forsyth, 2014, Leslie, 2017). The concept of sense of belonging is closely related to and overlapping with social cohesion in literature. It involves having strong, long-lasting connections with others and experiencing positive emotions through frequent interactions (Baumeister & Leary, 1995). Social cohesion is defined as the “degree to which an individual feels a sense of belonging to a particular group and [their] feelings and values are closely associated with other members of the group” (Bollen & Hoyle, 1990: as cited in Abu Bakar & Sheer 2013, p. 447). A group without cohesiveness is likely to fall apart and will most definitely not reach the goals that were set (Forsyth, 2014). Research has shown that social cohesion and group performance are positively correlated (Leslie, 2017; Forsyth, 2014), and cohesive groups work more productively (Leslie, 2017).

Previous research has investigated the relationship between cooperative learning and social cohesion. In the previously introduced CoI framework by Garrison (2009), social presence is one of the essential parts of cooperation. Social cohesion is needed in social presence because if the aim is to form a collaborative and unified community, as is often the case in higher education, then the formation of group identity and solidarity is crucial for effective

communication and cooperative learning experiences (Garrison, 2009). Social presence with high group cohesion induces more cooperation which consequently leads to a more productive group (Garrison, 2009). Furthermore, Slavin (1996) elaborates that cohesion among students encourages learning as they will assist each other in their studies out of care and support. As mentioned by Forsyth (2014), cohesive groups can deal with and solve conflicts in a sensible way, which is often a necessity for fruitful cooperation.

Further, research showed that a lack of individual accountability can lead to social loafing i.e., the concept that group members do not contribute as much to the goal when it is challenging to identify each member's contribution, but group cohesion can diminish this effect (Johnson & Johnson, 2009). The introduced group agreement could also help in reducing this effect since it is written down and agreed upon on how and what the group members contribute to the project. Research has shown that to stimulate cooperative learning, high social cohesion in the group is needed (Strahm, 2007). Hence, it can be argued that social cohesion will strengthen the effect of the group agreement on cooperation because social cohesion is required for this effect to become apparent. Therefore, it is expected that (**H2**) a high level of social cohesion leads to an increased difference in the perceived level of cooperation between the group that did write a group agreement and the group which did not. This means that, under the condition of high social cohesion, it is assumed that the effect of the first hypothesis is highest. In particular, when social cohesion is high, the effect of the group agreement is higher on the perceived level of cooperation in comparison to a low level of social cohesion (see Figure 1). Investigating the two mentioned hypotheses could have implications for education since the results can provide insight into how to facilitate cooperative learning which is shown to have many positive effects.

Figure 1*Moderation model***Methods****Participants**

The data for this study were collected at two different points in time. All participants were third-year Psychology students at the University of Groningen (UG) working on their bachelor thesis at the moment of data collection. Data from the first group were collected by a previous group of bachelor thesis students in the first semester of the academic year 2021-2022. This participant group did not make use of a group agreement. From now on it will be referred to this group as the no-GA group. Data from the second participant group were collected by the bachelor thesis group in the first semester of the academic year 2022-2023. The students in this cohort were instructed to fill in a group agreement. It will be referred to this group as the GA group.

In the no-GA group ($N = 198$), 70 responses were recorded. All were third-year Psychology students at the UG working on their bachelor thesis at that moment. After cleaning the data 57 could be taken along in the analysis (response rate 28,8%). Within their thesis, students worked in groups of 5-6 members. The sample consisted of 46 female students, 11 male students, and no students who identify as diverse. Their nationalities included Dutch ($N = 26$),

German ($N = 22$), others ($N = 8$), and 1 without disclosure. The mean age was 22.33 years ($Min = 20$, $Max = 28$, $SD = 1.65$).

In the GA group, there were 223 participants ($N = 223$) who all studied Psychology at the UG and were currently writing their bachelor's thesis. 84 responded and after cleaning the data 67 could be taken into the analysis (response rate 37,7%). This sample included 60 female students, 7 male students, and no students who identify as diverse. The age of the participants had a range from 20 to 32 years with a mean age of 22,75 years ($Min = 20$, $Max = 32$, $SD = 2,75$) with nationalities including Dutch ($N = 38$), German ($N = 20$), and others ($N = 9$).

Procedure

Before sending out the survey, the questionnaire was approved by The Ethics Committee of the Faculty of Behavioural and Social Sciences at the UG and the study was perceived appropriate for research. In order to collect responses for the academic year 2022- 2023, an email was written to ask fellow thesis students to fill in the questionnaire and help with the research. This email and link to the questionnaire were sent out by the school secretary to all bachelor students who were working on their thesis at that time. Further attempts to acquire responses included sharing a QR code on social media platforms such as Instagram, handing out flyers in the lectures, and personally contacting fellow students who were writing their thesis at the time. The responses of the GA group were collected from the 10th of November until the 25th of November 2022. This was approximately the midpoint of the projects and the bachelor thesis groups were all engaging in writing their introductions, designing a study, or starting data collection. The procedure for the data collection in 2021 was identical. In both cohorts, a convenience sample was used to collect the data of undergraduate psychology students taking part in the bachelor thesis course at the UG.

When opening the link to the questionnaire, participants were first asked to read through the topic's relevant information and a detailed description of the study. On the first page participants were informed about what was required of them, the possible consequences of taking part in the research, confidentiality, and finally contact information in case of questions or concerns. In order to continue with the questionnaire, the participants had to express their informed consent. At the end of the questionnaire, the participants were asked if they answered truthfully and given the head researcher's contact information for any follow-up questions they might have.

Materials

Questionnaire

The online questionnaire used in this study was created by bachelor thesis students from the Psychology department at the UG in 2021 (Jacobs, 2022). In addition to questions about general information, the questionnaire (see Appendix B) contains nine scales, namely, general information, satisfaction with the learning experience, perceived cooperation, well-being, teaching presence, positive interdependence, individual control, sense of belonging, attitude towards cooperative learning, attitude towards teamwork, and physical presence. The questions for general information regarded demographics such as gender, age, nationality, number of group members, and gender composition of the bachelor thesis group. Three attention checks throughout the questionnaire were included, to check whether the participants were paying attention to the question-and-answer possibilities. For the current study, only the scales of perceived level of cooperation and social cohesion were used.

In order to investigate the effects of the group agreement, six questions or statements were added to the original questionnaire. It was asked whether the group agreement was filled in,

whether it was as a group, and whether any members have not complied with the agreement. Additionally, it was asked whether the participants took the group agreement seriously, whether they thought it was useful, and whether they think they work better together as a group due to the group agreement (see Appendix B). The answers to these questions were “yes” or “no”, or on a 5-point Likert scale (1 = *disagree*; 5 = *agree*).

The dependent variable perceived level of cooperation ($\alpha = .866$) was measured on a 5-point Likert scale (1= *never*; 5= *always*). Here, participants indicated to what extent six statements about cooperation applied to them and their group members. An example of a statement is “*my group members have collaborated simultaneously in the performance of the tasks*”. The scale, including statements, was based on an existing scale, the Questionnaire of Group Responsibility and Cooperation in Learning Teams (CRCG) by León-del-Barco and colleagues (2018). Originally the scale included fourteen items from which six items that related to the dimension of cooperation were used.

Furthermore, the level of social cohesion ($\alpha = .859$) was also measured on a 5-point Likert scale (1= *never*; 5= *always*). Participants were asked to indicate to what extent ten statements about the sense of belonging and social cohesion applied to them. An example of the statement is “*I am treated as a valued member of my bachelor thesis group*”. The items used were all based on an existing workgroup inclusion measure (Chung et al., 2020). However, the questions were adjusted to the setting of the study, namely to ask about the bachelor thesis group (members) and not a workgroup in general.

Group Agreement

The group agreement, which was added to the current study as an intervention, aimed to make the process of cooperative learning more tangible. The content of the group agreement was

derived from a template designed by Carnegie Mellon University (n.d.). The content of the group agreement covered five aspects: goals, cooperation, discussions/meetings, communication, as well as policies and procedures. The goals were related to the goals of the group and the group's achievements. The cooperation focused on working within the group itself, with a focus on when and where group members expected to cooperate and how everyone could contribute to the cooperation. Further, the discussions were about when, how often, and in what way the group expected to meet. The communication aspect concerned the means and frequency of communication among group members. Lastly, policies and procedures refer to rules that could be put in place to achieve goals and expectations. Although it was never stated that filling in the group agreement was compulsory, the students were instructed to discuss and fill it in together in a group meeting either in person or online. The group agreement was completed and handed in by the groups shortly after the start of the bachelor's thesis project. All students were expected to comply with the group agreement.

Results

Reporting on Manipulation

The group agreement is the manipulation in the current study and to be able to interpret the results of the study, questions about the group agreement were added to the questionnaire. All participants of the current study who were not removed through the process of data cleaning, during which participants were excluded when they indicated that they did not fill in the group agreement, did not finish the study or did not fill the study in honestly, filled in the group agreement. Except for one person, all participants filled in the group agreement together with their group members. Questions, where participants had to indicate their agreement to a statement, were measured on a 5-point Likert scale (1 = *disagree*; 5 = *agree*). The participants

took it somewhat seriously to fill in the group agreement ($M = 3.37, SD = 1.20$) but their impression of whether the group agreement helped them to work better as a group does not show a clear pattern ($M = 2.16, SD = 1.08$).

Descriptive Statistics

As can be seen in Table 1, the analysis of the descriptive statistics included the perceived level of cooperation ($M = 3.95, SD = 0.74$) and social cohesion ($M = 4.06, SD = 0.61$). For both variables the descriptive statistics were analyzed, separating the group which did write a group agreement and the group which did not. Additionally, perceived cooperation and social cohesion were moderately positively correlated ($r = .53, p < .001$). When separating the variables between cohorts, the correlation was higher for the GA group ($r = .56, p < .001$) than for the no-GA group ($r = .48, p < .001$).

Table 1

Descriptive Statistics

	Mean	SD	Minimum	Maximum
Cooperation	3.95	0.74	1.83	5.00
Cooperation GA	4.04	0.70	1.83	5.00
Cooperation no GA	3.85	0.78	1.83	5.00
Social Cohesion	4.06	0.61	2.10	5.00
Social Cohesion GA	4.14	0.56	2.60	5.00
Social Cohesion no GA	3.96	0.65	2.10	5.00

Conducted Analysis

To test whether the group agreement affects the perceived level of cooperation, an independent t-test was conducted. The assumption of independent observations holds as well as the homogeneity of variances assumption. The Kolmogorov-Smirnov test of normality was significant ($D(124) = .12, p < .001$), however, this can be due to the fact that this test is sensitive

to large sample sizes. When looking at the Q-Q plot the distribution seems roughly normal and since both groups have a sample size larger than 30, the sample distribution is approximately normal because of the Central Limit Theorem (Agresti, 2018). Hence, the assumptions of the independent t-test are not violated. To test whether social cohesion functions as a moderator, a hierarchical multiple regression analysis was performed, using the SPSS add-on Process by Andrew F. Hayes. Additionally, the assumptions for the regression analysis were checked. The assumptions of independence, homogeneity, and linearity were not violated. Moreover, the assumption of multicollinearity was not violated (VIF score = 1.02) and no influential outliers were found. Throughout the analysis, SPSS version 29 and a p-value of .05 as a significance threshold was used. The results of the analysis can be confidently interpreted because the assumptions for the tests of both hypotheses were checked.

Hypothesis Testing

As can be seen in Table 1, the mean of the scores of cooperation for the group that wrote a group agreement was higher than the means for the group that did not write such an agreement, which is in the expected direction. However, the independent t-test showed that this difference was not significant ($t(122) = -1.43, p > .05$), meaning that no evidence was found for the first hypothesis.

The first model in the hierarchical multiple regression with Group Agreement and Social Cohesion as predictors and Cooperation as a dependent variable was significant ($F(2,121) = 23.61, p < .001, R^2 = .28$). Interestingly, a significant effect of social cohesion on cooperation was found ($t(1,122) = .64, p < .001$). The second model, after the predictors were automatically centered and the interaction term was added, was significant ($F(3,120) = 15.80, p < .001, R^2 = .28$), however, the interaction did not significantly increase the explained variance

($F_{change}(1,120) = .40, p = .527, R^2_{change} = .00$). Hence, no evidence was found for the second hypothesis (see Table 2). Social cohesion seems to add to the model but it did not lead to an increased difference in the perceived level of cooperation between the GA group and the no-GA group.

Table 2
Regression

	B	SE	t	p	R^2	F	Sig. F
Model 1					.28	23.62	< .001
Constant	1.26	.40	3.13	.002			
Cohort	.08	.12	.67	.505			
Social Cohesion	.63	.10	6.67	< .001			
Model 2					.28	15.80	< .001
Constant	3.95	.06	68.50	< .001			
Cohort	.08	.12	.67	.505			
Social Cohesion	.64	.10	.64	<.001			
Cohort*Social Cohesion	.12	.19	.64	.527			

Discussion

The current study aimed to investigate the role of a group agreement in stimulating cooperative learning as well as the effect of social cohesion on that possible relationship. Past research has shown that contracts can stimulate cooperation between group members (Markowitz, 2004). Further, the concept of social cohesion seems to play a large role in cooperative learning (Garrison, 2009; Strahm, 2007).

Group Agreement

Contrary to what was expected, the hypothesis that the group agreement would lead to higher scores of cooperation for the GA group in comparison to the no-GA group brought

forward nonsignificant results. This means that writing a group agreement does not necessarily lead to higher levels of perceived cooperation. It remains the question of whether this type of group agreement does not have an effect on cooperation or whether a group agreement, in general, will simply not have a stimulating effect on cooperation.

Since there is no literature about this exact hypothesis because it has not been researched in this way before (to current knowledge), this hypothesis was formulated after reading literature about the effects of contracts. Consequently, one of the reasons for the nonsignificant result could be that the students did not perceive the group agreement as a contract but more as a task they had to complete, as they did not have to sign it nor was it graded or checked what the groups wrote down exactly. Without the feeling of commitment to the agreements written down in a contract, students might not have had the urge to adhere to this kind of contract (Markovits, 2004) and as a result, did not cooperate more than without such agreement.

Further, the nonsignificant result could be due to the time of measurement. Since the data collection took place approximately in the middle of the bachelor thesis project, this might have been too early. Many groups were still in the early stage of the project and there had not been much time to cooperate and reflect on it. Lastly, maybe the group agreement did not have an effect because other processes might have played a role. According to Le and colleagues (2018), students have problems cooperating in groups because of communication problems which can be due to insufficient collaborative skills. This might be one factor that was not controlled for but might have an impact on the results.

Additionally, putting down in writing how to cooperate might not have stimulated actual cooperation in the groups. Only setting the goals and expectations as a group and how they plan to cooperate did not lead to increased cooperation per se. The questionnaire included a question

about whether the students thought that they worked better together as a group due to the group agreement, however, as the results indicate, many participants seemed to not agree with that statement. Since participants specifically indicated that they did not work better together as a group due to the group agreement they also did not score significantly higher on perceived cooperation than the no-GA group.

Social Cohesion

The second hypothesis predicted a moderation effect, meaning that writing a group agreement was expected to have a different effect on the perceived level of cooperation for different scores on social cohesion. Contrary to the expectation, there was no significant moderation effect. Hence, social cohesion did not highlight a relationship between the group agreement and cooperation which means that the relation between the group agreement and cooperation did not depend on the level of social cohesion. Previous literature has found that cooperation and social cohesion are closely connected (e.g., Garrison, 2009), but this does not seem to set the basis for a moderating effect. Additionally, most group members met for the first time and did not know each other beforehand, therefore, it might take some time for the group members to get to know each other and feel like a group. Hence, a feeling of high social cohesion might only be experienced after working in the group for a longer period, e.g., over two months, which was not the case in the current study.

Although not specifically hypothesized, the analysis of the data resulted in a significant effect of social cohesion on the perceived level of cooperation. This could mean that although social cohesion did not moderate the relationship between the group agreement and cooperation, it still seems to have an impact on cooperation. This conclusion is supported by literature, as social cohesion is needed for cooperative learning (e.g., Garrison, 2009). Considering this

finding, a different group agreement aimed towards stimulating social cohesion might be an alternative option to stimulate the cooperation of students (Croy & Eva, 2018). This could be done through, for example, more team-building exercises and other tasks that might help groups to establish cohesion (e.g., Bruner & Spink, 2010; Newin et al., 2008). Therefore, before the group agreement is written in the future, team-building exercises should be implemented to help the students to get to know each other better and foster social cohesion.

Strengths and Limitations

This study contributes to the large body of research surrounding the topic of cooperative learning. Although many benefits are already extensively examined, studies like the current one are further needed to investigate interventions to stimulate cooperation to achieve all those benefits. The setting of the current study is almost ideal to replicate and compare to the study that has been conducted the year before. Although different students are working on their bachelor thesis and some topics might be different, the main structure and conditions of the study are the same i.e., the same questionnaire was used and the descriptives of participants are almost identical. Therefore, an appropriate setting for further replications was created to test adjusted or different interventions.

Considering the results of the study and their interpretations, some limitations have to be remarked. As mentioned earlier, no significant effect was found for the two hypotheses. This could be due to the structure and implementation of the group agreement. It might be that the group agreement was formulated too loosely, so the students did not feel obliged to adhere to what they agreed to. Moreover, due to the use of a convenience sample, the results are only generalizable to a limited population. However, with replications in different areas of study, age groups, and projects other than bachelor theses, the results could be generalized to a wider range

of students. Participants of the study were, without exception, psychology students who are probably in general more aware of interpersonal experiences within groups and cooperation since this is part of their study (e.g., Laster 2019). Although one could expect that this would lead to higher experienced cooperation, it did not have this effect in this study. It could be that the awareness of concepts like social cohesion and cooperative learning increased the personal threshold for perceived cooperation which would in turn lead to a smaller increase in perceived cooperation. However, this can just be speculated and would require further research with students from different fields of study to elaborate on this.

Implications and Suggestions for Further Research

The findings of the current study have important implications. Although not significant, the results show that there seems to be a small difference in the perceived cooperation in the expected direction due to the group agreement. Therefore, an adjusted group agreement that is more formal and similar to a contract should be investigated to see whether it makes a difference. Additionally, the findings should be considered by future studies when investigating interventions to stimulate cooperative learning, since the group agreement, as it was used in this study, does not seem to have an increasing effect on cooperation among students. The results of this study are especially relevant in the university context. Since the possibilities for cooperative learning are often more limited at university than at the elementary or highschool level (e.g., León-del-Barco et al., 2018), it is important to use the opportunities in a meaningful way. Therefore, implementing a working intervention to stimulate cooperation could help in bringing this forward. Although the implementation of the group agreement has not achieved an inclining degree of cooperation, it might have the potential to, once it is further investigated and possibly adjusted.

This study provides no support for the idea that a group agreement can enhance cooperation among university students. However, it would be of interest to study the effect of an (adjusted) group agreement in a different study setup. The group agreement and organization of the study did not leave space for the last phase in which cooperative learning takes place, namely group processing, evaluation, and reflection on past group work (Johnson & Johnson, 2009). Hence, the outcome of the study might be different when measuring at the end of the project, since many groups had not yet written anything, especially not as a group, at the time of the data collection. Therefore, the results might look different after a second group assignment in which the group agreement is revisited and discussed in the group what worked and what did not. Through this, students might be more aware of how much cooperation they experience than without reflection (e.g., Johnson & Johnson, 2009). Hence, it would be interesting to further investigate the effect of the group agreement not only with a measurement in the middle of the bachelor thesis project but also at the end when all groups have finished their work. Furthermore, the group agreement should be investigated after adapting it in a way that is more explicit and enforced. Namely, the establishment of more concrete plans and revisiting them in addition to making it a mandatory assignment could possibly improve it. Moreover, investigating whether the group agreement has an impact on different aspects of cooperative learning, for example on positive interdependence or individual accountability could shed a light on other aspects that can be enhanced through a group agreement.

Conclusion

This study showed that the group agreement, as it was used in the current study, was not an appropriate tool to stimulate cooperative learning. Additionally, social cohesion did not moderate the relationship between the group agreement and cooperation. However, when

looking at cooperative learning, social cohesion seems to have an important role. Research has shown the many benefits cooperative learning has for students. Hence, future research should investigate possible interventions to stimulate cooperative learning. Although no effect was found in the current study, the group agreement seems promising. Changing the group agreement into a mandatory contract and combining this with more long-term or longitudinal measures could be one way to further stimulate and investigate cooperative learning.

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Appendix A

Group Agreement

Group nr: _____

Date: _____

We share the following goals and expectations, and agree to these policies, procedures, and consequences.

GOALS: What are our team goals for this project? What do we want to accomplish by working together as a group?

COOPERATION: How do you prefer to work together as a group? How and on what kind of tasks do you want to cooperate? How can everyone contribute to this?

MEETINGS: How frequent do we expect to meet as a group without our supervisor, how do we organize these meetings (agenda setting, note taking etc)

COMMUNICATION: How and how frequent do we expect to communicate (e.g. use of Whatsapp group, Google drive, email)

POLICIES & PROCEDURES: What rules can we agree on to help us meet our goals and expectations?

Appendix B

Part of the questionnaire relevant to this paper

Perceived collaboration/cooperation

Q9

Please indicate to what extent the following statements apply to your group members

1. My group members have encouraged the others.
2. My group members have positively solved the conflicts and problems in the group.
3. My group members have accepted criticism and suggestions positively.
4. My group members have acted with solidarity and a high degree of cohesion.
5. My group members have collaborated simultaneously in the performance of the tasks.
6. My group members have cooperated with each other.

(1 = never, 2 = sometimes, 3 = about half of the time, 4 = most of the time-, 5 = always)

Sense of Belonging / Group cohesion

Q11

Please indicate to what extent the following statements apply to you

1. I don't feel like I belong in my bachelor thesis group
2. I feel that people support me in my group
3. I can bring aspects of myself to this group that others in the group don't have in common with me
4. People in my group listen to me even when my views are dissimilar
5. Whilst in meetings, I am comfortable expressing opinions that diverge from my group

Q12

Please indicate to what extent the following statements apply to you

6. I am treated as a valued member of my bachelor thesis group (1)
7. I belong in my bachelor thesis group (2)
8. I am connected to my bachelor thesis group (3)
9. I believe that my bachelor thesis group is where I am meant to be (4)
10. I feel that people really care about me in my bachelor thesis group (5)

(1 = Disagree, 2 =somewhat disagree, 3 = neither agree nor disagree, 4 = somewhat agree, 5 = agree)

Questions and Statements about Group Agreement

1. Did you fill in the group agreement?
2. Did you fill in the agreement together with your other group members?
3. I took filling in the contract very seriously
4. I think the contract is useful
5. I think we are working better together as a group due to the group agreement
6. Are there any group members who have not complied with the contract?

The answers to these questions were “yes” or “no”, or on a 5-point Likert scale (1 = disagree, 2 = somewhat disagree, 3 = neither agree nor disagree, 4 = somewhat agree, 5 = agree).