First-Year College Students' Online Learning Experiences During the Pandemic

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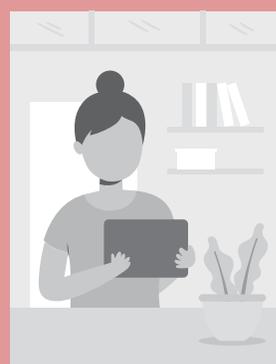
Introduction

It has been more than a year since the coronavirus pandemic hit the US. In response, more than 1,300 US colleges and universities, in spring semester 2020, closed their campuses and transferred to online-only instruction (Smalley, 2020). The unprecedented change disrupted first-year college students' experiences in almost every facet of their college life (e.g., instruction mode, social interaction, living arrangements, and employment status) (Fruehwirth, Cooley, Biswas, & Perreira, 2021). Even prior to the pandemic, the first year of college represented an often-stressful time, as the transition from high school to college brings new circumstances and expectations (Cleary, Walter, & Jackson, 2011). During the pandemic, this rapid shift to online learning exacerbated students' negative feelings (Fruehwirth, et al., 2021). The learning experience during the first year of college is a critical predictor of student persistence (Tinto, 2001). Students who find their academic life challenging and had low confidence in performing academic tasks tend to have low academic performance and are more likely to change their postsecondary plans (Han, Farruggia, & Moss, 2017). With the disruption of the pandemic, it is important to study first-year college students' learning experiences and its potential effect on education plans.

To understand first-year college students' learning experiences after the transition to online instruction during the pandemic, in June 2020, we reached out to first-year college students who took the ACT® test as a junior or senior between 2017–2019. These students graduated from high school in 2019 and enrolled in a postsecondary institution in the 2019–2020 school year. We wanted to learn about their academic challenges, their concerns, the learning resources they needed, and the potential effect the coronavirus pandemic had on their education plans. In this brief, we share what we learned from 1,164 first-year college students and offer recommendations for policymakers and higher education personnel (see Appendix for more details on the sample). We found:

- **two out of three students had academic challenges and concerns learning online during the pandemic;**

- **the fewer perceived academic challenges and academic concerns they had, the more certain[1] they were about enrolling in the same institution next year; and**

- **increasing access to technology and the internet, reducing learning resource gap, and providing online learning experience before formal instruction help to alleviate these academic challenges and concerns.**
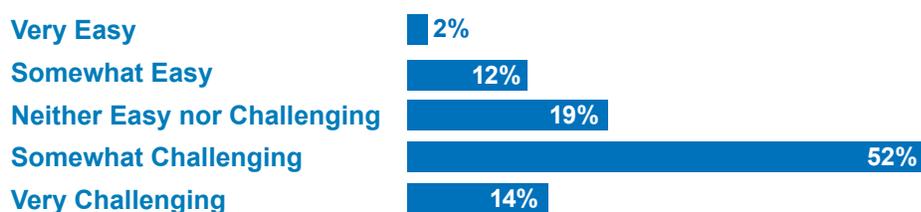
Students experienced academic challenges and had concerns about future academic success

In response to the coronavirus outbreak, 98% of the surveyed students transitioned to online learning. While learning online during the pandemic, first-year college students experienced challenges in their coursework. Two out of three students (66%) reported that their coursework was somewhat or very challenging (Figure 1). Only 14% said their coursework was somewhat or very easy.

Figure 1. Percentages of Students Rating how Easy or Challenging Their Coursework Was (n = 1,132)

While learning online during the pandemic, my coursework was...

Very Easy — 2%
Somewhat Easy — 12%
Neither Easy nor Challenging — 19%
Somewhat Challenging — 52%
Very Challenging — 14%

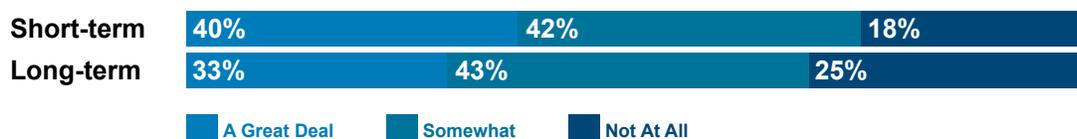Note: Percentages do not add to 100% due to rounding.

In an open-ended question,[2] we found that the most common challenges students experienced included lack of motivation, difficulty with retaining information that was learned online, and having trouble with understanding concepts without "hands-on" experiences. They said:

- Classes and materials were much harder to understand once I was forced to start classes from home."

- For subjects I had more difficulty/was not familiar with, mastering new content was not easy and I do not feel that I learned it as well as I had previously during in-person lecture."

- I struggle to understand the material and don't feel motivated at all."

- I found it much harder to gain and retain information from class."

- It was hard for me to grasp concepts because I was not able to work hands on with them."

Not surprisingly, these students also indicated they had concerns about the effect that transitioning to online learning would have on their short-term and long-term academic success (Figure 2). Over three-quarters of the students (82%) were "a great deal" or "somewhat" concerned that online learning during the pandemic would negatively impact their academic success next year. Three out of four students (76%) believed that such a negative effect could have long-term consequences. Students said:

- Next year, school will be harder because there are certain classes that are better for in-person than online and I plan on taking more credits for my degree."

- This made me feel as if I would be behind next semester as I have missed a lot of in class activities such as labs."

- [Online learning is] not as conducive to long term learning and retention."

- I am a studio art major, and my classes are not the type that can be transferred to online. Materials, working space, instructor-student time was few and far between. My major cannot be successfully completed online."

Figure 2. Percentages of Students Reporting the Degree of Short-Term (n = 1,163) and Long-Term Concerns (n = 1,145)

	A Great Deal	Somewhat	Not At All
Short-term	40%	42%	18%
Long-term	33%	43%	25%

Note: Percentages do not add to 100% due to rounding.

Perceived academic challenge was associated with short-term and long-term academic concerns.[3] Students who felt their coursework was very challenging during online learning were most likely to have academic concerns. Almost two-thirds (65%) of these students reported "a great deal" of concern about the negative effect of the transition to online learning on their academic success in the next year, and over half (55%) of them reported "a great deal" of long-term academic concern. The percentages of high-level concerns were much lower among students who rated their coursework as "neither easy nor challenging," "somewhat easy," or "very easy" (ranging from 33% to 38% for short-term concern, and 28% to 35% for long-term concern). Academic concerns, if not managed properly, may hinder students' learning (Mansson, 2016) and are negatively related to unsatisfying academic performance (Struthers, Perry, & Menec, 2000).

Key elements related to academic challenges and concerns: access to technology and the internet, learning resource gap, and prior online learning experience

To further unpack first-year college students' online learning experiences during the pandemic, we investigated factors that might be related to their perceived academic challenges as well as their short-term and long-term academic concerns.[4] After controlling for other factors (e.g., gender, race/ethnicity, college type, ACT score, family income, and first-generation status), three elements stood out, each of which were related to perceived academic challenges and/or academic concerns.

Access to Technology and the Internet

Learning online requires students to have access to technological devices and a stable internet connection (Croft, Moore, Guffy, Hayes, Gragnaniello, & Vitale, 2020). In the survey, we asked students about how reliable their computer (i.e., desktop, laptop, or tablet) and internet connection were during the pandemic and used their responses to categorize the level of access to technology and internet while learning online.[5] In terms of access to technology, 38% of students reported their computer was never unreliable when completing class-related work during the pandemic, implying high access to technology. Another one quarter (26%) indicated that their computers were unreliable sometimes, while the remaining one-third (33%) reported frequent troubles with an unreliable computer or did not have access to a computer, which reflected their limited access to technology. Access to the internet varied among first-year college students. About one out of four students (24%) described their internet connection as "great." More than half (55%) reported their internet connection as "Ok." The remaining students (21%) described it as "Unpredictable," "Terrible," or had no access, reflecting their limited access to the internet.
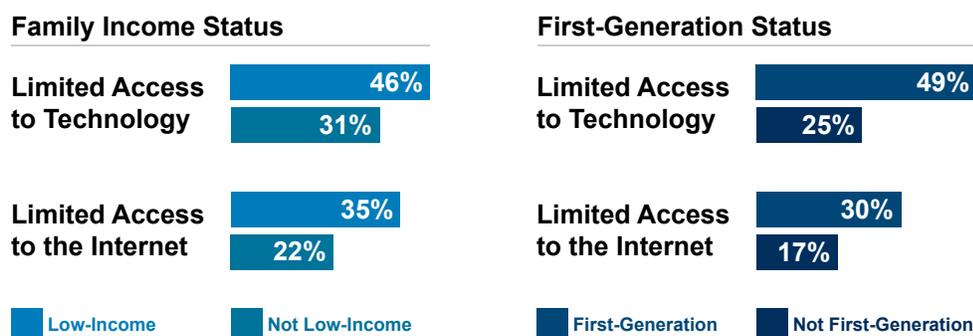
Considering access to technology and access to the internet together, 13% of students reported limited access to both, and 24% had limited access to either technology (18%) or the internet (6%). Only 18% of students said they never had an issue with both. Some students shared with us how limited access to technology and the internet affected their learning online:

- Doing schoolwork online made it very hard for me to make good grades and actually obtain knowledge. I also did not have a laptop and had to buy one before I could do any of my work."

- I had no home Wi-Fi and had to travel daily to get Wi-Fi access. Many teachers would not work with me on deadlines. And my GPA dropped due to all of this. I was also forced to withdraw from a class due to the Wi-Fi situation."

- I have trouble with maintaining a stable Wi-Fi source which makes it harder during important times."

- I barely made it through this past semester. I'm terrible with technology. Prior to the sudden transition to online classes, I didn't even have internet or a computer at home."

Our results show that the digital divide remains a persistent barrier. Students from low-income families and first-generation college students[6] were more likely to have limited access to technology and the internet compared to their counterparts.[3] While learning online during the pandemic, almost half of first-generation college students (49%) and 46% of students from low-income family reported limited access to technology (Figure 3). More than one-third of students from low-income families (35%) and 30% of first-generation college students had limited access to the internet. Additionally, 25% of students from low-income families and 18% of first-generation students had limited access to both technology and the internet, whereas only 11% of their counterparts who were not first-generation students and not from low-income families had both issues. This finding of limited access to technology and the internet among underserved population aligns with previous studies (Buzzetto-Hollywood, Elobeid, & Elobaid, 2018; Moore, Vitale, & Stawinoga, 2020).

Figure 3. Percentages of Student who had Limited Access to Technology and the Internet (n = 1,164)

Family Income Status

Limited Access to Technology	46% (Low-Income)
Limited Access to Technology	31% (Not Low-Income)
Limited Access to the Internet	35% (Low-Income)
Limited Access to the Internet	22% (Not Low-Income)

Low-Income   Not Low-Income

First-Generation Status

Limited Access to Technology	49% (First-Generation)
Limited Access to Technology	25% (Not First-Generation)
Limited Access to the Internet	30% (First-Generation)
Limited Access to the Internet	17% (Not First-Generation)

First-Generation   Not First-Generation

We found that access to technology and the internet were related to perceived academic challenges and concerns. With access to technology and internet, first-year college students were more likely to rate their coursework as easy, and less likely to report short-term and long-term academic concerns compared to students who did not have access to these technological resources. After controlling for the level of access to technology and the internet, family income and first-generation status were no longer important predictors for perceived academic challenges and academic concerns. This suggests that increasing such access could possibly help underserved first-year college students navigate through the new mode of learning during and after the pandemic.
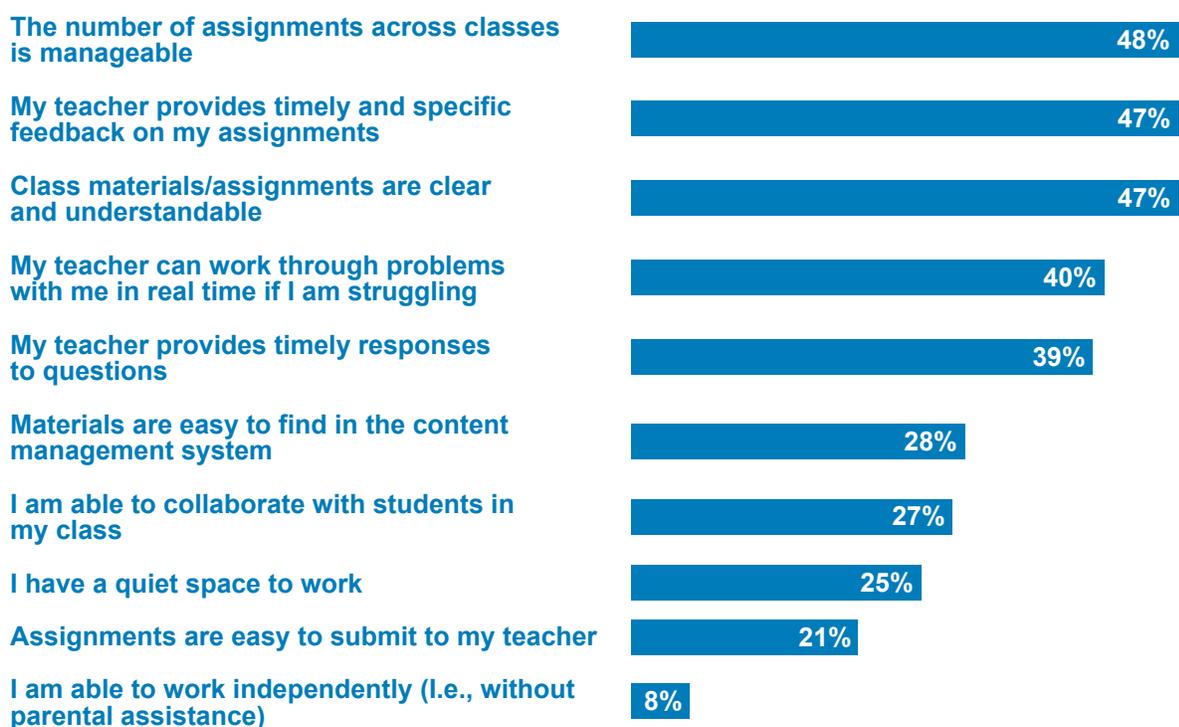
Learning Resource Gap

Learning resources (e.g., instructor feedback, structured course materials, opportunities for collaboration) are essential for students' success and satisfaction in online learning (Kauffman, 2015). To understand what first-year college students needed and what resources were available to them, we provided students with a list of ten learning resources (see Figure 4 for the entire list) and asked them to select the ones they thought were necessary for successful learning

online and the ones that were present while learning online during the pandemic. The three learning resources that were reported as necessary by most students were "Class materials/ assignments are clear and understandable" (89%), "My teacher provides timely responses to questions" (83%), and "Assignments are easy to submit to my teacher" (81%). The three learning resources that were available to most students were "I am able to work independently" (73%), "Assignments are easy to submit to my teacher" (71%), and "I have a quiet space to work" (60%).

A gap occurred when there was a difference between needing a resource and whether students received it. Among the listed learning resources, the biggest gap was found in manageable number of assignments across classes—almost half (48%) said they needed but did not get a manageable number of assignments across classes. This was followed by timely and specific feedback on assignments from their teacher (47%), and clear and understandable class materials/assignments (47%) (Figure 4). Almost half of the surveyed students noted that these three learning resources were necessary to the success of learning online, but their needs were not met during the pandemic.
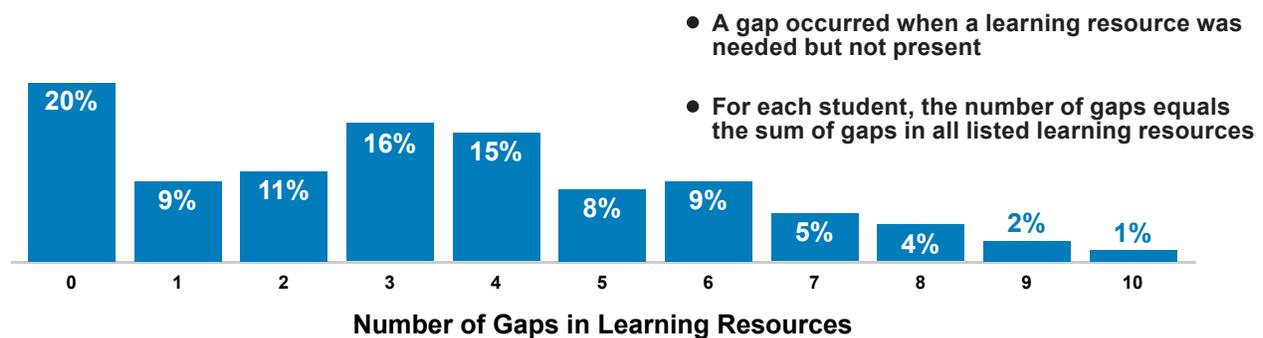
Figure 4. Percentages of Students Rating Learning Resources Necessary but Not Present (n = 1,148)

Learning Resource	Percentage
The number of assignments across classes is manageable	48%
My teacher provides timely and specific feedback on my assignments	47%
Class materials/assignments are clear and understandable	47%
My teacher can work through problems with me in real time if I am struggling	40%
My teacher provides timely responses to questions	39%
Materials are easy to find in the content management system	28%
I am able to collaborate with students in my class	27%
I have a quiet space to work	25%
Assignments are easy to submit to my teacher	21%
I am able to work independently (I.e., without parental assistance)	8%

For each student, adding up the number of gaps in all listed areas resulted in the total learning resource gap per student (see Figure 5 for the distribution). The average learning resource gap among the surveyed first-year college students was 3.3, indicating that on average, students had about three learning resources that they believed necessary but were not available to them. Forty-four percent had four or more gaps. Not surprisingly, access to technology and internet

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was associated with the learning resource gap—the higher level of the access, the lower the learning resource gap.[7] After controlling for the level of access to technology and the internet, family income and first-generation status were not important predictors for a learning resource gap. College type was related to this gap.[7] First-year college students in four-year public colleges or universities had a higher learning resource gap (mean = 3.6), compared to students in four-year private colleges or universities (mean = 3.0) and students in two-year colleges, career schools, technical schools, or vocational/trade schools (mean = 2.8). It is unclear why this might be. One possible explanation is that survey respondents from four-year public received less support transitioning to online learning compared to students from other institution types. Research shows that the student to faculty ratio was higher in four-year public colleges than four-year private colleges and two-year institutions for academic year 2019–2020 (Univstats, 2021). A lower student to faculty ratio is more ideal for offering students timely support and resources in an online learning environment (Vollbrecht, Porter-Stransky, & Lackey-Cornelison, 2020).

Figure 5. Distribution of Number of Gaps in Learning Resources

- A gap occurred when a learning resource was needed but not present
- For each student, the number of gaps equals the sum of gaps in all listed learning resources

Number of Gaps in Learning Resources

Here are some examples of the struggles that students had with learning resources:

The assignments are hard to find and there are way too many of them to manage."

The classes did not convert properly to an online setting and continued to assign work that required group interactions without providing a reasonable method to do so."

Questions could not be asked in real time and answers weren't given like they would have been in person."

I tried to keep in contact with my instructors because I truly wanted to learn but I would have to wait days or even weeks before I heard from them."

Teachers were never available for questions, classmate collaboration was not present, and tests felt harder to prepare for because I did not have a quiet environment."

It's hard to do assignments when you have nowhere in your house to have peace and quiet. It's also hard to get help in a timely manner because teachers have a life as well."

The learning resource gap was related to perceived academic challenges, as well as short-term and long-term academic concerns.[4] A higher learning resource gap was related to a higher level of perceived academic challenges during online learning. Similarly, with an increase in the learning resource gap, students' short-term and long-term academic concerns increased as well. Meeting students' needs, especially the needs for timely feedback from instructors and structured course elements (e.g., topics, materials, workload in completing assignments), is likely to lead to better perceived satisfaction and learning outcomes among students (Eom, Wen, & Ashill, 2006).

Prior Online Learning Experience

Prior online learning experience has been found to have a positive relationship with online learning outcomes, including online learning self-efficacy and course completion (Jan, 2015). Among the surveyed first-year college students, 62% of students had not taken a college course online before the pandemic. We explored how race/ethnicity, family income status, and first-generation status might relate to prior online learning experience.[8] After controlling for other variables (i.e., access to technology and the internet, college type, ACT score), none of these demographic group variables (i.e., race/ethnicity, family income status, first-generation status) were related to prior online learning experience.
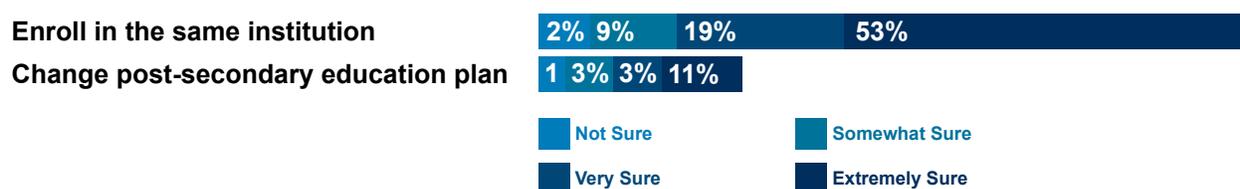
First-time online learning could be overwhelming because students had to deal with not only demanding course materials but also technical unfamiliarity in the online learning environment (Tyler-Smith, 2006). We found that prior online learning experience was associated with first-year college students' perceived academic challenge.[4] Students who had experience taking a college course online before the pandemic were less likely to report their coursework as challenging, compared to students who did not have prior online learning college experience. Almost three out of four (73%) students who had never taken a college course online before the pandemic felt their coursework was somewhat or very challenging, whereas this percentage was much lower (57%) among students who had online learning experience. Even after controlling other variables (i.e., access to technology and the internet, learning resource gap, and demographic covariates), prior online learning experience was still related to perceived academic challenge. First-time online learners are confronted with multiple challenges, such as use of the learning management system and new ways of communication in the online environment. These challenges could overload their limited capacity of working memory (Tyler-Smith, 2006). The rapid transition to online learning due to the pandemic may have made the overloading even worse, which possibly led to high levels of stress and loss of confidence in learning (Tyler-Smith, 2006).

Most students did not change their education plans, but perceived academic challenge and academic concern might affect their certainty of that plan

Despite the academic challenges and concerns during the pandemic, first-year college students showed their commitment to their postsecondary education. When they were asked about their plan next year, most of them (83%) indicated that they would enroll in the same institution that they were enrolled in during their first year (Figure 6). Among those who changed their postsecondary plan, a few (15%) planned to enroll in a different institution, and the remaining (3%) reported they no longer planned to enroll in any postsecondary institution.

Figure 6. Percentages of Students Reporting Their Next-Year Postsecondary Education Plan and Their Certainty of the Plan (n = 1,163)

Enroll in the same institution	2% 9%	19%	53%
Change post-secondary education plan	1 3% 3% 11%		

- Not Sure
- Somewhat Sure
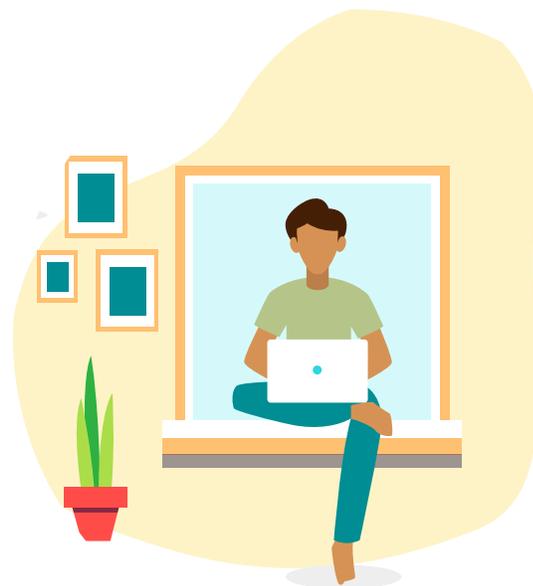- Very Sure
- Extremely Sure

Note: Percentages do not add to 100% due to rounding.

However, for students who reported they would enroll in the same institution next year, their certainty of this plan varied. Sixty-four percent of these students reported they were "extremely" sure about it, whereas more than one-third (36%) had at least some degree of uncertainty. To understand what factors might explain the variation in certainty, we explored the complex relationship between access to technology and the internet, learning resource gap, prior online learning experience, perceived academic challenge, academic concern, whether someone from their school reached out to them, and certainty of their plan.[9] We found that access to technology and the internet as well as the learning resource gap were linked to perceived academic challenge and concern for academic success next year, which in turn is related to students' certainty of their education plan.[10] That said, students who had better access to technological resources and fewer learning resource gaps during their online learning were more likely to have lower academic challenge and academic concern. Their relatively low level of perceived academic challenge and concern were further associated with a higher level of certainty about enrolling in the same institution next year. After access to technological resources, learning resources, and prior online learning experience were held constant, gender, race/ethnicity, college type, ACT scores, family income, and first-generation status were not related

to perceived academic challenge, academic concern, or certainty for future education plan. These findings imply that ensuring first-year students' access to technological resources and learning resources is critical for online learning. Limited access to technological and learning resources may hinder students' academic engagement, which in turn may negatively affect their persistence in postsecondary education (Barbera, Berkshire, Boronat, & Kennedy, 2020).

Another factor that relates to students' certainty of continually enrolling in the same institution was outreach from their school.[9] In the survey, we asked students whether someone at their school reached out to them to see how they were doing since the pandemic outbreak. A little over half (52%) reported "Yes," while the remaining (48%) indicated "No." Among students whose schools had staff reach out to them during the pandemic, a majority (91%) were "extremely" or "very" sure about their plan for next year, while for students without this outreach, the certainty percentage was 79%. Although outreach from schools was not directly related to perceived academic challenge or concerns for their academic success, it did have a direct positive relationship with students' certainty of enrolling in the same institution next year. It is likely that school staff reaching out to students may increase students' sense of belonging to their schools, which could potentially improve student retention (O'Keeffe, 2013).

Recommendations for Policymakers and Higher Education Personnel

First-year college students expressed their academic challenges and concerns after the transition to online learning during the pandemic. Although most of them decided to continue their postsecondary journey, their challenges and concerns were linked to the certainty of their education plan, which may become a barrier to their persistence and degree completion. The pandemic required postsecondary institutions to rapidly pivot to online instruction for which they, their faculty, and their students might not have been full prepared. As it is still unclear when the pandemic around the world will be under control, it is very likely that postsecondary institutions will continue some form of online learning in fall 2021 even if they open their campus. Looking ahead, we provide recommendations for supporting and improving online learning among incoming first-year college students.

Address the inequities in access to technology and the internet. As online learning continues, universities and colleges should develop policies and plans to support students who lack access to technology and the internet, especially students from underserved populations (e.g., students from low-income families and first-generation college students, specifically). Examples of these plans are opening university libraries and distributing mobile hotspots to these students (Smalley, 2020). In addition, postsecondary institutions need to ensure that students are comfortable with the technology and able to use it effectively. As with some students, including a number of those participating in this survey, they may not have owned a personal technological device before and are not confident about using it for online learning. Ways to help students use technology for learning include developing a support website with instructional videos, building peer tutoring centers, and offering contacts with additional community support (Hanover Research, 2021b).

Close the gap in learning resources. Universities and colleges need to collect information about first-year college students' needs in online learning environments to identify the gaps. Helping students get access to all the learning resources they need could increase their satisfaction with online learning and with the institution. Common learning resources include timely feedback from instructors, access to well-organized course materials, manageable amount of assignments, reliable systems to submit assignments, and online tools that allow opportunities for collaboration. Moreover, individual learners may have diverse needs in learning resources. Providing personalized support is ideal.

Promote online learning preparatory programs. Because most first-year students are likely unfamiliar with online college courses, it would be helpful for them to participate in preparatory programs or online orientation before they take college classes online (Hanover Research, 2021b). These preparatory programs could give students a chance to learn how to use learning management systems, how to collaborate and communicate with other students and instructors

online, and how to solve potential technical problems. An example of such preparatory programs is a self-paced online module that introduces the tools and tasks students would need to use for online courses (Hanover Research, 2021b). Such experiences before formal online learning may help reduce students' cognitive load and related stress and increase their confidence in online learning (Tyler-Smith, 2006).

Advance (or advocate for) student outreach. First-year college students have multiple concerns during the transition from high school to college, and the pandemic has made their experience more difficult. Universities and colleges should develop policies that include periodic student outreach in an effort to better understand their concerns in different conditions and over time. Making sure that students' voices are heard and their concerns addressed could provide students with a greater sense of belonging and promote their mental health. When needed, additional counseling support should be offered virtually for students who struggle during online learning (Fruehwirth, et al., 2021).

Support professional development for instructors. The rapid transition to online learning may be a challenge for instructors as well, especially for those who did not have online teaching experience. Postsecondary institutions should consider offering professional development opportunities for instructors to develop skills for effective online instruction. Such trainings should focus on areas like online course design, organizing online course materials, ways of interacting with students online, effective use of learning management systems, and enhancing students' motivation and engagement during online learning. These are all important factors for students' satisfaction and success in online learning (Kauffman, 2015). Professional development opportunities would meanwhile increase instructors' comfort level and interest in online courses, which in turn would improve the effectiveness of online teaching (Kebritchi, Lipschuetz, & Santiague, 2017). Additionally, ensuring institutional resources (e.g., 24/7 technology help desk, assistance from university instructional designers) are available to instructors is also necessary (Hanover Research, 2021a).

Appendix

This study was part of a larger research project. ACT surveyed first-year college students in the first few months of attending college with the intent of surveying them again at the end of the year on the same indicators asked at time point 1 so that changes across time could be assessed. The global pandemic, however, changed our research direction at time point 2 to understanding whether the pandemic influenced their educational plan. The analysis conducted in this report summarizes the data collected at time point 2, after a year of college. The learning experience during the pandemic was a section in the time point 2 survey.

The target population was US first-year college students who took the ACT test as a junior or senior between September 2017 and July 2018 or between September 2018 and July 2019 and reported that they would graduate in 2019. The sampling frame (n = 422,435) excluded students who opted out of ACT communications.

126,514 students were randomly selected from the sampling frame and invited to participate in the online survey study. The survey opened on June 18, 2020 and closed on June 30, 2020. A total of 2,356 students answered at least one question of the survey. 1,164 students graduated from high school in 2019, enrolled in a postsecondary institution in the 2019–2020 school year, and answered more than 50% of the questions in the learning section, which was used as our analytical sample. The unweighted sample respondents were 68% female; 32% male; 41% White; 32% Hispanic/Latino; 20% Black; 4% Asian; 2% American Indian, Hawaiian Native, Alaska Native, or two or more races; and 1% did not report their race/ethnicity. Twenty-nine percent of students were from low income (<$36K) families. Forty-one percent of students would be first-generation college students, whose parent(s)/guardian(s) did not earn a bachelor's degree from a four-year institution.

Normalized weights were used to complete the analyses to compensate for the differences in sample size and over-representation of respondents from subgroups.

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Notes

1. Students were asked about how sure they were of their postsecondary education plan next year, with the scale "extremely sure," "very sure," "somewhat sure," and "not at all sure." We substituted certainty for sureness in the text.

2. In an open-ended question, students were asked "For the most part, how would you describe the quality of your learning now, compared to when you were at school?"

3. Non-parametric tests (chi-square test of independence) were conducted, and the difference between groups was significant at a .05 alpha level.

4. Multiple regression analyses were conducted for perceived academic challenge, short-term academic concern, and long-term academic concern, with the reported factors as independent variables, and gender, race/ethnicity, college type, ACT scores, family income, and first-generation status as covariates. The three reported factors explained a significant proportion of variation in the dependent variables at a .05 alpha level, after controlling the covariates.

5. Question for access to technology: How often, if at all, were you unable to complete class-related work during the pandemic because of an unreliable computer; Responses: Often, Sometimes, Rarely, Never, I don't have access to a computer (i.e., desktop, laptop, or tablet); Groups: Limited = I don't have access to a computer, Often, Sometime, Medium = Rarely, High = Never. Question for access to internet: How would you describe the internet connection where you lived during the pandemic; Responses: Great, Ok, Unpredictable, Terrible, I don't have access to the intent at home; Groups: Limited = Unpredictable, Terrible, I don't have access to the intent at home, Medium = Ok, High = Great.

6. Low-income family definition: annual family income less than $36K (29% of the unweighted analytical sample); First-generation college student definition: students whose parent(s)/guardian(s) did not earn a bachelor's degree from a four-year institution (41% of the unweighted analytic sample).

7. The factors were significant at .05 alpha level in the multiple regression analysis of learning resource gap. Independent factors in the regression model included access to technology, access to the internet, prior online learning experience, number of learning resources needed, gender, race/ethnicity, college type, ACT scores, family income, and first-generation status. Multiple R^2 = 0.34.

8. A logistic regression was conducted for prior online learning experience. Independent variables included access to technology, access to the internet, gender, race/ethnicity, college type, ACT scores, family income, and first-generation status.

9. Structural equation model (path analyses) was constructed. Exogenous variables were gender, race/ethnicity, college type, ACT scores, family income, first-generation status, access to technology, access to the internet, learning resource gap, prior online experience, consistency of effort in learning, reaching out from school. Endogenous variables were perceived academic challenge (mediator), short-term academic concern (mediator), and certainty of education plan next year. Direct paths were hypothesized from all the exogenous variables to each of the two mediators, and the two mediators and reaching out from school were hypothesized to explain part of the variance in certainty. The fit indices of the SEM model are: CFI = .948, RMSEA = .034, SRMS = .017.

10. The p-values for perceived academic challenge and short-term concern as predictors for certainty were .030 and .066 respectively.

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