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ACADEMIC PERFORMANCE AND REDEFINING SPACE

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ACADEMIC PERFORMANCE AND REDEFINING SPACE

By

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A capstone project submitted for Graduation with University Honors

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University Honors
University of California, Riverside

APPROVED

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ABSTRACT

During the Covid-19 pandemic, students faced the unique challenge of having to transition to completely virtual classes. With this transition, many students lost access to the dedicated learning space that campus provided to them. Anecdotally, students reported feeling a lack of separation between school and home that made it difficult to focus on schoolwork. Thus, the aim of this research was to evaluate students' perceptions of studying virtually by way of utilizing "Space-Blocking," a study technique designed to create separation between one's home and virtual school environment. Forty-seven UC Riverside students were recruited for the study. Half of the participants were asked to implement Space-Blocking for one quarter (i.e., dedicate one area of their living space only for the completion of school work), while the other half continued with their typical study techniques without explicit instruction about where to complete the work. Both groups were surveyed about their academic experiences at four time points throughout the quarter. We found that at the end of the quarter, students who used Space-Blocking reported feeling that they were able to focus in classes and on their studying significantly more than those who did not use Space-Blocking. Additionally, students who used Space-Blocking agreed that it would be a beneficial technique to incorporate into their future studies. Overall, the potential usefulness of Space-Blocking as a study technique for students may be able to be applied to post-pandemic online classes.

Keywords: Academics, Covid-19, Virtual learning, Space-Blocking, Studying

INTRODUCTION

In March of 2020, the U.S. entered lockdown due to the COVID-19 virus. After the pandemic started, daily life took a new form that affected everyone across all walks of life. But for students, the ways in which they had to adjust in such a short period of time may have deeply affected their education and ways that they think about school. When it comes to college students—those transitioning into adulthood, moving between colleges, and/or finishing their last couple of months of college—they had to become a new type of student. They were asked to become students in a virtual environment, and for many, that was completely new.

Given the emergency transition to remote learning, there was very little time for students to adjust to what would become the next two years. There is some research to support this lack of preparedness to engage with online learning. For example, 1,557 Trinity Dublin College University students were surveyed and it was found that less than 1% reported no impact on studying ability as a direct result of COVID-19 (Clarke et al., 2021). The pandemic resulted in logistical problems worldwide (i.e. commuting, class structure, availability of study areas, etc.) that students brought up as points of concern related to their education. These findings support the widespread effects that students faced as a result of the new mode of learning.

A study done by Aguilera-Hermida et al. (2020) focused on four groups of University students from America, Mexico, Peru, and Turkey, and measured their perceptions of being in an emergency online format during the pandemic. In America, it was recorded that the stronger the preference for face-to-face learning, the more students strongly related to struggling in online classes, and had poorer engagement (i.e., the learner's ability to focus, pay attention, and absorb the material) compared to those that preferred online learning. When students were asked about their motivation, it was found that all students except those from Turkey decreased after

transitioning to online learning. US students also had the lowest cognitive engagement after the transition to online across all four groups. Overall, there was an increase in negative emotions during the pandemic and American students had the lowest cognitive engagement. Given this information, perhaps increasing cognitive engagement can improve the relationship students have with online learning despite the virtual setting, while simultaneously increasing motivation to learn.

In a different study, American, South Korean, and Columbian students were surveyed and it was found that anxiety and stress towards learning increased due to the pandemic (Zapata-Cuervo et al., 2021). Given that students were cut off from their structured school environments during the pandemic, it seems likely that such separation might be related to a drop in engagement with school. Therefore, it is important to study ways to increase students' feeling of connection to school while they are learning at home. By creating a structure to target the issue of being a virtual student away from campus, it may be possible to alleviate some of the concerns revealed in prior work. Specifically, perhaps changing the physical space in which students engage with their online classes may help improve engagement with online courses.

Effects of Environmental Space on Study Habits

Environmental Contexts and Memory

Context dependent memory, which states that what is learned in a given environment, and recalled in that same environment, should lead to better recall compared to a different environment—a phenomenon called the reinstatement effect (Godden & Baddeley, 1975). In this study, participants who learned and recalled a list under water were able to better recall underwater than when they were on land (and vice versa). Therefore, it stands to reason that students who study in the school space perform better on their classwork when they complete it

in the school space. However, during the pandemic, access to this space was lost as students were required to learn from home. Fortunately, it has been shown that *mental representations* of an environment can effectively elicit reinstatement effects without the need to physically reinstate the environment (Smith, 2014). Smith (1979) showed that when participants were asked to recall information in a testing room, mental reinstatement of study spaces had the same level of recall as those who study and test in the same physical environment. With a physical school environment being absent, it may then be possible to help students reinstate their school environment via a combined effort of environmental cues and mental representations. The environmental cues in question should be consistent with school-oriented cues and easily be made consistent, and could be made possible by dedicating a specific space at home to be only school related. After the establishment of this space, students would need to be encouraged to use the space consistently for the completion of schoolwork. This consistency would lead to habit formation, making it easier and easier to associate and engage in the space with academics.

Habit Formation

Habit formation is the result of repetition and is the tendency to repeat particular responses in a given context, becoming cognitively automatic (Ouellette & Wood, 1998). In order to establish and maintain a habit there needs to be consistency, but other factors such as intention, satisfaction with the results of the behavior(s), and rewards for performance can influence habit formation (Lally & Gardner, 2013). For students, this means that it could be possible to form helpful habits for academic success if given sufficient motivation and benefits. Consequently, this also means that in order to create this association, habitual use of the space for the sole purposes of studying is necessary.

Initially, attitude can influence the rate of a practiced behavior, but over time the repeated behavior in a consistent context becomes habit, making it stronger than the initial attitudes that influenced the behavior (Verplanken & Orbell, 2022). To make use of this attitude-behavior process, it is assumed that students want to perform well in their classes. This attitude could be used to direct school-related behaviors that would have been performed into a more controlled set of circumstances. Consider the example of wanting to study for a test. This initial attitude would be a prompt and, ideally, lead to the behavior of studying. To then redirect this attitude-behavior, the student would only start and engage in studying while sitting at a particular desk compared to studying inconsistently in indiscriminate locations, which may help to form the habit of studying in that particular space. Then without the initial prompt of wanting to study for a test, coming back to this desk space would then prompt studying without needing the initial attitude.

Hypothetically, this initial attitude turned behavior could mean that cue formation for studying in a space could be created, and this particular behavior cue may also secure the formation of this particular studying habit (Lally, & Gardner, 2013). If the study space itself does not, or rarely, changes then it is feasible to say that it is a recurring cue that can trigger school-related activities once its been associated with that intended behavior (Verplanken & Orbell, 2022). Additionally, controlling aspects of the environmental context has shown that it is possible to increase or decrease the likelihood of repeating behaviors . If the goal is to encourage repetition of model school-behaviors, like studying or focusing in class, then by avoiding things that are not academically related by studying in a single location, this could help to control the space being used and make it a stable cue. For example, if notebooks are already a cue for school and phone use is a cue for communication, then consistently avoiding phone use in a single

location, but making sure notebooks are present, would create a space that is primed to elicit school-related behaviors (and not communication-related behaviors). Therefore, the dedicated space should then act as a cue for at-home school-related activities once its been established, and this should continue to cue students, leading to stronger habit formation.

The Current Study

In the current study, we sought out to find if there was any merit in establishing a physical space wherein students could dedicate their school work and be able to feel more productive taking online classes. It was assumed that most of the students would be in online classes and relying on spaces like home to do school-related activities because of the COVID-19 pandemic. This gave rise to “Space-Blocking,” which is a proposed studying tool that originates from theories such as habit formation and context dependent memory, and is centered on the influence of one’s environmental context. This study technique consists of individuals dedicating a space only to academic work, can be implemented into any already existing study habits, and can be easily tailored to suit individual needs. Ideally, no other task other than school related activities are to be done in said space, and would be free from non-school related distractions. Thus, resulting in a school-like environment at home, with the benefits of being in a controlled space, without having to physically be at a campus.

Space-Blocking as a tool directs school-related activities to a set space to create the presence of an academic environment. By presuming that students have initial routines surrounding their academics, Space-Blocking could help redirect those routines more thoughtfully in a way that creates habits by asking them to be directed towards a set space repeatedly. Over a long enough period of time, these routines become habitual in this set space (Ouellette & Wood, 1998; Verplanken & Orbell, 2022). The set space chosen should already

contain well-established school cues (i.e. notebooks, pens, index cards, laptop, etc.) that already prime students to do school-related activities. These cues, alongside the habitual routines, should prompt students to engage in school-related activities in the space easily (Verplanken & Orbell, 2022). Per its design, Space-Blocking will hypothetically work best if it is treated consistently enough to promote the formation of an association of a particular space with academics.

It was hypothesized that students would perceive that Space-Blocking is a beneficial study tool that helps them perform better academically at home. We predicted this because students had lower engagement and motivation since the switch to online classes, and perhaps the reason that this was reported was due to having been removed from a school environment (Aguilera-Hermida et al., 2020). Students should report improvements in their academic performance, feel better about taking virtual classes, be able to concentrate while in class and doing coursework, and see some changes in their academics overall. There should be a significant difference in responses from participants who use Space-Blocking compared to those that don't in order to show that Space-Blocking is functional and worth using in the future.

Method

Participants

A total of 103 participants were recruited from the University of California, Riverside SONA participant pool for a quarter-long study of Space-Blocking. Of these 103 participants, only 47 were included in the final sample due to attrition across the quarter. Three different groups of Introductory Psychology students were given a survey at four different time points throughout the quarters. We recruited three participants in the 6-week Summer Session B 2021, thirty-seven in the 10-week Fall 2021, and seven in the 10-week Winter 2022. The students surveyed self-reported as being 36 females, 11 males (Fig. 1) and had an average of 19.2 years

old, with the youngest being 16 (with parental consent to participate, per IRB regulations) and the oldest participant being 26 years old. Students were all full-time students. See Fig. 2 to see the ethnic makeup of students. The job status of the students was characterized by 48.9% not having a job, 23.4% not having a job but were actively looking, 23.5% having a part-time job, and 4.3% having a full-time job (Fig. 3). Only 14.9% of participants reported that they had family obligations, with 10.6% reporting that they had split responsibilities with one, or multiple people in the household (Fig. 4). Participants received partial course credit for their involvement in the study (0.5 credits per each of four surveys, for a total of 2 credits—the maximum we are allowed to award for any single study).

Figure 1

Gender of participants

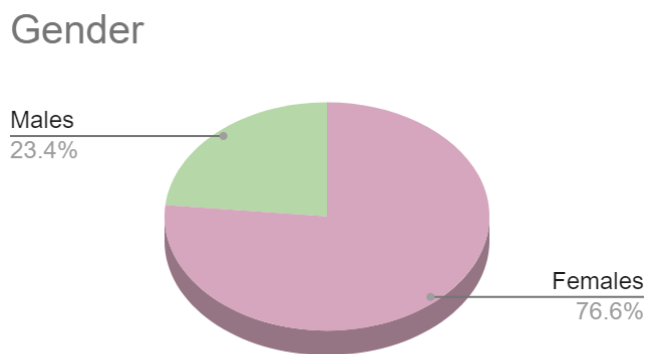


Figure 2

Ethnicity of participants

Ethnicity

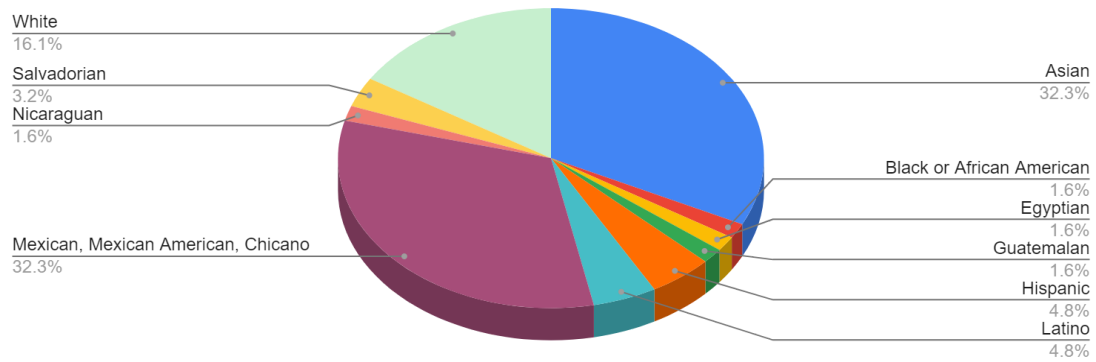


Figure 3

Participant work status

Do you currently work?

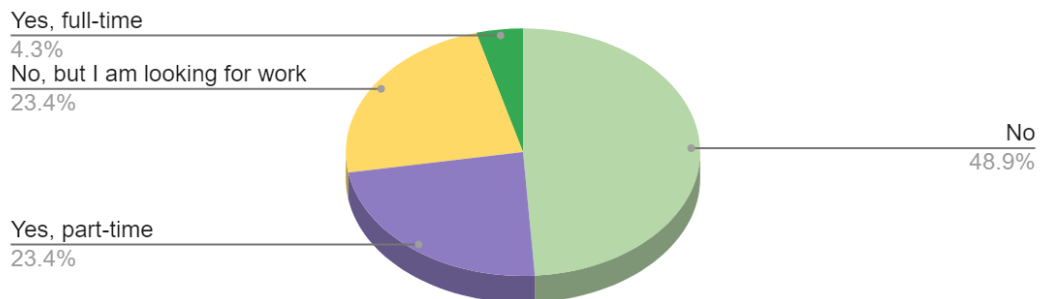
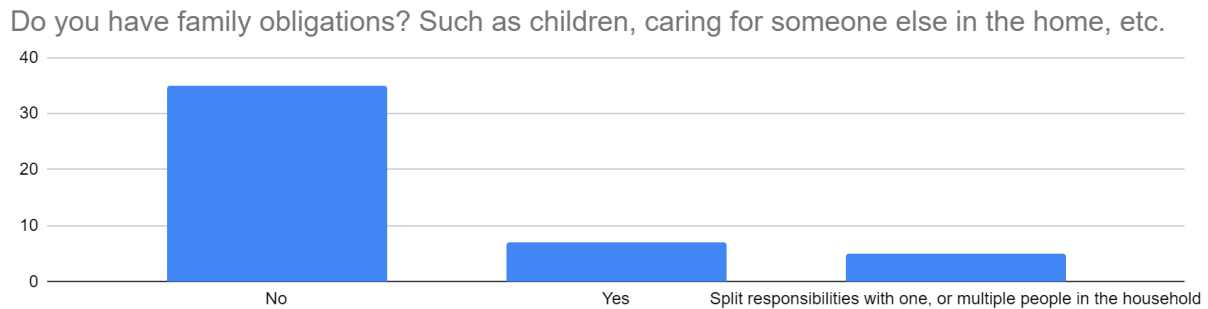


Figure 4

Participant familial obligations



Materials & Measures

Participants were randomly assigned into one of two groups. After the final sample was compiled, a total of twenty-eight participants had been randomly assigned to the control group, and nineteen were in the Space-Blocking condition. Participants in the control group were asked to report on their studying habits, emotions, and personal motivation during the quarter and were instructed not to change anything about their study habits (refer to Appendix A for instructions). Participants in the Space-Blocking condition were asked to implement Space-Blocking, were instructed on how to use it, and were asked to report their experiences while using it. Space-Blocking was described as a technique that was to be implemented on top of any other study habits. Space-Blocking was described as finding a space that they could dedicate to do their school work. The space that they choose needed to fit criteria, to the best of their abilities, such as being free of distractions, people, and being consistently available. The space could be dedicated to anything related to schoolwork including, but not limited to, studying, attending virtual class, homework, etc. The instructions also included suggestions if they encountered any concerns. For example, if they did not have a single space to use, it was suggested that they find a space that they could use for specific times of the day only for school and avoid things such as

phone-use (e.g., if they used their bedroom for school work, they could dedicate the hours of 8am to 12pm to school-only activities, then let it function in its normal capacity after 12pm; Refer to Appendix B for specific instructions). If they already used a study technique that was similar to Space-Blocking, they were asked to continue using it and report that they did. Once they established their space, they should consolidate their school activities there for the remainder of the quarter and report back on their use of Space-Blocking via four surveys administered throughout the quarter.

Participants were asked a series of questions that asked about their studying habits, home conditions to report on their experiences. All questions analyzed in the current study were answered on a Likert scale of 1 (disagree) to 5 (agree), though other questions that participants answered that we do not present in this study were answered with different scales (refer to Appendix C for full surveys across all four time points for both groups). Sample questions for the Space-Blocking and Control groups, respectively, included: “I was able to focus better in my class(es) this quarter after practicing Space-blocking,”/“I was able to focus better in my class(es) this quarter after this study;” “I was able to better focus on my studying this quarter when using Space-blocking,”/“I was able to better focus on my studying this quarter after this study;” I found it beneficial to incorporate the technique of Space-blocking into my future academics,”/“I found it beneficial to incorporate my experience of being a participant in this study into my future academics.”

Procedure

The survey was created through Qualtrics and distributed via SONA, the online undergraduate psychology student portal that allows students to receive credit. Each survey was worth 0.5 credits, for a potential total of 2 credits. Before beginning the study, participants were

sent a Consent Form survey, this included a copy of the consent form and agreement to participate. Upon full agreement, they received their Participant ID, group assignment and instructions which included the due dates of surveys 1 through 4, as well as a copy of their consent form and ID through automatic Qualtrics emailing. Additionally, participants would be emailed a link from the lead experimenter to begin Survey 1 once it was clear that they completed the consent form.

All Qualtrics surveys were designed to open and close on specific dates. These dates were broken up by approximately two and a half week intervals, ending on the Friday of the final week of the quarter at 4pm. At these specific time points throughout the term, participants would receive the link to the appropriate survey via email, along with a reminder a week before each survey was due and on each survey due date. During the Winter quarter, SONA was set up to open and close the survey links at the same calculated times, so that the need for emailing initial survey links could be avoided. Participants were still emailed the same week before for the reminders and on the due dates. Each survey took a different amount of time to complete on average: Survey 1 took approximately forty-five minutes, Surveys 2-3 took approximately fifteen minutes, and Survey 4 took approximately twenty minutes.

If participants failed to complete any of the surveys, they would receive a separate email that let them know that they did not complete the survey. If they wished to complete the survey for credit, they would be sent a new link, or if they wished to withdraw from the study, they were asked if they wanted their data kept or deleted. In the event that they did not answer, their data were kept, and they would only receive credit for the surveys they had previously completed. At the end of the quarter, after the last survey, participants were debriefed and thanked for their participation in the study.

Results

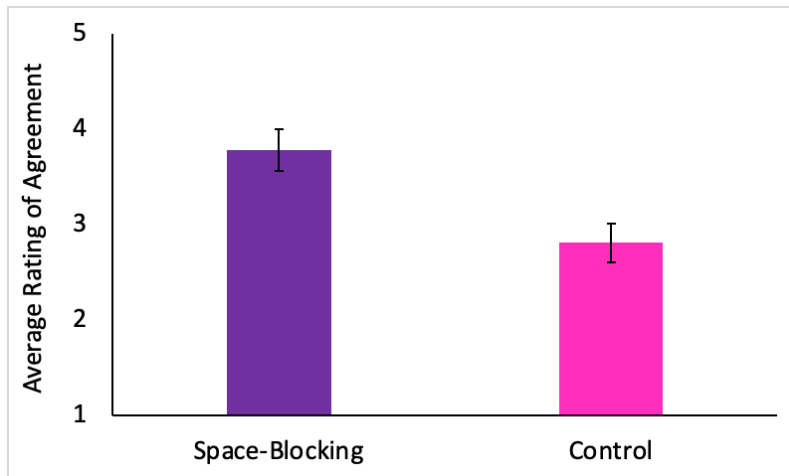
Though we have data collected from four time points throughout the quarter, we are choosing to focus on selected data from the final survey for this first pilot study. We ran three independent-samples *t*-tests on three survey questions. Specifically, we examined whether there were differences in the Space-Blockers versus controls in terms of perceived focus when studying, perceived focus in classes, and belief that implementing the study techniques used throughout the quarter would be beneficial for future schoolwork.

An independent-samples *t*-test revealed a significant difference across perceived ability to focus in class such that students in the Space-Blocking condition ($M = 3.78, SD = 0.94$) more strongly agreed that they were able to focus in class than students who did not use space-blocking ($M = 2.81, SD = 1.04$), $t(43) = 3.16, p = .003$. Additionally, students in the Space-Blocking condition ($M = 3.78, SD = 0.94$) agreed more strongly that they were able to focus while studying compared to students who did not use Space-Blocking ($M = 3.04, SD = 1.07$), $t(44) = 2.40, p = .021$. Overall, students agreed that Space-Blocking helped them both focus better in class and when studying, supporting our hypothesis (See Fig. 5).

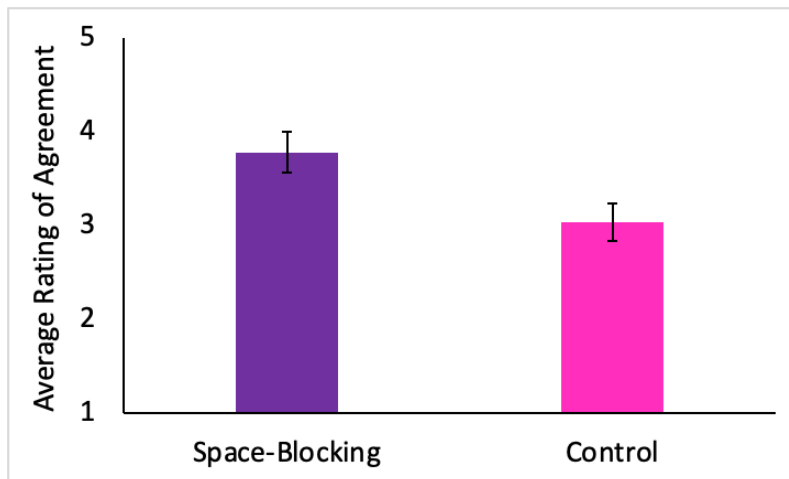
Figure 5

Differences in Student Perceptions of Efficacy of Study Technique: Focus

a)



b)

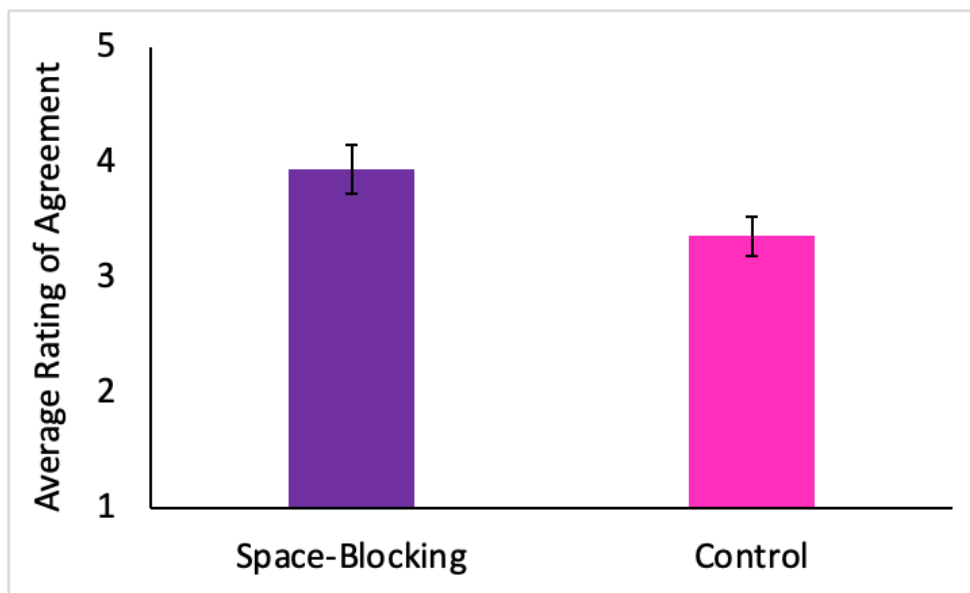


Note. Student agreement with feeling better able to focus in their classes (Panel a) and on their studying (Panel b) as a result of participating in the study. Error bars represent one standard error.

When asked if they felt that it would be beneficial to incorporate Space-Blocking, students in the Space-Blocking condition ($M = 3.94$, $SD = 0.87$) agreed that it would be beneficial compared to the control group who was asked about incorporating their experience of being a participant in this study into studying for future courses ($M = 3.36$, $SD = 0.91$), $t(44) = 2.17$, $p = .036$. Students found Space-Blocking beneficial to incorporate it as a future studying technique, which also supported our hypothesis (See Fig. 6).

Figure 6

Differences in Student Perceptions of Efficacy of Study Technique: Usefulness



Note. Student agreement with feeling that incorporating their experience of the study would be beneficial for their future academics. Error bars represent one standard error.

Discussion

Students who used Space-Blocking rated the technique as helping them focus more on their studying and in their classes compared to students in the control group that continued with their typical study practices. Additionally, students in the Space-Blocking condition rated Space-Blocking as being beneficial for future incorporation as a study technique, compared to the control group, who did not see as much benefit to incorporating their “study experience” (i.e., continuing with their typical study techniques and reporting on their studying every few weeks) into their future academics. Together, these results demonstrate the potential usefulness of Space-Blocking as a study tool for college students. If perceptions about Space-Blocking are positive, then it would stand to reason that it may be well received in the future by other college students.

If students have to be removed from their dedicated school environment (as happened with the COVID-19 pandemic), they may feel a loss of their dedicated learning space. Thus, it stands to reason that they may have needed a way to mimic the presence of a physically dedicated learning environment at home in order to successfully engage with online learning. If students were indeed engaging with their academic routines in a designated space and limiting distractions, then it could be surmised that students were able to form specific perceptions about the space. Namely, being able to perceive that space as being an academic environment. Based on the literature, carrying out normal academic routines consistently in this designated space may have caused the space to become cues for behaving in an academic fashion (e.g., focused studying; Lally, & Gardner, 2013; Verplanken & Orbell, 2022). The consistency with which students used the space solely for academic activities may have made utilizing these routines a habit for the space, enforcing the cue, making it easier to initiate school-related functions. With

this behavioral set of motions in play, this constant set of events may have elicited reinstatement effects (Godden & Baddeley, 1975; Smith, 2014; Smith, 1979). Since school would have been the main place students would be familiar with these behaviors carried out routinely and in a contained manner. These mental representations of an academically themed space may have led to students reinstating school without the need for the actual physical structures. Future work will be needed to tease apart the specific mechanism of the beneficial effects of Space-Blocking, but since students in the present study agreed that Space-Blocking was able to help their studying compared to those who did not use Space-Blocking, it seems to be a promising avenue for future study.

Limitations

Though we found a significant effect of Space-Blocking on focus and perceived usefulness of their technique, there are additional data that we did not collect that would be important to consider for future work (in addition to the data we have that we could continue analyzing). For example, we did not collect data on the spaces in which students chose to implement Space-Blocking. If students were using spaces deemed not applicable for Space-Blocking (e.g. such as their beds) or did not use a space consistently (e.g. moved from desk to dining room table to counter) we were not able to keep record of this with the current study design. We were also not able to identify if participants were being honest in their use or failure to use Space-Blocking since it relied entirely on self-report. Though we found a significant difference in perceptions of Space-Blocking versus continuing with one's original study techniques, the benefit may appear smaller in our study than it might actually be if we had better control over participants' Space-Blocking conditions. Future work can more closely monitor students' use of Space-Blocking by including questions for Space-Blocking users that

ask students to provide descriptions of the space they choose, how regularly they use it, and how much time they dedicate to their studies there. This would include regular follow-ups to ensure that any changes are being recorded.

Another concern for the study were several problems with administering the surveys via Qualtrics. Due to a programming error, there were data missing from the questionnaires that included a series of questions from Survey 1 and 2 that the control group was able to see and answer, but Space-Blocking was not. This impacted how we might have been able to compare data for the same questions across both groups, which would have made for a stronger statistical analysis of any potential influence Space-Blocking might have had on participants. I.e. “I was able to better focus on my studying this quarter after this study,” was not shown to Space-Blocking participants during Winter quarter. There were also potential issues with participants receiving the survey reminder emails, since there was no way for us to confirm if participants were receiving the necessary emails. In a few cases, participants would send emails concerning their status, it would not be until then that they declared that they never received a copy of their participant ID or Survey 1 link. These participants would then be asked if they were interested in still being a part of the study, and be sent their appropriate instructions according to their group assignment and ID, along with the Survey 1 link. These cases would not take more than four weeks to reach out about their participation, and occurred mainly during the Fall 2021 quarter.

It is also worth noting that participants may have already been implementing a technique like Space-Blocking in their typical studies by studying at a designated desk in their home. This could mean that Space-Blocking by using a dedicated space may not be dramatically effective, rather, students may have been made *aware* of their utilization of the space, causing them to feel

as though it helped them (i.e., the Space-Blocking effect could be a perceptual, not behavioral, effect). Perhaps this Space-Blocking study was more effective at getting students to realize that the way they perceive their space had more power than whether or not they were actually using it per Space-Blocking directions. Assuming that two different participants, one from each group, were using a desk but the Space-Blocking participant was asked to consider that desk as being their school-related space, then maybe that change in perception was enough to elicit more focus while in class and studying.

Future studies should look towards exploring which factors are most predictive of students succeeding in a virtual environment. The implications of what actually drives change towards effective at-home studying for students should be considered in greater detail than this study was able to explore. Students from different levels of academia, course breadth, housing situation, and more locations should also be considered in future research. Since this study was limited to Introductory Psychology students, we were only able to cover the experiences of those who were most likely beginning at UCR, and were versed in material covered in psychology classes that could lead to students agreeing about the effectiveness of Space-Blocking. UCR is also not representative of all college students, being a UC, this system is different from Cal States, virtual schools, or community colleges. Since we also cannot be sure of housing status, it was also assumed that most participants had a consistent home to be at, the implications of students who live in an unsecure housing situation may render Space-Blocking ineffective, or prove to be more tailorable than once assumed.

Concluding Comments

In summary, the results demonstrated in this project speak to the potential usefulness of implementing a technique like Space-Blocking for learning in the online environment. Given

that online courses are here to stay, it will be useful to continue study of students' use of Space-Blocking post-pandemic, as it could be an easily-implementable tool to help them succeed in future online courses.

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SELECTION FOR GROUP 1

Instructions for participating in the study

Studying for Virtual Classes While at Home

Hello,

Thank you again for your participation. You have been selected to participate in Group 1. Your role in this experiment will be to monitor your current study habits throughout the quarter, and report back to us via the 4 questionnaires of this study throughout the duration of the quarter.

Questionnaire Due Dates: Please aspire to submit these on time, they will be sent a week before each due date. Each survey that you will receive is listed below with the dates and approximate times it would take to complete each one.

1st: *insert date* Duration: approx. 45 minutes

2nd: *insert date* Duration: approx. 15 minutes

3rd: *insert date* Duration: approx. 15 minutes

4th: *insert date* Duration: approx. 20 minutes

Instructions:

Please begin by making note of the places that you use to study, attend classes, do research, etc. You will be sent a questionnaire shortly that asks you to describe the studying habits that you use.

Instructions:

1. Monitor your emotions, study habits, and personal motivation during this quarter.
2. You will report back on these items throughout the duration of the quarter via 4 surveys that will be sent to you via email.

Thank you again for agreeing to participate. Should you choose to withdraw from the study now, please contact haley.melendez@email.ucr.edu to be removed from the study entirely. You will still have the option to withdraw at any point from the study if you select "I am withdrawing from the study" from the questionnaires that will be sent to you throughout the quarter. Please refer to the consent form that was sent to you to know what happens to your SONA credits.

SELECTION FOR GROUP 2

Instructions for participating in the study Academic Performance and Redefining Space

Hello,

Thank you again for your participation. You have been selected to participate in Group 2. You are going to be informed and given instructions about how to use a new study technique called “space-blocking.” You will implement this study technique into your current study habits and report back to us via the 4 questionnaires of this study throughout the duration of the quarter.

Questionnaire Due Dates: Please aspire to submit these on time, they will be sent a week before each due date.

1st: *insert date* Duration: approx. 45 minutes

2nd: *insert date* Duration: approx. 15 minutes

3rd: *insert date* Duration: approx. 15 minutes

4th: *insert date* Duration: approx. 20 minutes

Summary of Space-blocking:

Space-blocking consists of reimagining your current home environment. One space of your choosing will become your own personal slice of school. In this dedicated space, only school-related activities should be performed there (e.g., studying, research, and attending class). Try to avoid completing non-school-related activities in the space you select, though if this will not be possible, see our suggestions below.

Instructions:

1. Begin by finding a suitable space to space-block. This can be a desk, table, small room, etc. Preferably, these spaces should not be occupied by other people while you are using them. This space should be easily accessible when you need it,

and should be available to you consistently throughout the quarter.

- The space you choose should not include: bed, couch, family room when family is around. If this is not possible, please refer to #4 below for our suggestions.
2. Next, you will only perform specific tasks in those spaces. Make this space your school: For example, If you choose a desk, this desk will be the place that you attend virtual classes in during your designated class hour. You will treat this space as a real school setting. You are not required to remove anything from the desk or rearrange items on it. Simply live out the experience of being in a classroom by limiting all activities at that desk to just classroom things. In the same space, you should make sure that you spend your time studying, reviewing notes, reading the course materials, researching materials for class, etc. This space will be your permanent “school” for the remainder of the quarter.
 3. Be as consistent as possible. This means that if you choose a specific desk, you will make sure that you attend your online classes at that desk, and limit distractions such as cell phone use and talking to others (imagine the rules of a classroom). If you need to research for a paper or study for a test, make sure that you research or study in that space. Please follow these guidelines as closely as possible given your living situation.
 4. Exceptions: If your space is limited, here are some ideas and recommendations for you to try. If these guidelines still don’t work for you, please contact this email address for more information: haley.melendez@email.ucr.edu
 - a. If you have limited space or available resources (i.e. a small apartment, large family, etc.) consider these options below. Feel free to get creative, this is for your benefit, and should reflect what is easiest for you.
 - i. If you use a family dining table, then switch up the placement of seating. One seat at the table is your school, and another seat is where you eat your meals.
 - ii. If you share a bedroom with multiple people, and that is your only study space, limit the time you spend in that room to just academics and sleep. Other activities that you partake in can be outside of the space.
 1. If that’s still not an option: Then you might consider sectioning off time of your day so that at specific times it becomes your school, and other times, it becomes your personal space. For example: Monday through Friday, 8am to 12pm, and 2pm to 6pm this space is your school. When not in “school” you are engaging in your personal affairs.
 5. Please note: If you already use a study technique that is similar to, or exactly like

the one described above, please continue to do this. Once you receive the Qualtrics survey link, you will be asked a question about types of study techniques used.

6. Final note: Since you have been selected to participate in Group 2, we also ask that you limit your communication with others about what you are doing to remain anonymous and to preserve the data of this study. We would greatly appreciate your confidentiality.

Thank you again for agreeing to participate. If you feel as though you cannot complete the task asked of you, but would still like to participate, please contact: haley.melendez@email.ucr.edu for further information. Should you choose to withdraw from the study now, please contact the same person listed above to be removed the study entirely. You will still have the option to withdraw at any point from the study if you select "I am withdrawing from the study" from the questionnaires that will be sent to you throughout the quarter. Please refer to the consent form that was sent to you to know what happens to your SONA credits.

Study Survey 1

Information: This is the first of four questionnaires that you will be asked to fill out for this study. This form is due by *insert date here* This survey is separated into three parts. This first part aims to understand how you feel about the on-going Covid-19 pandemic and how it relates to your academic life. The second part asks questions about your studying habits, academics, and how you feel about the current quarter. The last section asks questions about demographics. You are free to skip any question you do not wish to answer. You are also free to withdraw from the study at any time. If you choose to do so, please check either one of the two boxes of the last question of this survey: "I am withdrawing from this study, please delete my records" or "I am withdrawing from this study, you may keep any data that I have submitted." Refer to the consent form that you signed for more details (you should have been emailed a copy after you signed it--if not, please email Haley Melendez at haley.melendez@email.ucr.edu). Thank you again for your participation.

1. Please select the group that you are in

- 1.1. Group 1

- 1.2. Group 2

**Group 1 and 2 will answer the same questions for Survey 1*

Part 1

2. Please insert your participant ID number here (it is included in the email you received with the link to this survey).
 - 2.1. Free response
3. Think about how you feel right now and rate yourself based on the statements below on a scale of 1-5. 1 being "Not at all" and 5 being "This accurately describes me."
 - 3.1. I feel relaxed
 - 3.2. I feel stressed
 - 3.3. I feel anxious
 - 3.4. I feel happy
 - 3.5. I feel sad
 - 3.6. I feel content

4. During the start of the mandated Stay-at-Home order in March 2020, I felt the following emotions about being in school during the pandemic...
 - 4.1. Stressed
 - 4.2. Anxious
 - 4.3. Isolated
 - 4.4. Unmotivated
 - 4.5. Frustrated
 - 4.6. Calm
 - 4.7. Motivated
 - 4.8. Elated
5. Currently, after a year of quarantine, I feel the following emotions about being in school during the pandemic...
 - 5.1. Stressed
 - 5.2. Anxious
 - 5.3. Isolated
 - 5.4. Unmotivated
 - 5.5. Frustrated
 - 5.6. Calm
 - 5.7. Motivated
 - 5.8. Elated
6. Consider how you have adapted to the school becoming completely virtual. How would you compare yourself at the start of the pandemic to now? Please rate yourself on a scale of 0 to 100. 0 meaning that you haven't adapted at all, and 100 meaning that you are just as proficient as you were pre-pandemic.
 - 6.1. I have adapted well to life as a virtual student
 - 6.2. Scale: Not at All, Somewhat Adapted, Mostly Adapted, Completely Adapted

Part 2

7. Please select the statement(s) below that best describe your current study habits for virtual classes. Think about what you use generally, not for just one specific subject.

- 7.1. I read the textbook/materials before class
- 7.2. I write word-for-word what the professor says/presents, then later rewrite them in my own words
- 7.3. I re-copy my notes
- 7.4. I re-read notes, textbooks, chapters, etc.
- 7.5. I underline or highlight while reading
- 7.6. I test myself by asking myself questions or using practice problems
- 7.7. I use flashcards to take condense my notes
- 7.8. I use flashcards to quiz myself
- 7.9. I make outlines, diagrams, charts or pictures
- 7.10. I study in the same place
- 7.11. I study in different places
- 7.12. I make a study schedule across multiple days/weeks at the beginning of the quarter and follow it
- 7.13. I focus on one concept at a time, before moving on to the next
- 7.14. I “cram” information the hours before a test
- 7.15. I use study groups
- 7.16. Other (opens free response option)
- 8. Please rate how effective you believe your current studying techniques are on a scale of 1 to 5. With 1 being “Not Very Effective” and 5 being “Extremely Effective.”
 - 8.1. Scale: 1- Not Very Effective, 5- Extremely Effective
- 9. How would you describe your current home/place of living? Select all that apply
 - 9.1. Loud
 - 9.2. Calm
 - 9.3. Cramped
 - 9.4. Spacious
 - 9.5. Lonely
 - 9.6. Overwhelming
 - 9.7. Distracting
 - 9.8. Peaceful

- 9.9. Helpful
- 9.10. Demanding
- 9.11. Other (opens free response option)
- 10. Would you describe your current environment as an easy or difficult place to learn in? Rate your answer on a scale of 1 to 5, 1 being "Difficult" and 5 being "easy"
 - 10.1. Scale: 1- Difficult, 5- Easy
- 11. How prepared do you feel for your classes this quarter? Please respond by rating on a scale of 1 to 5.
 - 11.1. Scale: 1- Not prepared at all, 5- Well prepared
- 12. Based on past experience, how many hours per week did you typically spend on studying for class(es)?
 - 12.1. 0-10
 - 12.2. 11-20
 - 12.3. 21-30
 - 12.4. 31-40
 - 12.5. 41-50
 - 12.6. 51-60+
- 13. Based on past experience, how many hours a day did you typically spend on studying for class(es)?
 - 13.1. 0-1
 - a. 2-3
 - b. 4-5
 - c. 6-7
 - d. 8+
- 14. How many classes are you currently taking?
 - 14.1. 1
 - 14.2. 2
 - 14.3. 3
 - 14.4. 4
 - 14.5. 5+

15. Think about your participation in online classes and please rate the following statements on a scale of 1 to 5.
 - 15.1. I am able to concentrate during class.
 - 15.2. I can easily stay on task for school.
 - 15.3. I feel anxious all the time because of online school.
 - 15.4. I feel stressed about the future.
 - 15.5. I feel like my class(es) would have been better in person.
 - 15.6. I miss in-person classes.
 - 15.7. I cannot concentrate at home.
 - 15.8. I attend class while still in bed.
 - 15.9. I wake up and get ready for class (brushing teeth and hair, putting on clothes, eating breakfast, etc.).
 - 15.10. I make sure that I don't have distractions during class (phone, family, animals, etc.)
 - 15.11. I feel motivated to attend class.
 - 15.12. It's hard to start any type of task for school.
 - 15.13. Scale: 1- Does not accurately describe describe me, 2- Somewhat describes me, 3- Neither, 4- Mostly Describes me, 5- Accurately describes me
 16. Did you interact with any of your fellow peers in your classes outside of group activities during Fall 2020 to Winter 2021? I.e. text messaging, GroupMe, Discord, Social Media, etc.
 - 16.1. Yes
 - 16.2. No
 17. Please state your current GPA (Listed under R'Web >> Degree Audit)
 - 17.1. Free Response
- Part 3**
18. Please state your age below
 - 18.1. Free Response
 19. What ethnicity are you? Please select all that you identify with. If none apply, please select "Other" and write in your response.

- 19.1. American Indian or Alaska Native
- 19.2. Asian
- 19.3. Black or African American
- 19.4. Native Hawaiian or Other Pacific Islander
- 19.5. White or Caucasian
- 19.6. Other (opens free response)
- 20. Are you of Hispanic/Latinx/Spanish origin? If none apply, please select “Other” and write in your response.
 - 20.1. Yes, Mexican, Mexican American, Chicano
 - 20.2. Yes, Puerto Rican
 - 20.3. Yes, Cuban
 - 20.4. Yes, other (opens free response)
 - 20.5. No
- 21. Please select which gender(s) you identify with. If none apply, please select “Other” and write in your response. If you would rather not say, leave this question blank.
 - 21.1. Female
 - 21.2. Male
 - 21.3. Transgender Female
 - 21.4. Transgender Male
 - 21.5. Gender Variant/Non-conforming
 - 21.6. Other (opens free response)
- 22. Do you currently work?
 - 22.1. Yes, part-time
 - 22.2. Yes, full-time
 - 22.3. No
 - 22.4. No, but I am looking for work
- 23. Do you have family obligations? Such as children, caring for someone else in the home, etc.
 - 23.1. Yes
 - 23.2. No

- 23.3. Split responsibilities with one, or multiple people in the household
- 24. What kind of student are you?
 - 24.1. Full-time
 - 24.2. Part-time
- 25. ONLY FOR THOSE WHO WISH TO WITHDRAW: If you wish to withdraw from this study, please select one of the two options below. Please refer to the consent form for more details. If you wish to continue this study, please select “I am choosing to continue with this study.”
 - 25.1. I am withdrawing from this study, you may keep any data that I have submitted.
 - 25.2. I am withdrawing from this study, please delete my records.
 - 25.3. I am choosing to continue with this study.

Survey 2 & 3

Survey 2 and 3 will have the same questions

Information: This is the second/third of four questionnaires that you will be asked to fill out for this study. This form is due by *insert date here.* Please complete the full form below. You are free to skip any question you do not wish to answer. This survey will consist of “check-in” questions to establish how you currently feel about your class(es) at this point in the quarter. You are also free to withdraw from the study at any time. If you choose to do so, please check either one of the two boxes of the last question of this survey: “I am withdrawing from this study, please delete my records” or “I am withdrawing from this study, you may keep any data that I have submitted.” Refer to the consent form that you signed for more details (you should have been emailed a copy after you signed it--if not, please email Haley Melendez at haley.melendez@email.ucr.edu). Thank you again for your participation.

1. Please select the group that you are in
 - 1.1. Group 1
 - 1.2. Group 2

Group 1:

2. Please insert your participant ID number here (it is included in the email you received with the link to this survey).
 - 2.1. Free response
3. How do you feel, thus far, about your classes? Please rate the following statements on a scale of 1 to 5. 1 being “Disagree” and 5 being “Agree.”
 - 3.1. My current class(es) are difficult
 - 3.2. My current class(es) are hard to prepare for
 - 3.3. My current class(es) are overwhelming
 - 3.4. My current class(es) are easy
 - 3.5. My current class(es) are easy to prepare for
 - 3.6. I need to get a good grade this quarter
 - 3.7. I am interested in the topics of my class(es)
 - 3.8. Scale: 1- Disagree, 2- Somewhat Disagree, 3- Neutral, Not Clear, 4- Somewhat Agree, 5- Agree
4. How many hours of studying have you dedicated daily to your class(es) this quarter?

- 4.1. 0-1
- 4.2. 2-3
- 4.3. 4-5
- 4.4. 6-7
- 4.5. 8+
5. Assuming that you will be taking quizzes/tests/assignments in your class(es), which grade do you believe you will receive at this point in the quarter? Imagine your cumulative grade across your class(es). Please use the scale to answer from 1-100. Here is the traditional grading scale: A is 90+, B is 80+, C is 70+, D is 60+, and F is 0-59.
 - 5.1. Scale: 1 to 100
6. Do you believe that the grade you will receive, reflects your use of your current studying technique?
 - 6.1. Yes
 - 6.2. No
 - 6.3. Cannot make a conclusion yet
7. Consider how you feel about your current class(es) in relation to your study technique. Please rate the following statements on a scale of 1 to 5. 1 being "Disagree" and 5 being "Agree."
 - 7.1. I can easily focus on my assignments
 - 7.2. I find it easy to focus while studying
 - 7.3. My study technique prepares me for the assessments in this class.
 - 7.4. My study technique helps me understand the material
 - 7.5. My study technique makes efficient use of my time
 - 7.6. I waste too much time with my current studying technique
 - 7.7. Scale: 1- Disagree, 2- Somewhat Disagree, 3- Neutral, Not Clear, 4- Somewhat Agree, 5- Agree
8. ONLY FOR THOSE WHO WISH TO WITHDRAW: If you wish to withdraw from this study, please select one of the two options below. If not, please select option 3.

- 8.1. I am withdrawing from this study, you may keep any data that I have submitted.
- 8.2. I am withdrawing from this study, please delete my records.
- 8.3. I am choosing to continue with this study.

Group 2:

- 1. Please insert your participant ID number here (it is included in the email you received with the link to the first survey).
 - a. Free response
- 2. How do you feel, thus far, about your class(es)? Please rate the following statements on a scale of 1 to 5. 1 being “Disagree” and 5 being “Agree.”
 - 8.4. My current class(es) are difficult
 - 8.5. My current class(es) are hard to prepare for
 - 8.6. My current class(es) are overwhelming
 - 8.7. My current class(es) are easy
 - 8.8. My current class(es) are easy to prepare for
 - 8.9. I need to get a good grade this quarter
 - 8.10. I am interested in the topics of my class(es)
 - 8.11. Scale: 1- Disagree, 2- Somewhat Disagree, 3- Neutral, Not Clear, 4- Somewhat Agree, 5- Agree
- 9. How many hours of studying have you dedicated daily to your class(es) this quarter?
 - 9.1. 0-1
 - 9.2. 2-3
 - 9.3. 4-5
 - 9.4. 6-7
 - 9.5. 8+
- 10. How well have you been adhering to Space-blocking? Please select one of the options below.
 - 10.1. I have not been using it
 - 10.2. I use it once a week
 - 10.3. I use it 2-3 times a week

- 10.4. I use it 3-4 times a week
- 10.5. I use it 4-5 times a week
- 10.6. I use it 5-6 times a week
- 10.7. I use it any time I study
- 11. If you have not used it or have not been using it often, please select the statement that is the closest that describes why. (Often is defined by less than 3 times a week)
 - 11.1. I don't find it useful
 - 11.2. I don't know how to implement it
 - 11.3. I like my current studying method and don't want to use this new one
 - 11.4. My schedule doesn't allow for it
 - 11.5. I have obligations that make it hard to implement
 - 11.6. My current space does not allow me to find a consistent area to utilize Space-blocking
 - 11.7. Other (Opens free-response)
- 12. Assuming that you will be taking quizzes/tests/assignments in your class(es), which grade do you believe you will receive? Imagine your cumulative grade overall. Please use the scale to answer from 1-100. Here is the traditional grading scale: A is 90+, B is 80+, C is 70+, D is 60+, and F is 0-59.
 - 12.1. Scale: 1 to 100
- 13. Do you believe that the grade you will receive, reflects your use of Space-blocking?
 - 13.1. Yes
 - 13.2. No
 - 13.3. Cannot make a conclusion yet
- 14. Consider how you feel about your current class(es) in relation to how much you have used Space-blocking. Please rate the following statements on a scale of 1 to 5. 1 being "Disagree" and 5 being "Agree."
 - 14.1. I can focus on my assignments/studying
 - 14.2. I can focus while in lecture
 - 14.3. Space-blocking helps me understand the material

- 14.4. Space-blocking makes efficient use of my time
 - 14.5. I waste too much time using Space-blocking
 - 14.6. Scale: 1- Disagree, 2- Somewhat Disagree, 3- Neutral, Not Clear, 4- Somewhat Agree, 5- Agree
15. ONLY FOR THOSE WHO WISH TO WITHDRAW: If you wish to withdraw from this study, please select one of the two options below. If not, please select option 3.
- 15.1. I am withdrawing from this study, you may keep any data that I have submitted.
 - 15.2. I am withdrawing from this study, please delete my records.
 - 15.3. I am choosing to continue with this study.

Survey 4

Information: This is the fourth of four questionnaires that you will be asked to fill out for this study. This form is due by *insert date here.* Please complete the full form below. You are free to skip any question you do not wish to answer. This survey will conclude

your participation in the study by asking about your overall experience of your class(es) over the course of this quarter. You are also free to withdraw from the study at any time. If you choose to do so, please check either one of the two boxes of the last question of this survey: “I am withdrawing from this study, please delete my records” or “I am withdrawing from this study, you may keep any data that I have submitted.” Refer to the consent form that you signed for more details (you should have been emailed a copy after you signed it--if not, please email Haley Melendez at haley.melendez@email.ucr.edu). Thank you again for your participation.

1. Please select the group that you are in

- 1.1. Group 1
- 1.2. Group 2

Group 1:

2. Please insert your participant ID number here (it is included in the email you received with the link to this survey)
 - 2.1. Free response
3. Think about how you feel right now and rate yourself based on the statements below on a scale of 1-5. 1 being "Not at all" and 5 being "This accurately describes me."
 - 3.1. I feel relaxed
 - 3.2. I feel stressed
 - 3.3. I feel anxious
 - 3.4. I feel happy
 - 3.5. I feel sad
 - 3.6. I feel content
4. The following statements below are in relation to the experience you had while being a participant of this study. Please rate how closely you agree or disagree with them on a scale of 1 to 5. 1 being “Disagree” and 5 being “Agree.”
 - 4.1. I felt that reporting about my studying helped me academically this quarter
 - 4.2. I saw improvement in my academics this quarter
 - 4.3. I felt better about taking virtual classes after this study
 - 4.4. I felt that there was improvement in my stress level about the class(es) that I took this quarter

- 4.5. I saw no changes in my academics this quarter
- 4.6. I felt no changes in my emotional state about my class(es) this quarter
- 4.7. I was able to focus better in my class(es) this quarter after this study
- 4.8. I was able to better focus on my studying this quarter after this study
- 4.9. I found it beneficial to incorporate my experience of being a participant in this study into my future academics
- 4.10. I enjoyed participating in this study
- 5. How many hours of studying have you dedicated daily to your class(es) this quarter?
 - 5.1. 0-1
 - 5.2. 2-3
 - 5.3. 4-5
 - 5.4. 6-7
 - 5.5. 8+
- 6. Have your study techniques changed since the first survey that you answered?
 - 6.1. Yes
 - 6.2. No
- 7. Please select the statement(s) below that best describe your current study habits for virtual classes. Think about what you use generally, not for just one specific subject.
 - 7.1. I read the textbook/materials before class
 - 7.2. I write word-for-word what the professor says/presents, then later rewrite them in my own words
 - 7.3. I re-copy my notes
 - 7.4. I re-read notes, textbooks, chapters, etc.
 - 7.5. I underline or highlight while reading
 - 7.6. I test myself by asking myself questions or using practice problems
 - 7.7. I use flashcards to take condense my notes
 - 7.8. I use flashcards to quiz myself
 - 7.9. I make outlines, diagrams, charts or pictures
 - 7.10. I study in the same place

- 7.11. I study in different places
- 7.12. I make a study schedule across multiple days/weeks at the beginning of the quarter and follow it
- 7.13. I focus on one concept at a time, before moving on to the next
- 7.14. I “cram” information the hours before a test
- 7.15. I use study groups
- 7.16. Other (opens free response option)
- 8. ONLY FOR THOSE WHO WISH TO WITHDRAW: If you wish to withdraw from this study, please select one of the two options below. If not, please select option 3.
 - 8.1. I am withdrawing from this study, you may keep any data that I have submitted.
 - 8.2. I am withdrawing from this study, please delete my records.
 - 8.3. I am choosing to continue with this study.

Group 2:

- 9. Please insert your participant ID number here (it is included in the email you received with the link to the first survey).
 - 9.1. Free response
- 10. Think about how you feel right now and rate yourself based on the statements below on a scale of 1-5. 1 being "Not at all" and 5 being "This accurately describes me."
 - 10.1. I feel relaxed
 - 10.2. I feel stressed
 - 10.3. I feel anxious
 - 10.4. I feel happy
 - 10.5. I feel sad
 - 10.6. I feel content
- 11. The following statements below are in relation to the experience you had while being a participant of this study. Please rate how closely you agree or disagree with them on a scale of 1 to 5. 1 being “Disagree” and 5 being “Agree.”

- 11.1. I felt that implementing Space-blocking helped me academically this quarter
- 11.2. I saw improvement in my academics this quarter after using Space-blocking
- 11.3. I felt better about taking virtual classes after using Space-blocking
- 11.4. I felt that there was improvement in my stress level about the class(es) that I took this quarter
- 11.5. I saw no changes in my academics this quarter after using Space-blocking
- 11.6. I felt no changes in my emotional state about my class(es) this quarter since using Space-blocking
- 11.7. I was able to focus better in my class(es) this quarter after practicing Space-blocking
- 11.8. I was able to better focus on my studying this quarter when using Space-blocking
- 11.9. I found it beneficial to incorporate the technique of Space-blocking into my future academics
- 11.10. I enjoyed participating in this study
12. If you have not used Space-blocking or have not been using it often, please select the statement that is the closest that describes why. (Often is defined by less than 3 times a week)
 - 12.1. I don't find it useful
 - 12.2. I don't know how to implement it
 - 12.3. I like my current studying method and don't want to use this new one
 - 12.4. My schedule doesn't allow for it
 - 12.5. I have obligations that make it hard to implement
 - 12.6. My current space does not allow me to find a consistent area to utilize Space-blocking
 - 12.7. Other (opens free response)
13. How many hours of studying have you dedicated daily to your class(es) this quarter?
 - 13.1. 0-1

- 13.2. 2-3
 - 13.3. 4-5
 - 13.4. 6-7
 - 13.5. 8+
14. Have your study techniques changed since the first survey that you answered?
- 14.1. Yes
 - 14.2. No
15. Please select the statement(s) below that best describe your current study habits for virtual classes. Think about what you use generally, not for just one specific subject.
- 15.1. I read the textbook/materials before class
 - 15.2. I write word-for-word what the professor says/presents, then later rewrite them in my own words
 - 15.3. I re-copy my notes
 - 15.4. I re-read notes, textbooks, chapters, etc.
 - 15.5. I underline or highlight while reading
 - 15.6. I test myself by asking myself questions or using practice problems
 - 15.7. I use flashcards to take condense my notes
 - 15.8. I use flashcards to quiz myself
 - 15.9. I make outlines, diagrams, charts or pictures
 - 15.10. I study in the same place
 - 15.11. I study in different places
 - 15.12. I make a study schedule across multiple days/weeks at the beginning of the quarter and follow it
 - 15.13. I focus on one concept at a time, before moving on to the next
 - 15.14. I “cram” information the hours before a test
 - 15.15. I use study groups
 - 15.16. Other (opens free response option)
16. ONLY FOR THOSE WHO WISH TO WITHDRAW: If you wish to withdraw from this study, please select one of the two options below. If not, please select option 3.

- 16.1. I am withdrawing from this study, you may keep any data that I have submitted.
- 16.2. I am withdrawing from this study, please delete my records.
- 16.3. I am choosing to continue with this study.