

AN EXPLORATION OF REFLECTION WEEK AT UNIVERSITY COLLEGE MAASTRICHT

Does Reflection Week Improve Student Well-being?

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Abstract Student well-being has become a global priority, and many universities are seeking to implement strategies that promote student well-being to enhance the overall mental and physical health of their student community. This study explores how University College Maastricht (UCM) reflection weeks impact student well-being. A randomized group of 45 ($N = 45$) UCM students completed the Subjective Well-Being scale (SWB) before and after their reflection week to assess their psychological well-being, relationships, and physical health. Utilizing a paired-sample t-test to compare pre- and post-reflection week scores, the results revealed a significant increase in well-being ($p < .001$). These findings support the use of structured breaks to positively influence student well-being and provide further practical insights for universities striving to enhance students' physical and mental health. This study addresses gaps in empirical evidence regarding reflective practices and their ability to strengthen academic performance.

Keywords: academic performance, breaks, student well-being, Subjective Well-Being Scale (SWB), University College Maastricht (UCM)

1. Introduction

According to previous research, student well-being is imperative for academic performance and overall success, becoming a top priority for universities worldwide (Howell, 2009). Universities have implemented a variety of practices to support and promote students' physical and mental health (Stanton et al., n.d.). One such practice is breaks as a way to alleviate student stress and anxiety (Hay et al., 2022). At University College Maastricht (UCM), student well-being is promoted by (more) frequent so-called "reflection weeks"—a week-long break *after* exams, between periods (Maastricht University, 2023). Anecdotally, reflection weeks are greatly appreciated by students, but their effectiveness as a stress intervention strategy has not been properly investigated and validated. This study aims to remediate this lack of evidence and to provide a better understanding of how breaks positively impact university students.

2. Literature Review

A study by Agnew et al. (2019) explored the perceived effect of fall break on student well-being in university. Randomly selected Conestoga College undergraduate students were asked to complete, once before and after the fall break, a two-part survey about their perceived levels of stress (Agnew et al., 2019). Additionally, focus group sessions were held to further explore the effects of the fall break on student well-being.

The study revealed that the fall break significantly decreased students' stress levels and gave students an opportunity to manage their academic workload, socialize with their friends and family, and recover by participating in leisure activities (Agnew et al., 2019). However, these positive outcomes associated with fall break may be limited due to the timing and density of assignments even while on break, requiring students to effectively manage their time. Consequently, balancing academics with leisure can increase a student's perceived stress levels (Agnew et al., 2019).

Although conclusions from the Agnew et al. (2019) study can help theorize the impact of UCM's reflection weeks on the well-being of its students, a fall break, such as studied by Agnew et al. (2019) takes place in the middle of a fall semester, whereas a UCM reflection week concludes each six-week period *after* exams. An investigation of UCM reflection weeks would provide more data on the impact of frequent post-exam breaks on student well-being.

In a study led by Omer (2023) from Nijran University, he explored the op-

timal length and frequency of breaks required to enhance student well-being. A closed-ended questionnaire consisting of questions related to self-experiences was administered to students, teachers, and administrators of Nijran University (Omer, 2023). The study's results agreed with those in other studies: shorter breaks that lasted several days were the most effective in supporting student well-being. However, Omer (2023) recommended more research into how students actually spend their vacation time for proper insight into well-being levels post break and how they relate to certain activities engaged in during the break.

This study of reflection weeks at UCM not only records how breaks influence student well-being but also how they spend their break, helping surface optimal activities that most enhance student well-being. Like the Omer (2023) study, a closed-ended questionnaire was used to help collect a large amount of data in a short amount of time. In another study similar to Agnew et al. (2019) and Omer (2023), Hay et al. (2022) explored if the week-long fall break after Thanksgiving at Brock University reduced anxiety and stress for its students. Adopting a mixed-methods approach, Hay et al. (2022) distributed a survey across campus, asking students about their workload and perceived stress levels through a Likert scale. Additionally, undergraduate students were interviewed in focus groups about their lived experiences and how the fall break influenced their mental health (Hay et al., 2022). To interpret the data, Hay et al. (2022) utilized a two-way ANOVA for the survey and a thematic analysis for the focus group interviews.

Many students used the break as an opportunity for schoolwork or relaxation. On average, students had a 23.2% reduction in their perceived levels of stress, which was attributed to the break. Notably, the Hay et al. (2022) survey findings aligned with those from the focus group. Despite these findings, Hay et al. (2022) stressed that the break does not *fully* alleviate feelings of stress related to academics. Therefore, Hay et al. (2022) recommended that more comprehensive support measures be implemented, allowing students to potentially experience a greater improvement in their overall well-being. Like Hay et al. (2022), a Likert scale (i.e., Subjective Well-being scale (SWB)) will be applied to effectively analyze and interpret the gathered data.

3. Methodology

This study adopts a quantitative approach. Using the statistical software program Statistical Package for Social Sciences (SPSS) (version 29) from International Business Machine (IBM), a paired-sample t-test was applied to compare the well-being scores of the same UCM students pre- and post-reflection week. The aim of this

study is to reject the null hypothesis—the mean difference between the well-being scores of UCM students before and after the reflection week equals 0 ($H_0: \mu_D=0$)—and find sufficient evidence in support of the one-sided alternative hypothesis—the mean difference between the well-being scores of UCM students after and before the reflection week is greater than 0 ($H_A: \mu_D>0$).

Before and after reflection week, a survey on Qualtrics (2024) version XM was distributed to UCM students through WhatsApp (version 24), an online messaging platform (WhatsApp Incorporations, 2024). As shown in the Appendix, this survey consists of 24 close-ended questions, with underlying dimensions in psychological well-being, physical health and well-being, and relationships (Pontin et al., 2013). Well-being was evaluated using the Subjective Well-Being scale (SWB), with answering options ranging from (1) ‘not at all’; (2) ‘a little’; (3) ‘moderately’; (4) ‘very much’; and (5) ‘extremely’ (Pontin et al., 2013).

As the study also recorded what activities students engaged in during their reflection week, a list of eight general activities were included on the survey: physical exercise (in/outdoor), meditation and mindfulness, healthy eating, quality sleep, socializing, creative activities, traveling, and self-care. The option to select “others” or “none” was also provided, in the case that a student participated in an activity not shown. Data collection on how UCM students spent their reflection week allowed for this study to observe underlying relationships between student well-being after break and their reflection week activities. However, as this is not the study’s main focus, more research into this relationship is strongly encouraged.

3.1 Assumptions

When conducting a paired sample t-test, there are several assumptions that must be checked to confirm if the test is valid. According to Penders (2019), the dependent variable must have a quantitative level of measurement (Penders, 2019). In this study, the dependent variable is well-being, quantified through the Subjective Well-Being scale (SWB). Although the SWB scale operates on a Likert scale, using *multiple*—in which a total score is calculated—of them allows the composite score to be treated as quantitative (Penders, 2019).

The second assumption is that the two sample groups compared in the study are dependent on each other (Penders, 2019). In this study’s research design, the measures are repeated, making it a within-subject design where the participants that answered the pre-reflection week survey are the same in the post-reflection week survey. However, there is the possibility that participants who completed the post-reflection week survey may not be the same as those who participated in the pre-reflection week survey, as there were more survey invitations than

responses. To mitigate this inconsistency, the survey was closed after the 5-day window before reflection week—ensuring that only the well-being scores of participants in that week-long period were recorded. When the follow-up text was sent to the same 55 ($N = 55$) individuals, it was *highly* stressed that only those who had completed the pre-reflection week survey should engage with the post-reflection week survey. After the 5-day window post-reflection week, only 45 ($N = 45$) responses had been collected, making it reasonable to assume that those who filled out the post-reflection week survey were the *same* as the ones who completed the pre-reflection week survey. Although this cannot be confirmed with absolute certainty, these measures helped guarantee that no further responses could be recorded, and that study participation remained consistent.

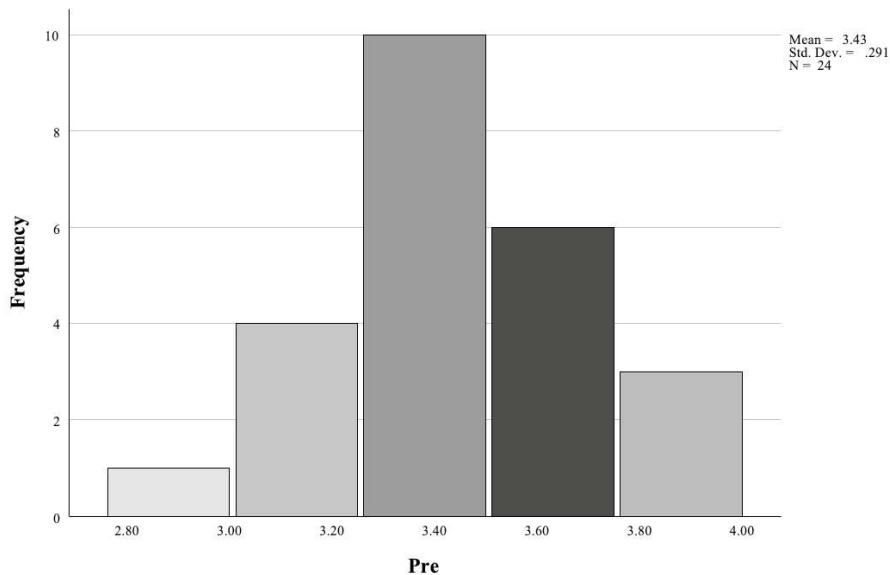
The third assumption is that the difference scores between the two samples are normally distributed at the population level (Penders, 2019). As the study's collected sample of 45 participants ($N = 45$) is greater than 30 individuals, the Central Limit Theorem (CLT) may be applied, stating that sampling distribution is approximately normal.

3.2 Data Description

Originally, this study planned on receiving 55 ($N = 55$) participants. However, only 45 ($N = 45$) of the randomly selected students responded, equating to a response rate of 81.82%. As the survey was not mandatory, this study acknowledges that students may have chosen to not participate due to time limitations either because of a stressful workload or other time-consuming responsibilities. Additionally, as this study entailed participants completing the survey within a week prior to UCM's reflection week, some may have simply missed this time window.

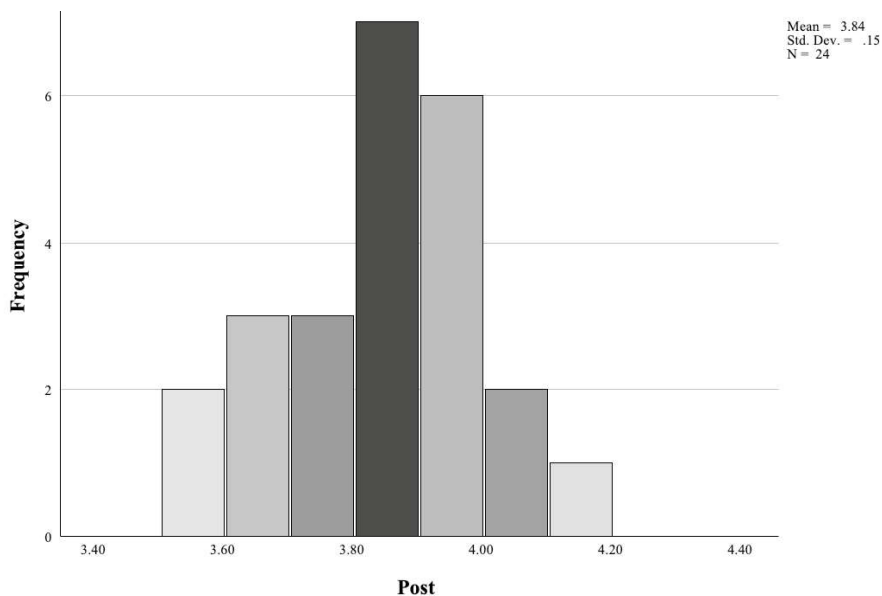
This study consisted of an independent, categorical variable measuring the before and after reflection week and a dependent variable quantifying the well-being score of UCM students through a Likert scale. To statistically analyze the dependent variable, the mean of each question was recorded from both the pre- and post-survey. Notably, the participation count remained the same between each respective survey ($N = 45$). Below, Figure A displays a histogram of the mean scores obtained from the pre-reflection week survey.

Figure A: Histogram showing the mean scores for each of the 24 SWB questions pre-reflection week (IBM Corporation, 2023)



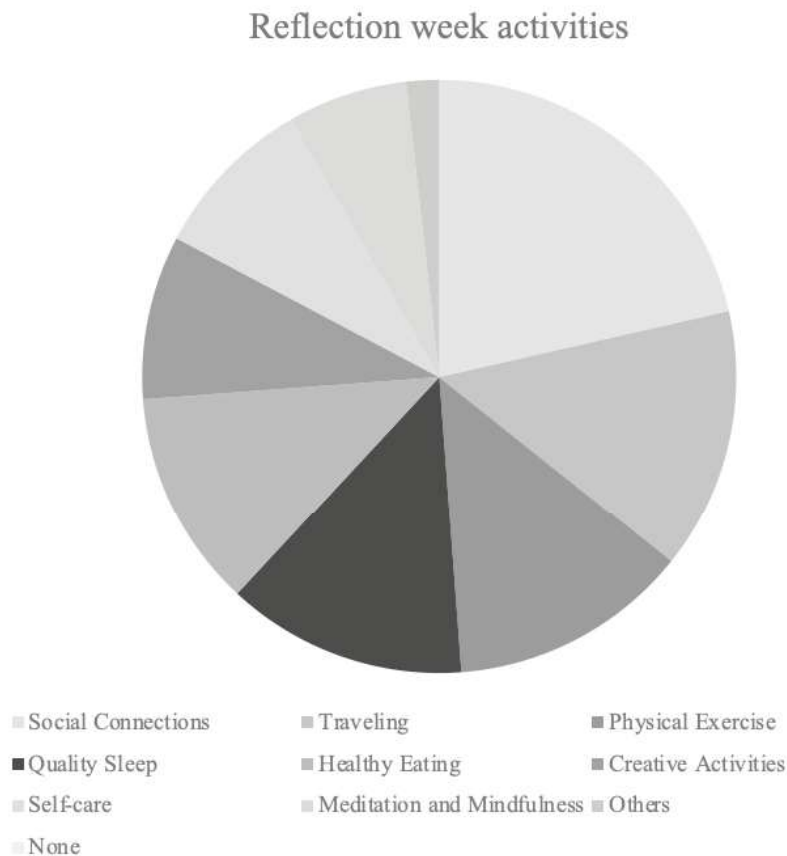
Based on the histogram in Figure A, the shape of the distribution of the mean scores pre-reflection week appears unimodal—with only one distinct peak visible and reasonably symmetric. The histogram does not demonstrate any obvious cases of outliers or extreme skewness. With the SWB scale using a Likert scale, participants were only able to answer survey questions on a scale ranging from 1 to 5, making outliers essentially non-existent and *extreme* cases of skewness unlikely (Penders, 2019). Additionally, Figure B shows the mean scores of the post-reflection week survey.

Figure B: Histogram showing the mean scores for each of the 24 SWB questions post-reflection week (IBM Corporation, 2023)



Similar to the histogram of the mean scores in the pre-reflection week in Figure A, the post-reflection week histogram is also unimodal and symmetric. For the same reasons as Figure A's histogram, there are no apparent outliers or extreme cases of skewness present in Figure B. Additionally, Figure C shows a pie chart of the activities that participants engaged in.

Figure C: Pie chart showing the proportions for each of the reflection week activities (IBM Corporation, 2023)



4. Data Analysis

This study utilized a paired sample t-test to effectively compare the mean difference between the well-being scores of UCM students pre- and post-reflection week. According to the results demonstrated below in Table A, the average well-being score of UCM students before reflection week ($M = 3.429$, $SE = .059$) was less than their score after ($M = 3.840$, $SE = .031$). This difference of .411 in

student well-being scores, 95% CI [.314, .509], represents a large and significant effect, $d = 1.781$, $t(23) = 8.725$, $p < .001$.

Table A: Displays the results of the paired sample t-test between the well-being scores of UCM students pre- and post-reflection week

<i>Paired Samples Statistics</i>					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post	3.8404	24	.14985	.03059
	Pre	3.4292	24	.29062	.05932

<i>Paired Samples Correlations</i>					
		N	Correlation	Significance	
				One-Sided p	Two-Sided p
Pair 1	Post & Pre	24	.615	<.001	.001

<i>Paired Samples Test</i>						
		Mean	Std. Deviation	Std. Error Mean	Paired Difference	
					95% Confidence Interval of the Difference	
					Lower	Upper
Pair 1	Post - Pre	.41125	.23092	.04714	.31374	.50876

<i>Paired Samples Test</i>					
		t	df	One-sided p	Two-sided p
Pair 1	Post - Pre	8.725	23	<.001	<.001

<i>Paired Samples Effect Sizes (Post - Pre)</i>					
		Standarizer	Point Estimate	95% Confidence Interval	
				Lower	Upper
Pair 1	Cohen's d	.23092	1.781	1.124	2.423
	Hedge's correction	.23881	1.722	1.087	2.343

5. Discussion

5.1 Key Findings

In this study, the null hypothesis being tested was that the mean difference (μ_D) between the well-being scores of participants post- and pre-reflection week equals 0 ($H_0: \mu_D = 0$). With the test direction being one-sided, the alternative hypothesis was that the difference between the well-being scores of participants post- and pre-reflection week is greater than 0 ($H_A: \mu_D > 0$). After conducting a paired sample t-test, a p-value of less than .1% ($p < .001$) was calculated, meaning that the probability of obtaining the observed results—given the null hypothesis is true ($H_0: \mu_D = 0$)—is lower than .1% ($p < .001$). This result is significant, and the study finds evidence to reject the null hypothesis, demonstrating that UCM reflection weeks *do* have a positive influence on student well-being.

From the paired-sample t-test, the mean difference in the well-being score between post- and pre-reflection week was .411 ($\mu_D = .411$). However, the magnitude of this difference was evaluated using Cohen's d, with .2 being a small, .5 medium, and .8 a large effect size. Based on the results, the effect size is 1.781 ($d = 1.781$), which means the mean difference score of .411 ($\mu_D = .411$)—between post- and pre-reflection week—represents a large effect.

5.2 Limitations

It is important to interpret this study's findings within the boundaries of its limitations. As discussed in section 3.1, a central weakness of this paper is that the pre- and post-tests were not linked on the subject level. Another statistical limitation is that the use of a one-sided paired-sample t-test could compromise the study's validity, as it increases the risk of bias towards a specific outcome. This means that because the study only tests if reflection weeks improve student well-being, significant findings in the other direction—reflection weeks negatively influencing student well-being—may be overlooked (Penders, 2019). Additionally, there is an increased chance of a Type 1 error—incorrectly rejecting the null hypothesis when it is actually true (Penders, 2019). This could mean that the study's null hypothesis—there is no difference between the mean well-being scores of UCM students before and after reflection week—is falsely rejected. These limitations may make the study's findings less robust, failing to account for a range of other possible outcomes and accurately demonstrating the *true* influence of reflection weeks on student well-being.

Additionally, as this study was limited to one month, only *one* reflection week and its impact on student well-being were measured. Consequently, this study's outcomes are strictly relevant to only this particular reflection week. This means

that this study could potentially fail to demonstrate the *sustained* impact of reflection weeks on student well-being, undermining the generalizability and validity of the findings. Furthermore, considering only one reflection week makes the study vulnerable to confounding variables, including seasonal variation and personal circumstances.

In this study, only a sample size of 45 ($N = 45$) students was obtained, making the study susceptible to various biases, including selection, participation, and response. These may have influenced the study's findings and jeopardized the validity of subsequent inferences.

6. Conclusion

Promoting and supporting student well-being has become a priority for higher education institutions. When a student thrives mentally and physically, it translates into better academic performance and overall success (Howell, 2009). With student well-being a commonly accepted priority, intervention strategies like breaks have been adopted, allowing universities to provide time and space for students to rest, relax, and take an intentional break from the rigors of their academic programs (Hay et al., 2022).

This study's purpose rests on the premise of contributing to the ongoing conversation surrounding the best way to promote student well-being by specifically exploring breaks at UCM. According to the study's results, reflection weeks positively influence student well-being, with a p-value of less than .1% ($p < .001$). As this finding is statistically significant, the null hypothesis was rejected.

This study's positive findings offer policymakers evidence for considering the implementation of reflection-week-style breaks in a university's academic calendar. It is the responsibility of future research to continue this exploration and investigate the impact of breaks on student well-being. By adequately doing so, student mental health issues may be appropriately addressed, and the benefits of specific intervention strategies like breaks fully understood.

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Appendix

Pre- and Post-UCM Reflection Week Survey

In the study, a survey consisting of 24 mandatory questions from the Subjective Well-Being scale (SWB) questionnaire was distributed to participants. Questions were answered via a Likert scale ranging from 1 to 5 with the options 'not at all,' 'moderately,' 'very much,' and 'extremely,' respectively. The questions are the following:

1. Are you happy with your physical health?
2. Are you happy with the quality of your sleep?
3. Are you happy with your ability to perform daily living activities?
4. Do you feel depressed or anxious?
5. Do you feel able to enjoy life?
6. Do you feel you have a purpose in life?
7. Do you feel optimistic about the future?
8. Do you feel in control of your life?
9. Do you feel happy with yourself as a person?
10. Are you happy with your looks and appearance?
11. Do you feel able to live your life the way you want?
12. Are you confident in your own opinions and beliefs?
13. Do you feel able to do the things you choose to do?
14. Do you feel able to grow and develop as a person?
15. Are you happy with yourself and your achievements?
16. Are you happy with your personal and family life?
17. Are you happy with your friendships and personal relationships?
18. Are you comfortable about the way you relate and connect with others?
19. Are you happy with your sex life?
20. Are you able to ask someone for help with a problem?
21. Are you happy that you have enough money to meet your needs?
22. Are you happy with your opportunity for exercise/leisure?
23. Are you happy with access to health services?
24. Are you happy with your ability to work?