

**Psychology Students' Motivation and Learning in Response to the Shift to Remote
Instruction During COVID-19**

Ellen L. Usher

Jonathan M. Golding

Jaeyun Han

Caiti S. Griffiths

Mary Beth McGavran

Christia Spears Brown

Elizabeth A. Sheehan

University of Kentucky

Correspondence should be addressed to the first author:

Ellen L. Usher

Department of Educational, School, and Counseling Psychology

249 Dickey Hall

Lexington, KY, USA 40506-0017

Phone: (859) 257-8647

Fax: (859) 257-5662

Email: ellen.usher@uky.edu

© 2021, American Psychological Association. This paper is not the copy of record and may not exactly replicate the final, authoritative version of the article. Please do not copy or cite without authors' permission. The final article will be available, upon publication, via its DOI: 10.1037/stl0000256

**Psychology Students' Motivation and Learning in Response to the Shift to Remote
Instruction During COVID-19**

Submitted: August 26, 2020
First revision submitted October 28, 2020
Second revision submitted December 9, 2020

Abstract

The COVID-19 pandemic has led to dramatic shifts in the teaching and learning of psychology. The purpose of this study was to document the impact of those shifts on undergraduate psychology students' motivation and self-regulation of learning during the initial transition to remote instruction. Psychology majors ($N = 358$) attending a public land-grant university in the southeastern U.S. voluntarily completed a survey at the end of the Spring 2020 semester. Closed- and open-ended items assessed students' self-reported behavioral and psychological wellness, motivation, and learning experiences during the COVID-19 outbreak. A convergent mixed methods analysis was used in which open-ended questions provided context and experiential nuance to quantitative findings. Students reported increases in sleep, social media use, gaming, and procrastination, but decreases in academic motivation and self-regulation (e.g., focusing, juggling responsibilities). Over 75% reported increases in stress, which they attributed most frequently to motivational and academic challenges. Students reported learning less in most of their classes following the shift. They attributed this to internal factors, including self-regulatory/motivational difficulties, and external factors, such as instructional delivery modality. Although most perceived their instructors as understanding, nearly half reported a decline in instructional quality and communication after the shift to remote instruction. Over one third of students reported feeling less certain about their future educational plans. Implications for the provision of institutional and instructional supports for college students during and beyond the pandemic are discussed.

Keywords: higher education, COVID-19, motivation, self-regulation, undergraduate psychology

Psychology Students' Motivation and Learning in Response to the Shift to Remote Instruction During COVID-19

The COVID-19 pandemic has created large-scale disruption in the lives of college students around the globe. In the U.S., most in-person postsecondary instruction halted in mid-March 2020, and instructors scrambled to shift their courses to remote formats, largely via online delivery ("The Coronavirus is Upending Higher Ed," 2020). Many students living on campuses were urged to vacate their residences and return to permanent addresses, mostly with family members. Beyond the boundaries of the campus, businesses in some parts of the country shuttered as local officials issued stay-at-home orders in March and April. The broad aim of this investigation was to document the impact of these changes on undergraduate psychology students' motivation and self-regulation of learning during the shift to remote instruction in Spring 2020.

Human behaviors, personal (e.g., cognitive, affective, motivational) factors, and environmental factors dynamically influence one another (Bandura, 1986). Changes in students' physical, psychological, or educational environment can affect cognition and motivation (Schunk & DiBenedetto, 2020). When basic needs are threatened, such as during a global pandemic, individuals may redirect their goals and motives to maintain their well-being (Dweck, 2017). When contextual constraints leave students feeling anxious or uncertain, students may begin to doubt their own capacities, experience distress, or shift their goals toward something over which they feel they have more control (Bandura, 1997). Doubts about one's capability to learn or to effectively regulate one's life under changing learning conditions can lead to increased stress and undermine performance.

Some researchers have begun to document how the global pandemic has interrupted individuals' daily life and social relationships, which have, in turn, led to behavioral and

psychological changes (e.g., Kazak, 2020). Students at all levels of education faced significant changes as they were required to switch abruptly to a fully online learning experience, many for the first time. During the winter months of 2020, college students in the U.S. showed greater increases in depression and anxiety than in previous academic terms (Huckins et al., 2020; see Elmer et al., 2020, for similar findings from Swiss students). In China, college students similarly reported more changes to their daily lives after COVID-19 and increased anxiety (Cao et al., 2020).

The pandemic required an immediate shift to online and remote instruction, presenting new challenges for teachers and students. Postsecondary educators, many with little or no experience teaching their content online, needed to quickly adapt. Research conducted over the past two decades has shown that, increasingly, postsecondary teaching effectiveness requires more than just expertise in the content area. Teaching effectiveness relies also on instructors' abilities to effectively deliver content through sound pedagogical practices and, more than ever, through the effective integration of technology (a framework referred to as Technological Pedagogical Content Knowledge, or TPACK, Mishra & Kohler, 2006). However, many postsecondary instructors were ill-prepared for a mass transition to fully online instruction and had little time to adapt their pedagogical approach. This abrupt transition affected learners' experiences, which, in turn, become the likely frames through which learners will approach their educational experiences in 2021 and beyond.

Although the short- and long-term effects of the pandemic on academic outcomes are not yet fully known, some evidence has shown that the COVID-19 crisis has already affected students' academic progress. A survey of approximately 1500 undergraduates (50% female; 61% White) conducted in April of 2020 showed that 13% of participants expected a delay to their graduation, and lower-income students were 55% more likely than higher-income students to

face an academic delay due to COVID-19 (Aucejo et al., 2020). It is important for researchers interested in improving the teaching of psychology to understand the challenges and successes of the initial shift to remote instruction and to glean implications for how they can best support students' academic and psychological well-being.

The purpose of this exploratory study was threefold. First, we sought to learn more about how the sudden institutional and environmental changes affected the psychological and academic experiences of undergraduate psychology students, particularly with regard to student motivation and self-regulation. Second, we sought to identify emergent themes related to the ways in which psychology students perceived the instructional quality, pedagogical approaches, delivery modality, and instructor support during COVID-19. Third, we examined the effects of these shifts on students' future academic plans. The following three hypotheses were investigated.

First, we predicted that students would report increased stress and stress-related behaviors, increased coping behaviors (e.g., social media, sleep), decreased motivation, and decreased ability to focus after the shift to remote instruction compared to before (H1). A recent systematic review suggests that COVID-19 increases individuals' stress, anxiety, and depression and that these effects are positively related to level of education (Salari et al., 2020). Perceived difficulties regulating stress can undermine motivation and learning (Bandura, 1997).

Second, we predicted that students would evaluate the quality of teaching and learning experiences as generally worse after the shift to remote instruction compared to before (H2). We expected students to attribute instructional shifts to decreases in learning, motivation, and ability to self-regulate. To navigate sudden and widespread changes in one's environmental circumstances (e.g., learning context, living situation, pandemic-related constraints) requires cognitive and emotional resources that affect the self-regulation of learning (Zimmerman et al.,

2017). As their stress levels increase, learners typically experience lower academic self-efficacy, decreased motivation to learn, and difficulty managing their course work (Bandura, 1997).

Third, we predicted that students not graduating in 2020 would report greater uncertainties about their educational future (H3). From a social cognitive perspective, contextual changes in one's immediate learning environment and in the broader job market at large can influence career-related interests, goals, and choices (Lent & Brown, 2019). The COVID-19 pandemic has produced instability in the global economy, which may affect students' financial circumstances and hinder their academic progress.

Method

Procedure

The researchers sent an email to students majoring in psychology at a large, research-intensive university in the southeastern U.S. ($N = 1,143$; 33% living on campus) inviting them to participate in a 10-minute survey about their learning and personal experiences during the shift from in-person to remote instruction following the COVID-19 stay-at-home orders during Spring 2020. Participation was voluntary and no course credit was offered. Researchers administered the survey during the last two weeks of the semester (i.e., first of May 2020) and kept the survey open for one week after the end of term. Surveys were anonymous and requested no identifying information from participants. The university's Institutional Review Board approved the study.

Consenting participants ($N = 358$; response rate = 31%) were primarily female ($n = 308$; 45 male; 4 transgender; 1 unreported) and White ($n = 261$; 44 Black or African American; 21 Hispanic or Latinx; 18 Asian, Pacific Islander; 10 multiracial; 4 Middle Eastern). The sample representation of these demographic groups was slightly higher than that of all students currently majoring in psychology at the university ($N = 1,008$; 78% female; 67% White). Participant age ranged from 18 to 61 years ($M = 21.3$, $SD = 4.9$). Students were asked to report their current

course load and academic standing during the spring semester. On average, participants were enrolled in 4.8 courses ($SD = 1.1$) and reported a cumulative grade point average of 3.45 ($SD = 0.51$; Range 1.50 to 4.00). According to students' self-reported cumulative credit hours earned, the sample comprised 50 freshmen (14%), 83 sophomores (23%), 122 juniors (34%), 101 seniors (28%), and 2 non-degree-seeking students.

We also asked students about their living situation and health status. Of the 268 participants who reported that they did not live with their parents at the start of the semester, 65% reported having moved back in with their parents after midterm (i.e., the start of remote instruction). Only eight students indicated that they had been tested for COVID-19, and one reported testing positive (we did not consider students' COVID-19 status in further analyses).

The Survey

The research team designed the survey (available from the first author) to investigate changes to students' lives after the stay-at-home orders went into effect during the COVID-19 outbreak in mid-March 2020. We invited students to respond to closed- and open-ended items relating to three broad experiential categories: changes in behaviors and psychological processes after the move to remote instruction, changes to the instructional environment of their courses, and future plans.

We asked participants to compare the frequency with which they engaged in nine daily behaviors (e.g., exercise, sleep) before and after the stay-at-home orders began. Students reported whether, during the second half of the semester, they engaged in the behaviors *less*, *about the same as*, or *more* than before the stay-at-home orders took effect. Using the same scale, students also indicated whether their own thoughts and feelings in four areas (e.g., stress, motivation) had changed after the move to remote instruction. Students were then given the opportunity, via two open-ended questions, to describe their psychological (i.e., "What has been

most stressful?") and behavioral (i.e., "What has been most helpful for coping?") experiences during the stay-at-home period.

Five item pairs (one closed-ended, one open-ended) were used to assess students' perceptions of the teaching and learning environment following the stay-at-home orders that took place at midterm. The survey directions first reminded students of the number of courses in which they indicated being enrolled during the Spring 2020 semester. Students were then prompted to indicate how many of their courses *improved*, how many *stayed the same*, and how many *worsened* following the move to remote instruction (e.g., in terms of instructional quality, learning) and to evaluate their instructors' level of understanding of "how COVID-19 has impacted students' college experience and lives." Each closed-ended item was followed by a corresponding open-ended question, inviting students to elaborate. The researchers calculated proportions for each response category of the closed-ended items and grouped students according to how they described their experience in the majority of their classes (e.g., worse, about the same, better, or no clear majority) on each of the instructional dimensions of interest.

Three survey items targeted possible effects of the pandemic and related instructional shifts on students' future plans in terms of their (a) level certainty about career plans (*decreased*, *stayed the same*, or *increased*), (b) likelihood of returning to the university in Fall 2020 if not graduating, and (c) thoughts about how COVID-19 might affect their progress in college.

Design and Analysis

A convergent mixed methods design was used to analyze the data from closed- and open-ended questions (Creswell & Plano Clark, 2017). We used the questionnaire variant approach by presenting participants with qualitative questions immediately after they responded to corresponding quantitative questions. This approach can provide context and experiential texture to the quantitative findings.

Quantitative and qualitative data were first analyzed independently in SPSS 26 and MAXQDA, respectively. Inductive coding procedures were used to establish a coding guide for each of the open-ended questions based on emergent themes. A team of three coders reached consensus on a list of codes and definitions for each question (final codes and definitions are available from the first author). The coding guide was then applied to 30 randomly selected data segments from each question to ensure that the coding lists were tenable. We added new codes or refined coding definitions as needed to capture emerging patterns. Two researchers then independently coded all responses. Kappa coefficients of reliability [MAXQDA uses Brennan & Prediger's (1981) formula] ranged from .64 to .95 for each question. The researchers discussed all discordant codes and reached agreement. Responses initially coded as "Other" were further examined for meaningful patterns that did not fit the original coding scheme.

We tabulated coding frequencies as a means of data condensation (Miles et al., 2019). Proportions were calculated by dividing the coding frequency for each question by the number of students who answered the question. This enabled us to determine which themes were most salient. Data displays were created across groups of students who reported having similar experiences, which permitted us to integrate findings from quantitative and qualitative analyses and examine commonalities and distinctions in students' experiences (Miles et al., 2019).

Results

Behavioral and Psychological Changes Following Shift to Remote Instruction

Our first research aim was to describe the behavioral and psychological impact of COVID-19 on psychology students after the shift to remote instruction. Table 1 presents response frequencies for students' self-reported behavioral and psychological changes. Most students reported sleeping more than before the stay-at-home orders were issued and engaging more often in social media use, TV watching, talking with family members, gaming, and

procrastinating. In terms of psychological changes, two thirds of students reported that their stress had increased. Over three fourths of students reported decreases in their motivation for school and their ability to focus, and nearly half reported a decreased sense of confidence in their academic abilities.

Students' responses to the open-ended question about what they found most stressful shed light on the types of challenges they were experiencing (see Table 2 for all coding categories and frequencies). Many mentioned multiple sources of stress. Nearly one out of three respondents described stress associated with their ability to motivate themselves or to effectively manage their responsibilities, which we coded as Self-Regulation/Motivation. Students' described stress related to their perceived inability to focus for long periods of time, declines in academic motivation, and challenges with time management (e.g., "self-monitoring; I am not good at setting my own deadlines."). Externally-imposed structures (e.g., class meetings and lectures) that had been in place before the pandemic largely disappeared, leaving some students feeling disconcerted. Words such as "balance," "juggle," and "keep up" peppered students' responses. Several also felt the stress of not feeling able to regulate their emotional response to the situation.

The second most frequently mentioned source of stress came from academic and school-related events, which were mentioned by 25% of respondents. Subthemes are similar to those we discuss further below: stress induced by shifts in delivery modality, changes to the course workload, poor communication from instructors, confusing expectations, difficulty learning content, and insufficient accommodations from instructors.

About one in five students described stress related to having to move home from college during the semester. In some cases, this meant having to renegotiate family roles and dynamics. Several students felt that their siblings and/or parents lacked understanding of their academic

responsibilities. Others noted the stress of social isolation or separation from peers or loved ones. A related source of distress was losing out on opportunities or access to resources (e.g., education abroad, on-campus libraries) that otherwise would have been available.

Over 10% of students mentioned the stress associated with a sense of uncertainty and lack of control over their situation and future. A similar number of students were most troubled by threats to their basic needs, such as job or food insecurity, unreliable Internet access, or housing challenges. One student, a junior, noted that she “was kicked out of the dorms so I had nowhere to live and can’t go back home because of at-risk family members. I’ve felt very anxious and depressed and have to live on my friends’ couch.”

It bears noting that students’ stress responses varied in degree of intensity. For some, the stress seemed high and acute (e.g., “My family and friends are in danger all the time. It’s hard to keep up with school and stay sane when you’re constantly worried.”). On the other hand, a small subset of students reported no sources of stress.

Students described a variety of coping strategies for managing their stress (see Table 2). Spending time with family and friends (28.4%), exercising or being outdoors (19.6%), and hobbies or leisure activities (8.5%) were helpful ways to manage. Additional coping strategies included spending time on media (e.g., TV, games, music; 9%), being with animals (5.9%), and establishing a routine (5.0%).

Instructional Changes Following the Shift to Remote Instruction

Our second research objective was to assess psychology students’ perceptions regarding instructional quality following the shift to remote instruction. We examined students’ perceptions of four aspects of the instructional environment: instructional quality and instructors’ understanding, workload, learning, and lecture delivery format. Tables 3 and 4 provide

descriptive statistics for students' responses to closed-ended questions and frequencies of codes assigned to their open-ended responses.

Instructional Quality and Instructors' Understanding

We first asked students about changes in the quality of teaching in their courses after the shift to remote instruction. We also asked students to rate their instructors' situational understanding during the COVID-19 outbreak. On average, students reported that 44.6% of their classes were taught worse, 43.7% were taught about the same, and 11.7% were taught better compared to before. Students nevertheless reported that their instructors were *very* or *somewhat* understanding in over 90% of their classes. Students' responses to the corresponding open-ended questions revealed several patterns.

Two themes emerged most frequently from students' responses ($n = 160$) to the open-ended question about instructional quality. First, many students offered evaluative comments related to *instructors' pedagogical skill and ability to adapt* to online delivery (e.g., use of technology, adapting coursework and assignments). A second and often related theme addressed *communication* between instructors and students. Among the minority of students who reported that instructional quality had improved after remote instruction, most simply noted that their instructors were "doing their best" during a "challenging and difficult" time. Students praised those instructors who remained accessible to them and kept open lines of communication.

Similar patterns were reflected in students' comments about their instructors' level of understanding. Many students acknowledged that their instructors' empathy and care had been important to them emotionally and motivationally. Care was conveyed through proactive communication from instructors and through a willingness to make instructional or academic accommodations to ease the shift to remote learning (e.g., leniency in grading, assignment modifications, and lighter coursework).

Workload

We asked students specifically about how their coursework had changed during the shift to remote instruction. On average, students reported that the workload had increased in 29.1% of their classes, remained about the same in 42.4% of their classes, and decreased in 28.4% of their classes after the shift to remote instruction.

In terms of how their work had changed, about one in five participants described changes to assignments, requirements, or due dates. Most students said these changes had increased their workload. As one noted, “in person class time was replaced with assignments, which in some cases tripled the amount we were used to before the stay at home order. Exams were replaced with other assignments and extra reading/video material was included along with lectures.” For some, workload-related stress was compounded by the cognitive and emotional burden brought on by the emerging pandemic.

Nearly 20% of responding participants noted that their online work was less helpful to their learning (e.g., “It just felt like the assignments were all busy work and I was only doing them to get points and not actually learn”). Even among students who perceived that their overall workload had decreased, some felt like their remote class assignments “didn’t contribute to learning at all.”

Learning

When asked explicitly about their learning, students reported learning less in most of their classes (51.9%), about the same in some (37.7%), and more in a minority of classes (10.4%) after the shift to remote instruction compared to before. Students’ open-ended responses revealed that they attributed changes in their learning, at least in part, to factors such as low motivation, inability to self-regulate their learning, and a shift in goals. One student’s experience touched on many attributional themes that typified students’ responses: “I literally have no

schedule anymore so I can't plan when to do anything and I have no motivation and it's just terrible." Motivational and attention regulation difficulties were often made worse by environmental constraints (e.g., distractions, lack of reliable Internet, reduced access to campus resources). Online delivery modalities, both synchronous and asynchronous, were barriers to learning for many students. On the other hand, some students attributed the decline in learning to internal factors, such as their own shifting goals and priorities.

Several students mentioned feeling unprepared for the increased personal responsibility of learning remotely. For some, this was viewed as a challenge (e.g., "The learning has shifted more towards myself having to take more of an active role in my own education with no lecture meeting or structure"). Others, however, seemed resentful of or frustrated by the lack of learning support. As this student wrote, "I have never felt more stupid than I do right now. I feel like I'm teaching myself, and that's very much the blind leading the blind."

Some more generally attributed their learning declines to the shift to remote instruction (e.g., "I feel that I am losing a lot of valuable knowledge moving online for classes") or on their own beliefs about their capabilities to learn online (e.g., "I do better in an in-person environment"). Others felt that instructors' decisions about delivery modality left them unsupported in their learning, such as when classes did not include synchronous meetings. A minority of students reported learning more after the shift to remote instruction; these students appreciated the instructional flexibility and self-paced learning.

Lecture Delivery Modality

To learn more about the impact of instructional delivery decisions on students' motivation and learning, we asked students to indicate how many of their courses included video lectures during remote instruction and to offer their opinion on this delivery format. Students reported that, on average, 55.8% of their courses offered video lectures delivered synchronously,

asynchronously, or both after the transition to online learning. Over half of the students who provided more elaborate responses expressed positive opinions of video lectures. Several remarked that video lectures provided an instructional experience that was most similar to in-person instruction. Others found that video lectures helped regulate their learning. Conversely, of the students who felt negatively, the majority referenced struggles with self-regulation, reporting that they found it difficult to stay focused and attentive during video lectures.

Students expressed differing opinions about the merits of synchronous (i.e., “live”) versus asynchronous lectures, and frequently related the delivery method to their ability to self-regulate. Some preferred synchronous lectures because they allow for real-time class discussions and “help students stay close with their classes and teachers.” Others preferred the flexibility afforded by asynchronous lectures. Students similarly appreciated having access to pre-recorded lectures or lectures that were recorded synchronously and later made available for reviewing because they could “go back and watch it multiple times” and “learn at my own pace.”

Students' mixed opinions about video lectures also reflected possible variations in teaching skills across classes (e.g., “It’s very dependent on the professor quality. Some professors have perfectly fine lectures, while others are lacking greatly.”). Students whose instructors were less skilled in the successful integration of technology found it harder to pay attention in class. On the other hand, some students enthusiastically linked the lecture delivery to their own motivation and learning (e.g., “Love video lectures. They make me feel like I am still in the classroom and am getting the same learning experience as before COVID-19. [My professor] produced amazing video lectures, which were extremely beneficial to my learning.”).

Effect on Students' Educational Progress

To answer our final research question, we examined the impact of COVID-19 disruptions on students' perceptions about their educational future. Over one third of students reported

feeling less certain about their career plans following the shift to remote instruction, but over half reported that their level of certainty about the future had not changed. Approximately 85% of the 252 students not graduating in Spring or Summer of 2020 indicated that they were certain that they would return for the fall; however, students' open-ended comments revealed underlying uncertainties about how the pandemic might affect their progress in college. For example, of the 63 students who left comments, 22.2% noted that their return would depend on whether the university chose to conduct classes in person versus online. Some believed that their progress might be slowed down or would be contingent on the modality of instruction (e.g., "I know it's being done out of the interest of safety, but I feel with online, my college progress will be delayed or halted."). Other students, though fewer in number, felt unable to manage their fear of the pandemic spreading on campus (e.g., "If it switches to in person, I'll have to unenroll because the pandemic is too scary for me to be on a college campus").

Discussion

We aimed to investigate how the initial shift to remote instruction following the COVID-19 outbreak affected the psychological and academic experiences of undergraduate psychology students, particularly in terms of students' stress, motivation, self-regulatory abilities, and learning. Themes emerging from students' open-ended response provided texture to students' survey ratings, which were summarized quantitatively (Creswell & Plano Clark, 2017).

Two thirds of students reported increased stress, and four out of five reported decreased motivation for academic work and diminished capacity to self-regulate (e.g., remaining focused, regulating attention, establishing routines) after the campus closed to in-person instruction. Experiences of stress during the initial COVID-19 outbreak were not uncommon across sectors of society. However, the chief sources of stress described by over one third of the undergraduate psychology students in our sample were motivational and self-regulatory in nature. Students

struggled with decreased ability to focus and remain motivated in their courses, which coincided with increases in overall stress.

Several possible mechanisms may explain the sudden declines in academic motivation. First, students' academic goals may have become less focal than personal goals such as ensuring their own and their families' health and safety. Second, common behavioral reinforcements (e.g., face-to-face accountability, rigid grading structures) were modified at the university where this research took place. For instance, students had the option of being graded as "pass/fail" in lieu of receiving a letter grade. As our data suggest, some students who may have been oriented toward mastery goals (i.e., to learn as much as possible) before the pandemic reported re-orienting toward doing enough to "avoid a failing grade." Evidence suggests that the latter goals (i.e., performance avoidance) may undermine students' intrinsic motivation and learning (Urdan & Kaplan, 2020). Third, students experienced growing doubts about their own capabilities to learn effectively. For some, these doubts were exacerbated by having to learn challenging content without typical instructional supports. Others doubted their capability to learn in an online environment and amidst distracting circumstances at home.

Self-regulation is an important factor in college students' academic success and well-being (Kim et al., 2020; Wolters & Benzon, 2013). Successful learners establish routines and spend considerable time and energy structuring their learning environment to meet their learning goals. Disruption to this repertoire seemed to undermine students' beliefs in their own capabilities to learn and to regulate their circumstances (Zimmerman et al., 2017). The upside was that many students also reported engaging in healthy coping strategies, such as spending time with family and in nature, exercising, and sleeping more (CDC, 2020). Taken together, these findings suggest that multifaceted educational efforts are needed to support students' behavioral and psychological self-regulation during this moment.

A second focus of this study was to gauge students' perceptions about how their courses were taught during the shift to remote instruction. Almost 75% of students felt that most of their instructors had been "very understanding" of their challenges during the semester when COVID-19 began to spread. Students expressed their appreciation for their professors' efforts to help them navigate changes in their courses and lives—no small feat given that faculty were certainly also burdened by the multiple stressors of the moment. Had this level of support not been available, coping with the challenges of the pandemic would have been far more difficult.

Nevertheless, approximately half of the students in our sample reported that the instructional quality and their own learning declined in the majority of their courses after the switch to remote instruction. Only a small number of students thought that their instructors adjusted well to teaching effectively in the remote learning context. This is understandable in light of reports that two thirds of nearly 800 U.S. higher education faculty and administrators surveyed in April of 2020 reported having no online teaching experience, and over half reported having to learn new methods to use in their teaching (Johnson et al., 2020). In addition, 64% of faculty reported having made mid-semester changes to their course assignments or exams, and about half said they had lowered their expectations about the amount of work students would do. Any one of these instructional shifts would likely have had downstream effects on students' perceptions of instructional quality, learning, and workload. Had we exclusively relied on students' quantitative ratings, we may have simply concluded that emergency instructional shifts inevitably affected the quality of students' education.

However, open-ended responses painted a more complex picture of the myriad factors affecting students' learning experiences. Our data showed that personal factors (e.g., motivation, lack of focus) both affected and were affected by the changes in students' perceptions of their learning environment. For example, in their written responses, many students attributed declines

in their learning to their own waning motivation and to self-regulatory challenges they were facing. On the other hand, they described ways in which the instructional quality in their classes might be altered to support their motivation and engagement. The latter led to several areas of recommendation for improving the teaching of psychology, and, in turn, support students' motivation and self-regulation during challenging times.

When they perceive their teachers' instructional quality as good, students are more likely to strive for a deep understanding in their learning (Lizzio et al., 2002). In contrast, a heavy workload with assignments that students have trouble seeing as relevant may lead students to take only a surface approach to learning. Another implication to emerge is that flexibility is important to students during this time. Although students varied in terms of their preferences for synchronous and asynchronous delivery formats, most seemed to appreciate the ability to re-watch lectures at will. Many students also seemed to find that at least some degree of live interactions with their instructors and peers enhanced their motivation. Increasing regular communication may be particularly useful for helping students stay on track in online classes (see Online Learning Resource Center, 2020). Departmental- or institutional-level efforts to improve the instructional environment are also needed to assist both instructors and students as they adapt to remote learning (Anderson, 2004).

We were encouraged to find that the psychology students who took part in this study displayed a robust intention to persist in completing their college degree. However, nearly a quarter of students stated that their return was dependent on how the institution would plan to reopen in the fall semester. Many stated they would not return unless they could do so in-person. At the time of this writing, postsecondary institutions are still in flux as to how they will deliver instruction in 2020-2021 (see The College Crisis Initiative @ Davidson College, 2020). Furthermore, a Pew Research Center survey conducted in the fall of 2020 has shown that most

Americans believe that online classes do not provide an educational experience of comparable value with in-person classes (Parker et al., 2020). The long-term effects of remote instructional delivery on psychology majors are still unknown. The COVID-19 pandemic has introduced a new set of stressors into students' lives as they navigate college course loads while adapting to new campus and societal norms. Students' persistence may also be negatively associated with their familial obligations, such as helping to take care of family members or needing to contribute financially (Witkow et al., 2015). Current circumstances underscore the recent call for undergraduate psychology courses to address students' personal development directly in the curriculum throughout this crisis (Bachik & Kitzman, 2020).

Researchers should continue to assess how new personal and institutional realities might influence students' matriculation in the major. As instructors have time to design and implement better lessons via remote or hybrid delivery formats, some may elect to adopt these new approaches for the longer term. Similarly, as the pandemic wanes, students will be better informed about how their courses will be delivered and able to prepare for learning across delivery modalities. These adaptations may lead to significant changes in the college experience—and social and academic outcomes—for psychology students and their peers in other disciplines. This study can serve as a baseline for ongoing investigation.

Limitations and Future Directions

Although this research revealed a rich depiction of psychology undergraduates' lives after the shift to remote instruction caused by the COVID-19 pandemic, several limitations bear noting. First, our sample, though representative of psychology students at one university, was predominantly female and White. As COVID-19 has disproportionately affected people of color, especially Black and Latinx individuals who comprised too small a proportion of our data to meaningfully analyze separately, it is essential that future research more fully represent the

experiences of racially and ethnically minoritized individuals (Stokes et al., 2020). Furthermore, our sample is limited to those who had access to reliable Internet service at the end of the semester and may therefore not represent the experiences of students who experienced more severe disruptions to basic needs and access.

Second, we descriptively investigated students' behavioral and psychological changes, course experiences, and progress in college. Although the students' descriptions point to the psychological and educational impacts of the pandemic, we cannot draw causal inferences between the research variables. Moreover, the cross-sectional design of our study prevents causal inferencing, and all data analyzed in the study were self-reported by students. However, the use of mixed methods increases the conclusion validity of our findings, as we were able to triangulate and contextualize students' responses to closed-ended questions by examining their corresponding open-ended responses.

Third, this research was conducted in Spring 2020 semester during the emergency phase of the pandemic. We agree with the recent editorial comment in *Teaching Sociology* that “emergency remote instruction is not the same as online learning” (Kozimor, 2020, p. 181). The experiences students reported having in their psychology and related courses were not taught under ideal circumstances. Most courses were not intentionally designed to be delivered as they were. Student perceptions and instructor behaviors were both likely influenced by many external stressors—some traumatic—and by the uncertainties of how long the COVID-19 stay-at-home order would be in effect.

Despite these caveats, we agree with the social cognitive premise that, quite often, yesterday's perceptions and experiences frame tomorrow's perceptions and behaviors. We believe the experiences shared by psychology students in 2020 will be the rules by which they act as they move forward in their educational careers and can therefore be instructive for ongoing

pedagogical decisions. Many colleges have fluid plans in place that would result in immediate shifts between course formats in response to local changes in COVID-19 infection rates. In this regard, further examinations are needed to document how these shifts affect students in the short and long term. Relationships between course delivery formats, students' learning experiences, motivation, self-regulation, and achievement in college can be more fully investigated in future studies. Including measures of instructor perceptions would also enrich this work.

References

- Anderson, T. (2004). Teaching in an online learning context. In T. Anderson & F. Bloumi (Eds.), *Theory and practice of online learning* (pp. 273–294), Athabasca University.
- Aucejo, E. M., French, J. F., Araya, M. P. U., & Zafar, B. (2020). *The impact of COVID-19 on student experiences and expectations: Evidence from a survey* (NBER Working Paper No. 27392). Retrieved from National Bureau of Economic Research website: <https://www.nber.org/papers/w27392>
- Bachik, A. K., & Kitzman, M. J. (2020). The case for including personal development in undergraduate psychology curricula. *Scholarship of Teaching and Learning in Psychology*, 6(2), 150–162. <https://doi.org/10.1037/stl0000153>
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice Hall.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. Freeman.
- Brennan, R. L., & Prediger, D. J. (1981). Coefficient kappa: Some uses, misuses, and alternatives. *Educational and Psychological Measurement*, 41(3), 687–699. <https://doi.org/10.1177/001316448104100307>
- Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Research*, 112934. <https://doi.org/10.1016/j.psychres.2020.112934>
- Centers for Disease Control and Prevention. (2020). *Coronavirus disease 2019 (COVID-19): Coping with stress*. <https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/managing-stress-anxiety.html>
- College Crisis Initiative @ Davidson College. (2020). *COVID-19 Data Dashboard*. Retrieved October 15, 2020, from <https://collegecrisis.org/covid-19-data-dashboard/>

- Creswell, J. W., & Plano Clark, V. L. (2017). *Designing and conducting mixed methods research* (3rd ed.). Sage.
- Dweck, C. S. (2017). From needs to goals and representations: Foundations for a unified theory of motivation, personality, and development. *Psychological Review*, 124(6), 689-719. <http://dx.doi.org/10.1037/rev0000082>
- Elmer, T., Mepham, K., & Stadtfeld, C. (2020). Students under lockdown: Comparisons of students' social networks and mental health before and during the COVID-19 crisis in Switzerland. *Plos One*, 15(7). <https://doi.org/10.1371/journal.pone.0236337>
- Huckins, J. F., DaSilva, A. W., Wang, W., Hedlund, E., Rogers, C., Nepal, S. K., Wu, J., Obuchi, M., Murphy, E. I., Meyer, M. L., Wagner, D. D., Holtzheimer, P. E., & Campbell, A. T. (2020). Mental health and behavior of college students during the early phases of the COVID-19 pandemic: Longitudinal smartphone and ecological momentary assessment study. *Journal of Medical Internet Research*, 22(6). <http://doi.org/10.2196/20185>
- Johnson, N., Veletsianos, G., & Seaman, J. (2020). U.S. faculty and administrators' experiences and approaches in the early weeks of the COVID-19 pandemic. *Online Learning*, 24(2), 6-21. <https://doi.org/10.24059/olj.v24i2.2285>
- Kazak, A. E. (2020). Psychology is an essential science: American Psychologist highlights the role of psychology in understanding and addressing COVID-19. *American Psychologist*, 75(5), 605-606. <http://doi.org/10.1037/amp0000682>
- Kim, Y., Brady, A. C., & Wolters, C. A. (2020). College students' regulation of cognition, motivation, behavior, and context: Distinct or overlapping processes? *Learning and Individual Differences*, 80, 101872. <https://doi.org/10.1016/j.lindif.2020.101872>

- Kozimor, M. L. (2020). Editor's comment: Three teaching takeaways from the COVID-19 pandemic. *Teaching Sociology*, 48(3), 181-183.
<https://doi.org/10.1177/0092055X20931953>
- Lent, R. W., & Brown, S. D. (2019). Social cognitive career theory at 25: Empirical status of the interest, choice, and performance models. *Journal of Vocational Behavior*, 115.
<https://doi.org/10.1016/j.jvb.2019.06.004>
- Lizzio, A., Wilson, K., & Simons, R. (2002). University students' perceptions of the learning environment and academic outcomes: Implications for theory and practice. *Studies in Higher Education*, 27(1), 27-52. <https://doi.org/10.1080/03075070120099359>
- Miles, M. B., Huberman, A. M., & Saldana, J. (2019). *Qualitative data analysis: A methods sourcebook, 4th edition*. Sage Publications.
- Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for integrating technology in teachers' knowledge. *Teachers College Record*, 108(6), 1017-1054.
- Online Learning Resource Center. (2020, July 20). *Five evidenced-based ways to improve online courses*. University of California, Irvine. <https://www.olrc.us/improving-online-courses.html>
- Parker, K., Barroso, A., & Fry, R. (2020, October 26). Americans are divided on whether colleges that brought students back to campus made the right decision. Pew Research Center. <https://www.pewresearch.org/fact-tank/2020/10/26/americans-are-divided-on-whether-colleges-that-brought-students-back-to-campus-made-the-right-decision/>
- Salari, N., Hosseinian-Far, A., Jalali, R., Vaisi-Raygani, A., Rasoulpoor, S., Mohammadi, M., Rasoulpoor, S., & Khaledi-Paveh, B. (2020). Prevalence of stress, anxiety, depression

- among the general population during the COVID-19 pandemic: a systematic review and meta-analysis. *Global Health*, 16(57). <https://doi.org/10.1186/s12992-020-00589-w>
- Schunk, D. H., & DiBenedetto, M. K. (2020). Motivation and social cognitive theory. *Contemporary Educational Psychology*, 60. <https://doi.org/10.1016/j.cedpsych.2019.101832>.
- Schunk, D. H., & Zimmerman, B. J. (Eds.). (2012). *Motivation and self-regulated learning: Theory, research, and applications*. Routledge.
- Stokes, E. K., Zambrano, L. D., Anderson, K. N., Marder, E. P., Raz, K. M., Felix, S. E. B., Tie, Y., Fullerton, K. E. (2020). Coronavirus disease 2019 case surveillance - United States, January 22–May 30, 2020. *Morbidity and Mortality Weekly Report*, 69(24), 759–765. <http://dx.doi.org/10.15585/mmwr.mm6924e2>
- Urdan, T. & Kaplan, A. (2020). The origins, evolution, and future directions of achievement goal theory. *Contemporary Educational Psychology*, 61. <https://doi.org/10.1016/j.cedpsych.2020.101862>
- The Coronavirus is upending higher ed. Here are the latest developments. (2020, March 3). <https://www.chronicle.com/article/the-coronavirus-is-upending-higher-ed-here-are-the-latest-developments/>
- Witkow, M. R., Huynh, V., & Fuligni, A. J. (2015). Understanding differences in college persistence: A longitudinal examination of financial circumstances, family obligations, and discrimination in an ethnically diverse sample. *Applied Developmental Science*, 19(1), 4-18. <https://www.doi.org/10.1080/10888691.2014.946030>
- Wolters, C. A., & Benzon, M. B. (2013). Assessing and predicting college students' use of strategies for the self-regulation of motivation. *The Journal of Experimental Education*, 81(2), 199-221. <https://doi.org/10.1080/00220973.2012.699901>

Zimmerman, B. J., Schunk, D. H., & DiBenedetto, M. K. (2017). The role of self-efficacy and related beliefs in self-regulation of learning and performance. In A. J. Elliot, C. S. Dweck, & D. S. Yeager (Eds.), *Handbook of competence and motivation* (2nd ed., pp. 313-333). Guilford.

Table 1*Behavioral and Psychological Changes During COVID-19 Stay-at-Home Order*

Behavioral Changes					
Since the stay-at-home order began, how would you rate your behaviors in each of the following areas:		<i>n</i>	Decreased	Stayed the Same	Increased
	Exercise	354	48.9%	23.4%	27.7%
	Outdoor activity	353	40.5%	25.2%	34.3%
	Talking to friends	354	39.0%	31.1%	29.9%
	Eating	354	22.0%	35.9%	42.1%
	Sleep	355	20.8%	23.1%	56.1%
	Procrastination	354	12.1%	25.4%	62.4%
	Gaming	355	8.2%	29.3%	62.5%
	Talking to family	354	5.9%	30.5%	63.6%
	Watching TV	354	7.1%	20.6%	72.3%
	Social media	355	5.4%	19.2%	75.5%
Psychological Changes					
Since all courses have been moved to remote instruction, how would you describe your own thoughts/feelings?		<i>n</i>	Decreased	Stayed the Same	Increased
	Ability to focus	355	82.0%	12.7%	5.4%
	Motivation for school	353	78.8%	16.1%	5.1%
	Confidence in my academic abilities	353	44.2%	47.9%	7.9%
	Stress	355	11.8%	21.7%	66.5%

Table 2

Coding Frequencies for Open-Ended Questions Related to Stress and Coping After Shift to Remote Instruction

What has been most stressful about the stay-at-home period?	Full Sample (<i>n</i> = 344)	Stress Level <i>Decreased</i> (<i>n</i> = 40)	Stress Level <i>Stayed the Same</i> (<i>n</i> = 74)	Stress Level <i>Increased</i> (<i>n</i> = 229)
Self-Regulation/Motivation	102	9	23	70
Academic/School Stressors	86	5	13	68
Home Environment	67	3	15	49
Uncertainty/Lack of Control	43	7	11	25
Social Isolation	37	7	7	22
Basic Needs (e.g., Job, Food)	34	3	3	28
Health and Safety Concerns	31	3	7	21
Loss of Opportunities or Access	14	2	5	7
Emotional Challenges	4	1	0	3
Nothing	4	3	1	0
Other	11	3	5	3

What has been most helpful for coping during the stay-at-home period?	Full Sample (<i>n</i> = 341)	Stress Level <i>Decreased</i> (<i>n</i> = 40)	Stress Level <i>Stayed the Same</i> (<i>n</i> = 73)	Stress Level <i>Increased</i> (<i>n</i> = 227)
Family/Friends	97	10	18	69
Exercise and/or Being Outdoors	67	5	13	49
Hobbies/Leisure	29	4	8	17
Sleep/Relaxing	27	2	7	18
Media	26	2	9	14
Professors' Understanding	21	1	5	15
Pets and Animals	20	3	5	12
Routine	17	5	4	8
Meditation	13	3	1	9
Autonomy	11	4	2	5
Work	11	5	3	3
Sense of Shared Struggle	10	0	2	8
Food/Cooking	9	1	1	7
Distractions	7	0	0	7
Faith	6	1	1	4
Drugs/Alcohol	6	0	1	5
Music	5	0	1	4
Therapy	4	0	0	4
Nothing	9	1	4	4
Other	24	4	5	15

Table 3*Descriptive Statistics for Students' Ratings of Course Experiences Following COVID-19 Stay-at-Home Order*

		Proportion of Courses		
		<i>M</i>	<i>SD</i>	<i>Mdn</i>
Instructional Quality (<i>n</i> = 322)				
	<i>Taught Worse</i>	44.6%	30.7%	40.0%
	<i>Taught About the Same</i>	43.7%	30.2%	40.0%
	<i>Taught Better</i>	11.7%	20.3%	0.0%
Course Workload (<i>n</i> = 320)				
	<i>Smaller Workload</i>	28.4%	28.2%	20.0%
	<i>About the Same Workload</i>	42.4%	30.6%	40.0%
	<i>Larger Workload</i>	29.1%	27.8%	20.0%
Your Own Learning (<i>n</i> = 313)				
	<i>Learned Less</i>	51.9%	35.3%	50.0%
	<i>Learned About the Same</i>	37.7%	32.8%	33.3%
	<i>Learned More</i>	10.4%	21.9%	0.0%
Instructors' Situational Understanding (<i>n</i> = 310)				
	<i>Not at all Understanding</i>	8.7%	15.9%	0.0%
	<i>Somewhat Understanding</i>	17.8%	23.0%	0.0%
	<i>Very Understanding</i>	73.5%	29.0%	80.0%
Courses That Included Video Lectures (<i>n</i> = 306)		55.8%	28.2%	60.0%

Note. Students were asked to allocate the number of courses that fit the descriptors above. Proportions were calculated by dividing by students' total number of courses during the Spring 2020 semester.

Table 4

Coding Frequencies for Open-Ended Questions Related to Instructional Changes During Shift to Remote Instruction

How has [the course experience] been since the COVID-19 stay-at-home order took effect (compared to before)?				
		Quantitative Result Categories		
		Half or More Courses	Majority of Courses	Half or More Courses
Instructional Quality	All Respondents (n = 160)	<i>Taught Worse</i> (n = 74)	<i>Taught About the Same</i> (n = 52)	<i>Taught Better</i> (n = 15)
Teacher/Teaching Quality	55	22	25	2
Communication/Clarity	41	16	13	5
Delivery Format	40	21	13	2
Support/Accommodation	40	12	12	9
Work Quantity/Quality	35	15	8	5
Other	19	13	4	1
Instructors' Understanding	All Respondents (n = 67)	<i>Not at all Understanding</i> (n = 4)	<i>Somewhat Understanding</i> (n = 5)	<i>Very Understanding</i> (n = 47)
Positive	34	0	1	30
Mixed	19	1	4	9
Negative	14	3	0	8
Empathy/Care	26	0	3	19
Academic Accommodations	21	0	2	18
Lack of Accommodations	14	0	2	9
Lack of Empathy/Care	11	4	1	4
Good Communication/Clarity	2	0	0	2
Poor Communication/Clarity	2	0	0	1
Course Workload	All Respondents (n = 94)	<i>Smaller Workload</i> (n = 21)	<i>About the Same Workload</i> (n = 22)	<i>Larger Workload</i> (n = 29)
Increased Workload	38	4	6	19
Mixed Workload	10	3	3	1
Same Workload	7	2	5	0
Decreased Workload	4	3	1	0
Changed Assignments/ Requirements	19	6	5	3
Busy Work	17	3	2	6
Difficulty/Easiness	6	2	2	0
Less Lecture/Fewer Meetings	5	2	0	1
Motivation/Self-Regulation	5	1	1	2
Other	12	3	3	3

Your Learning	All Respondents (<i>n</i> = 82)	<i>Learned Less</i> (<i>n</i> = 46)	<i>Learned About the Same</i> (<i>n</i> = 19)	<i>Learned More</i> (<i>n</i> = 8)
Learning Decreased/Was Worse	47	33	7	1
Learning Stayed Same	2	0	1	0
Learning Increased/Was Better	6	0	1	5
Self-Regulation/Focus/Motivation	23	13	5	2
Environment (e.g., Access, Location)	11	7	2	1
Self-Teaching	9	6	2	0
Goal Orientation Shift	8	4	1	1
Emotions	7	3	2	2
Other	7	4	3	0

**Percentage of Courses That
Included Video Lectures**

Lecture Delivery Modality	All Respondents (<i>n</i> = 87)	< 50% (<i>n</i> = 30)	50% (<i>n</i> = 11)	> 50% (<i>n</i> = 39)
Positive	47	21	6	18
Mixed	13	4	2	7
Negative	16	3	1	10
Compared to In-Person	11	4	0	7
Self-Regulated Learning	18	3	3	12
Synchronous Zoom Lecture	21	8	3	10
Asynchronous Video Lecture	11	1	2	8
Did Not Use Video Lecture	5	2	3	0
Teacher/Teaching Quality	6	1	2	3
Class Engagement/Interaction	5	1	3	1
Other	6	2	0	1

Note. Table excludes open-ended responses for students who did not answer the corresponding closed-ended responses or for whom course experiences were highly variable (i.e., no clear experiential trend).