

**A Comparison of Learning Anxiety and Coping Mechanisms Utilized by University  
Students in Virtual and In-Person Courses**

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**Abstract**

The present study examined anxiety-inducing aspects of virtual learning for university students, and coping strategies that students use to cope with those aspects of virtual learning. These measures were compared to those of in-person learning, which students may generally be more accustomed to. It was hypothesized that students would more often utilize emotion-focused coping strategies in response to feelings of anxiety caused by virtual learning, and that virtual learning would be more anxiety-inducing. Additionally, we investigated students' ratings of effectiveness of coping mechanisms in terms of reducing feelings of anxiety. The study involved 147 Oakland University students of at least 18 years of age responding to a 22-question survey involving demographic questions and Likert scale questions regarding anxiety-inducing characteristics of virtual learning, coping strategies, and their effectiveness. Findings show that although students find in-person learning to be most anxiety-inducing, they are still most willing to participate in an in-person learning environment. Additionally, students utilize a variety of coping mechanisms for in-person and virtual learning, although more of them are problem-focused.

*Keywords:* virtual learning, anxiety, coping mechanisms, emotion-focused coping, problem-focused coping, learning anxiety, in-person learning

### **Virtual Learning Anxiety and Coping Mechanisms**

Although students may be familiar with and accustomed to an in-person learning environment, many students, at one time or another, have been in a situation that required them to enroll in a virtual course. Given the many differences between virtual and in-person learning, this study investigates what specific aspects of virtual and in-person learning are anxiety-inducing for students, if any. The present study also explores coping mechanisms students may use to combat feelings of anxiety, with a focus on emotion-focused and problem-focused coping, and compares findings between in-person and virtual learning for any significant differences.

#### **Virtual Learning Anxiety**

In general, current research has found that students may suffer from anxiety in virtual courses for a variety of reasons. One study conducted by Pennino et al. (2022) found that just over half of participants (50.1%) reported feeling more anxious about virtual learning during a semester in which their courses were completely online versus a semester in which they were initially learning in an in-person learning environment and transitioned to a virtual learning environment. In a study conducted by Ajmal and Ahmad (2019), many students reported feeling anxious about both time constraints on assignment deadlines and exams in their virtual courses, as well as the level of quality of communication between themselves and their professors. This study's findings on anxiety and communication are in line with another study conducted by Tuncay and Uzunboylu (2010), which found that the aspect of virtual learning most often reported by students as contributing to their anxiety was that there is "not always immediate response," so it is more difficult to contact and communicate with instructors when they need to ask questions. Interestingly, Hamza et al. (2021) found that students with preexisting mental health conditions showed either no change in mental health concerns such as anxiety, or a

decrease in mental health concerns overall, after a transition from in-person to virtual learning. Tuncay and Uzunboylu (2010) also found that the social anxiety students could suffer from even in a typical in-person course was also reported by students as an issue in the virtual learning environment. For instance, in person, students may feel anxious about speaking in front of an audience or talking to someone they do not know very well. In the virtual learning setting, this translated to speaking to a group online and having to call someone they do not know, respectively. Interestingly, Abdous (2019) discovered that possible factors that help ease students' anxiety caused by virtual learning are previous experience in virtual courses and overall preparedness for the course itself.

### **In-Person Learning Anxiety**

Although students may experience a significant amount of anxiety associated with virtual learning, research shows that students also suffer from feelings of anxiety associated with in-person learning for a variety of reasons. Current research shows that psychological and social aspects of a student's life can cause feelings of anxiety associated with school. Mofatteh (2020) found that student anxiety can be psychological (e.g., low self-esteem, preexisting mental health conditions, loneliness), directly related to academics (e.g., fear of bad grades, pressure to complete and understand assignments and exams, poor relationship with teachers and other school staff members), and related to social life (e.g., having a weak social network, minimal involvement in social activities). Additionally, Sprung and Rogers (2020) found that many students struggle to develop a work-life balance while in college, and suggests that universities should focus more on helping students create a steady balance between work and school in order to improve the college experience.

It is important to note that in-person learning is very different from virtual learning, which can cause difficulties for students. For example, students may find it difficult to transition from one learning method to the other. In fact, a study by Murphy et al. (2020) found that over half of their participants (50.7%) reported feeling anxious about a transition from in-person to virtual learning. Alomyan (2021) found that students agreed to the statement “distance learning increases my anxiety”, on a 5-point scale, with a mean of 4.38. Additionally, research shows that both loneliness and isolation associated with virtual learning can be anxiety-inducing for students (Alomyan, 2021; Arenliu et al., 2021), but that loneliness and isolation from other students is not something students have to face in an in-person setting.

### **Coping Mechanisms**

Given the various aspects of virtual and in-person learning that can be anxiety-inducing for students, it is also important to understand exactly how students cope with those feelings of anxiety. Exploring how students cope with learning anxiety provides insight into how healthy and effective students’ use of coping strategies may be.

Coping strategies can be grouped into two main categories: problem-focused coping and emotion-focused coping (Lazarus & Folkman, 1984). Problem-focused coping is “all the active efforts to manage stressful situations and alter a troubled person-environment relationship to modify or eliminate the sources of stress via individual behavior” (Schoenmakers et al., 2015, p. 154). Examples include avoidance mechanisms such as procrastination, planning strategies such as time management, and withdrawing from other activities that may be contributing to an individual’s stress (Carver et al., 1989). Emotion-focused coping is “all the regulative efforts to diminish the emotional consequences of stressful events” (Schoenmakers et al., 2015, p. 154).

Some examples of emotion-focused coping include turning to religion, substance abuse, and cognitive reappraisal to find positive aspects of a difficult situation (Huynh & Lee, 2022).

As for coping mechanisms that seem to be most beneficial in reducing student anxiety, Schäfer et al. (2020) suggest that positive reframing, such as focusing on the positives of a situation, and active coping (i.e., actively working to solve problems), are more effective than other coping mechanisms such as evasive coping (i.e., denial and self-blame, ignoring problems) and support coping (i.e., emotional or religious support). Although there are other types of coping strategies, the current study aims to focus on those that seem most relevant to an academic setting: emotion-focused and problem-focused.

### **Current Research**

Given the previous research on the topic of learning anxiety, this study aims to build on the subject of how students cope with feelings of anxiety related to virtual and in-person learning, while also comparing any significant differences between the two. Findings of the current research will allow for a better understanding of the onset of learning anxiety for students and how they combat those feelings of anxiety. Overall, the research tests the hypotheses that virtual learning is more anxiety-inducing for students than in-person learning, and students are more likely to utilize emotion-focused coping strategies than problem-focused coping strategies.

### **Methods**

#### **Participants**

Participants for the study included 147 Oakland University students, 45 (30.6%) of which were members of the Oakland University Honors College. The remainder of participants were students from the Psychology research pool. Students ranged from 18 years old to 30 years old, with an average age of 19 years old ( $SD = 1.9$ ). Most participants (80.3%) were females, and

13.6% of respondents were males. Although, there was also 1 transgender male (0.7%) participant, 4 non-binary participants (2.7%), and 4 participants who preferred not to provide their gender identity. Of the participants, 30 (20.4%) were freshmen, 57 (38.8%) were sophomores, 45 (30.6%) were juniors, and 14 (9.5%) were seniors, although 1 student (0.7%) was unsure of their current class year. Students took virtual courses both to fulfill major course requirements (68%) and minor course requirements (2%), as well as to fulfill both (19.78%) or neither (10.2%). As for the virtual learning environments students took part in, 113 reported having experienced synchronous virtual learning, 125 reported having experienced asynchronous virtual learning, and 63 reported having experienced a hybrid learning environment. While students from a variety of twenty-five different programs participated, the majority of respondents majored in Psychology (55 students, 37.7%), Nursing (24 students, 16.4%), Health Sciences (15 students, 10.3%), or Exercise Science (12 students, 8.2%). 116 respondents (78.9%) were White, 12 (8.2%) were Asian, 6 (4.1%) were African American, 1 (0.7%) was Native Hawaiian or Pacific Islander, and 12 respondents identified as other (Hispanic, Chaldean, Middle Eastern, or mixed-race). A majority of participants (95 respondents, 64.6%) fell in the \$0-\$20,000 annually income bracket. A total of 8 respondents (5.4%) fell in the \$21,000-\$40,000 bracket, 3 (2%) in the \$41,000-\$60,000 bracket, 3 (2%) in the \$61,000-\$80,000 bracket, 3 (2%) in the \$81,000-\$100,000 bracket, 2 (1.4%) in the \$101,000-\$120,000 bracket, and 33 (22.4%) preferred not to answer.

### **Procedure**

Participants were recruited in one of two ways; students either received an email directly from the Honors College that provided them with a link to the survey, inclusion criteria, and an overview of the purpose of the study, or they had the option to respond to the survey through

Oakland University's psychology student research pool. Students responding via the research pool were able to complete the survey as partial fulfillment of the research credit requirements of their courses. After being provided with an information sheet outlining necessary study information, respondents gave consent to participate by marking an "I consent" checkbox. Students were then redirected to three screening questions for inclusion purposes: Are you at least 18 years of age or older?, Are you an Oakland University student?, and Have you completed at least one virtual course at Oakland University? Provided that students met all inclusion criteria, they then completed the 23-question anonymous online survey regarding feelings of stress and anxiety and utilization of coping mechanisms in virtual and in-person learning environments.

## **Measures**

### ***Demographics***

Participants were first asked to respond to demographic questions regarding their year in college, status as an honors student, major, minor, gender identity, age, race, and annual income.

### ***Virtual and In-person Learning Experiences***

Next, they were asked about specifics regarding their experiences in virtual learning formats. For the purposes of this study, the course formats were defined for respondents as follows: synchronous virtual learning involves set class times for video call meetings; asynchronous virtual learning does NOT involve any class meetings, and hybrid learning has both in-person and virtual class meetings for the same course. Students were also asked about which formats they have participated in before (synchronous, asynchronous, hybrid, and/or in-person), whether their virtual courses have pertained to requirements needed to fulfill their major and/or minor requirements, how many virtual classes they have taken, and how likely they are to



willingly participate in each of the aforementioned learning environments on a 5-point rating scale ranging from 1 = “very unlikely” to 5 = “very likely.”

### ***Anxiety in and Effectiveness of Virtual and In-person Courses***

Respondents were then asked to rate their agreement or disagreement with statements related to in-person and virtual learning in relation to levels of anxiety and stress on a scale from 1 = “strongly disagree” to 5 = “strongly agree” (e.g., “some aspect(s) of virtual learning give(s) me feelings of anxiety”). For a full list of prompts, reference Appendix A. Students were also prompted to indicate how anxiety-inducing and effective they feel each of the four learning formats (i.e., in-person, asynchronous, synchronous, and hybrid) are on a scale from 1 = “not at all anxiety-inducing” to 5 = “extremely anxiety-inducing” and 1 = “very ineffective” to 5 = “very effective”, respectively. In the last portion of the survey, students were also prompted to list any aspects of virtual and in-person learning that are anxiety-inducing to them.

### ***Coping Strategies and their Effectiveness in Virtual and In-person Courses***

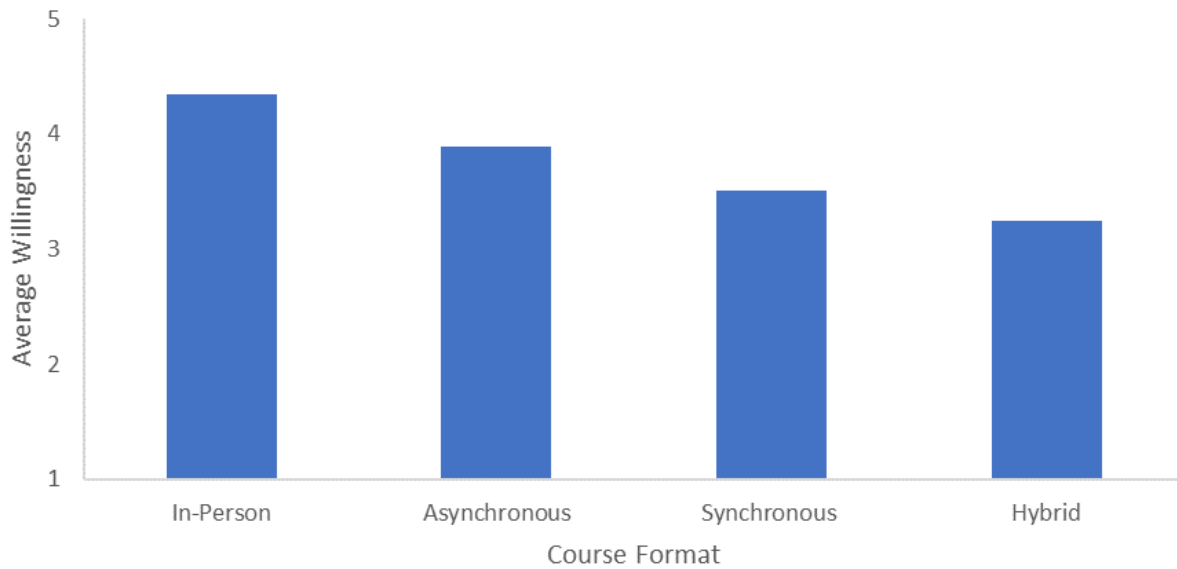
The final portion of the survey required students to list any anxiety-inducing aspects of virtual and in-person learning as well as any coping mechanisms they use. Participants were asked to rate how often they utilize various coping mechanisms (e.g., seeking advice and/or help from others, procrastination, venting to someone you trust, time management) in virtual and in-person learning environments, and how effective they feel those coping strategies are in reducing their feelings of anxiety on a scale from 1 = “never” to 5 = “always” and 1 = “very ineffective” to 5 = “very effective”, respectively. As with the anxiety-inducing aspects of virtual and in-person learning, students were also prompted in the final section of the survey to list any coping strategies they use, and that were not already on the list of coping mechanisms provided to them,

to cope with virtual and in-person learning anxiety. Appendix B can be referenced for a complete list of coping mechanisms presented to students in the survey.

## Results

### Course Participation Willingness

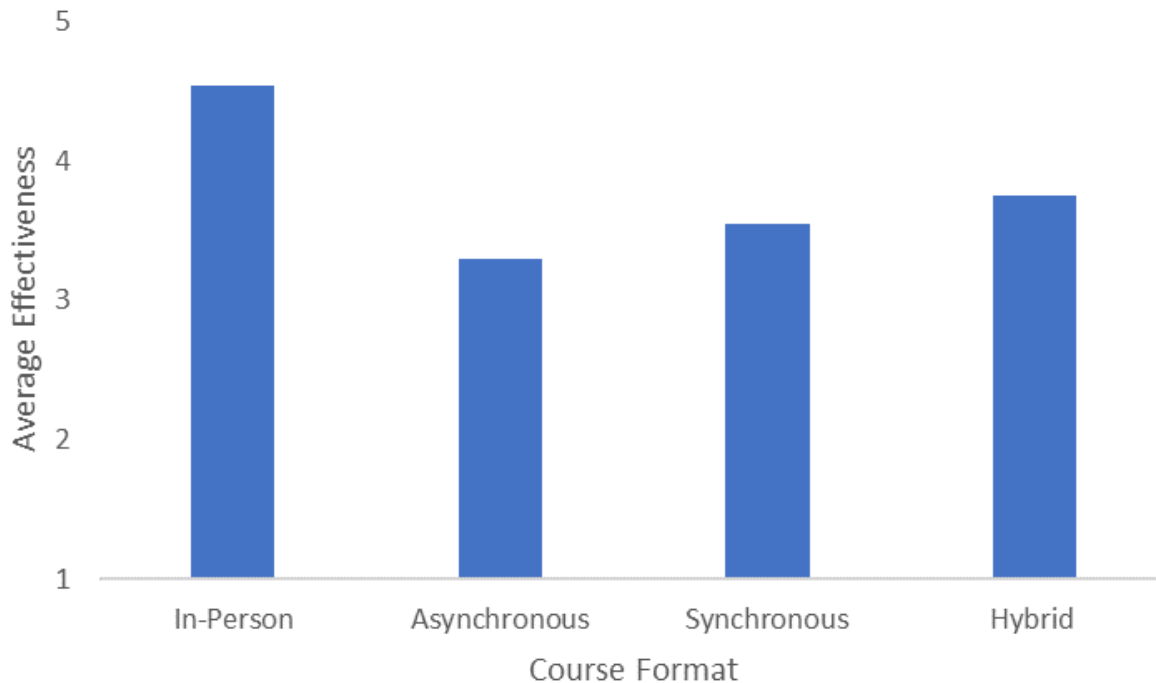
Overall, between the four course formats (i.e., in-person, asynchronous, synchronous, and hybrid), students were generally more willing to participate in-person learning (see Figure 1). The average rating for an in-person learning experience was “likely” ( $M = 4.35$ ,  $SD = 1.005$ ). Following in-person learning, from most willing to least willing, students preferred asynchronous learning, synchronous learning, and hybrid learning, respectively. A pairwise comparison showed that between the four learning environments, there were significant differences between all but one comparison. The comparison between the average rating of synchronous and hybrid learning was not statistically significant ( $M_{diff} = .27$ ,  $SE = .10$ ,  $p = .069$ ). However, willingness to take an in-person course was higher than asynchronous ( $M_{diff} = .46$ ,  $SE = .14$ ,  $p = .011$ ), synchronous ( $M_{diff} = 0.84$ ,  $SE = .13$ ,  $p < .001$ ), and hybrid ( $M_{diff} = 1.11$ ,  $SE = .11$ ,  $p < .001$ ) courses. Students’ willingness to participate in an asynchronous learning environment was greater than their willingness to participate in a synchronous learning environment ( $M_{diff} = .39$ ,  $SE = .13$ ,  $p = .023$ ) and their willingness to participate in a hybrid learning environment ( $M_{diff} = .65$ ,  $SE = .15$ ,  $p < .001$ ).

**Figure 1***Course Participation Willingness as a Function of Course Format***Course Format Effectiveness Ratings**

Between the four course formats (i.e., in-person, asynchronous, synchronous, hybrid), students rated in-person learning as being most effective, with an average student effectiveness rating of 4.54 ( $SD = .84$ ). Interestingly, this finding contradicts the finding that students find an in-person learning environment to be most anxiety-inducing. Following in-person learning, students rated hybrid learning ( $M = 3.75$ ,  $SD = .87$ ), synchronous learning ( $M = 3.55$ ,  $SD = .94$ ), and asynchronous learning ( $M = 3.30$ ,  $SD = 1.14$ ) as most to least effective, respectively (See Figure 2).

**Figure 2**

*Course Effectiveness Ratings as a Function of Course Format*



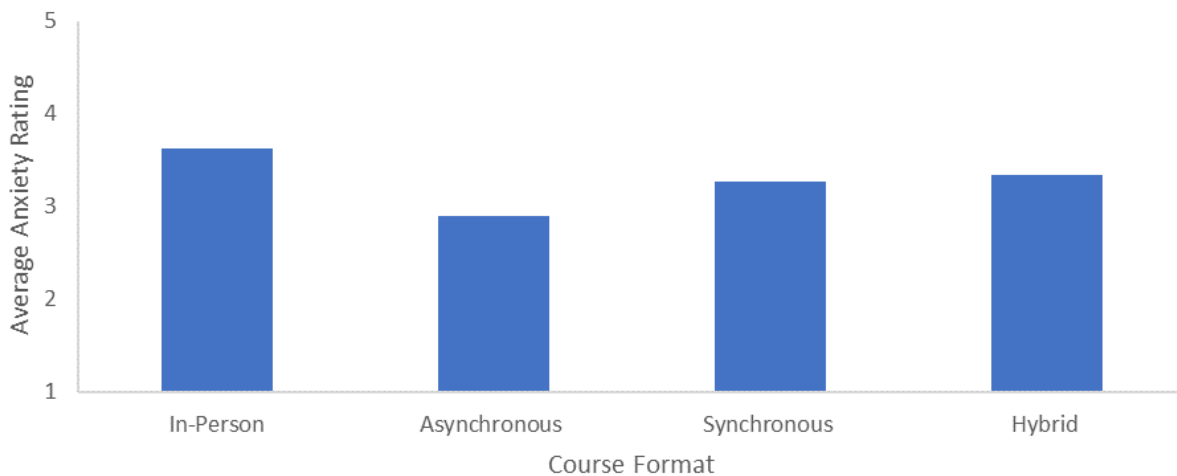
### **Anxiety Ratings as a Function of Course Format**

Contradictory to students being most willing to participate in an in-person course, students rated in-person learning as being the most anxiety-inducing (see Figure 3). Following an in-person learning environment, hybrid learning, synchronous learning, and asynchronous learning were the next most anxiety-inducing learning structures, from most to least, respectively. Once again, a pairwise comparison showed significant differences between all but one comparison of learning environments. The comparison of anxiety ratings between synchronous learning and hybrid learning was not statistically significant ( $M_{\text{diff}} = .06$ ,  $SE = .08$ ,  $p = 1.00$ ). However, in-person anxiety ratings were higher than hybrid ( $M_{\text{diff}} = .28$ ,  $SE = .09$ ,  $p = .028$ ), synchronous ( $M_{\text{diff}} = .35$ ,  $SE = .12$ ,  $p = .023$ ), and asynchronous ( $M_{\text{diff}} = .73$ ,  $SE = .14$ ,  $p =$

< .001) courses. Anxiety ratings were also higher for synchronous learning versus asynchronous learning ( $M_{diff} = .39$ ,  $SE = .11$ ,  $p = .004$ ), as well as higher for hybrid versus asynchronous learning ( $M_{diff} = .46$ ,  $SE = .12$ ,  $p = < .001$ ).

### Figure 3

*Average Anxiety Ratings as a Function of Course Format*



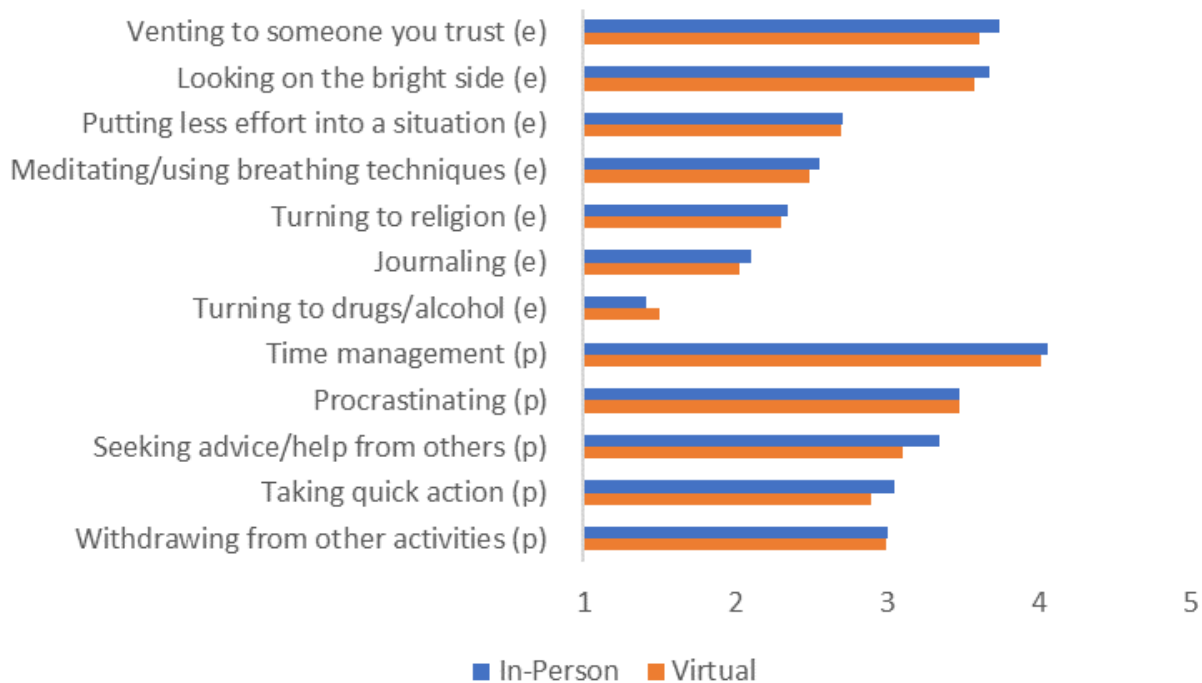
### Coping Mechanism Use and Effectiveness

Overall, students seem to utilize a variety of coping mechanisms in both virtual and in-person learning environments. All coping mechanisms from the list provided to students (see Appendix B) were reported as being at least moderately utilized, excluding turning to drugs/alcohol. For in-person learning, turning to drugs/alcohol had an average rating of only 1.41, and for virtual learning, it had an average rating of only 1.5 (see Figure 4). For both in-person and virtual learning, the most used coping strategies among students were time management, venting to someone you trust, looking on the bright side, and procrastinating. For in-person learning, they had average use ratings of 4.06 ( $SD = 1.00$ ), 3.74 ( $SD = 1.13$ ), 3.67 ( $SD = 0.95$ ), and 3.48 ( $SD = 1.09$ ), respectively. On the other hand, for virtual learning, they had

average use ratings of 4.01 ( $SD = 1.19$ ), 3.61 ( $SD = 1.24$ ), 3.58 ( $SD = 1.07$ ), and 3.48 ( $SD = 1.22$ ), respectively. Finally, receiving advice/help from others was more often used as a coping strategy for in-person ( $M = 3.35$ ,  $SD = 1.00$ ) versus virtual ( $M = 3.10$ ,  $SD = 1.19$ ) learning,  $t(146) = 3.04$ ,  $p = .003$ . However, no other significant differences existed between in-person and virtual learning for frequency of coping mechanism use. Based on these results, it can be concluded that although students utilize both emotion-focused and problem-focused coping strategies, they utilize problem-focused coping strategies more than emotion-focused coping strategies (see Figure 4).

#### Figure 4

##### *Average Use of Coping Mechanisms*

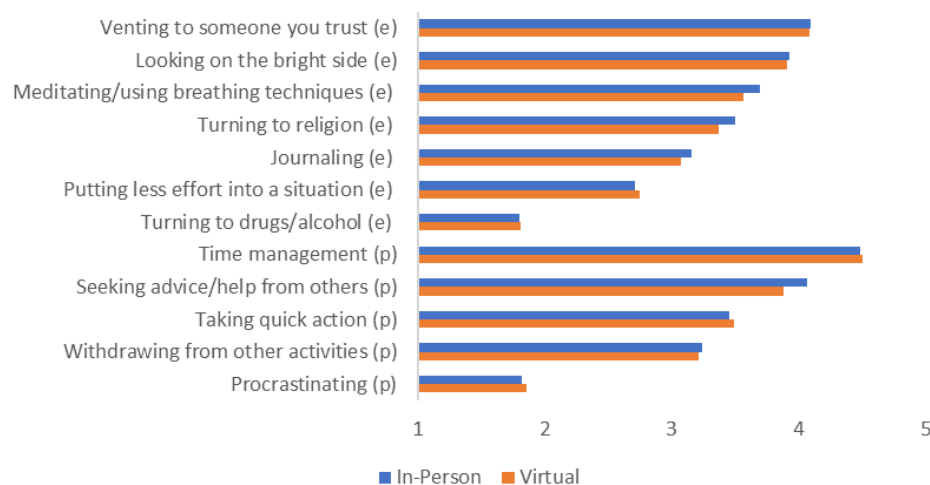


*Note.* Parentheses next to each coping mechanism indicate whether the coping mechanism is a form of emotion-focused (e) coping or problem-focused coping (p).

Generally, it seems that students' use of coping mechanisms aligns with their ratings of effectiveness for those same mechanisms. For instance, time management was the most used coping strategy by students for in-person and virtual learning (see Figure 4), and it was also rated as being most effective for combating feelings of anxiety in a virtual and in-person learning environment (see Figure 5), with a mean of 4.50 ( $SD = 0.81$ ) for virtual learning, and 4.48 ( $SD = 0.83$ ) for in-person learning. It seems that the most effective coping mechanisms, according to respondents, are time management, venting to someone you trust, seeking advice/help from others, and looking on the bright side (see Figure 5). Students rated seeking advice/help from others as more effective for in-person learning ( $M = 4.07$ ,  $SD = .93$ ) versus virtual ( $M = 3.88$ ,  $SD = 1.10$ ),  $t(136) = 2.29$ ,  $p = .024$ , although their ratings of use were not as high, with a mean of 3.10 ( $SD = 1.19$ ) for virtual learning and a mean of 3.35 ( $SD = 1.00$ ) for in-person learning. Interestingly, procrastination was one of the highest rated coping strategies utilized by students. However, the effectiveness ratings were very low, at only 1.82 ( $SD = 1.17$ ) and 1.86 ( $SD = 1.17$ ) for in-person and virtual learning, respectively.

**Figure 5**

*Coping Mechanism Effectiveness*



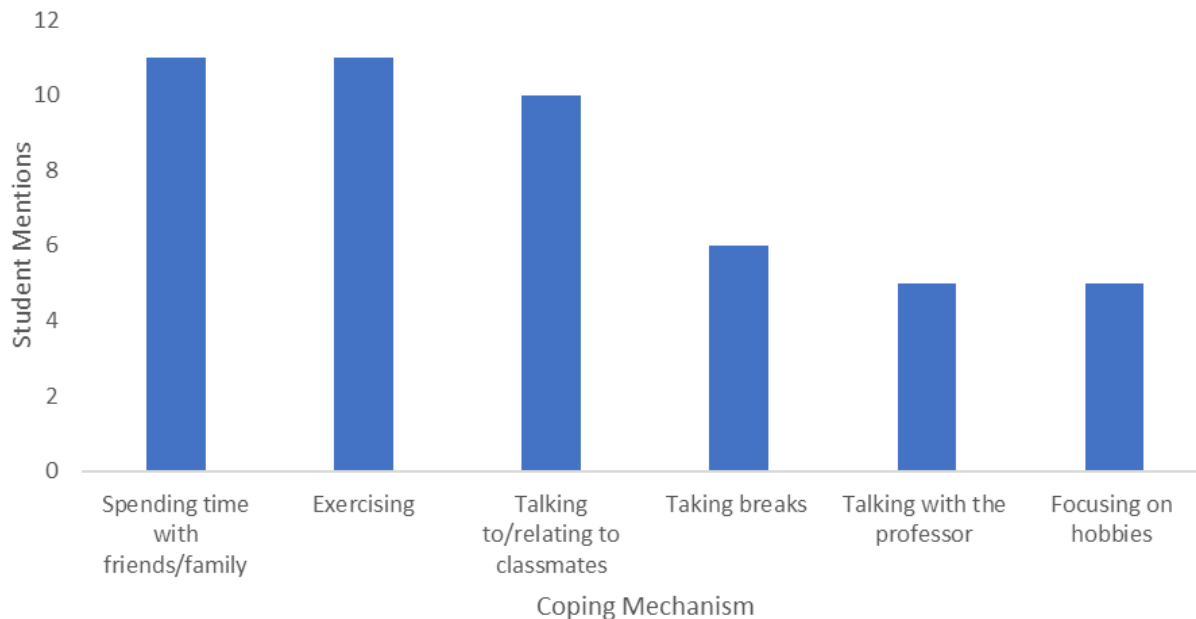
*Note.* Parentheses next to each coping mechanism indicate whether the coping mechanism is a form of emotion-focused coping (e) or problem-focused coping (p).

### Subjective Coping Mechanism Use

When asked about coping mechanisms not provided on the list, respondents provided a variety of answers. Regarding in-person learning, the four most frequently mentioned coping strategies were spending time with friends and family, exercising, talking to/relating to other classmates, taking breaks, sleeping/napping, talking with/making a connection with the professor, and setting time aside in the day to focus on enjoying hobbies (see Figure 6). With that being said, some of the specific hobbies that were mentioned by students include playing sports (e.g., hockey), reading, doodling/coloring, shopping, dancing, and watching T.V. For a full list of coping strategies mentioned by students, see Appendix C.

**Figure 6**

*Student Mentions of Coping Mechanisms for In-Person Learning*

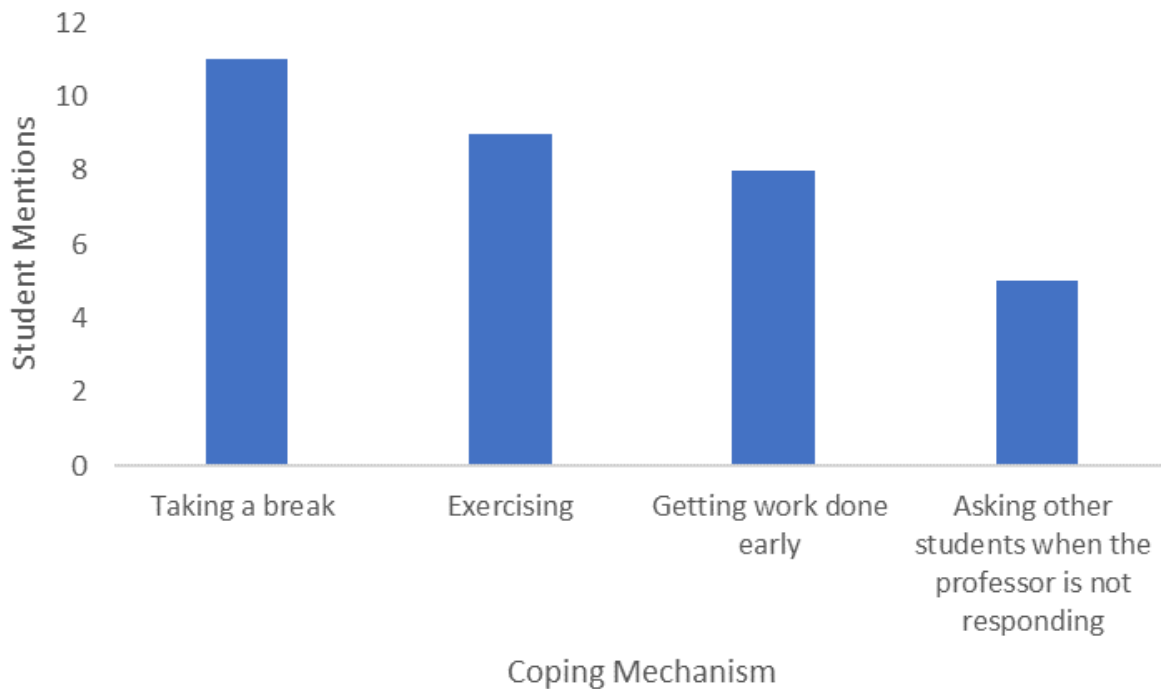




Considering virtual learning, overall, students mentioned fewer coping strategies than they did for in-person learning. Among the coping mechanisms mentioned for virtual learning, the most frequently mentioned were taking a break, exercising, getting work done early, and asking other students for help when the professor is not responding (see Figure 7). Naturally, more technology-related coping strategies were mentioned for virtual learning, such as emailing the professor, having a charged laptop, joining meetings late, sitting in an appropriate environment for proctored exams, and avoiding looking at people's faces on the screen during virtual meetings. A full list of coping strategies mentioned by students for virtual learning can be found in Appendix C.

### Figure 7

*Student Mentions of Coping Mechanisms for Virtual Learning*



### Discussion

The current study aimed to evaluate virtual learning anxiety for university students and compare findings to that of in-person learning anxiety. In addition, the study investigated the various coping strategies students use to cope with learning anxiety for both in-person and virtual learning. It was hypothesized that virtual learning would be more anxiety inducing for university students, and that students would be more likely to more often utilize emotion-focused coping strategies to combat feelings of learning anxiety.

Overall, findings from the study show that college students have a preference for in-person courses, and are more willing to voluntarily take them. On the other hand, students were least likely to willingly participate in hybrid courses. As for anxiety ratings, students rated asynchronous courses as being least anxiety-inducing, and rated in-person courses as being most anxiety-inducing.

Students utilize a number of coping mechanisms to combat learning anxiety, although for both in-person and virtual learning they seem to use time management, venting to someone you trust, looking on the bright side, and procrastinating most often. Students' perceived effectiveness of the coping mechanisms align with their use ratings. That is, for the coping mechanisms that students most often utilize for both in-person and virtual learning (time management, venting to someone you trust, looking on the bright side, and procrastinating), those same coping strategies were also rated by students as being very effective, excluding procrastination, which was rated as being ineffective.

Subjective measures of coping mechanism use showed that students utilize a wider variety of coping strategies for in-person learning compared to virtual learning. For in-person learning, students most often spend time with friends and family, exercise, talk to/relate to

classmates, take breaks, talk to the professor, and take time to focus on hobbies. Although generally less coping mechanisms were mentioned for virtual learning, students most often mentioned taking a break, exercising, getting work done early, and asking other students for help when the professor is not responding. There were also a variety of technology-related strategies such as having a charged laptop and avoiding looking at faces on the screen during virtual meetings.

An important finding to note from the study is that while students were most willing to take part in an in-person course, they also rated in-person learning as being the most anxiety-inducing course format, which does not support the hypothesis that virtual learning would be most anxiety-inducing for students. This suggests that even though students would likely much rather prefer being in an actual classroom setting with easy access to communicate with the professor and other students, there are also certain aspects of in-person learning that are more anxiety-inducing for student that may not be present or as anxiety-inducing in a virtual learning environment. So, although in-person learning can be anxiety-inducing for students, perhaps students recognize just how beneficial in-person learning can be, causing their ratings of willingness to be higher.

Additionally, students also rated in-person learning as being the most effective course format in terms of learning. This finding also contradicts students' high anxiety ratings for in-person learning, which suggests that while students feel more anxious in an in-person learning environment, students may still recognize how beneficial an in-person course structure is for the purposes of learning and getting the most out of their classes.

It is also important to note that students generally utilize a variety of emotion-focused and problem-focused coping mechanisms. However, contradictory to the hypothesis that students

will more often utilize emotion-focused coping mechanisms rather than problem-focused mechanisms, it seems that students do use problem-focused coping mechanisms more often, to some extent. Although emotion-focused coping strategies such as procrastinating and venting to someone trustworthy may be more convenient for students, students must also recognize that problem-focused coping mechanisms are more effective in reducing feelings of learning anxiety.

### **Limitations**

There are a few limitations relevant to this study. Most notable is an issue of external validity. A majority of the participants for this study (80.3%) were females, so the findings from the survey may not be generalizable to males. Additionally, all participants for this study were Oakland University students, so results may also not be generalizable to all university students. There was also a relatively small sample size for this study. At the point of data analysis, responses that took less than five minutes and/or were incomplete were screened out, resulting in a loss of 61 survey responses. Finally, the survey contained a number of long Likert scale questions as well as a couple of free response questions at the end. As a result, it is possible that participant fatigue was occurring by the time respondents reached the end of the survey, potentially causing rushed, poor or minimally thought out responses.

### **Real World Implications and Future Research Directions**

The findings from this study are important to the real world because they provide insight into what aspects of virtual and in-person learning create feelings of anxiety for students, and how they choose to combat those feelings of anxiety. Not only is that insight beneficial for institutions to make changes in order to give students a more positive learning experience, but it is also beneficial for mental health professionals. With a better understanding of why students use the coping mechanisms they do, mental health professionals can better guide college-aged

students who are struggling with learning anxiety, and will be better able to direct them toward healthier coping strategies when necessary.

Given the findings of the study and the real world implications that apply, an important next step for related research is to investigate how specific changes can be made in virtual and in-person college learning environments to make students feel more comfortable so that they can get the most out of their education. For instance, the kinds of resources that would be most helpful for students in managing learning anxiety. Additionally, it would be beneficial to build on the effectiveness of coping strategies used by college students. Although this study records subjective measures of coping mechanism effectiveness, perhaps future research could involve an experimental or longitudinal study that measures students' learning anxiety over time as certain coping strategies are used. Finally, it would be beneficial for future studies to examine exactly why in-person learning is most anxiety-inducing for students considering it is the course format students are likely to be most familiar with.

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## **Appendix A**

### **Anxiety Rating Prompts**

For a portion of the survey, students were asked to rate their agreement or disagreement with the following statements on a scale beginning at strongly disagree to somewhat disagree, to neither agree nor disagree, to somewhat agree to strongly agree.

- Some aspect(s) of virtual learning give(s) me feelings of anxiety
- Some aspect(s) of virtual learning make(s) me feel stressed
- Some aspect(s) of in-person learning give(s) me feelings of anxiety
- Some aspect(s) of in-person learning make(s) me feel stressed
- Virtual learning is more anxiety-inducing than in-person learning
- Virtual learning is more stressful than in-person learning

## Appendix B

### List of Coping Mechanisms

As part of the survey, students were provided with the following list of 12 coping mechanisms to use for four of the questions. Respondents were first asked to rate how often they use each of the following coping mechanisms for anxiety related to in-person and virtual learning, on a scale from “never” to “always”. They were also asked to rate how effective they feel each of the coping mechanisms they use are for in-person and virtual learning, on a scale from “very ineffective” to “very effective”, and with the option of selecting “n/a” for mechanisms they do not use. The parenthesis next to each indicate whether the coping mechanism is emotion-focused or problem-focused.

- Venting to someone you trust (e)
- Time management- creating a schedule, plan, to-do list (p)
- Seeking advice and/or help from others (p)
- Turning to drugs and/or alcohol to mask feelings of anxiety (e)
- Looking on the bright side/focusing on positive aspects of a situation (e)
- Turning to religion (i.e., praying) (e)
- Meditating and/or practicing calming breathing techniques (e)
- Taking quick action on a situation in attempt to reduce feelings of anxiety (p)
- Journaling (e)
- Putting less effort into anxiety-inducing situations (e)
- Withdrawing from other activities that may be distracting (p)
- Procrastinating (p)

### Appendix C

At the end of the survey, students were asked to list any coping strategies they use for in-person and virtual learning that were not included on the list already provided to them.

#### **In-Person**

- Going to therapy
- Listening to music to calm down
- Reminding myself that it is okay to not know the answer when the professor calls on me
- Talking to/relating to classmates
- Keeping calm
- Studying with classmates
- Waking up early to be on time for class
- Staying organized
- Asking questions
- Taking a break
- Crying
- Skipping class
- Preparing before class
- Talking to the professor
- Spending time with pets
- Thinking about other students feeling anxious
- Studying often
- Exercising
- Spending time outside

- Focusing on hobbies
- Sleeping
- Projecting confidence
- Making group chats
- Writing/re-writing notes
- Using fidget toys
- Taking a long bath/shower
- Not attracting attention
- Eting
- Imagining being alone in the classroom

**Virtual**

- Going to therapy
- Listening to music to calm down
- Emailing the professor
- Asking other students for help when the professor is not responding
- Crying
- Getting work done early
- Taking a break
- Sitting in a proper environment for proctored exams
- Checking Moodle often
- Making group chats for help/advice
- Working with peers in-person
- Spending time with pets

- Having working technology
- Exercising
- Spending time outside
- Doing easy tasks first
- Napping
- Working in a calm space
- Eating
- Joining meetings late
- Distracting myself with other electronics
- Ranting
- Spending time with friends
- Disassociating
- Looking away from other students' faces on the screen
- Focusing on hobbies