



The Impact of Gratitude and Gender on Cooperation

Chloe O'Connor

N00182836

Supervisor: Hannah Barton

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Declaration

I declare that this submission is my own work. Where I have read, consulted, and used the work of others I have acknowledged this in text.

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Abstract

Abstract

Gratitude has been reported to have a positive impact on prosocial behaviour, such as cooperation. But within research regarding differences in gender, both gratitude and cooperation have produced mixed results. The objective of the current study is to investigate whether gratitude and gender have an impact on cooperation, employing the Cooperative Strategy Subscale as a means of measuring cooperation. A quantitative 2x2 factorial between-within groups, online experimental design among 143 participants, with a mean age of 21.78 years, was employed. A two-way ANOVA was conducted to analyse the data. The findings reported that there were no significant differences in participants cooperation scores based on either having a gratitude intervention or not, or gender. The findings with regards to gratitude and cooperation contradicts previous literature, such as DeStano et al. (2010). Whereas the findings of the gender and cooperation analysis contribute to the consensus that gender does not have an impact on cooperation within the mix results of current literature findings. The results of the present study were discussed further with regards to previous literature. The implications, limitations and strengths were defined along with suggestions for future research.

Keywords: Gratitude, Gender, Cooperation

1. Introduction

Seligman and Csikszentmihalyi (2000) produced a piece for the *American Psychologist* devoted to the importance of positive psychology, stating “psychologists know very little about how normal people flourish under more benign conditions” (p. 5). Through investigating people’s virtues several topics, such as gratitude and mindfulness, have emerged as key concepts to the progression of the positive psychology movement (Lambert et al., 2009). Gratitude is defined as being grateful for all the gifts in one’s life, such as the presence of loved ones (Lambert et al., 2009). Traditionally gratitude has been studied through having participants frequently engage in brief activities intended to cultivate a sense of appreciation (Davis et al., 2016). These interventions were thought to be the most effective way to promote gratitude within individuals. Further findings have reported mixed results (Cregg & Cheavens, 2021; Davis et al., 2016; Dickens, 2017) which beckon further exploration of the topic.

Despite the uncertainty of the effectiveness of gratitude interventions, Ma et al. (2017) reported a positive link between prosociality and gratitude, with significant effects for economic games. Economic games, such as the Prisoner’s Dilemma, have been central to the investigation of the topic of cooperation (Molina et al., 2013). But Molina et al. (2013) reported mixed results regarding gender differences when these games are utilised. Though theory regarding gender and cooperation, such as the greater male variability hypothesis, postulate that gender should have an impact on people’s cooperation (Thöni et al., 2021). Therefore, this current study will employ a survey to measure cooperation among participants, specifically the Cooperation Strategy Subscale of the Cooperative/ Competitive Strategy Scale (Tang, 1999). This change in measurement of cooperation also intends to add support for the value of gratitude interventions, by showing that despite a change in the means of measurement a positive impact regarding prosocial behaviour can still be observed.

1.1 Gratitude

When experiencing gratitude, gratefulness for all of the good in a person’s life comes with the acknowledgement that the origins of this goodness can be found outside the self (Emmons & Stern 2013). It can be stimulated by another person, when they give any form of assistance, it can also reside from non-interpersonal outlets,

such as feeling appreciative for the warmth of the sun (Wood et al. 2010). Theoretically, the consensus is that gratitude is distinct from gladness or appreciation, as it entails a social aspect of acknowledging the part of benefactors (Carr, 2013; Gulliford et al., 2013). Gratitude exists as both a trait and a state (Rosenberg, 1998). As a trait, it's distinguished by individual differences in the typical rate in which moods, and affects are felt daily (Wood et al., 2008). As a state, gratitude involves longer duration moods which potentially have associated thought and action tendencies (Wood et al., 2008). Davis et al. (2016) suggests that brief gratitude interventions induce state gratitude.

1.2 Gratitude Interventions

Gratitude interventions are employed by researchers for several reasons, Davis et al. (2016) reports that participants appear to enjoy them, and they are easy to understand and complete. Most interventions given to participants are intrapersonal, they require individuals to reflect on the good things in life (Cregg & Cheavens, 2021; Davis et al., 2016). This present study employed an intrapersonal gratitude intervention, getting participants to reflect on a person they are grateful for. Cregg and Cheavens (2021), Davis et al. (2016), Dickens (2017) and Wood et al. (2010) have all reported the efficacy of gratitude interventions may not be as promising as previously thought. Cregg and Cheavens (2021) conducted the more recent analysis of gratitude interventions, focusing on anxiety and depressive symptoms, it included more papers than Davis et al. (2016) and Dickens (2017) improving on previous shortcomings. For Davis et al. (2016), the shortcoming was combining different measures, such as anxiety and marital satisfaction, tainting the conclusions drawn from their anxiety analysis (Cregg & Cheavens, 2021). As for Dickens (2017), excluding studies with multiple interventions and studies that lasted 3 days or less were limitations that Cregg and Cheavens (2021) analysis overcame.

These shortcomings were amended in the meta-analysis by Cregg and Cheavens (2021) through only including studies with neutral and waitlist comparison groups and including type of intervention and duration of study as moderators. With these changes Cregg and Cheavens (2021) found gratitude interventions show slight effectiveness for reducing symptoms of anxiety and depression. Though the anxiety

analysis was only taken from a sample of 5 studies (Cregg & Cheavens, 2021). In spite of the limitations of the different meta-analyses, there is a consensus that gratitude interventions may function through the placebo effect (Cregg & Cheavens, 2021; Davis et al., 2016; Dickens, 2017). Building on the suggestion by Davis et al. (2016), that brief gratitude interventions may encourage gratitude, the present study employs a brief 5-minute intervention to induce gratitude.

1.3 Gratitude and Prosocial Behaviour

Despite the argued inflated value of gratitude interventions, Dickens (2017) reported that when compared with a neutral condition, gratitude interventions have an impact on prosocial behaviour. This lends support towards the present study to further investigate gratitude interventions, regardless of past contradictory studies (Cregg & Cheavens, 2021). Ma et al. (2017) define prosociality as an array of behaviours, intentions or efforts intended to protect, promote, or benefit the wellbeing of another individual, group, or organisation. Through a meta-analytic review of gratitude and prosociality Ma et al. (2017) reported a statistically significant positive correlation between the gratitude and prosociality. This clear link between gratitude and prosociality is clearer in cases where state gratitude is induced (Ma et al., 2017) and so this present study promotes state gratitude through a brief intervention. Though due to the inclusion of both experimental manipulations and cross-sectional assessments Ma et al. (2017) could not make a definitive statement on causality. Theoretically, gratitude is considered a moral affect via three moral functions (barometer, motivator, and reinforcer) (McCullough et al., 2001). Through these functions it is thought gratitude can promote prosocial behaviour (Ma et al., 2017). In the context of this study, it aims to highlight to participants that they have been helped in the past by reflecting on someone they're grateful for, which will motivate them to act more prosocially when completing the survey and therefore fulfilling the barometer and motivator functions under which gratitude is hypothesised to promote prosociality (Ma et al., 2017; McCullough et al., 2001).

1.4 Gratitude and Cooperation

From the definition of prosociality given by Ma et al. (2017), cooperation is considered a prosocial behaviour as it is people working together to benefit not only themselves but the others in the group. DeSteno et al. (2010) reports gratitude can support the progress and maintenance of cooperative relationships. In terms of economic behaviour, gratitude promotes cooperation over selfish behaviour (DeSteno et al., 2010). Within DeSteno et al. (2010) study on emotion-guided cooperation in economic exchange, participants were offered course credit which stains the authenticity of results. However, participants were also awarded different amounts of money depending on how cooperatively they acted, which increased the reality of the laboratory experiment (DeSteno et al., 2010). Kate and DeSteno (2020) reported that gratitude buffers selfish behaviour in scarce resource allocation, raising the idea gratitude inhibits selfish behaviour rather than increasing cooperative behaviour. Within gift exchange research, Balconi et al., (2019) found perceived gratitude did have a reinforcing effect on cooperation. Balconi et al. (2019, DeSteno et al. (2010), and Kates and DeStano (2020) showed gratitude does have a positive influence on cooperation in terms of gift giving and economic exchange. The present study incorporates Tang's (1999) Cooperative strategy subscale from the Cooperative/Competitive strategy scale to give a different perspective on how gratitude and cooperation are examined. By incorporating this different means of measurement it may emphasise the value of gratitude interventions against previous contradictions (Cregg & Cheavens, 2021). Potentially highlighting the robustness gratitude interventions may have against different measurements of cooperation, with regards to the current study and studies that have employed gifting and economic exchange (Balconi et al., 2019; DeSteno et al., 2010; Kates & DeStano, 2020).

1.5 Gender and Gratitude

Theoretically gender roles may contribute to gender differences in expressing gratitude (Kashdan et al., 2009). Due to stereotypical gender roles, men may avoid expressing gratitude and instead adopt an avoidance orientation to conceal weakness and vulnerability (Kashdan et al., 2009). With differences in the experience and expression of emotions woman may reap more of the benefits of gratitude (Kashdan

et al., 2009). Potentially due to woman's ability to recognise acts of kindness by others and express thanks, reinforcing the likelihood of these acts repeating (Kashdan et al., 2009). Kashdan et al. (2009) reported women have a more grateful disposition and derive larger benefits from the expression and experience of gratitude compared to men. Though Kashdan et al. (2009) had small to moderate effect sizes for gender differences. Kashdan et al. (2009) argued this was still important given the strength of gratitude interventions, but it is argued gratitude interventions are not as potent as thought (Cregg & Cheavens, 2021). Guse et al. (2019) reported adolescent girls exhibited higher levels of both state and trait gratitude in comparison with boys. Though both Dickens (2017) and Watkins et al. (2003) found no significant differences in gender based on gratitude interventions. With the uncertainty of gender differences in gratitude interventions this study aims to add clarity to the existing body of research.

1.6 Gender and Cooperation

From an evolutionary perspective there is a gender variance in cooperation, which can be explained through the greater male variability hypothesis which states though females may be more cooperative in general, men are more likely to act selfish or altruistic due to differentiation meant survival (Thöni et al., 2021). Molina et al. (2013) reported mixed results on gender differences in studies that employ the Prisoners dilemma game as a means of measuring cooperation. Therefore, this present study is employing the Cooperation strategy subscale (Tang, 1999) as a different method of measuring cooperation. Molina et al. (2013) found there was a gender difference in the level of cooperation and argued it may be attributed to genetic factors. Dorrough and Glöckner (2019) support the claim that there is a gender difference in cooperation, but contrary to Thöni et al. (2021), found men behaved more cooperatively in an incentivised Prisoner's Dilemma game. This study will explore the effect gender may have on cooperation and add to the existing body of literature in an effort to clear the confusion around the topic.

1.7 Current Study

The current study aims to investigate the impact that gratitude and gender may have on cooperation. It will include a more inclusive range of gender for participants, by including options of transgender male, transgender female, genderqueer, and other (Hyde et al., 2019). The rationale behind this current study is that the topic of gender and cooperation has yielded conflicting results when social dilemmas and economic games are employed (Molina et al., 2013), if the measurement of cooperation is changed to a survey, Tang's (1999) Cooperative strategy subscale, it may produce results that are concise with the theory on the topic, such as the greater male variability hypothesis (Thöni et al., 2021). With regards to gratitude and cooperation the rationale of the present study is that gratitude has been shown to promote cooperation in economic exchange and gift giving and have a positive impact on prosocial behaviour (Balconi et al., 2019; Kates & DeStano, 2020; DeStano et al., 2010; Ma et al., 2017) by changing how cooperation is measured to a survey it may support the value of gratitude interventions if similar results from these studies are obtained in this present study. With this rationale in mind the research questions are as follows.

RQ 1: Does a gratitude intervention have an impact on cooperation?

H1: There will be a difference in the scores of the Cooperation Strategy Subscale based on a gratitude intervention.

RQ 2: Does gender have an impact on cooperation, regardless of the inclusion of a gratitude intervention?

H2: There will be a difference in the scores of the Cooperation Strategy Subscale based on gender, regardless of the inclusion of a gratitude intervention.

2. Method

2.1 Design

This present study employed a quantitative 2x2 factorial between-within groups, online experimental design. The independent variables of the study were gender, at two levels (males, females) and gratitude intervention, which consisted of a reflective exercise, at two levels (intervention, no intervention). The dependent variable in this study was the scores from the Cooperative strategy subset scale of the Cooperative/ Competitive strategy scale (CCSS) (Tang, 1999).

2.2 Participants

178 participants were recruited using convenience and snowball sampling via the distribution of an online survey on the social media network Instagram and via individual contact with students attending Dún Laoghaire Institute of Art, Design and Technology (IADT). Thirty were excluded due to incomplete filling out of the survey. Four were excluded based on gender identity, as there was not enough to be included in the analysis and 1 participant was excluded based on their age, not being between 18 and 55 years. Of the remaining 143, 92 were female (64.34%), 51 were male (35.66%), and the mean age was 21.78 years old (SD 4.639).

2.3 Materials

Included in the online survey, created on Qualtrics, was an Information sheet (Appendix A) that informed participants of the purpose of the research, what was required to take part in the study, and the privacy information surrounding the data that would be collected. A consent form (Appendix B) followed which was used to gain fully informed consent from the participants. A demographic page was presented to participants that asked for a unique ID, the gender participants identified with most and participants age in years (Appendix C, Appendix D). For the gratitude intervention participants were asked to think about a person they were grateful for and were given prompts to think or write about this person (Appendix F). A debrief sheet was presented at the end of the survey which gave the participants the contact details of the researcher and supervisor and thanked them for partaking in the study (Appendix J). If a participant could not consent to all that was asked the next page

was a brief information sheet where the researcher thanked participants for the interest in partaking in the study but due to certain responses the participant could not continue due to ethical violations of the DTEPC (Appendix I). To advertise the study several posters were created to be shown to students attending IADT and to be posted on Instagram stories (Appendix L, Appendix M).

2.3.1 The Cooperation/ competition strategy scale

The CCSS measured attitudes toward success and toward cooperative and competitive success strategies (Simmons et al., 1987). The survey consisted of 19 statements, 8 for the cooperative strategy subscale and 11 for the competition strategy subscale (Tang, 1999). An example of a statement included in the survey was ‘To succeed, one must cooperate with others.’. Using a 5-point Likert scale ranging from Always to Never, participants were asked to what extent they believed the statements were true.

For this study, the cooperative strategy subscale was used (Appendix G). It consists of 8 statements relating to the topic of cooperation. The scores of the statements were calculated and the total number indicated participants attitudes toward use of cooperative success strategies. Tang (1999) reported a reliability coefficient of .75 for the cooperative strategy subscale. In the current study the Cronbach’s alpha was .751 for the cooperative strategy subscale, meaning reliability was observed (Appendix Q).

2.4 Ethics

The current study was carried out in accordance with the ethical guidelines of the Psychological Society of Ireland (PSI). The participants of the study were given anonymity, confidentiality, and a right to withdraw from the study up until the 6th of March 2022 using the unique code each one created at the beginning of the survey (Appendix C) (“Code of Ethic| PSI”, 2020). The current research had been ethically approved by the Department of Technology and Psychology Ethics Committee (DTPEC) and was classed as an amber route project (Appendix O).

2.5 Pilot Study

A pilot study was carried out prior to the experiment (N=5). This was to highlight any flaws that existed unbeknownst to the researcher. Pilot study participants commented on the length of the information sheet, and not knowing when 5 minutes had past for the gratitude intervention. The researcher reviewed this feedback and spread the information sheet over two pages and included a timer visible to participants for the gratitude intervention.

2.6 Procedure

Participants accessed the Qualtrics experiment via a link or QR code. All materials used in the experiment were included in the link and the QR code. Those interested in taking part in the survey clicked on the link, or scanned the QR code using a mobile phone, and were brought to the information page to read. Then were asked to read and fill out a tick consent form.

If participants did not consent to all parts of the consent form, participants were unable to take part and were automatically brought to a brief page explaining why partaking could not continue. This finished off the survey prematurely for those who did not agree with all aspects of the consent page.

Having agreed to all sections of the consent form they were then asked to generate an identifiable code using their initials and the last two digits of their phone number. They were then asked general demographic questions about gender and age before moving onto either the gratitude intervention or the cooperation strategy subset scale. Using the design features of Qualtrics, participants were randomly split into the two gratitude groups automatically as they moved from the demographics page to the next.

The gratitude intervention page included a 5-minute countdown clock to help participants keep track of the time spent on the exercise. Once both groups had completed the subscale, participants were asked if the data collected could still be included in the research analyses. After that question participants were brought to the

debrief section of the study where the contact information of the researcher and supervisor was provided, along with some supports to those that may have been affected by the study. All participants were then thanked for their participation and contribution to the research. Every survey was given a 4-hour period; if not completed within the four hours it was marked as uncompleted. Participants were also allowed to go back through the survey, before completion, to allow for a change in response.

3. Results

3.1 Overview of results

The current study investigated the two hypotheses by conducting a two-way analysis of variance (ANOVA). IBM SPSS Statistics (Version 27) was used to perform the analysis of the current study. The independent variables were gratitude intervention ((GI) k=2; Intervention, No Intervention) and gender (k=2; Male, Female). The dependent variable of the study was the scores from the Cooperative Strategy subscale (CSS). The two-way ANOVA was used to explore the impact GI (Intervention, No Intervention) and gender (Male, Female) on the scores from the CSS (See Appendix S for the SPSS output).

Initial analyses were conducted to verify the assumptions of the two-way ANOVA. The homogeneity of variance was violated for the GI variable ($p = .017$). The assumption of normality was violated in both variables. However, Pallant (2003) reports that larger ANOVA samples, with over 30 participants, are robust enough to withstand violations of normality. Therefore, with a sample size of 143 participants, and more than 30 participants in each group (Appendix S), the study was robust enough for the analysis to continue (Pallant, 2003).

3.2 Analysis 1: Gratitude Intervention and Cooperation Strategy

3.2.1 Descriptive statistics

In Table 1 below, the data collected for analysis one is summarised. The n values, mean, and standard deviation (SD) for each group (Intervention, No Intervention) are presented.

Table 1

Summary of CSS scores (M, SD, and n-value) based on whether a gratitude intervention occurred or not.

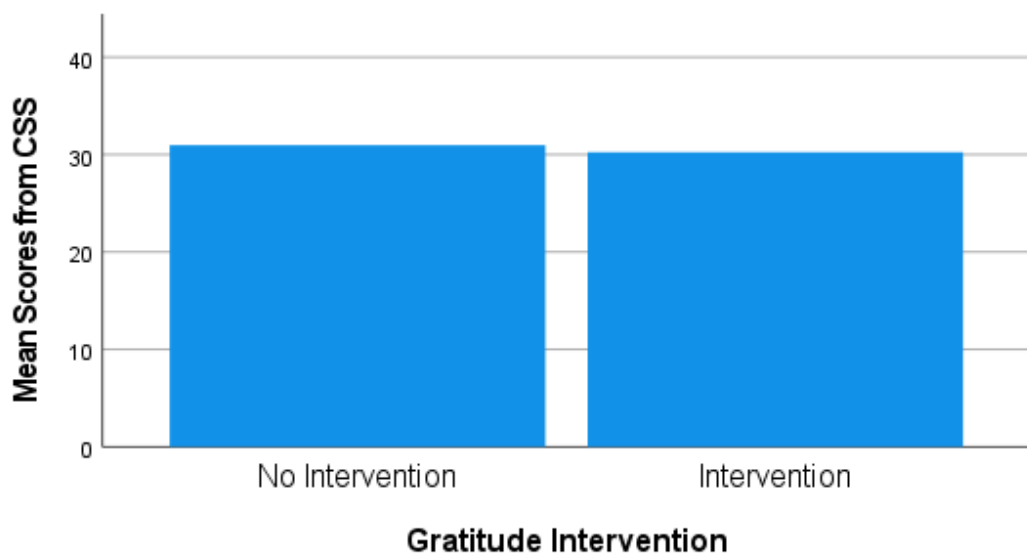
Cohort	N	M	SD
Intervention	66	30.26	3.818
No Intervention	77	30.97	5.163

3.2.2 Inferential statistics

Hypothesis 1 proposed there would be a difference on participants CSS scores based on whether there was a gratitude intervention or not. A two-way ANOVA was carried out and revealed that hypothesis one was rejected ($F(1,139) = .759, p = .385$). There appears to be no difference in participants CSS scores based on having a gratitude intervention or not.

Figure 1

Comparison of participants' mean CSS scores between gratitude intervention conditions.



Note. The mean scores from the Cooperative Strategy Subscale from each Gratitude Intervention are shown.

3.3 Analysis 2: Gender and Cooperation Strategy

3.3.1 Descriptive statistics

The data collected for analysis 2 is presented below. The n values, mean scores, and standard deviation (SD) for each group of gender (Male, Female) are presented.

Table 2

Summary of CSS scores (M, SD, and n-value) based on gender.

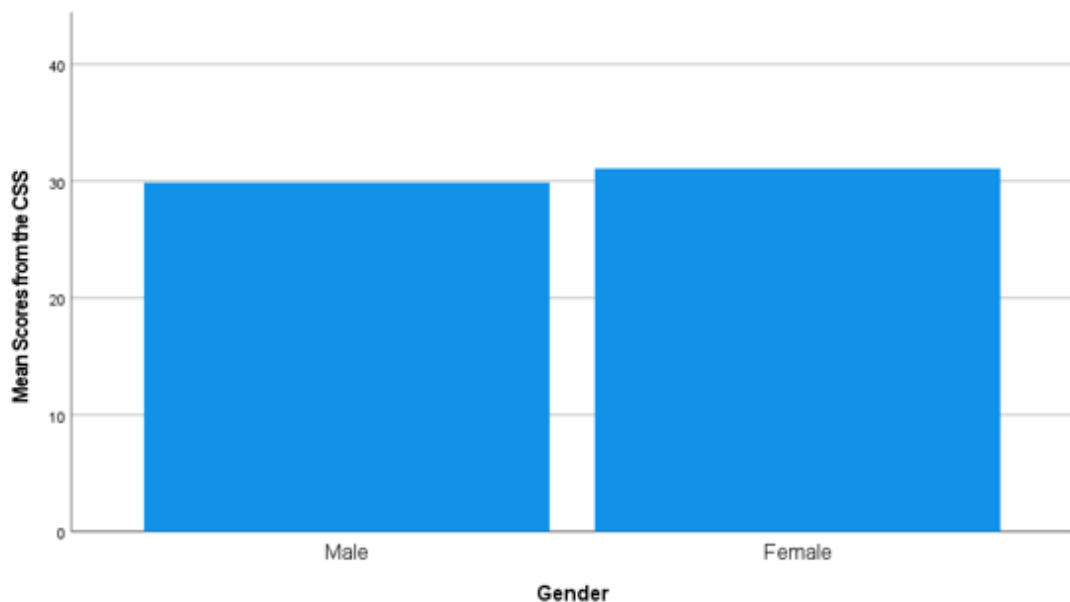
Gender	N	M	SD
Male	51	29.86	4.682
Female	92	31.08	4.341

3.3.2 Inferential statistics

Hypothesis 2 predicted there would be a difference on participants CSS scores based on gender. A two-way ANOVA was carried out and revealed that hypothesis two was rejected ($F(1,139) = 2.422, p = .122$). There appears to be no difference in participants CSS scores based on gender.

Figure 2

Comparison of participants' mean CSS scores across gender.



Note. The mean scores from the Cooperative Strategy Subscale from each gender included in the analysis are shown.

4. Discussion

4.1 Overview of Findings

Using Tang's (1999) Cooperative strategy subscale from the Cooperative/Competition strategy scale, the objective of this current study was to investigate the impact that gratitude and gender may have on cooperation. Gratitude was induced through use of a 5-minute gratitude intervention, based on the suggestion by Davis et al.'s (2016) meta-analysis on gratitude interventions. While gender information was collected during the initial demographic questioning. The main findings from the current study are as follows.

Hypothesis 1 was not supported, it stated there would be a difference in the scores of the cooperation strategy subscale based on a gratitude intervention. This result contradicts the findings of the previous research (Balconi et al., 2019; DeSteno et al., 2010; Kate & DeSteno, 2020), which reported that gratitude does promote cooperative behaviour.

Hypothesis 2, which stated that there would be a difference in the scores of the cooperation strategy subset scale, regardless of the inclusion of a gratitude intervention, based on gender, was also not supported. This result is dissimilar to the findings of Dorrough and Glöckner (2019), and the greater male variability hypothesis (Thöni et al., 2021). But coincides with the findings from Dickens (2017) and Watkins et al. (2003) that gender does not have an impact on gratitude.

4.2 Discussion of findings

The findings with regards to Hypothesis 1 in which there was no difference in the scores from the cooperation strategy subscale based on a gratitude intervention contrasts not only with the predictions of current research on the topic of gratitude and cooperation (DeSteno et al., 2010; Kate & DeSteno, 2020; Balconi et al., 2019), but with the theoretical predictions as well. Under the moral motivator account, the analysis was expected to produce significant results as the gratitude induced in this study was thought to function as a barometer and motivator (Ma et al., 2017; McCullough et al., 2008; McCullough & Tsang, 2004). This constituted two of the three moral functions from which the moral motivator account functions through (Ma et al., 2017; McCullough et al., 2008; McCullough & Tsang, 2004).

Though the results may be explained through the effectiveness of gratitude interventions. Cregg and Cheavens (2021), Davis et al. (2016) and Dickens (2017) agreed that the effectiveness of gratitude interventions had been exaggerated and at best may function through a placebo effect. As Dickens' (2017) meta-analysis excluded studies that lasted three days or less it could be argued that the intervention in the current study was too small to function as a placebo to elicit a state of gratitude. Though through Cregg and Cheavens (2021) inclusion of the length of intervention as a moderator it showed that the length had insignificant impact on the effectiveness of once off interventions.

As for there being no difference in the scores of the cooperation strategy subscale, regardless of the inclusion of a gratitude intervention, based on gender, it lends support for the research that reports gender has no effect on gratitude (Dickens, 2017; Watkins et al., 2003). Though theoretically, as a result of gender roles, women should have performed better having completed a gratitude intervention than men who completed a gratitude intervention (Kashdan et al., 2009). Which was supported by the findings of Guse et al. (2019) who reported that adolescent girls show greater levels of state gratitude, state gratitude being the kind of gratitude induced in this study.

Theoretically it was also predicted that women would act more cooperatively in general, from the greater male variability hypothesis (Thöni et al., 2021). Though Molina et al. (2013) showed that in reality the results regarding gender and cooperation are mixed. Contrary to the greater male variability hypothesis, Dorrough and Glöckner (2019) found that men performed more cooperatively than woman. Both Molina et al. (2013) and Dorrough and Glöckner (2019) investigated cooperation through use of the Prisoners Dilemma game. Regardless the current study found no difference in cooperation scores based on gender and only adds to the mix of results on the topic rather than producing clarification.

Having discussed the findings of this present study with reference to current literature, the strengths and limitations will now be considered.

4.3 Strengths and Limitations of Study

One strength of the research that was conducted in this study was the exploration of a new method to measure cooperation in participants. Though Balconi et al. (2019), Kates and DeStano (2020), and DeSteno et al. (2010) showed that gratitude can have an impact on cooperation, through economic games and resource allocation, when gender was regarded as an independent variable the results were mixed (Molina et al., 2013). By introducing a new method of measurement, it can add a new perspective to previous findings, whether it lends support or hypothetically undermine it. If the topic of cooperation can be accurately measured in multiple ways and produce similar results in each examination researchers can produce a more robust understanding of the topic.

Another strength of this study was the investigation into a topic with little previous research. Though cooperation is a widely studied topic (DeSteno et al., 2010), the effect gratitude may have on cooperation is only a newly emerging area (Balconi et al., 2019; Kates & DeSteno, 2020; DeSteno et al., 2010). Though this study's findings contradict previous research, which shows support for gratitude having a positive impact on cooperation (Balconi et al., 2019; Kates & DeSteno, 2020; DeSteno et al., 2010). The results from the current study add to the growing body of research, as an indicator of where further research is required in the area of gratitude and cooperation.

As there were strengths to the current study there were also limitations. The inclusion of only Male and Female in the analysis, despite investigating gender was also a limitation. Gender was initially divided into six categories (Male, Female, Transgender Male, Transgender Female, Genderqueer, and Other (to specify)), based off of the recommendation of Hyde et al.'s (2019) article for gender inclusivity. Due to lack of data collected resulting in insufficient data samples sizes in certain categories, only Male and Female were included in the analysis. This limitation also extends to the unequal distribution of males and females. Despite the attempt to gather equal sample sizes there were 92 females while only 52 males involved in the data analysis.

Another limitation of the present study is its applicability to the general population. With a mean age of 21.8 years the results of the study could not be inferred for the wider population. The lack of range in the age of participants can be regarded as a side effect of the convenience and snowball sampling methods used in the research.

4.4 Suggestions for future research

As a result of the present study, future researchers interested in the area of gratitude, gender and cooperation may now have some new direction, with the introduction of a new method of measuring cooperation to explore. Future studies will benefit from a large sample size that is evenly dispersed amongst conditions.

As a limitation of this current study, the inclusion of a more varied age range in future research will also be a benefit. Not only for the increased applicability to the general population but another factor that could be investigated. From Cregg & Cheavens's (2021) meta-analysis on gratitude interventions, age appeared to have no effect but only four studies had a sample mean of forty years old or above. By coding age into three categories, children, college age and adult, Dickens (2017) reported that adults displayed bigger differences between gratitude and neutral conditions when compared to the two other categories. Suggesting that college students may be less interested or familiar with the practice of gratitude (Dickens, 2017). This variation in how well gratitude is received among people in various stages of life may impact how well gratitude can impact cooperation.

Another area for future research to explore is the efficacy of the Cooperation strategy subscale (Tang, 1999) in measuring cooperation. This study was employed as a new way to investigate cooperation and to investigate the impact of having a different perspective on the means of measuring cooperation, with regards to gratitude interventions. At the time of writing, this study appeared to be the first to utilize this kind of assessment in the area of gratitude, gender and cooperation. Further investigation will be required to determine the value measuring cooperative strategies may have to the research area of the impact gratitude and gender may have on cooperation.

4.5 Conclusion

In conclusion, the findings from the present study imply that gratitude and gender do not have an impact on cooperation. It brings into question the previous findings from studies (Balconi et al., 2019; Kates & DeSteno, 2020; DeSteno et al., 2010) that investigated gratitude and its effect on cooperation. Though this may be attributed to the new method of measuring cooperation, Tang's (1999) Cooperative Strategy Subscale, used in this study. The use of a survey to measure cooperation brought a different perspective towards the area of gender and cooperation which is generally investigated through economic games and resource allocation (Balconi et al., 2019; Kates & DeSteno, 2020; DeSteno et al., 2010). The present study acts as a steppingstone for future research in the area to further explore the efficacy of the Cooperation strategy subscale (Tang, 1999) in measuring cooperation and the impact that age may have on gratitude and cooperation.

5. References

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6. Appendices

6.1 Appendix A - Information sheet

Working title of project: The impact of a Gratitude Intervention on Gender and Cooperation.

You are being invited to take part in the research The Impact of a Gratitude Intervention on Gender and Cooperation. This project is being undertaken by Chloe O'Connor for her major research project as part of the BSc in Applied Psychology, IADT. Before you decide whether you wish to take part, it is important for you to understand why this research is being done and what it will involve. Please take time to read this information carefully. If there is anything that is unclear or if you would like more information please ask, the researchers contact details are provided at the bottom of this information sheet.

Thank you for reading this.

What is the purpose of the project?

The interest in gratitude and its potential benefits has continued to increase over recent years. Practicing gratitude for personal benefit is something that is being promoted constantly by self-help media. Yet current psychological research has produced mixed results on how beneficial practising gratitude actually is. This research aims to explore if practicing gratitude can have an impact on cooperation and if any gender differences exist.

What is involved?

If you choose to participate in the study, you will be asked to create an ID, so that researchers can withdraw your data on request without breaching confidentiality, and demographic questions about your age and gender. You will then be randomly placed into a group where you will either be asked to practice gratitude for 5 minutes or not. Then you will be asked to fill out a survey on cooperation and competition strategies. You do not have to answer all of the questions if you so wish. The study will approximately take 8 minutes if you are asked to take part in the gratitude activity or 3 minutes if you are not.

Do I have to take part?

You are free to decide whether you wish to take part or not. If you do decide to take part, you will be asked to tick/ select a consent form that lets us know you have read this information sheet and understand what is involved in the research. You are under no obligation to take part in any section of the study. You are also free to

withdraw from this study at any time and without giving reasons.

What are the advantages and disadvantages of taking part?

While taking part in this study may not benefit your wellbeing or life satisfaction there is no foreseen risks or disadvantages of taking part in the research. The information that may be collected could help improve the scientific understanding of the impact of gratitude on gender and cooperation. However, you can skip any question you do not wish to answer.

This information sheet continues on the next page

How will my information be used?

Your responses to the questionnaire will be combined with all other participants data and statistically analyzed. No individual's data will be identifiable in the final report. The results of this analysis will be reported in the thesis for the BSc in Applied Psychology in the Dun Laoghaire Institute of Art, Design & Technology. This can be requested through the library at IADT, or by emailing the researcher or supervisor at n00182836@iadt.ie or hannah.barton@iadt.ie. This study may also be published in an academic journal article and may be written about for blog posts or media articles, and these can be requested from the researcher.

How will my data be protected?

Under the EU General Data Protection Regulation (GDPR) the legal basis for collecting data for scholarly research is that of public interest. The regulations regarding the protection of your data will be followed. Only data which is needed for analysis will be collected. By giving your consent to take part in the study you are consenting to the use of your data as detailed in this information sheet. The data will be retained by the researcher for at least one year and may be retained for up to 7 years if the results of the study are published in certain capacities (e.g., in a journal article). There is also a possibility that the fully anonymised dataset may be submitted to a journal and made available to other researchers and academics worldwide for verification purposes, but if this occurs it will be ensured that you are not identifiable from the data. As the supervisor on this project, I, Hannah Barton, am responsible for ensuring that all datasets will be stored in accordance with GDPR regulations and those which are not submitted to a journal will be fully deleted on or before 3rd of March 2029. Those who will have access to the data include, Chloe

O'Connor, Hannah Barton, and Dr Christine Horn. The data will be kept on a password protected computer and in the unlikely event that there is a data breach the data protection officer in IADT will be informed immediately. Each participant will be asked to create a unique and anonymised code using your initials and the last 2 digits of their phone number. This is if for any reason you choose to withdraw from the study before the 6th of March 2022 the researcher will be able to identify your data and remove it from the study. After the researcher has completed her undergraduate degree, the researcher will delete all the data off their personal devices and the supervisor will be responsible for keeping the data in IADT data storage under password protection. You will find contact information for IADT's Data Protection Officer, Mr Bernard Mullarkey, and more information on your rights concerning your data at <https://iadt.ie/about/your-rights-entitlements/gdpr/>

Who has reviewed the study?

This study has been approved by the Department of Technology and Psychology Ethics Committee (DTPEC).

What if you have any questions or there is a problem?

If you have a concern about any aspect of this study, you may wish to speak to the researcher who will do their best to answer your questions. You should contact Chloe O'Connor (n00182836@iadt.ie) or her supervisor Hannah Barton (hannah.barton@iadt.ie).

Thank you for taking the time to read this information sheet and participating in the study if you choose to do so.

Date: 27/02/2022

6.2 Appendix B - Consent Form

Consent Form

Please tick all that apply.

I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions.

I understand that my participation is voluntary and that I am free to withdraw at any time.

I understand that data collected about me during this study will not be identifiable when the research is published.

I am over 18.

I agree to take part in this study.



6.3 Appendix C - Unique Identification Code

Demographic Questions

Unique Code

Please include your initials and the last 2 digits of your phone number (Eg. Beyonce Knowles - BK56)

6.4 Appendix D - Demographic Questions

Gender

Please select the gender you identify with most.

- Male
- Female
- Transgender male
- Transgender female
- Genderqueer
- Other (Please specify)

Please enter your age in years.

6.5 Appendix E - Unable to continue with participation

use block

Just In case



Thank you for your interest

Your interest in partaking in the research study is greatly appreciated. Unfortunately, under the Department of Technology and Psychology Ethics Committee (DTPEC) guidelines the researcher will not be able to collect your data. It is your right to not tick the statements that do not apply to you or that you do not agree with as your participation is voluntary but as a result it would be unethical for you to continue participation.

The researcher thanks you for your interest.

6.6 Appendix F - Gratitude Intervention with 5-minute timer

Q20

This question lets you record and manage how long a participant spends on this page. This question will not be displayed to the participant.



Q15

Gratitude Intervention

Please spend 5 minutes thinking or writing about someone you are grateful for.

To help, try answer questions like

- Why are you grateful for them?
- What impact do they have on your life?
- How do they make you feel?
- Do they know you are grateful for them?
- How can you show you're grateful for them?

----- Page Break -----

6.7 Appendix G - The Cooperative strategy subscale from the Cooperative/Competitive Strategy scale

The Cooperative/ Competitive Strategy Scale

Please read each of the following statements carefully and rate how true they are by selecting one of the five options below.

	Always	Most of the time	About half the time	Sometimes	Never
Joint effort is the best way to achieve success.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy working with others to achieve joint success.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Success is best achieved through cooperation rather than through competition.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Individual success can be achieved while working with others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Success is only achieved through individual effort.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In the end, cooperation with others is not compatible with success.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To succeed, one must cooperate with others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shared efforts can lead to both individual and group success.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



6.8 Appendix H - Scoring of the Cooperative strategy subset scale

The Cooperative/ Competitive Strategy Scale

Please read each of the following statements carefully and rate how true they are by selecting one of the five options below.

	Always	Most of the time	About half the time	Sometimes	Never
Joint effort is the best way to achieve success.	5	4	3	2	1
I enjoy working with others to achieve joint success.	5	4	3	2	1
Success is best achieved through cooperation rather than through competition.	5	4	3	2	1
Individual success can be achieved while working with others.	5	4	3	2	1
Success is only achieved through individual effort.	1	2	3	4	5
In the end, cooperation with others is not compatible with success.	1	2	3	4	5
To succeed, one must cooperate with others.	5	4	3	2	1
Shared efforts can lead to both individual and group success.	5	4	3	2	1



6.9 Appendix I - Consent for data to be included in analyses

**Thank you for taking the time to complete this survey.
Please tick the box if you still agree to have your data
included in this study.**

I agree to have my data included in this study.

6.10 Appendix J - Debrief

Working title of Project: The Impact of a Gratitude Intervention on Gender and Cooperation

Name of Researcher: Chloe O'Connor

Thank you very much for taking part in this research study.

This study is designed to investigate gratitude, gender and cooperation. The interest in gratitude and its potential benefits has continued to increase over recent years. Practising gratitude for personal benefits is something that is being promoted constantly by self-help media. The study that you, and others, have taken part in will help with understanding if practising gratitude has an impact on gender and cooperation.

Withdrawal information

If you have any questions about this study, or if you would like to withdraw your data from the study, please contact the researcher or supervisor at n00182836@iadt.ie or hannah.barton@iadt.ie. In your email let them know your unique ID code, the unique and anonymized code using your initials and the last 2 digits of their phone number. If you submit a request for data removal, all data collected from you will be securely deleted. You will be able to remove your data from the study until 6th of March 2022 when the data will be combined and analysed. Data removal will not be possible after that date. Please keep a copy of this information in case you wish to remove your data after leaving this screen.

Data protection

Your data will be treated according to GDPR regulations. You will find contact information for IADT's Data Protection Officer, Mr Bernard Mullarkey, and more information on your rights concerning your data at <https://iadt.ie/about/your-rights-entitlements/gdpr/>

Support resources

If you have been affected by the content of this study in any way, the organisations below may be of assistance.

Crisis Text line - <https://text50808.ie/>

How to practice gratitude - <https://www.mindful.org/an-introduction-to-mindful-gratitude/>

Thank you again for taking the time to participate in this research. If you have any questions about this study, please contact the researcher or supervisor at n00182836@iadt.ie and hannah.barton@iadt.ie

6.11 Appendix K - Poster with QR code

The impact of gratitude on gender and cooperation

The aim of this research is to investigate if a gratitude intervention can have an impact of peoples use of cooperation strategies and to see if any gender differences exist. There is mixed results in the previous research done on the topic which may be due to a number of factors such as how the terms are defined. The research being done today is to help add insight to the mix of current findings.

I would really appreciate if you guys would participate.

any questions or queries email -
n00182836@student.iadt.ie

The poster has a purple and pink grid background. It includes a smiley face icon in the top right, a QR code in a window-like frame, a text box with a scroll bar, and a feedback box with a grid and wavy lines. There are also three diamonds in the bottom left and wavy lines in the bottom right.

6.12 Appendix L - 1st Instagram story poster



6.13 Appendix M - 2nd Instagram story post



6.14 Appendix N - Ethics Application

IADT Department of Technology and Psychology Ethics Committee (DTPEC)

Application Form 2021-2022

Instructions:

1. Please read all sections carefully, include all of the information relevant to your project, and include all necessary appendices.
2. All students must complete Sections 1, 2, 3, and 4. You will also need to complete at least one other section, depending on the type of research that you plan to do.
3. Email the completed form to your supervisor for approval. They will then complete Section 0 below.
4. Your supervisor will then forward the application to the ethics committee.
5. If your application is under the Red Route, then you may also be required to submit four printed copies of your application (including all appendices). You will be advised closer to the deadline if this is necessary or not.
6. If your study changes from how you have described it in this form then you will need to reapply for approval from the DTPEC. The DTPEC does not guarantee that a revised project will be approved, even if the original project was approved.
7. All communication between students and the DTPEC will occur via the student's project supervisor.
8. The DTPEC will consider all of the information provided in the form when making their decision. Incomplete forms (including forms which do not include all of the necessary Appendices) will be rejected.
9. If the DTPEC's decision is that a revised application must be made then they will provide a list of required changes which are necessary to ensure participant wellbeing. Even if all of these are followed, the DTPEC makes no commitment to approve a revised application.
10. It is highly recommended that 'Red Route' students continue to formulate ideas for projects which fit the criteria for 'Green Route' and 'Amber Route' submissions until they are advised that their application has been approved. This is to ensure that the student can still complete the module, even if their 'Red Route' project does not receive approval from the DTPEC.
11. There is an obligation on the researcher to bring to the attention of the DTPEC any issues with ethical implications not clearly covered by the checklist in Section 6 of this form.
12. 'Signatures' may be typed, scanned in, or digitally signed.

Section 0: For Completion by the Supervisor

I confirm that this application to the DTPEC by Chloe O Connor
(student name) accurately reflects all of the ethical implications in the project.

Application type (tick all that apply for mixed methods): Green Route _____
 Amber Route X

Red Route _____

Signed Hannah Barton
 November 28th 2021 _____

Date:

Section 1: Project Information

Student Name: Chloe O'Connor

Student Email Address: N00182836

Supervisor Name: Hannah Barton

Working Project Title: The Impact of a Gratitude Intervention on Gender and the Prisoner's dilemma

Main Variables Being Investigated: Gratitude and Gender and Cooperation as measured during the Prisoners dilemma Game

Section 2: External Agencies

Does your project involve recruitment from any external agency (e.g. a school, sports club, medical centre, voluntary organisation, or any other organisation outside of the IADT)?	Yes*	No x
<p>* You must include a letter from a senior manager of each organisation stating that you have approval to collect data within that organisation. Include copies each of these letters in the Appendices to your application. If the organisation has its own ethical review board (which is very common in some settings, such as hospitals), then you are also required to get ethical approval from that board prior to starting data collection, and to submit notice of this approval to your supervisor so that it can be forwarded on to the ethics committee. Some online forums also require permission to post requests for participants – make sure to check the relevant forum/organisation's code of conduct or terms and conditions. You do not need to include approval letters if you are conducting recruitment using mainstream social media routes (e.g., Twitter, Instagram, Facebook, Snapchat, TikTok) to your own followers, and/or snowball sampling/word of mouth recruitment.</p>		

Section 3: Project Methodology – Please tick which type of project you are seeking approval from the DTPEC for. If your project involves mixed methods, then tick all which apply.

Route Type	Methodology	Tick here
Green Route (no direct contact with participants required, and no data is collected/recorded which could identify participants)	Theoretical paper / systematic literature review	
	Novel analysis of an existing dataset gathered by another researcher or group which you are certain has abided by appropriate ethical procedures for the relevant discipline	
	Observation of participants in a public place in which they could reasonably be expected to be observed by strangers or in an online space which does not require users to log in to access.	
	Content analysis of material which is publicly available and does not require users to log in to access content.	
	Other method without direct contact with participants **	
Amber Route (direct contact with participants, but no additional ethical considerations beyond the minimum requirements)	Requirements gathering for and/or user testing of a prototype which is highly unlikely to cause any harm or distress to participants and which does not aim to collect data from a potentially vulnerable group	
	An experiment which is highly unlikely to cause any harm or distress to participants and which does not aim to collect data from a potentially vulnerable group	x
	A survey/questionnaire design which is highly unlikely to cause any harm or distress to participants and which does not aim to collect data from a potentially vulnerable group	
	An observational study which is highly unlikely to cause any harm or distress to participants and which does not aim to collect data from a potentially vulnerable group	
	Content analysis research which is highly unlikely to cause any harm or distress to participants and which does not aim to collect data from a potentially vulnerable group	
	Interviews and/or focus groups which are highly unlikely to cause any harm or distress to participants and which do not aim to collect data from a potentially vulnerable group	
	Other method which is highly unlikely to cause any harm or distress to participants and which does not aim to collect data from a potentially vulnerable group **	
Red Route (direct contact with participants, including one or more project aspects which require special ethical consideration)	Requirements gathering for and/or user testing of a prototype which may cause harm or distress to participants and/or which involves collecting data from any potentially vulnerable group	
	An experiment which may cause harm or distress to participants and/or which involves collecting data from any potentially vulnerable group	
	A survey/questionnaire design which may cause harm or distress to participants and/or which involves collecting data from any potentially vulnerable group	
	An observational study which may cause harm or distress to participants and/or which involves collecting data from any potentially vulnerable group	

	Content analysis research which may cause harm or distress to participants and/or which involves collecting data from any potentially vulnerable group	
	Interviews and/or focus groups which may cause harm or distress to participants and/or which involves collecting data from any potentially vulnerable group	
	Other method which may cause harm or distress to participants and/or which involves collecting data from any potentially vulnerable group **	
** If you are using a methodology not listed above then provide a short description (fewer than 100 words) here:		

Section 4: Checklist of Attached Appendices and Other Completed Sections

Applicable Project Ethics Route Colour Guide		Section / Item	I have attached this item/completed this section	I have checked with my supervisor and we have agreed that this item/section is not relevant to my project
Red Yellow Green	1	Section 1	X	Black
	2	Section 2	X	
	3	Section 3	X	
	4	Section 4	X	
Red Yellow Green	5	Letters of permission from any external agencies to be used for data collection		X
	6	Statement of approval from ethical review boards in external agencies		X
Green	7	Section 5 (Green Route Projects only)		X
Red Yellow	8	Section 6 (Amber and Red Route Projects only)	X	
Yellow	9	Section 7 (Amber Route Projects only)	X	
Red	10	Section 8 (Red Route Projects only)		X
	11	Section 9 (Red Route Projects only)		X
	12	Evidence of why you need to complete a Red Route Project (see note in Section 8)		X

	13	Project Information Sheet (Red Route Projects only)		X
	14	Project Consent Form (Red Route Projects only)		X
	15	Project Demographic Questionnaire (Red Route Projects only)		X
	16	All Other Questionnaires and Data Collection Materials (Red Route Projects only)		X
	17	Project Debrief (Red Route Projects only)		X

Section 5: Declaration of a Green Route project

I hereby declare that [all of / this aspect of (delete as appropriate)] my project involves no direct interaction between me and any research participants, and that having checked with my supervisor, that I do not need to seek informed consent from those whose data I use in my research. In addition, I will ensure that all data which I do gather is held in a manner which is compliant with GDPR, and will be deleted once it is no longer required (and definitely within 6 years of collection). At all times my study will be conducted in adherence to the ethical policies of the Psychological Society of Ireland and the British Psychological Society.

Student Signature: _____

Date: _____

Section 6: Confirmation of Adherence to Basic Ethical Principles for Amber and Red Route Projects

Complete the Table below with guidance from your supervisor. If you need to tick any of the 'red' boxes, then your project must be submitted under the 'Red Route'.


		Yes	No	N/A
6.1	I will describe the main research procedures to participants in advance so that they know what to expect. I will use the sample Information Sheet provided by DTPEC to do this.	X		
6.2	I will tell participants that their participation is voluntary.	X		
6.3	I will obtain written consent from participants using a 'tick' consent form which follows the current template provided by DTPEC prior to starting data collection.	X		
6.4	I will verify that participants still wish to include their data in online studies by including a final indicator of consent at the end of the questions.	X		
6.5	If my research involves content analysis or observation in any private or partially private setting then I will ensure to obtain informed consent prior to collecting data.	X		
6.6	I will explain to participants that they can withdraw from the study at any time and for any reason.	X		

6.7	I will ensure that participants know that they can refrain from answering any question that they don't want to, even if this is part of a psychometric scale.	X		
6.8	If using an online data collection method I will ensure that the only questions which require answers in order to proceed are the questions relating to providing informed consent, and I will ensure that participants are provided with an option which indicates that they do not give their consent.	X		
6.9	I will inform participants that their data will be treated with full confidentiality, and that, if published, it will not be identifiable as theirs.	X		
6.10	I will debrief participants at the end of their participation (i.e. give them a brief explanation of the study, whether or not deception was involved) following the current template provided by DTPEC	X		
6.11	I will obtain passive consent from parents/guardians for studies involving people aged between 16 and 18 years, as well as active consent from the participant and their school/organisation			x
6.12	I will obtain active consent from parents/guardians for studies involving people aged under 16 years. Where feasible I will also obtain active consent from the participant themselves. I will ensure that the parent/guardian or their nominee (e.g. a teacher) will be present throughout the data collection period.			X
6.13	I will ensure that my project supervisor has full access to the data that I collect and will only use data collection software which permits this.	X		
6.14	I will ensure that my project supervisor retains full rights to the data collected, including the ability to delete all data at any time, and that third-parties (e.g., software companies) will not 'own' the data collected.	X		
6.15	I will ensure that participants in studies involving Virtual Reality (VR) are not susceptible to extreme motion sickness or other physical conditions which may result in harm to the participants. I will ensure that a chaperone is present during VR sessions, and that the participant has the option of also having a nominee of their choosing present as well.			X
6.16	I will ensure that any equipment used in this study is cleaned and disinfected after each participant, and that appropriate hygienic barriers (e.g. masks) are used by all participants			X
6.17	Is there any realistic risk of any participant experiencing either physical or psychological distress or discomfort?			X
6.18	I plan to use animals as part of my research study		X	
6.19	I plan to tell participants their results on a task or scale which I am using in my research.			X
6.20	I am researching a sensitive topic which may cause some participants distress (such as, but not limited to, religion, sexuality, alcohol, crime, drugs, mental health, physical health, parenting, family relationships)		X	

6.21	One or more aspects of my study is designed to change the mental state of participants in a negative way (such as inducing aggression, frustration, sadness, etc.)		X	
6.22	My study involves deception or deliberately misleading participants in some way.		X	
6.23	My target population includes people who have learning or communication difficulties		X	
6.24	My target population includes patients (either inpatient or outpatient)		X	
6.25	My target population includes people in custody		X	
6.26	My target population includes people who may feel under personal or professional pressure to take part in my research (for example, close friends; family; employees or staff of managers or school principals who may support the research).		X	

Section 7: Declaration of an Amber Route project

I hereby declare that all of my project involves no risk of physical, emotional, social or cognitive harm to participants; that I will obtain full informed consent from all participants and provide a full debrief afterwards (using the templates provided); that I will provide full anonymity and/or confidentiality to participants; and that my participants are not a potentially vulnerable population. In addition, I will ensure that all data which I gather is held in a manner which is compliant with GDPR, and will be deleted once it is no longer required (and definitely within 6 years of collection). At all times my study will be conducted in adherence to the ethical policies of the Psychological Society of Ireland and the British Psychological Society.

Student Signature: Chloe O Connor  Date: 26/11/21

Section 8: Additional Information For Red Route Projects

8.1 What are the aims of your research? Include your research question and hypotheses for all studies which are not exploratory in nature (Max. 100 words)
8.2 What is the specific reason(s) why this is a Red Route project? (Max. 100 words)
8.3 How will you ensure that participants are not harmed as a result of participation in your research, given your answer to 8.2 above (Max. 100 words)
8.4 Why do you need to do this project at this stage in your career? For example, is there a specific postgraduate programme which you wish to apply for which requires you to

have completed research in this area? Do you have specific additional qualifications or experience which equip you to manage the additional ethical implications in this project? Bear in mind that if your main reason for wishing to do this research is because the area of study is important then your application is likely to be refused – in general it is better for research with important societal implications to be conducted at a time when you have more research experience. (Max. 100 words)

8.5 Provide a rationale as to why another methodology related to your chosen topic (such as a systematic review, theoretical paper, content analysis, or analysis of an existing dataset) cannot be done in your case (Max. 100 words)

8.6 List supporting documentation which you have included in an Appendix to this application to justify the need for you to do a Red Route project (this might be: the list of entry requirements for a specific postgraduate programme which you are planning on applying for, along with the link to the website where you found this information; a transcript or certificate for a training course related to the area; a letter from your manager or supervisor where you are engaged in voluntary work related to the area, etc.).

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

8.7 List below the final grades that you received in each module in your most recent completed year of study in IADT (i.e. Fourth year students should provide their 3rd year end-of-year results; Third year students should provide their 2nd year end-of-year results; MSc students should provide their grades to date in each module, 'provisional' grades are acceptable when final grades are not yet available). A Red Route ethics project requires a very high level of competence and attention to detail which we have found often correlates with higher grades in earlier modules.

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

8.8 Planned Study Design (Max. 50 words)

8.9 Description of Planned Materials (Max. 200 words). All materials should be included as Appendices to this application. Materials include information sheets, consent forms, debriefs, demographic questionnaire, attitude or psychometric questionnaires, intervention materials, score sheets, technical equipment, and anything else that will be

used during data collection. If you intend to use a video/game/app/other media, then you must provide the committee with full access to this through a video file or access to the game/app/media.
8.10 Planned Participant Population and Recruitment Method (Max. 100 words)
8.11 Planned Procedure (Max. 100 words)

Section 9: Declaration of a Red Route project

I hereby declare that [all of / this aspect of (delete as appropriate)] my project involves no ethical implications other than those listed and described in Section 8. It involves no risk of physical, emotional, social or cognitive harm to participants other than those outlined in Section 8. It involves no deception other than that indicated in Section 8. I will obtain full informed consent from all participants and provide a full debrief afterwards (using the templates provided) and I will provide full anonymity and/or confidentiality to participants, except where explicitly explained otherwise in Section 8. Unless stated otherwise in Section 8, my participants are not a potentially vulnerable population. In addition, I will ensure that all data which I gather is held in a manner which is compliant with GDPR, and will be deleted once it is no longer required (and definitely within 6 years of collection). At all times my study will be conducted in adherence to the ethical policies of the Psychological Society of Ireland and the British Psychological Society.

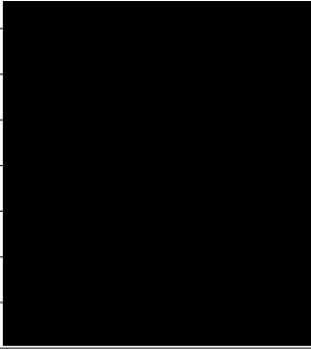



Student Signature: _____

Date:

6.15 Appendix O - Ethics Approval

DL825 Year 4 MRP Green and Amber Ethics Applications December 2021

The following Ethics applications have been approved:

									
				Chloe O'Connor					
									

If your name is not on this list and you have not yet received Feedback on your Ethics Application please contact your supervisor.

6.16 Appendix P - Link and QR code for the online experiment

https://iadtpsychology.qualtrics.com/jfe/form/SV_3Q6m8AJdpFomQVo



6.17 Appendix Q - Cronbach's Alpha

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.751	.751	8

6.18 Appendix R - Test for Assumptions of Normality & Homogeneity of Variance

Tests of Normality

	Gender	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Total_Coop	Male	.120	51	.066	.968	51	.188
	Female	.117	92	.003	.956	92	.004

a. Lilliefors Significance Correction

Tests of Normality

	Gratitude_Intervention	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Total_Coop	No Intervention	.144	77	<.001	.964	77	.027
	Intervention	.116	66	.027	.962	66	.043

a. Lilliefors Significance Correction

Levene's Test of Equality of Error Variances^{a,b}

		Levene Statistic	df1	df2	Sig.
Total_Coop	Based on Mean	2.908	3	139	.037
	Based on Median	2.356	3	139	.075
	Based on Median and with adjusted df	2.356	3	118.855	.075
	Based on trimmed mean	2.655	3	139	.051

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: Total_Coop

b. Design: Intercept + Gender + Gratitude_Intervention + Gender * Gratitude_Intervention

6.19 Appendix S - SPSS Output for 2-Way ANOVA

Between-Subjects Factors

		Value Label	N
Gender	1	Male	51
	2	Female	92
Gratitude_Intervention	1	No Intervention	77
	2	Intervention	66

Descriptive Statistics

Dependent Variable: Total_Coop

Gender	Gratitude_Intervention	Mean	Std. Deviation	N
Male	No Intervention	29.94	3.502	31
	Intervention	29.75	6.189	20
	Total	29.86	4.682	51
Female	No Intervention	31.67	3.899	46
	Intervention	30.48	4.708	46
	Total	31.08	4.341	92
Total	No Intervention	30.97	3.818	77
	Intervention	30.26	5.163	66
	Total	30.64	4.487	143

Tests of Between-Subjects Effects

Dependent Variable: Total_Coop

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	81.603 ^a	3	27.201	1.361	.257
Intercept	118059.875	1	118059.875	5908.928	<.001
Gender	48.391	1	48.391	2.422	.122
Gratitude_Intervention	15.171	1	15.171	.759	.385
Gender * Gratitude_Intervention	8.116	1	8.116	.406	.525
Error	2777.208	139	19.980		
Total	137138.000	143			
Corrected Total	2858.811	142			

a. R Squared = .029 (Adjusted R Squared = .008)