University of British Columbia

Social Ecological Economic Development Studies (SEEDS) Sustainability Program

Student Research Report

Seeing Green! The Impact of Biophilic Scenery on Academic Motivation

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Executive Summary

Research has shown that biophilic scenery improves wellbeing and cognitive function. As cognitive function and academic motivation are positively correlated, our study aims to examine the following research question: how does biophilic scenery impact academic motivation? We hypothesized that participants who are exposed to classrooms with biophilic scenery will report higher levels of academic motivation than participants exposed to classrooms with windows but non-biophilic scenery (e.g. urban scenery). This was an online experiment where participants were randomly assigned to view either classrooms with biophilic scenery or classrooms with windows but with non-biophilic scenery. Participants then filled out the Academic Motivation Scale (AMS) to measure their level of academic motivation. This measure was then divided into 4 sub-measures for further insight: 1) Amotivation 2) External and 3) Internal motivation 4) Motivation. We recorded 269 valid responses and performed an independent sample T-test analysis. Results showed that participants who viewed classrooms with biophilic scenery reported higher levels of academic motivation across all 3 sub-measures than those who viewed classrooms with non-biophilic scenery. However, only the results for *internal* motivation were statistically significant, whereas the results for external motivation, amotivation, and motivation were not statistically significant. Thus, for this study, we partially accepted our hypothesis.

Key words: Academic Motivation, Academic Motivation Scale (AMS), Academic Performance, Amotivation, Biophilia, Biophilic Scenery, Cognitive Function, Classroom Views, External Motivation, Internal Motivation, Nature, Wellbeing

Introduction

Increased academic motivation has been found to have several long-term benefits such as higher academic achievement, increased job satisfaction, better health outcomes and higher incomes (Moller, 2010; Murayama et al., 2013). There is a growing body of research demonstrating that exposure to biophilia can improve individuals overall wellbeing and cognitive functions (Berman et al., 2008; Bratman et al., 2015; Kaplan, 1995) which is closely correlated to academic motivation (Murayama et al., 2013). Several studies have discovered a cost-effective and feasible method of biophilic exposure to improve wellbeing and cognitive function: views of biophilia through a window (Heschong Mahone Group., 2003; Roe et al., 2013; Ulrich, 1984.) One study used EEG methods to explore the effects of viewing biophilia through a window in work and educational environments and found that individuals who viewed biophilia through a window versus those who viewed non-biophilic scenes (e.g. urban scenes) through a window showed significantly reduced stress and higher cognitive functioning (Roe et al., 2013). This study showed that exposure to biophilia through a window was a cost-effective and sufficient method to improve wellbeing and cognitive function.

The positive effects of biophilic exposure on improved cognitive functions to predict academic performance is well-established (Berman et al., 2008; Bratman et al., 2015, Kaplan, 1995; Kellert, 1995.). Despite academic motivation having been found to have a strong influence on cognitive function (Konishi, 2018) to predict academic success, there currently lacks research on the direct impacts of biophilic exposure on academic motivation. We aim to address this research gap by exploring the direct effects of biophilic exposure on academic motivation.

Studying the effects of biophilic exposure through windows on academic motivation implicates a potentially beneficial finding for future designs of educational settings that may lead to improved academic performance and achievements. The findings of this study could provide a cost-effective and feasible method to improve academic motivation and academic success which are predictors of long-term health benefits and life satisfaction (Moller, 2010; Murayama et al., 2013).

Research question and hypothesis

This study aims to fill in the research gap by exploring the direct effects of biophilic exposure on academic motivation. The research question that this paper aimed to study was: How does exposure to biophilic scenery through a window affect academic motivation? As biophilic exposure is found to improve cognitive function and cognitive function is positively correlated to academic motivation (Maruyama, 2013), we hypothesized that participants who were exposed to classrooms with views of biophilic scenery will report higher academic motivation than participants who were exposed to classrooms with windows but views of non-biophilic scenery (e.g. urban scenery).

Methods

Participants

According to our power analysis, we determined we needed to recruit a minimum of 278 participants assuming a minimum effect size of 0.3, alpha of 0.05, and power of 0.8. One limitation we met was that effect size could not be lowered as we would need an unrealistically high number of participants which is not feasible for the scope of our study. We also could not

increase the effect size because we believed that looking at images of classrooms with biophilic scenery and non-biophilic scenery would not produce that large of an intended effect. In terms of our t-test, we conducted a one-tailed T-test as research has shown that biophilic scenery has an increase on positive outcomes such as wellbeing and cognitive function which is positively correlated to academic motivation (Murayama et al., 2013) so it would be unreasonable to assume biophilic exposure would decrease academic motivation.

Overall, we received responses from 330 participants, out of which we removed 61 responses either due to incomplete responses or indicated no consent to the survey. This left us with 269 eligible responses that were used in our study that we proceeded to conduct data analysis with. Our participants had a mean age of 20.8 years with a standard deviation of 2.2. The majority of participants identified as female (58%) totalling up to 157 with the next most common identity of gender was male (39%) with a total of 105 participants. There were only 6 individuals who identified as non-binary which was 2% of the participants and the remaining 1 individual preferred not to disclose their gender identity. In terms of student status, 259 responses were from students (98%) and out of the remaining 5 participants, 3 of them explicitly answered they were not a student and 2 of them did not answer the question. We also asked our participants what year of study they were in, most participants were in second year totalling up to 27%. This was followed by fourth year with 23%, third year with 21%, fifth and above at 14%, and lastly first year with 13%.

Conditions

The independent variable of our study was the presence of biophilic scenery which we tested by randomly assigning our participants to an experimental or control group. With two conditions, we used a between-subjects design to avoid the potential carry-over effects of a within-subjects design as well as to minimize the time needed to take our survey to combat fatigue effects. The experimental group was placed in the 'biophilic scenery' condition, which showed participants a collage of classrooms with greenery viewable from a window. The control condition showed participants a collage of the same classrooms as the experimental conditions; however, the scenery is non-biophilic and is replaced with urban scenery. To test participants' responses to biophilic scenery, the two different collages of classroom photos were manipulated using the Picsart mobile application. Upon presentation of the classrooms, participants were asked to imagine that these would be their classrooms for the upcoming semester. To maximize comparability and control for extraneous variables, we used the same classroom photos for both conditions- besides the window scenery, both collages of classrooms were identical.

Measures

The dependent variable of our study was academic motivation. To measure this, we used the Academic Motivation Scale (AMS) which is a scale that has satisfactory internal consistency and test-retest consistency (Vallerand et al., 1992). The AMS measures the motivations for why students are in school and why they continue to try. More specifically, the AMS prompts students to think about the reasons as to why they go to school. To measure academic motivation, participants are presented with 20 statements and are asked to rate how much they relate to each statement regarding why they go to school on a scale of 1-7. The AMS scale gave us three measures of motivation: 1) Amotivation 2) Internal and 3) External motivation. Amotivation refers to a lack of motivation. An example of a statement to measure amotivation

would be: “I can’t see why I go to college, and frankly I couldn’t care less”. Another measure was external motivation, which is how motivated you are by things like money or a job. For example, the statement: “In order to obtain a more prestigious job later on”. The third measure was internal motivation, which is how motivated you are by curiosity or a passion for learning. An example of a statement for internal motivation is “Because I experience pleasure and satisfaction while learning new things”. To get an overall measure of motivation, we combined the measure of external and internal motivation as both types of motivation are important in understanding academic achievement (Vallerand, 1989).

Procedure

The study recruited participants from the University of British Columbia (UBC) by asking students at the UBC Nest to participate in a three-minute survey for an Environmental Psychology study. Participants were presented with a consent form that provided them with the option to either consent and continue with the study or not consent, which would terminate the survey. Subsequently, participants were randomly assigned to either the experimental or control group. Those in the control group were shown photos of classrooms without greenery, while those in the experimental group were shown the same classrooms with greenery photoshopped into the windows. Both groups were then asked to imagine that the classrooms shown were theirs for the upcoming semester and rate them based on a scale of enjoyment and how they would feel in these classrooms. Participants then answered the AMS questions to measure their motivation and completed four demographic questions. Data was collected between March 14th and 23rd. The study concluded by thanking participants for their time at the end of the survey. We encountered two challenges during this study. The first challenge was that we initially had trouble photoshopping the classrooms to make it look realistic, so we had to experiment with several different photoshopping apps before finding success with Picsart. The second challenge that we faced was difficulty finding enough participants. Since most students in the UBC Nest were either studying or eating, many were unwilling to participate in a research study.

Results

To determine our results for each of our measures of motivation we used an independent sample t-test. As stated in our hypothesis, we believed that participants who viewed classrooms with biophilic scenery would report higher levels of academic motivation on the AMS.

Amotivation

The first dimension of motivation we measured was amotivation, which refers to a *lack* of motivation; therefore we predicted that the results for amotivation would be contrary to our hypothesis: the control group would report higher levels of amotivation than the experimental group. Our results showed us that the control group did indeed report higher levels of amotivation, however, the difference was not statistically significant between the experimental group (N=133, M=1.6, SD= 1.7) and the control group (N=136, M=1.2, SD=1.3) (p=0.97) (See Table 2 and Figure 1 of Appendix D).

External and Internal Motivation

Next, we hypothesized that participants in the experimental condition will report higher external and internal motivation than the control condition.

For external motivation, our results showed that there were no statistically significant differences between the experimental group and the control group (M=5.3, SD=1.4 and M=5.1, SD=1.5, respectively) (p=0.22) (See Table 3 and Figure 2 of Appendix D). However, for internal motivation the results did show a statistically significant difference between the experimental group (M=4.4, SD=1.3) and the control group (M=4.1, SD=1.2) (p= 0.038) (See Table 4 and Figure 3 of Appendix D). Finally, an overall measure of motivation was measured through combining the results from external and internal motivation. From this, we saw that there was no statistically significant difference between the experimental group and the control group (M=4.8, SD=1.2 and M=4.6, SD=1.2, respectively) (p= 0.078) (See Table 5 and Figure 4 of Appendix D).

Additional Findings

Although this was not in our initial hypothesis, the results from when we asked students how much they enjoyed the set of classrooms that they were shown were found to be statistically significant between the experimental group and the control group (M=5.8, SD=1.1 and M=3.1, SD=0.8, respectively) (p<0.001) (See Table 6 and Figure 5 of Appendix D).

Overall, our results partially support our hypothesis as it seems that biophilic scenery only has an effect on internal motivation, but not amotivation or external motivation.

Discussion

Our results suggest that biophilic scenery, when seen through windows, has a partial effect on academic motivation. Mainly, through internal motivation. This can be highlighted as a positive outcome as it has been noted by previous research that internal motivation has a significant impact on cognitive function to predict academic success whereas external motivation does not (Konishi, 2018).

Overall, our results suggest that the use of biophilic scenery to promote positive outcomes can be effective for students and hints at potential directions for future research with other demographics. In addition, our research shows that the effects of biophilic scenery on individuals is not just limited to cognitive function and well being but also on academic motivation for future research to predict academic success.

Due to our study not reaching the targeted sample size from our power analysis, our results may not truly be generalized from our sample population. Another limitation of our study was that we used a between-subjects design and it was possible that one group had initially different motivation scores than the other, impacting the outcomes of our results. Another limitation was that there was no measure of motivation before exposure to the classrooms. Future research should consider making sure participants complete the AMS motivation scale before and after conducting the study. An additional limitation to our study was that we conducted a non-random recruitment process because we found all our participants through convenience sampling and asked them to complete our survey by going up to them in study spaces and common areas, which could impact the validity of our results. This could be fixed by using random sampling in the future, with a wider sub-set of participants. Lastly, the use of a singular form of greenery- trees outside windows, restricts our operationalization of our independent variable, biophilic scenery. This could be addressed by looking at other forms of greenspace, such as bushes or fields. Future research should consider an in-person study as opposed to

virtual, where participants are placed inside a classroom to be able to test if the effects on internal motivation scores are significant.

Recommendations

Our study has shown that biophilic exposure through windows, although has a minor impact on academic motivation as a whole, seems to have a significantly positive impact on internal motivation, which is arguably a more important dimension of academic motivation in predicting academic success (Koshini, 2018). Thus, we propose several recommendations for the UBC SEEDs organization to consider to increase viewable biophilia from classroom windows. Firstly, when it comes to the construction of new classrooms and buildings at UBC, we recommend prioritizing the incorporation of large windows to allow sufficient natural light to enter and provide biophilic scenery in classrooms across campus. Currently, on UBC campuses, there are lecture halls with windows that are too small to see any biophilic scenery outside, impeding the amount of biophilic scenery and natural light that's able to enter classrooms. Moreover, it would also be advantageous to design classroom windows to face areas with existing biophilic scenery, such as forests or fields. Next, it is recommended that outdoor areas surrounding buildings be utilized more effectively. This could be achieved by planting trees in areas such as the expansive concrete space near the Hugh Dempster Pavilion, which could potentially improve student motivation and wellbeing, as it did when participants viewed forests and it was effective in reducing stress and anxiety (Zhang et al., 2022). Finally, as a short-term solution, it may be beneficial to install vines or other types of vegetation on the external walls of structures that are immediately viewable from classroom windows. While some buildings already incorporate this feature at UBC, extending it to other buildings would allow students to benefit from exposure to biophilic scenery where there are either already existing urban structures or limited land space to grow biophilic structures such as trees.

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Appendix

Appendix A: Consent Form

UNIVERSITY OF BRITISH COLUMBIA

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Consent Form

Class Research Projects in PSYC 421 - Environmental Psychology

Principal Investigator: Dr. Jiaying Zhao
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Institute for Resources, Environment and Sustainability
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Introduction and Purpose

Students in the PSYC 421 – Environment Psychology class are required to complete a research project on the UBC campus as part of their course credit. In this class, students are required to write up a research proposal, conduct a research project, collect and analyze data, present their findings in class, and submit a final report. Their final reports will be published on the SEEDS online library (https://sustain.ubc.ca/teaching-applied-learning/seeds-sustainability-program). Their projects include online surveys and experiments on a variety of sustainability topics, such as waste sorting on campus, student health and wellbeing, food consumption and diet, transportation, biodiversity perception, and exercise habits. The goal of the project is to train students to learn research techniques, how to work in teams and work with UBC clients selected by the UBC SEEDS (Social Ecological Economic Development Studies) program.

Study Procedures

If you agree to participate, the study will take about 10 minutes of your time. You will answer a few questions in the study. The data will be strictly anonymous. Your participation is entirely voluntary, and you can withdraw at any point without any penalty. Your data in the study will be recorded (e.g., any answer you give) for data analysis purposes. If you are not sure about any instructions, please do not hesitate to ask. Your data will only be used for student projects in the class. There are no risks associated with participating in this experiment.

Confidentiality

Your identity will be kept strictly confidential. All documents will be identified only by code number and kept in a locked filing cabinet. You will not be identified by name in any reports of the completed study. Data that will be kept on a computer hard disk will also be identified only by code number and will be encrypted and password protected so that only the principal investigator and course instructor, Dr. Jiaying Zhao and the teaching assistants will have access to it. Following the completion of the study, the data will be transferred to an encrypted and password protected hard drive and stored in a locked filing cabinet. Please note that the results of this study will be used to write a report which is published on the SEEDS library.

Remuneration

There is no remuneration for your participation.

UNIVERSITY OF BRITISH COLUMBIA

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Contact for information about the study

This study is being conducted by Dr. Jiaying Zhao, the principal investigator. Please contact her if you have any questions about this study. Dr. Zhao may be reached at (604) 827-2203 or jiayingz@psych.ubc.ca.

Contact for concerns about the rights of research subjects

If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, contact the Research Participant Complaint Line in the UBC Office of Research Ethics at 604-822-8598 or if long distance e-mail RSIL@ors.ubc.ca or call toll free 1-877-822-8598.

Consent: Your participation in this study is entirely voluntary and you may refuse to participate or withdraw from the study at any time. You also may postpone your decision to participate for 24 hours. You have the right to choose to not answer some or any of the questions. By clicking the "continue" button, you are indicating your consent to participate; hence, your signature is not required. The researchers encourage you to keep this information sheet for your records. Please feel free to ask the investigators any additional questions that you have about the study.

Ethics ID: H17-02929

Appendix B: Qualtrics Survey

Q1 Imagine these are your classrooms for the upcoming semester.

Q2 How enjoyable do you find these classrooms?

- ○ Very not enjoyable (1)
- ○ Not enjoyable (2)
- ○ Fairly not enjoyable (3)
- ○ Neutral (4)
- ○ Fairly enjoyable (5)
- ○ Enjoyable (6)
- ○ Very enjoyable (7)

Q3 How would you feel in these classrooms?

- ○ Very bad (1)
- ○ Bad (2)
- ○ Fairly bad (3)
- ○ Neutral (4)
- ○ Fairly good (5)
- ○ Good (6)
- ○ Very good (7)

Q4 On a scale of 0-7 (0=Does not correspond at all, 7=Corresponds exactly), rate how much the following statements correspond to you in response to the question below.

Q5 Why do you go to school?

	0	1	2	3	4	5	6	7
Honestly, I don't know; I really feel that I am wasting my time in school. ()								
I once had good reasons for going to school; however, now I wonder whether I should continue. ()								

I can't see why I go to school and, frankly, I couldn't care less. ()	
I don't know; I can't understand what I am doing in school. ()	
Because I need at least a degree in order to find a high-paying job later on. ()	
In order to obtain a more prestigious job later on. ()	
Because I want to have "the good life" later on. ()	
In order to have a better salary later on. ()	
To prove to myself that I am capable of completing my degree. ()	
Because of the fact that when I succeed in school I feel important ()	
To show myself that I am an intelligent person. ()	
Because I want to show myself that I can succeed in my studies ()	
Because this will help me make a better choice regarding my career orientation. ()	
Because eventually it will enable me to enter the job market in a field that I like. ()	
Because I think that an education will help me better prepare for the career I have chosen. ()	
Because I believe that my education will improve my competence as a worker. ()	
Because I experience pleasure and satisfaction while learning new things. ()	
For the pleasure I experience when I discover new things never seen before. ()	
For the pleasure that I experience in broadening my knowledge about subjects which appeal to me. ()	
Because my studies allow me to continue to learn about many things that interest me. ()	

Start of Block: Demographics

Q1 What is your age?

_____

Q2 What gender do you identify as?

- ○ Male
- ○ Female
- ○ Non-binary / third gender
- ○ Prefer not to say

Q3 Are you currently a student?

- ○ Yes
- ○ No

Q4 What year of study are you in?

- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5+

Appendix C: Photos used for each condition

Figure 1: Photos used for the experimental condition (biophilic scenery viewable from a window)

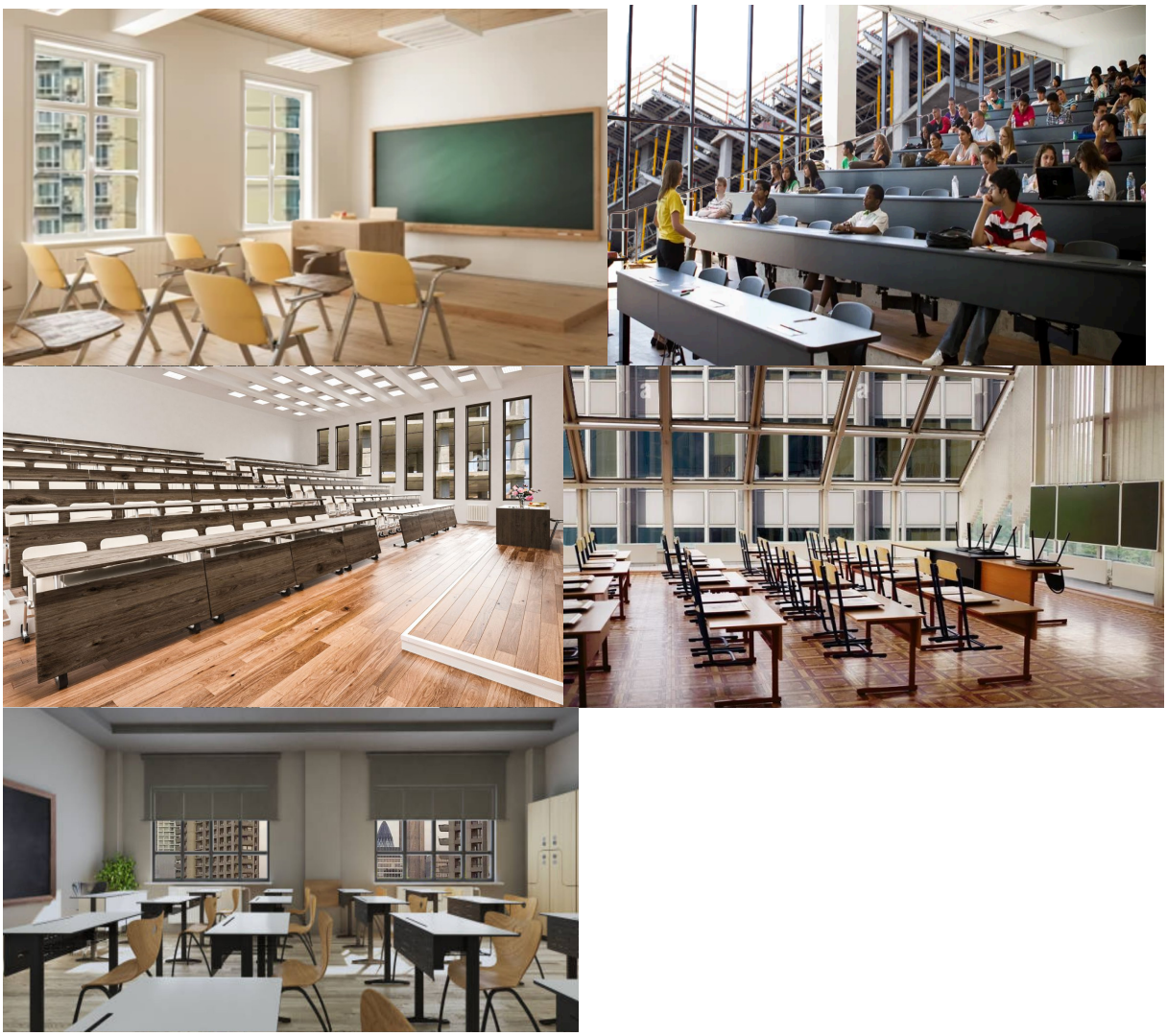

Figure 2: Photos of classrooms in the control condition (no biophilic scenery viewable from a window)

Appendix D: Results

Descriptive Statistics

	amotivation		external motivation		internal motivation		liking of classroom		motivation	
	Greenery window	no greenery window	Greenery window	no greenery window	Greenery window	no greenery window	Greenery window	no greenery window	Greenery window	no greenery window
Valid	133	136	133	136	133	136	133	136	133	136
Missing	0	0	0	0	0	0	0	0	0	0
Mean	1.598	1.180	5.289	5.146	4.402	4.134	5.827	3.132	4.845	4.640
Std. Deviation	1.754	1.347	1.447	1.537	1.347	1.266	1.099	0.831	1.165	1.158
Minimum	0.000	0.000	0.333	0.000	0.500	0.000	1.000	1.500	0.817	0.000
Maximum	7.000	7.000	7.000	7.000	7.000	6.800	7.000	5.500	7.000	6.850

Table 1: Descriptive statistics of all independent variables

amotivation t test

Independent Samples T-Test

	Test	Statistic	df	p	Effect Size	SE Effect Size
amotivation	Student	2.193	267	0.985	0.267	0.123
	Mann-Whitney	10241.500		0.971	0.132	0.070

Note. For all tests, the alternative hypothesis specifies that group *Greenery window* is less than group *no greenery window* .
Note. For the Student t-test, effect size is given by Cohen's d. For the Mann-Whitney test, effect size is given by the rank biserial correlation.

Table 2: Independent sample T-Test for independent variable of amotivation

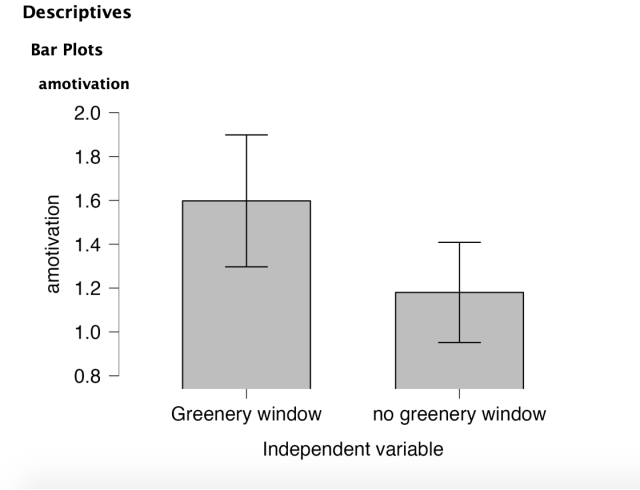

Figure 1: Mean amotivation score for each condition

Independent Samples T-Test

	Test	Statistic	df	p	Effect Size	SE Effect Size
external motivation	Student	0.789	267	0.215	0.096	0.122
	Mann-Whitney	9533.000		0.222	0.054	0.070

Note. For all tests, the alternative hypothesis specifies that group *Greenery window* is greater than group *no greenery window* .
Note. For the Student t-test, effect size is given by Cohen's d. For the Mann-Whitney test, effect size is given by the rank biserial correlation.

Table 3: Independent sample T-Test for independent variable of external motivation

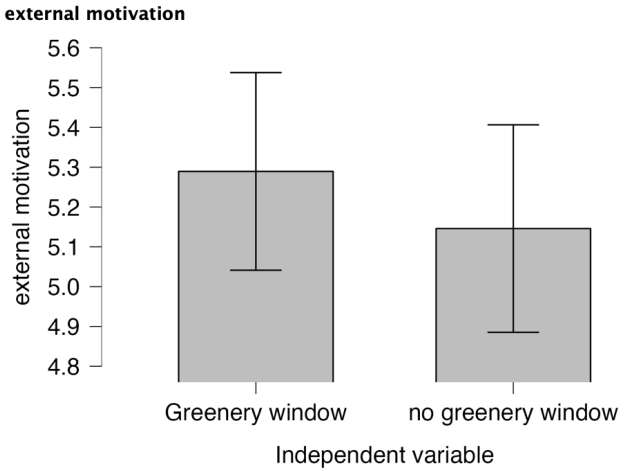

Figure 2: Mean external motivation score for each condition

Independent Samples T-Test

	Test	Statistic	df	p	Effect Size	SE Effect Size
internal motivation	Student	1.680	267	0.047	0.205	0.123
	Mann-Whitney	10175.000		0.038	0.125	0.070

Note. For all tests, the alternative hypothesis specifies that group *Greenery window* is greater than group *no greenery window* .
Note. For the Student t-test, effect size is given by Cohen's d. For the Mann-Whitney test, effect size is given by the rank biserial correlation.

Table 4: Independent sample T-Test for the independent variable of internal motivation

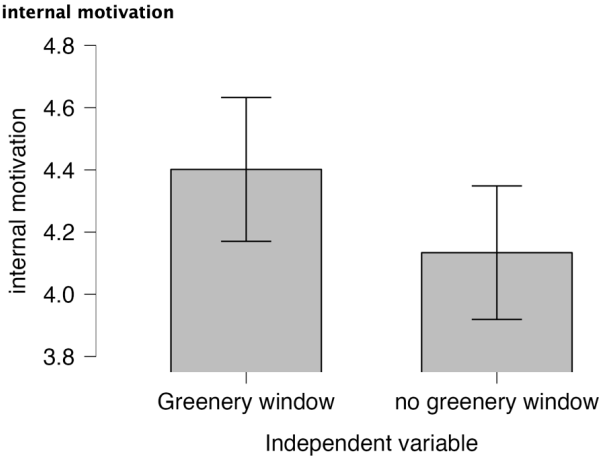

Figure 3: Mean external motivation score for each condition

Independent Samples T-Test

	Test	Statistic	df	p	Effect Size	SE Effect Size
motivation	Student	1.452	267	0.074	0.177	0.122
	Mann-Whitney	9950.000		0.078	0.100	0.070

Note. For all tests, the alternative hypothesis specifies that group *Greenery window* is greater than group *no greenery window* .
Note. For the Student t-test, effect size is given by Cohen's d. For the Mann-Whitney test, effect size is given by the rank biserial correlation.

Table 5: Independent sample T-Test for the independent variable of motivation

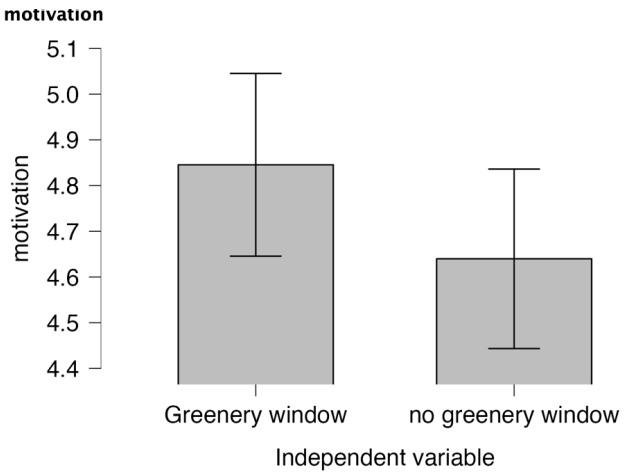

Figure 4: Mean motivation score for each condition

Independent Samples T-Test

	Test	Statistic	df	p
liking of classroom	Student	22.716	267	< .001
	Mann-Whitney	17356.000		< .001

Table 6: Independent sample T-Test for the variable liking of classroom

Group Descriptives

	Group	N	Mean	SD	SE	Coefficient of variation
liking of classroom	Greenery window	133	5.827	1.099	0.095	0.189
	no greenery window	136	3.132	0.831	0.071	0.265

Table 7: Descriptive statistics for liking of classroom

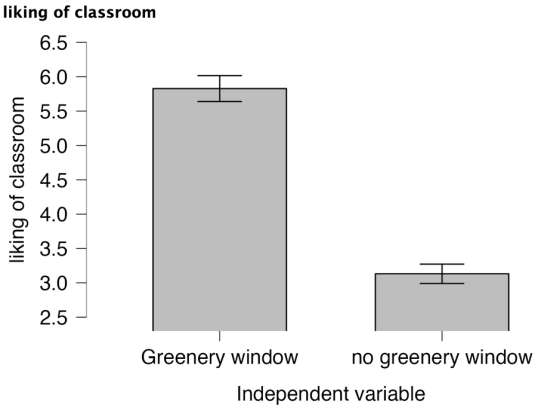

Figure 5: Mean liking of classroom score for each condition

Frequencies for gender

gender	Frequency	Percent	Valid Percent	Cumulative Percent
Female	157	58.364	58.364	58.364
Male	105	39.033	39.033	97.398
Non-binary	6	2.230	2.230	99.628
Prefer not to say	1	0.372	0.372	100.000
Missing	0	0.000		
Total	269	100.000		

Note. age has more than 10 distinct values and is omitted.

Table 8: Frequency table of participant gender

Frequencies for Currently a student

Currently a student	Frequency	Percent	Valid Percent	Cumulative Percent
No	3	1.115	1.124	1.124
Yes	264	98.141	98.876	100.000
Missing	2	0.743		
Total	269	100.000		

Table 9: Frequency table of participant enrollment in school

Frequencies for Year of study

Year of study	Frequency	Percent	Valid Percent	Cumulative Percent
1	35	13.011	13.359	13.359
2	71	26.394	27.099	40.458
3	56	20.818	21.374	61.832
4	63	23.420	24.046	85.878
5+	37	13.755	14.122	100.000
Missing	7	2.602		
Total	269	100.000		

Table 10: frequency table of participant year of study

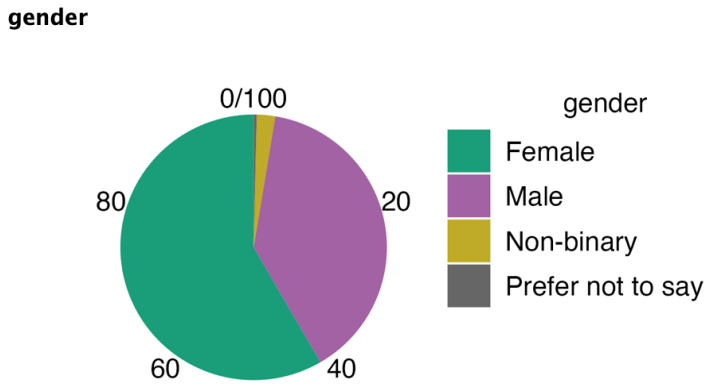

Figure 6: Pie chart of participant gender

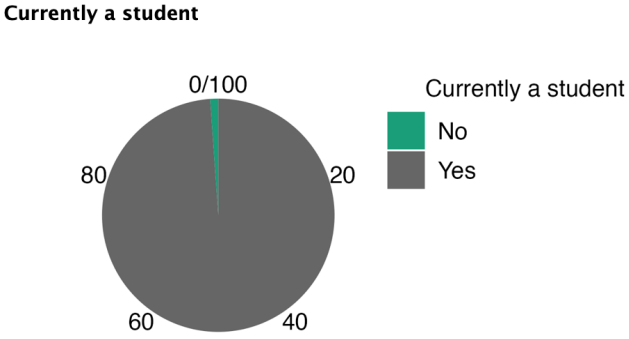

Figure 7: Pie chart of participant enrollment in school

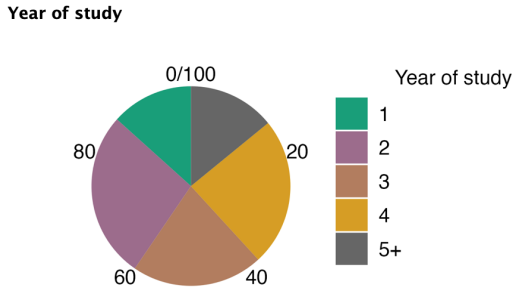

Figure 8: Pie chart of participant year of study

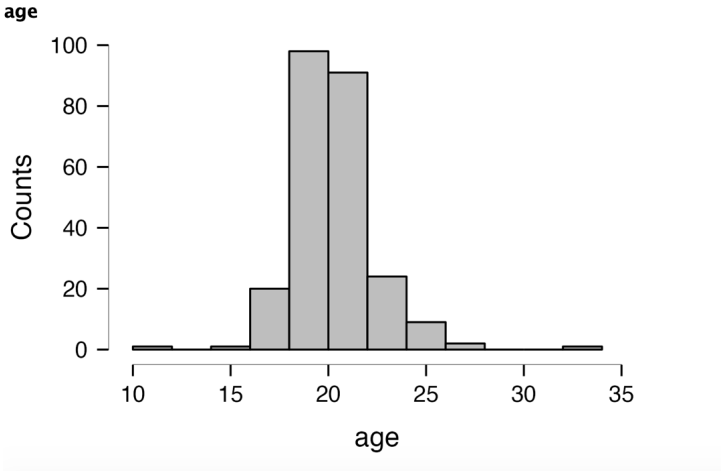

Figure 9: Frequency distribution of participant age

Appendix E: Contributions of each member

Survey and data collection

Survey creation:	Kate, Naomi, Jay, Ninj, Monique
Qualtrics creation:	Jay
Data Analysis:	Shaye
Photoshopping the photos for each condition:	Naomi
Recruitment of participants:	All members contributed to this

Proposal

Introduction:	Kate
Background literature:	Kate
Hypothesis:	Naomi, Ninj
Anticipated Outcomes:	Naomi, Ninj
Methodology:	Shaye
Anticipated outcomes:	Monique, Jay
References:	Monique
Appendix:	All members contributed to this
Power Analysis:	Shaye

Presentation

Creation of slides:	Jay, Kate, Monique, Naomi, Ninj
Research Question and hypothesis:	Naomi
Participants:	Ninj
Conditions:	Jay
Measures:	Kate
Results:	Shaye
Implications and Recommendations:	Monique

Final Report

Introduction:	Naomi
Research question and hypothesis:	Naomi
Participants:	Ninj
Conditions:	Jay
Measures:	Kate
Results:	Shaye
Discussion:	Shaye, Monique
Recommendations:	Monique
References:	Naomi
Appendix:	Shaye, Naomi