

Supporting Students with Disabilities to be Successful in an Online Learning Environment Dana Gullo, Wilmington University, dgullo@cecil.edu

Abstract. This study examined the factors that contributed to students with disabilities' positive and challenging experiences transitioning to remote learning in the spring 2020 semester due to the COVID-19 pandemic at a small, two-year community college located in the Midwestern United States. The study administered a confidential survey to students with disabilities to learn about their positive and challenging experiences and concluded with an interview with the Vice President for Academic Affairs to gain additional insight into the college's timeline and transition procedures to remote learning. This study discovered both positive and challenging experiences with remote learning for students with disabilities. The positive experiences were comfort with the learning management software Blackboard, ease of access to grades, instructor helpfulness with accommodations, and images and video instructional materials utilized in their courses. The challenges discovered were related to faculty and peer communication, testing services, confidence with remote learning, and lack of knowledge about Student Accessibility Services. The data concluded that students diagnosed with a mental health disability were less aware of Student Accessibility Services than students with other disabilities. The recommendations outlined in this study will help higher education institutions, faculty, and student Accessibility Services Offices design effective approaches in supporting students with disabilities' accommodation needs when taking online courses.

Keywords: disability; Universal Design for Learning (UDL); accommodations; online learning; COVID-19; mental health; instructional design

Online learning in higher education has grown exponentially since the start of the millennium. According to Seaman et al. (2018), during the years 2015 to 2016, enrollment of the nation's students in online programs was 14.9%. In the same period, another 16.7% of students took a combination of face-to-face and online courses (p. 3). Combined, 31.6% of all higher education students were taking at least one class online. The growth of online learning is due in part to the changing demographics of traditional students in higher education. Today, college students are older; approximately 35% of students currently enrolled in higher education are 25 years of age and older. Additionally, 64% of students work during their college careers (Lumina Foundation, 2019). Students today are older, more diverse, have more family responsibilities, and require the flexibility of online programs. Community colleges offer an array of online programs and certificates for their diverse student body. Perry and Pilati (2011) asserted that "...online instruction has been most fully accepted by community colleges that seek to provide educational opportunities for an extremely diverse student population, requiring sensitivity to issues of differential connectivity" (p. 97).

Students with disabilities (SWD) make up part of the diverse student population mentioned above. For this study, SWD are individuals evaluated as having or being vision impairment, deaf or hard of hearing, mental health conditions, intellectual disabilities, autism spectrum disorder, physical disability, chronic pain, Attention Deficit Disorder (ADD), Attention Deficit Hyperactivity Disorder (ADHD), dyslexia, and other medical disabilities. According to the National Center for Education Statistics (NCES), during the years 2015 to 2016, 19% of SWD were enrolled as undergraduates in postsecondary education (NCES, 2019). During this same period, distance education increased by 5.6% in enrollment while on-campus enrollment dropped 11% between 2012 and 2016 (Snyder et al., 2018). The drop in on-campus enrollment is partially due to decreased overall enrollment in higher education and online learning growth. Online learning provides flexibility and continued education for SWD; however, challenges do exist.

In late December of 2019, in Hebei, Wuhan city in China, Chinese scientists identified a severe acute respiratory syndrome that affected its citizens. On March 15, 2020, the World Health Organization called the respiratory syndrome a COVID-19 pandemic that infected 150,000 persons in 154 countries (Chahrour et al., 2020), resulting in 150 school closings. The pandemic affected 80% of students worldwide during the spring of 2020 (Sahu, 2020, para. 2). The sudden closure of colleges and universities required a shift from face-to-face instruction to emergency remote online learning.

The rapid change to remote learning forced college and university faculty members to create instructional content quickly for students to access on the institution's learning management system. While online instruction is not a new modality, many college and university faculty have minimal experience teaching online. A study conducted by Bay View Analytics found that 76% of all faculty moved some of their courses online in spring 2020, but 65% of them had no prior online teaching experience (Lederman, 2020). The faculty's lack of online pedagogy training affects the accessibility of course materials and accommodations needed for students with disabilities (Behling & Linder, 2017).

Literature Review

In response to the increasing infection rate of COVID-19 in early March of 2020, colleges and universities quickly ceased all in-person lectures and required all students to transition to remote learning for the remainder of the spring semester. The University of Washington, Stanford University, and Harvard University were some of the first colleges to require students to leave campus and transition to remote learning (Bacow, 2020; Burke, 2020).

Since this is the first health crisis of this magnitude in U.S. history, minimal information exists about the impact of students' remote transition, especially for SWD. DePietro (2020) noted, "Faculty and staff transitioned all learning to online and virtual in a very short period of time, and this will undoubtedly impact the success and retention of students" (para. 11). The remote transitional impact on SWD's learning experiences requires further research.

This section details the review of the literature that was conducted prior to this study to determine prior positive and challenging experiences SWD faced in online learning, the effects of SWD transitioning involuntarily to remote learning due to a crisis, and the historical context of SWD's graduation success rates in online programs.

Retention and Graduation Rates

A search of the literature found both positive and negative influences concerning successful completion and graduation rates for SWD in traditional and online learning. Stewart et al. (2010) stated that SWD typically enroll in more courses than students without disabilities (SWOD) and experience similar retention rates as SWOD. According to Stewart et al. (2010) study of a mid-sized Historically Black College located in the East Coast of the United States, "SWD did not score any different from SWOD" (p. 35) in either online or face-to-face undergraduate or graduate courses concerning final grades. Students with disabilities may encounter similar retention and completion rates, but the time to graduation differs for SWD from SWOD. Knight et al. (2016) posited that having a disability does not negatively affect eventual graduation, but having a disability influences the amount of time to graduation. The authors noted, "Regarding graduation rates, at Year 4 SWD had statistically significant lower graduation rates than SWOD, but by Years 5 and 6, SWD graduation rates had equaled, and even surpassed, SWOD" (p. 370). Credit hour penalties that occur at some institutions present one negative implication resulting from increased time to graduation for SWD. This penalty is due to state funding dependent upon students who achieve retention and graduation rates within four years for a bachelor's degree. The impact on graduation rates due to institutional credit hour penalties and college instituted disincentives needs additional research.

For some students with disabilities, the flexibility of online learning is a real draw, especially for students with orthopedic impairments. Alamri and Tyler-Wood (2017) found that SWD participate in online courses at higher rates than other student populations, and the enrollment of SWD in online learning has increased in recent years.

SWD may increasingly participate in online learning due to the flexibility, but the perception of success in online learning is low. In a study performed by Roberts et al. (2011), the researchers asked SWD if their disability would affect their ability to succeed in an online course. Even without participation in an online course, 27% of students reported their disability "negatively impacted their ability to succeed in online courses" (p. 245). This negative perception of online learning formed by SWD leads one to question what factors, previous barriers, or challenges SWD have experienced. The current literature on SWD's negative perception of online learning is minimal, and further research is needed on the topic.

Barriers and Success Strategies

Common barriers emerged in the literature for SWD in traditional and online instruction. The lack of faculty knowledge on accessibility, the understanding of the different needs of students with multiple disabilities, and the perceived stigma of SWD's disclosure to the instructor and the institution were common threads. Bissonnette (2006) asserted that 81% of faculty reported not considering the needs of SWD, and 12% of faculty indicated that they partially considered the needs of SWD. Administrators need to assist faculty members concerning the needs of students with disabilities; this begins with education (Bissonnette, 2006). Faculty training should focus on the types of disabilities common at their institution and the Universal Design for Learning (UDL; CAST, 2018) strategies needed to enable the academic success for SWD (Black et al., 2015).

Learning disabilities, such as autism spectrum disorder (ASD), attention-deficit/hyperactivity disorder (ADHD), learning-related anxiety, and dyslexia reported by the U.S. Department of Education as "specific learning disability[ies]" accounted for 34.8% of children 3 to 21 years old served under the Individuals with Disabilities Education Act of 2004 (Snyder et al., 2018, p. 117).

The prevalence could be even higher since many students with learning disabilities "...would not consider using the Disabilities Service because they perceived this to be for students with greater needs" (Couzens et al., 2015, p. 35). Understanding the accommodations needed by the learning disability population entering higher education institutions will foster their academic success. Griful-Freixenet et al. (2017) found in their study, made up mostly of students with learning disabilities and dyslexia, that using UDL was beneficial to their learning.

Training faculty on the UDL principles and strategies previously mentioned would support the needs of students with dyslexia and SWOD, which is the primary foundation of UDL: removing barriers to support all types of learners. However, a study by Griful-Freixenet et al. (2017) indicated that meeting the needs of students with dyslexia created barriers for other learning disabilities, such as autism. A one-size-fits-all approach to accommodations is not sufficient for all learners.

A theme that emerged in the reviewed literature was that instructor interaction was paramount to the academic success and retention for SWD. In a survey conducted by Alamri and Tyler-Wood (2017), the researchers studied the factors contributing to SWD's success in online courses. The authors identified two main factors that lead to their success: "(1) the teaching and social presences, and (2) the facilitating and supporting of individual communication related to learners with disabilities and their instructors in online courses" (p. 67). SWD perceived that satisfaction with online learning is dependent on the instructor-demonstrated presence and substantive and regular feedback. In some online situations, SWD may experience learning-related anxiety when engaging in online courses with low student-instructor interaction. For example, students with visual impairment may encounter assistive technology issues when accessing course materials. Oh and Lee (2016)

asserted that attention, concentration, and motivational and organizational difficulties cause higher-level anxiety for SWD than their SWOD counterparts.

Stigma

A significant barrier revealed in the literature was the stigma associated with SWD disclosing their disability to the institution and their instructors. Roberts et al. (2011) found, "...71% of those students who indicated that they have a documented disability also reported that they never requested any accommodation" (p. 247). SWD, especially those who have a non-apparent disability, choose not to disclose their disability; other students are simply unaware of the services available to them. In a semi-structured interview by Barnar-Brak et al. (2010) of SWD concerning disclosing their disability status with their instructors, a graduate student with cerebral palsy commented, "...there is a stigma attached with receiving accommodations because there is a stigma about being disabled" (p. 421). In a similar non-apparent or invisible disability, Kruse and Oswal (2018) found that post-secondary students with mental health disorders often do not disclose to the Office of Disability Services or a similar mental health center at their institution for two reasons: the stigma surrounding mental health disorders and the lengthy process of proving they are disabled "enough" for assistance.

Students with mental health disorders stated that their instructors and peers often see their invisible disability as an excuse to receive extra help with assignments, providing them with an unfair advantage over their peers. Additionally, students with mental health disorders stated that they felt they are perceived as violent, unstable, or lying about their condition to receive accommodations from their instructors (Kruse & Oswal, 2018).

In contrast to the nondisclosure of their disability, those who did disclose their disability had the highest course completion rates. Moisey (2004) focused on the course completion of SWD in distance learning. The research found that SWD who requested accommodations from their professors had higher course completion rates than those who did not. However, students with multiple or mental health disabilities receiving accommodations had the lowest course completion rates. Higher education will need to focus on student mental health issues to provide SWD the tools for academic success (Moisey, 2004).

Crisis Impact on Learning

The literature identified instances where colleges and universities decided to quickly transition to remote learning in response to a national crisis, such as Hurricane Florence, Hurricane Katrina, and the H1N1 pandemic (Field, 2020; Meyer & Wilson, 2011). Due to the 2020 COVID-19 health crisis during this paper's writing, minimal peer-reviewed research was available about the 2020 pandemic's effects on SWD learning.

The majority of the extant research focused on how colleges decided to transition to remote learning, structure new academic calendars to increase social distancing on

campus, and implement new health and safety protocols on campus. The priority for most colleges was the lack of disruption for instruction; there was little mention of how the transition to remote learning affected students with disabilities academically.

A few studies related to the COVID-19 transition to remote learning suggested potential benefits and identified challenges that SWD faced during the transition. Zhang et al. (2020) posited that the remote transition could benefit SWD due to the flexibility of asynchronous learning and reducing barriers for students with physical mobility impairments. Even with the few potential benefits of online learning, Zhang et al. (2020) explain that “More than 50% of students with disabilities/health concerns were very concerned about grades in both Winter and Spring quarters [2020]” (p. 7) when compared to students without disabilities. Financial difficulties, discrimination, household tensions, and isolation related to COVID-19 affected SWD more than their non-disabled counterparts (Zhang et al., 2020). A similar study similar by Horgos et al. (2020) found that isolation and stress related to the pandemic increased mental health disorders in students attending college in spring 2020 compared to 2019. This study was conducted between May and July of 2020 at nine research universities and found that graduate and professional students with major depressive disorders were two times higher in 2020 than in 2019, and diagnosed generalized anxiety disorders in students were 1.5 times higher than in 2019. To combat isolation and the lack of connection between students and their instructors, some colleges tried to limit the asynchronous online courses and utilized synchronous technologies for instruction.

During the quick transition to remote learning due to COVID-19, many colleges embraced synchronous (real-time) web conferencing software to simulate in-person lectures. Even though synchronous instruction creates a sense of community and connection with faculty and peers, SWD struggle with live web conferencing software that does not contain live closed captioning. Custodio (2020) asserted that live web conferencing software “...proves especially problematic for deaf students, who would need a sign-language interpreter or live captioning to understand lectures. Automated captioning tends to be riddled with errors” (para, 33). Offering SWD a recording of the synchronous lecture with closed captioning is not an adequate replacement for the live lecture experience.

Methodology

Research Questions

A comparative mixed methods design was utilized to gather quantitative and qualitative data on SWD’s positive and challenging experiences during the transition to remote learning due to COVID-19. Additionally, causal-comparative research was used to compare SWD experiences forced to remote learning versus SWD who chose to take online courses in spring 2020. According to Salkind (2010), causal-comparative design attempts to identify a cause-effect relationship between two or more groups of individuals after an event transpired. The causal-comparative research design was used to identify the potential differences in students’

experiences and feelings of success between SWD forced to remote learning versus those voluntarily enrolling in online courses. Wanting to know more about how the remote transition affected students with disabilities led to this research study and the following research questions:

1. In the transition to remote learning in the spring semester of 2020, what types of support(s) did the college offer to help SWD complete their courses?
2. What were the positive experiences of remote learning for SWD?
3. What were the challenges of remote learning for SWD?
4. What factors helped SWD to cope during the transition from face-to-face to remote learning?
5. Did the LMS present challenges or help SWD with remote learning?
6. Are the experiences different for SWD who were forced to take remote courses in comparison to those SWD who voluntarily enrolled in online courses?

Participants

This study's population was all 1,746 students who attended The Community College (a pseudonym) in spring 2020 and enrolled in face-to-face and/or online courses. The participants who were invited to participate in the study included SWD who disclosed their disability to the college and SWD who did not disclose their disability. Eighty percent of students who attend The Community College are 24 years old or younger, and 20% of students are 25 years old or older. The student body is over 60% part-time, over 68% female, 87% White, and approximately 3% of the student population has a documented disability with the Office of Accessibility Services at The Community College. Fifteen documented SWD attended college during the spring 2020 semester.

To obtain the data to answer the research questions, a survey (see Appendix A) was sent to the entire population of the two-year community college located in the Midwest with an invitation to participate in the study. The entire student population received a reminder email one week later. Due to the low participation of students with disabilities completing the survey within two weeks, a second reminder email was sent only to students who disclosed a disability to the office of Student Accessibility Services. The survey closed on November 8, 2020.

A decision was made in the research design to send the survey to all students in hopes of identifying as many students with disabilities as possible. Student Accessibility Services stated that only 15 students who had disclosed their disability to the college attended classes in the spring 2020 semester, so knowing the disclosed SWD population was small, the researcher had The Community College send the entire college student population the survey invitation. The researcher hoped to attract students with disabilities to participate in the study who did not disclose to the Office of Accessibility Services but who had an individualized Education Program (IEP) or 504 plan in high school or a diagnosed disability.

Thirty-eight students with and without disabilities participated in the survey; however, only 10 students of the 38 respondents had a diagnosed disability, and, therefore, only 10 students matched the criteria to participate in the study. These 10 students made up the population for the study; however, all students declined interviews, so the present paper only includes analyses of the survey data (see Appendix B).

Participant Demographics

The study's participants consisted of 10 SWD who attended The Community College and transitioned to remote learning during the COVID-19 pandemic in the spring 2020 semester. All participants indicated they were Caucasian, 70% female, and 30% male. 30% ($n = 3$) of the participants (SWD) were between the ages of 18 to 20, 20% ($n = 2$) were between 20 and 29, 20% ($n = 2$) were between 30 to 39, and 30% ($n = 3$) were between 40 to 49 years. 40% ($n = 4$) of SWD had taken four or more online courses, while 10% ($n = 1$) took four online courses, 20% ($n = 2$) took two online courses, and 20% ($n = 2$) took one online course at The Community College previous to the spring 2020 semester. There were 10% ($n = 1$) of SWD that did not take any online courses.

Half of the participants indicated having a diagnosed mental health disorder. The complete range of diagnoses is as follows: 20% ($n = 2$) reported they had a mental health disability, 30% ($n = 3$) reported mental health and other disabilities, 10% ($n = 1$) reported a learning disability, 10% ($n = 1$) reported having ADHD and Autism disorder, 10% ($n = 1$) reported a chronic pain disorder, 10% ($n = 1$) reported a chronic post-traumatic stress disorder, and 10% ($n = 1$) reported multiple disabilities.

Four SWD disclosed their disability to the office of Student Accessibility Services (SAS), and three of those four students required accommodations for their courses. The accommodations the SWD received were extra time on tests and extra time on assignments. One student who disclosed used a quiet room for testing in addition to receiving extra time on tests and assignments. One student who contacted SAS, but did not finish the application process for disclosing, used extra time on tests and assignments and taking an exam in alternative formats.

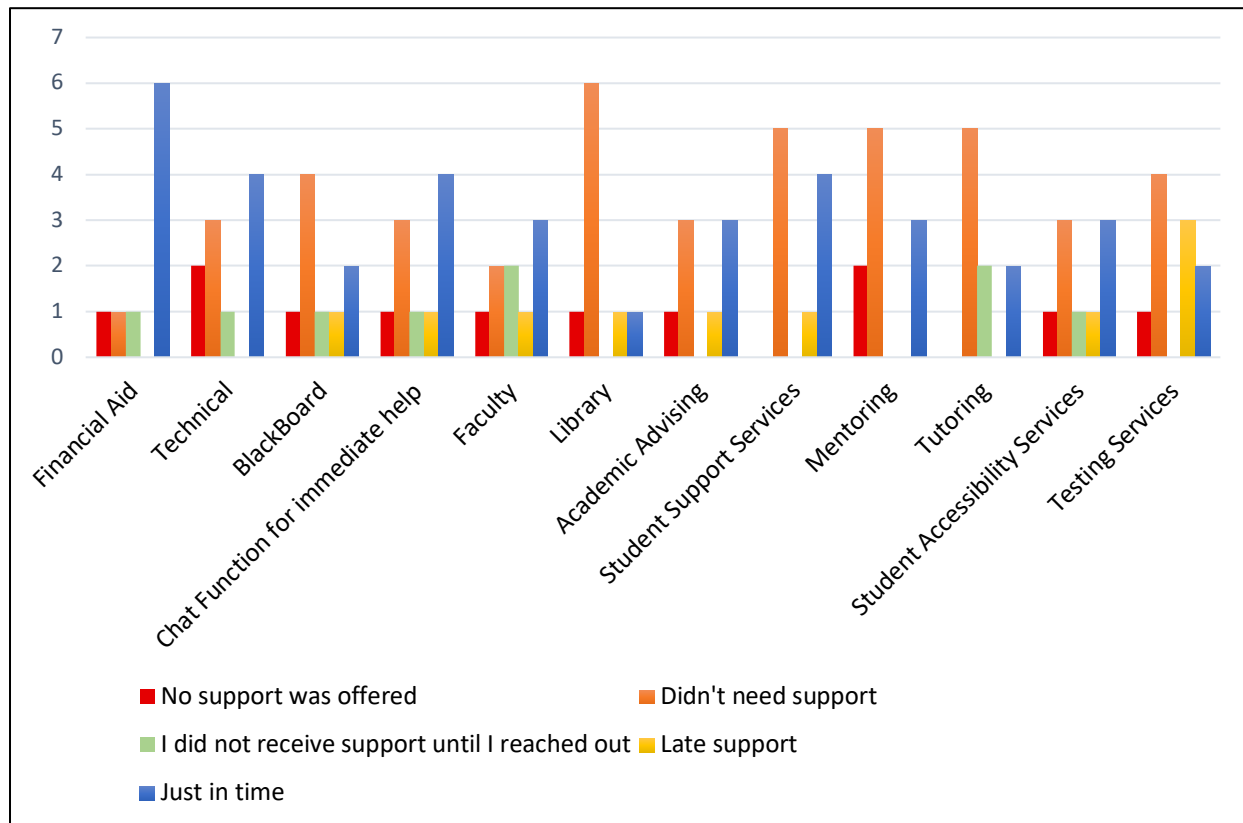
Results

SWD responded to a survey question about the level of services offered during the transition to remote learning on a Likert-type scale of one to five, with one representing no support was offered and five being just in time support. Overall, 37% of SWD reported not needing support from the college. When SWD needed college support, 31% preferred just in time assistance, .075% responded that they did not receive support "until I [the student] reached out," 10% responded that no support was offered, .075% indicated late support was offered, and 21.85% did not respond to the survey question. As shown in Figure 1, of the college services offered to all students, financial aid, technical, chat function for immediate help, student support services, and academic advising were the top five just-in-time

services SWD utilized during the transition. The data revealed the timeliness of the chat function for immediate help positively correlated with both the timeliness of Blackboard support ($rs[10] = .79, p < .05$) and faculty support ($rs[10] = .88, p < .05$).

Figure 1

Timeliness of Support(s) Offered to SWD (N = 10)



Note. The graph above shows the overall timeliness of the support(s) the college offered to SWD during the remote transition.

Conversely, when SWD were asked about the timeliness of testing services, they ranked testing services 30% late support and 10% no support was offered, academic advising 13% late support and 13% no support was offered, and Student Accessibility Services office support 11.2% late support and 11.2% no support was offered. The data identified a statistically significant negative correlation between the notice of transitioning time to remote learning and both the helpfulness of SAS ($rs[10] = -.70, p < .05$, two-tailed) and the helpfulness of tutoring support ($rs[10] = -.68, p < .05$, two-tailed).

The data identified three areas in which SWD experienced positive aspects of the transition to remote learning: ease of access with the Blackboard LMS, instructors' use of varied media resources in courses, and instructor helpfulness with

accommodations. The positive experiences for SWD of remote learning are detailed below.

Ease of Access

The survey asked respondents to rate the response using a Likert scale of one to five, with 1 (extremely difficult) and 5 (extremely easy) to access when considering the ease of access to the Blackboard LMS that was used for remote learning. The survey looked at specific components of the Blackboard LMS, such as grades and the use of various technology devices. Overall, the ease of access to grades resulted in 70% ($n = 7$) of respondents rating the LMS as extremely easy. The ability to access the LMS on any technology device resulted in 70% of respondents describing access as extremely easy ($n = 6$) or somewhat easy ($n = 1$). When asked about students' comfort with using the Blackboard LMS, 80% indicated it was extremely easy ($n = 6$) or somewhat easy ($n = 2$) to use in their remote courses. The data identified a statistically significant ($rs[10] = .89, p < .001$, two-tailed) positive correlation between the ease of accessing course grades and comfort using Blackboard. Lastly, SWD indicated that 40% of them were extremely satisfied, 30% slightly satisfied, and 30% extremely dissatisfied with the college's technology support services.

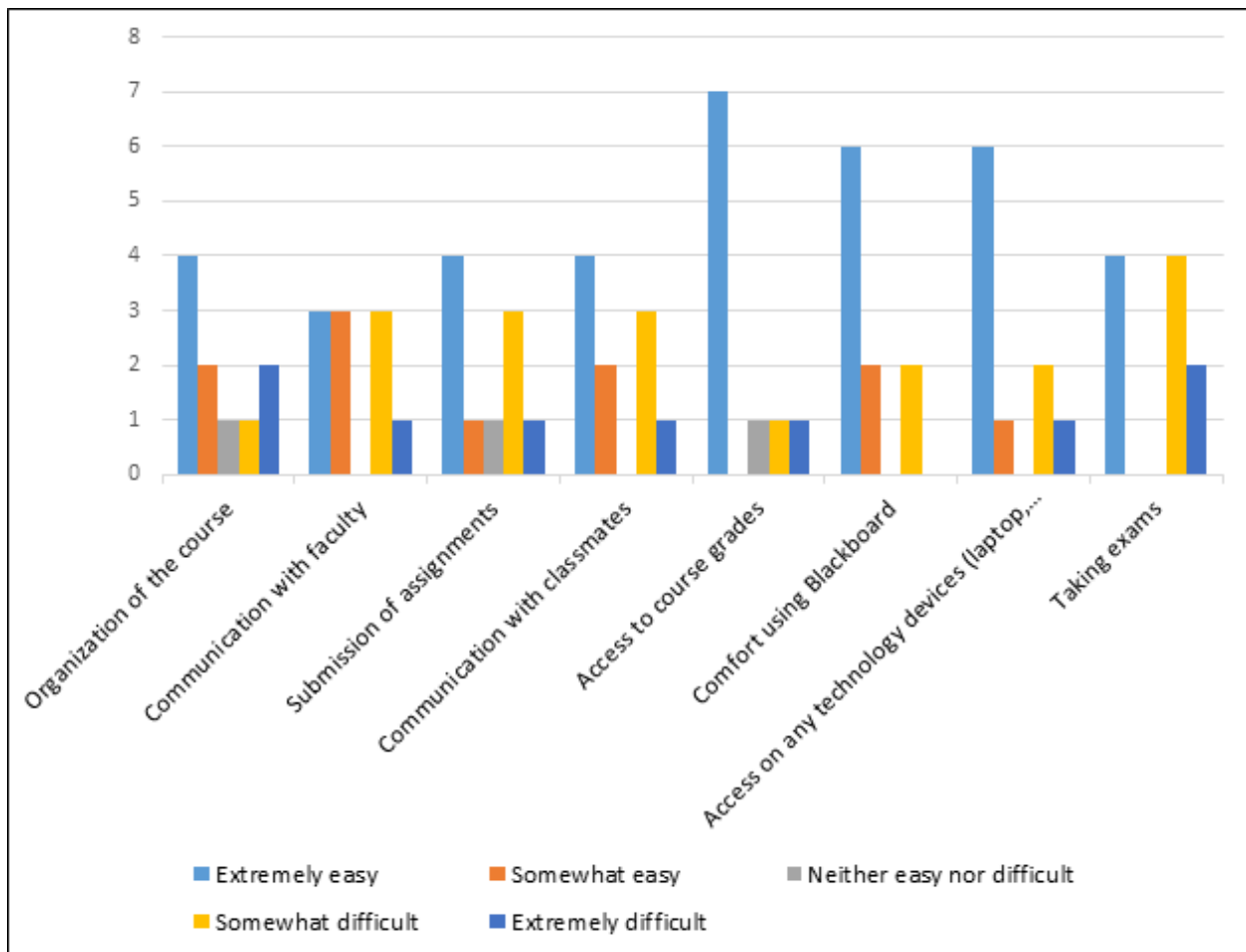
Varied Media Resources

SWD responded to a survey question about the helpfulness of media resources used in their remote courses with a Likert scale of zero to five, with zero representing did not use and five being media resources were very helpful. Figure 6 illustrates the most helpful media resources for SWD including incorporating images in course content where 89% of respondents found very helpful to slightly helpful, using websites, that 89% of students indicated were very helpful or slightly helpful, and incorporating instructor created videos that 89% of responding student rated as very helpful or slightly helpful.

Within the top three media resources most helpful to SWD in remote learning, each shows a statistically significant negative correlation between the media resource and The Community College's communication to students about the transition to remote learning: images ($rs[9] = -.72, p < .05$, two-tailed), instructor created videos ($rs[9] = -.86, p < .05$, two-tailed), and use of websites ($rs[9] = -.67, p < .05$, two-tailed).

Figure 2

Ease of Access of Blackboard LMS Components (N = 10)



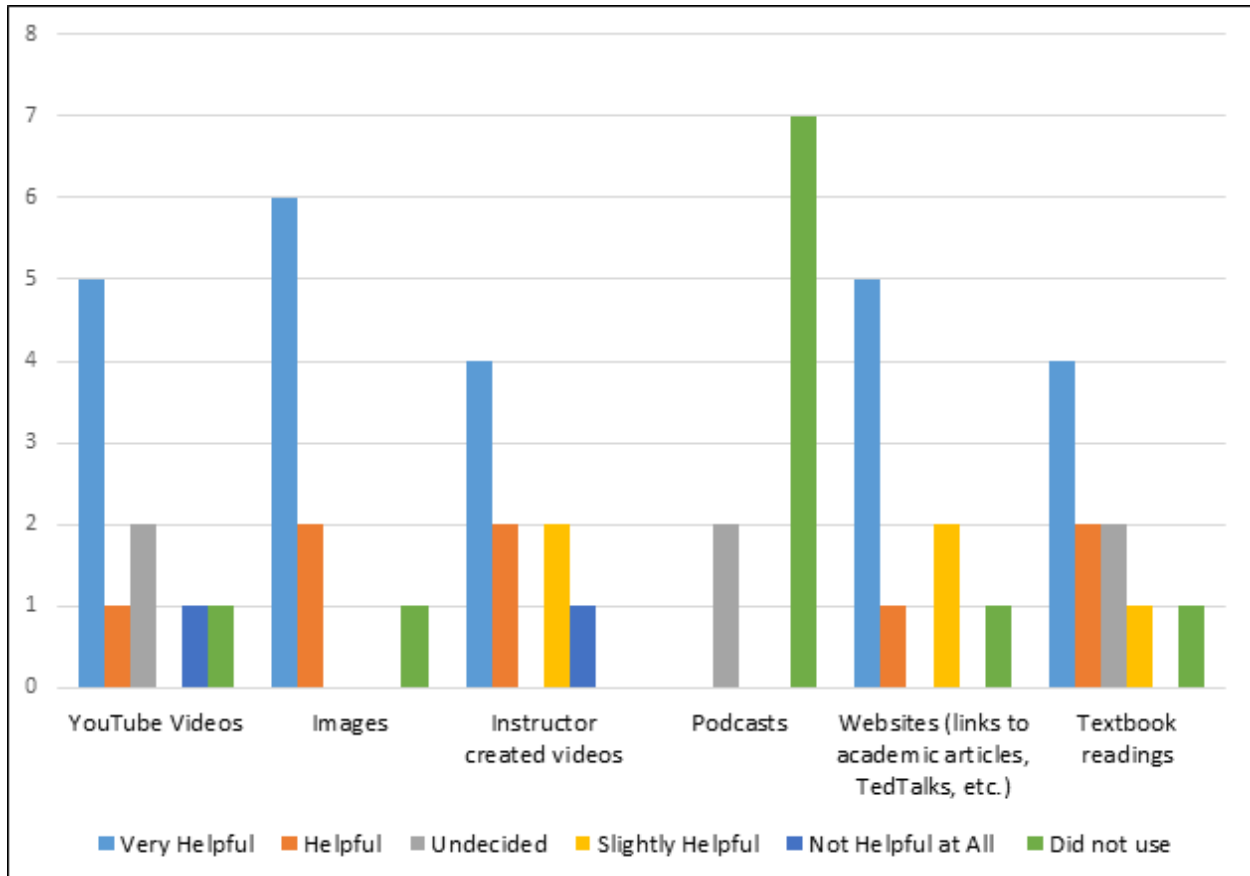
Note. The graph displays the SWD's ease of access of Blackboard LMS components.

Instructor Helpfulness with Accommodations

SWD responded to a survey question about the degree to which their instructors helped provide accommodations in the remote courses. Students responded using a Likert-type scale of one to five, with one representing not helpful at all and five being very helpful. Of the SWD who disclosed and used accommodations ($n = 4$) in spring 2020 remote classes, 75% found their instructors very helpful, and 25% found them helpful in providing accommodations. Of the four SWD who used accommodations in their remote courses, 80% strongly agreed, and 20% agreed that accommodations helped them complete their remote courses.

Figure 3

Helpfulness of Media Resources (N = 10)



Note. The graph illustrates the media resources that were helpful to SWD in their remote courses.

The data identified five key issues that SWD experienced during the transition to remote learning, shown in Figure 6: difficulty with testing services, lack of awareness of Student Accessibility Services, lack of counseling and psychological services, lack of confidence in remote learning, and difficulty in communication and interaction. These five issues will be described in the next paragraphs.

Testing Services

SWD indicated that 60% found it somewhat difficult or extremely difficult to take exams in Blackboard. Additionally, SWD ranked their satisfaction with testing services in their remote courses using a Likert scale of one to five, with one representing extremely dissatisfied and five being extremely satisfied. SWD stated they were 20% extremely satisfied, 30% neither satisfied nor dissatisfied,

20% somewhat dissatisfied, 30% extremely dissatisfied with the college’s testing services, as shown in Figure 6. Out of the 50% of SWD who were somewhat dissatisfied to extremely dissatisfied with testing services, 30% of them indicated that they had a mental health disorder. Lastly, the data showed a statistically significant ($r_{s[10]} = .77, p < .05$, two-tailed) positive correlation between satisfaction with tutoring services and satisfaction with testing services. Over 50% of SWD indicated not needing tutoring services during the transition to remote learning.

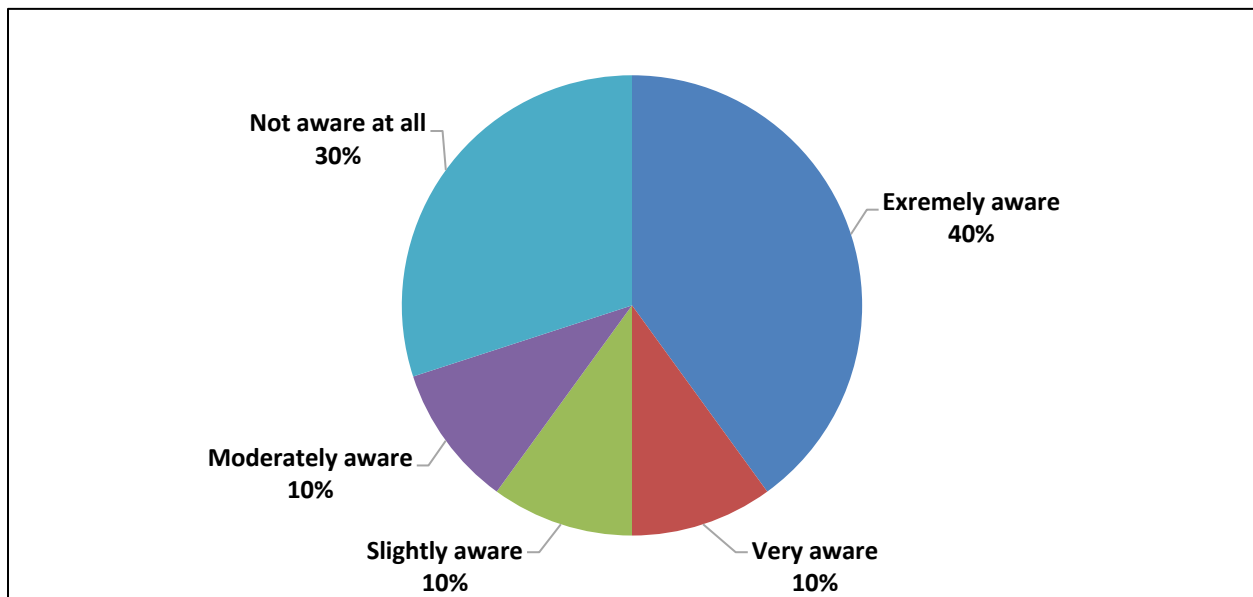
Awareness of Student Accessibility Services

Overall, 40% of the responding SWD disclosed their disability to the Student Accessibility Services’ office. The disability types disclosed to SAS were: Neuro-cognitive difference (ADHD and Autism), chronic pain disorder, learning disability, and mental health and other disabilities. SWD gauged their awareness of the services that SAS offered to SWD on a Likert scale of one to five, with one representing not aware at all and five being extremely aware. As illustrated in Figure 4, half of the participants were slightly aware or not aware at all of SAS’ services for SWD.

SWD responded to a survey question about disclosing their disability to SAS; 60% of SWD did not disclose their disability to the college. Of the SWD who did not disclose their disability, 83% had a mental health disorder.

Figure 4

Awareness of Student Accessibility Services



Note. The pie chart depicts the percentage of SWDs’ awareness of Student Accessibility Services.

Lack of Counseling and Psychological Services

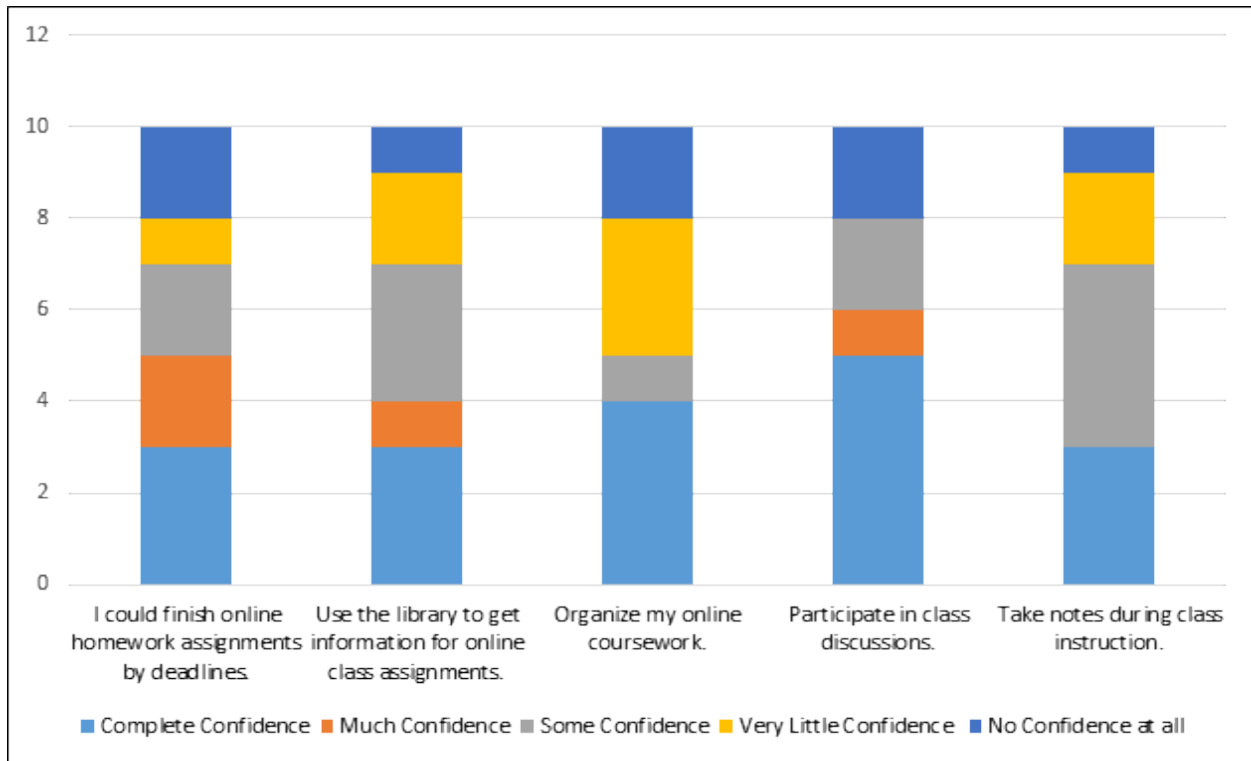
SWD responded to a survey question about the helpfulness of people/services they contacted or used during the transition to remote learning using a Likert scale of zero to five, with zero representing did not use and five being very helpful. SWD ranked the counseling and psychological services as 10% very helpful, 10% helpful, 20% undecided, 10% not helpful at all, 50% did not use.

Lack of Confidence in Remote Learning

SWD responded to a survey question about their confidence level learning remotely using a Likert scale of one to five, with one representing no confidence at all and five being complete confidence. Overall, the top three challenges SWD experienced were little confidence or no confidence at all in the following areas: organizing my online coursework (50%), taking notes during class instruction (30%), and finishing online homework assignments by deadlines (30%). These are depicted in Figure 5. The Spearman’s rho revealed a statistically significant relationship ($r_{s[10]} = .91, p < .001$) between confidence in organizing online course work and confidence in finishing online homework assignments by deadlines.

Figure 5

Confidence in Remote Learning



Note. The graph indicates SWD’s level of confidence in remote learning.

Communication and Interaction Difficulty

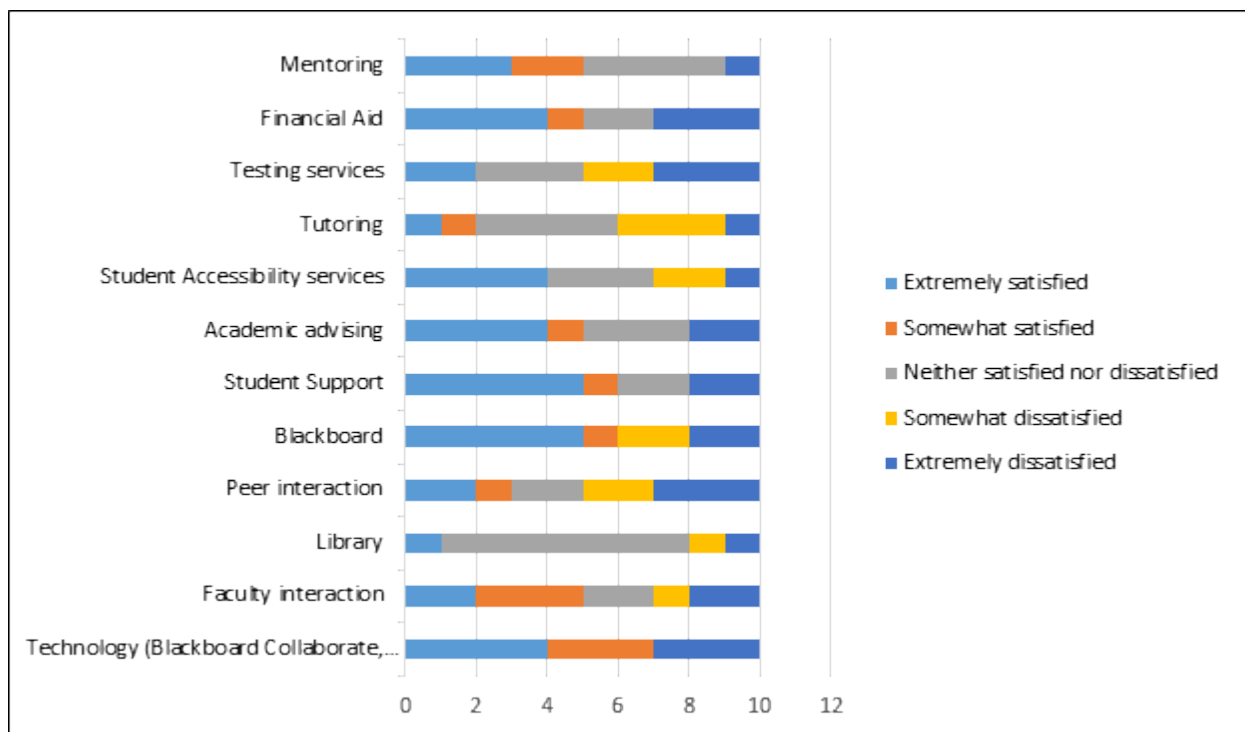
The survey included two questions concerning SWD level of difficulty (as shown in Figure 2) and degree of satisfaction of instructor and peer interaction (as shown in Figure 6). As depicted in Figure 2, 40% of SWD had somewhat difficult or extremely difficult experiences communicating with faculty and classmates in their remote courses.

SWD ranked their satisfaction with faculty and peer interaction in their remote courses on a Likert scale of one to five, with one representing extremely dissatisfied and five being extremely satisfied. Fifty percent of SWD identified as neither satisfied nor dissatisfied or extremely dissatisfied with faculty interaction.

As noted in Figure 6, SWD's degree of satisfaction with interacting with peers, fifty percent of SWD rated their satisfaction as slightly dissatisfied (20%) or extremely dissatisfied (30%).

Figure 6

SWD Satisfaction with College Services



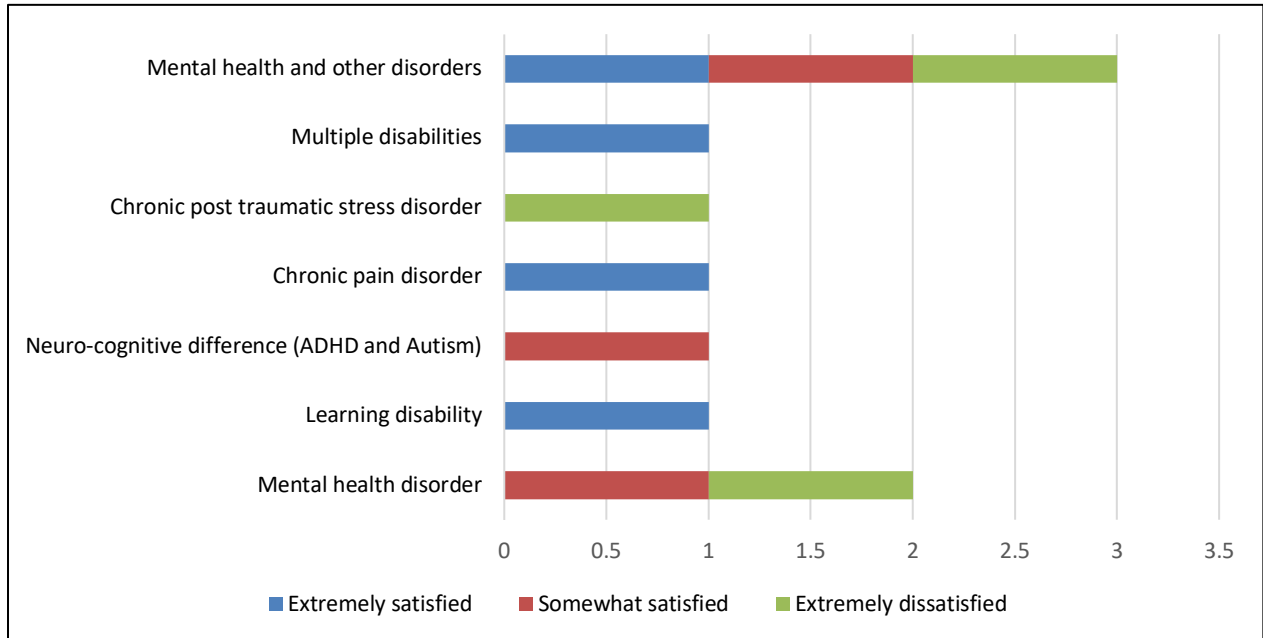
Note. The graph identifies SWD's level of satisfaction with college services offered during the remote transition.

The data found a statistically significant positive correlation between SWD's satisfaction with faculty interaction ($r_s[10] = .80, p < .05$, two-tailed) and student

interaction ($rs[10] = .64, p < .05$, two-tailed) and satisfaction with technology services (Blackboard Collaborate, Microsoft Teams, and Zoom) during the transition to remote learning. Concurrently, the data identified a statistically significant ($rs[10] = -.68, p < .05$, two-tailed) negative correlation between the notice of transitioning to remote learning and satisfaction with faculty interaction.

Figure 7

Satisfaction of Technology Services by Disability Type

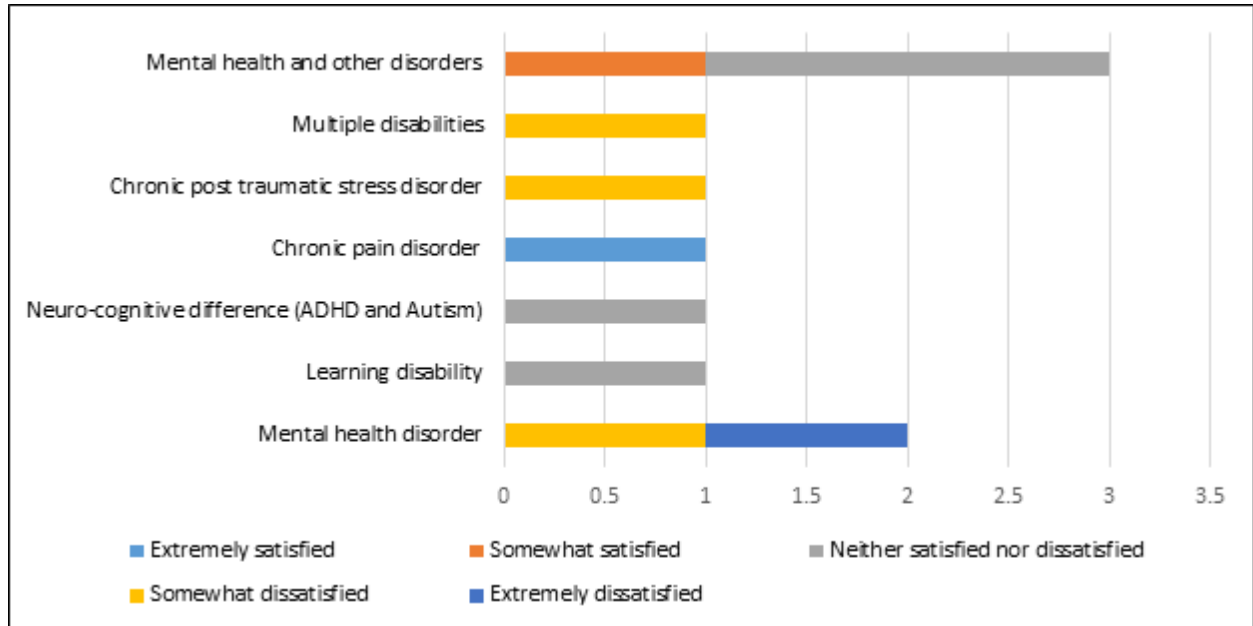


Note. The graph depicts the satisfaction of Technology Services by disability type.

A statistically significant positive correlation was found between type of disability and satisfaction with technology services ($rs[10] = .99, p < .01$). The data also showed a statistically significant ($rs[10] = -.67, p < .05$, two-tailed) negative correlation between the type of disability and satisfaction of tutoring support, as shown in Figures 7 and 8. Students with mental health disorders or a combination of mental health and other disorders reported 20% extremely dissatisfied with Technology Services and 10% extremely dissatisfied with Tutoring Services than other disability types.

The data revealed five top support services and people that SWD found very helpful to helpful during the transition to remote learning: 80% classmates, 70% friends, 70% faculty, 70% Academic Advising, and 60% Financial Aid services, as shown in Figure 8.

Figure 8

Satisfaction of Tutoring Support by Disability Type

Note. The graph presents the satisfaction of Tutoring Support by disability type.

It is interesting to note the people and services that were ranked by respondents as not helpful at all or did not use [these] services offered by The Community College included: Student Accessibility Services (50% of SWD), tutoring services (50%), student support services (40%), and counseling and psychological services (60%). SWD responded to a survey question about their ease of access with Blackboard's course components. Overall, SWD's five main challenges with using the Blackboard LMS were the submission of assignments, the organization within the course, communication with faculty and classmates, and taking online exams, as depicted in Figure 10.

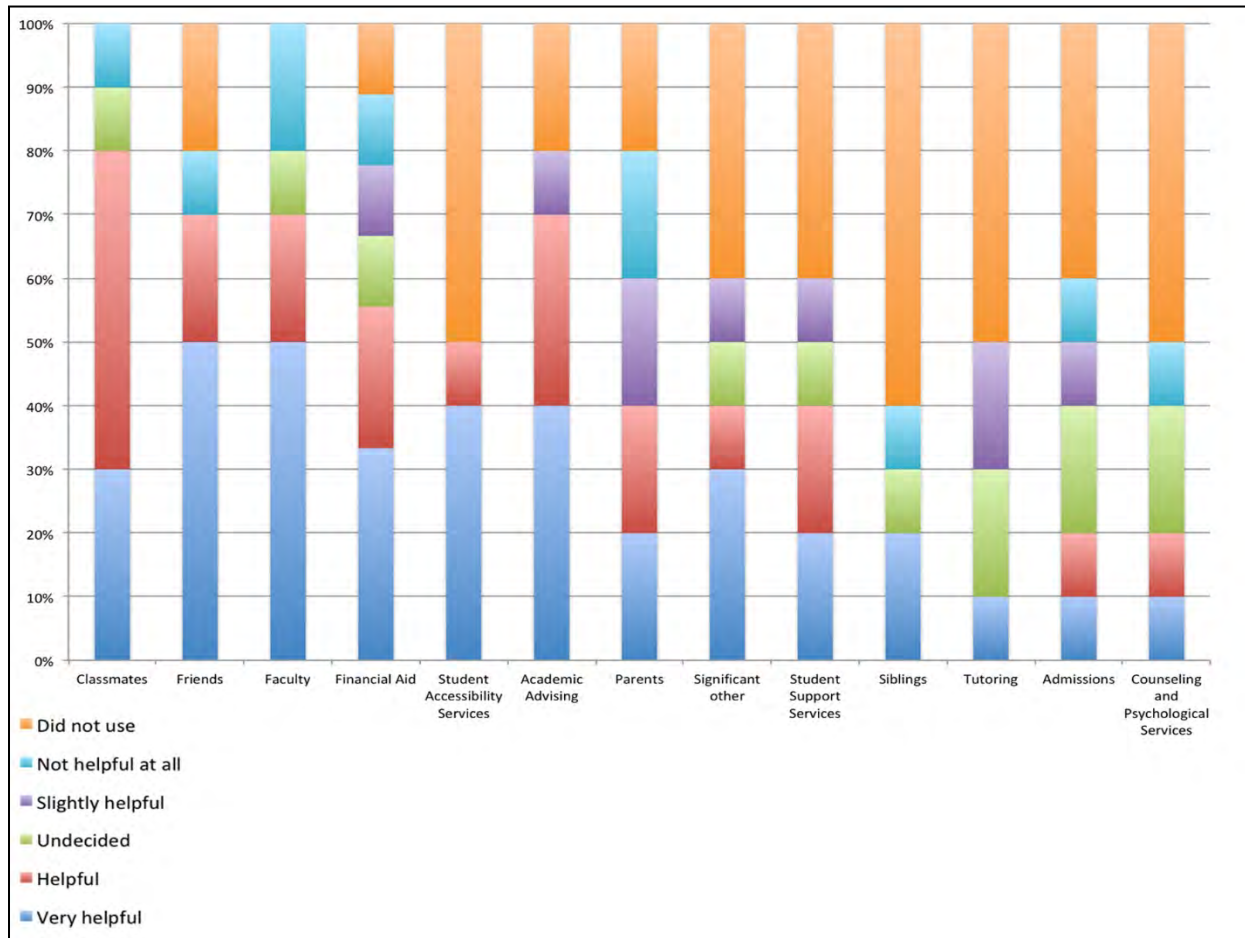
The areas in Blackboard that SWD found helpful included their comfort level using the LMS, ease of access to course grades, and the ability to access Blackboard on any technology device. Sixty percent of students ranked their comfort using the LMS as extremely easy and 20% somewhat easy; 70% found it extremely easy to access the course grades, and 60% found it extremely easy to access Blackboard on any technology device with 10% ranking it somewhat easy to do the same.

What about the interview with the Vice President for Academic Affairs mentioned in the abstract? If there is value in including the questions asked, then there is also value in at least summarizing the results/responses. Alternately, if it is simply an

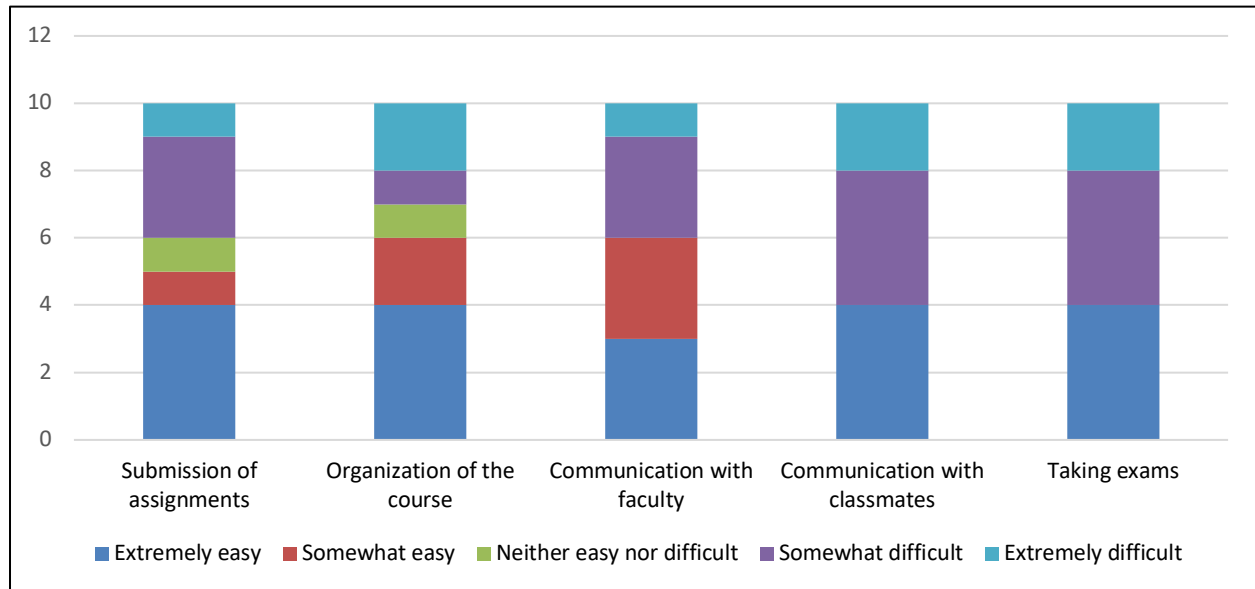
additional/follow-up sort of thing in the discussion, then maybe remove it as a focus in the abstract.

Figure 9

Helpfulness of People/Services the College Offered During the Transition to Remote Learning



Note. The graph displays the percentage of SWD's level of helpfulness for the people/services the college offered during the transition to remote learning.

Figure 10*Five Challenges within the LMS*

Note. The chart illustrates the five challenges SWD experienced within the LMS.

Discussion

Quantitative and qualitative data were collected to determine what factors contributed to SWD's positive and challenging experiences transitioning to remote learning in the spring of 2020 due to COVID-19. The results of this research identified three areas in which SWD experienced positive aspects of the transition to remote learning: ease of access with the Blackboard LMS, instructor use of varied media resources in courses, and instructor helpfulness with accommodations.

SWD's ability to access Blackboard with multiple technology devices and overall comfort with the LMS was positively rated. Before the remote transition occurred, The Community College's instructors provided technology training materials and tutorials to all students. The additional technology training offered to students might have attributed to SWD's comfort with the LMS and online tools. In addition to faculty supporting students with Blackboard and online tools, The Community College made Wi-Fi and technology available to students who needed access during the remote transition.

While SWD did have positive experiences with Blackboard, the research did identify five challenges that SWD experienced during the transition to remote learning: awareness of Student Accessibility Services, communication and interaction

difficulty with instructors and classmates, testing services, lack of confidence in remote learning, and lack of counseling and psychological services.

SAS Awareness

According to Stebleton et al. (2014), SWD, especially students with mental health disorders, are not aware or have not heard of the disability support services that are offered by colleges. The research by Stebleton et al. (2014) supports this study's findings wherein the majority of SWD who did not disclose to SAS had a mental health disorder. The data also reported that half of SWD at The Community College did not use SAS services. However, in the open-ended question asking SWD to describe their experience with the Office of Accessibility Services, most students who used SAS services found their experience helpful and commented that "They [SAS] have been wonderful to work with." This researcher believes the SAS awareness issue centers around the lack of communication about the services they offer and constitutes an area for further exploration and planned improvement.

Communication and Interaction Difficulty

The data of this study indicate that communication and interaction with faculty and students was a challenge for SWD in the transition to remote learning. The Community College should expand its communication efforts about SAS's services through faculty and staff development, hiring an Instructional Designer, and promoting SAS services through multiple media channels.

Testing Services Challenges

SWD expressed difficulty with taking Blackboard (LMS) tests, and half of the SWD were dissatisfied with the college's testing services. In support of this study's findings, Scott and Aquino (2020) explained that more than half of SWD experienced difficulty receiving online test accommodations at public colleges (2-year and 4-year). In this researcher's experience as an Instructional Designer, the transition to remote learning due to the pandemic created additional online testing barriers. During the transition to remote learning, instructors' use of remote proctoring tools, such as Proctorio, Honorlock, and ProctorU, for online tests increased significantly. Remote proctoring services for online tests commonly record the computer screen and the student's webcam video while they take the exam. Certain disability types may require exam accommodations where remote proctoring is not possible and the student requires a paper exam.

Lack of Confidence in Remote Learning

Overall, SWD experienced a lack of confidence in their learning remotely in organizing their online coursework, taking notes during class instruction, and finishing online homework assignments by deadlines. This lack of confidence could be reduced if instructors use UDL principles to help SWD with online learning organizational skills. Faculty providing students with recorded videos, access to

PowerPoint slides before synchronous lectures, and frequent communication through LMS announcements may help the SWD organization.

Lack of Counseling and Psychological Services

According to the literature, more than half of undergraduate and graduate students who stated having difficulty and a lack of confidence with the transition to remote learning screened positive for major depressive disorder and generalized anxiety disorder (Horgos et al., 2020). This difficulty in transitioning and confidence in learning remotely was evident in the SWD responses who had a diagnosed mental health disorder in this current study. The literature showed that 59% of SWD experienced difficulty accessing counseling/mental health services during the transition to remote learning (Scott & Aquino, 2020). In an interview, The Community College's Vice President for Academic Affairs (see Appendix C) stated that some students, who had medical insurance, did use the counseling and psychological services they offered for a brief period until the COVID-19 pandemic closed the campus. Unfortunately, some students could not use mental health services due to a lack of medical insurance. This obstacle could be removed if future counseling services are free and offered via web conferencing and on campus to expand The Community College's outreach to students with mental health disorders.

The results of this research identified that SWD who had taken more than four courses before the remote transition were slightly more confident in finishing assignments by deadlines, organizing online coursework, and using the library to get information for assignments. The data showed no statistically significant differences between students forced to take online courses versus students currently enrolled in online classes.

Limitations

The research included only one small rural two-year higher education institution. At the time of the transition to remote learning, only 15 students who had disclosed their disability to the college attended classes in the spring 2020 semester. Knowing the disclosed SWD population was small, this researcher had The Community College send the entire student population the survey invitation. The researcher hoped to attract students with disabilities who did not disclose to the Office of Accessibility Services who had either an individualized Education Program (IEP) or a 504 plan in high school or a diagnosed disability. As a result, after two survey invitation reminders, 10 SWD participated in the study. The small sample size of the research limits the study's overall generalizability.

The SWD who participated in the survey all declined to participate in a one-on-one interview with the researcher. While the open-ended questions in the survey helped elaborate SWD's responses, one-on-one interviews would have added a more in-depth explanation of the remote transition's effect on SWD learning and added rich qualitative data to support quantitative results.

This study's last limitation was not interviewing the faculty who taught the remote courses and the Student Accessibility Services Office staff. Interviewing both faculty and SAS staff would provide a more holistic understanding of the college's remote transition.

Recommendations for Future Practice at All Higher Education Institutions

In a study conducted by Horgos et al. (2020), undergraduate, graduate, and professional students experienced substantial mental health difficulties during the transition to remote learning. Based on this study's findings, all higher education institutions should offer free counseling and psychological services on campus and online through web conferencing to expand their mental health awareness outreach. Faculty could add statements about student mental health resources in their online courses and syllabi. Additionally, this researcher suggests a faculty mentorship program be developed by SAS and faculty supporting students with mental health disorders. Faculty demonstrating support for SWD needs will help "...de-stigmatize mental health disorders and increase students' comfort when reaching out for help" (Horgos et al., 2020, p. 9).

This researcher recommends that all institutions develop an Instructional Design and Technology team (IDT). IDT can assist faculty in online course design, ensuring the accessibility of media resources, training LMS tools for faculty and students, assisting faculty with designing testing alternatives to meet the needs of SWD with testing accommodations, online pedagogy, and UDL instruction techniques.

Lastly, this study found that all students agreed that accommodations helped them complete their remote courses. To that end, this researcher recommends that the Office of Disability Services and Instructional Designers should partner to offer Universal Design for Learning and accommodation laws workshops for faculty. It is recommended that the delivery of UDL and accommodations training offered to the faculty are in multiple formats: asynchronous just-in-time training, synchronous web conferencing sessions, and face-to-face sessions.

Conclusion

The pandemic affected all education globally; challenges about students learning remotely began to surface in the spring and summer months of 2020. Students had to leave college campuses quickly and, for some, moving back home meant additional family responsibilities, inadequate internet connection and technology, and poor study environments. A challenge that affected most individuals during the pandemic is the feeling of isolation when social distancing. Studies have shown that major depressive disorder diagnoses doubled in the summer of 2020 in graduate students (Horgos et al., 2020). Students no longer interacted with peers and instructors in class or extracurricular activities as they once did before the pandemic. As a result of the pandemic, the need for interaction and connection now is even more vital.

This study discovered that SWD found the connection of their friends, classmates, and instructors were a strong support system for learning remotely. The data indicate the need for all higher education institutions to support their faculty with professional development on mental health awareness, UDL pedagogy, and building a collaborative and inclusive community in the classroom. Lastly, this researcher also invites other scholars to contribute to the body of literature about the academic needs of SWD in online learning; the technology to support online learning is ever-changing and affects SWD in both challenging and supportive ways.

Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

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Appendix A

Invite Letter to Participants in Survey

Dear Prospective Survey Participant,

My name is Dana Gullo. I am researching students with disabilities' (SWD) experiences during the transition to remote learning during the spring 2020 semester due to COVID-19 as part of my doctoral program at Wilmington University. I intend to use the resulting data to help college professionals better understand SWD experiences in online courses and would really like to hear your story. If you are a student who has a disability and/or had an individualized Education Program (IEP) or 504 plan in high school and is interested in participating in the study, please complete the survey that will take approximately 10-15 minutes. Your answers will be confidential. You will not be identified in any way during the research study.

Participation is voluntary, and you may decline from answering specific questions or withdraw from the study at any time without any penalty.

Below is a link to a survey to help me gather data for the study. As a gift for the first twenty participants who complete the survey will receive a fifteen-dollar Amazon gift card. By completing the survey, you are providing informed consent to be a part of my research and consent for me to use your data and comments in my research report. Additionally, if you wish to elaborate on your open-ended responses from the survey, please indicate in the survey that you are willing to be interviewed. Lastly, in appreciation of the first five participants who volunteer to interview for the study will receive an Amazon gift card of ten dollars.

If you have any questions about this research, please contact Dana Gullo at Dgullo002@my.wilmu.edu. The chair of my research project is Dr. Joanne Damminger, who can be reached at joanne.k.damminger@wilmu.edu. This survey and study have been approved by Wilmington University's Human Subjects Review Committee that can be reached at humansubjectsresearch@wilmu.edu.

Thank you for considering your participation in this study.

Sincerely,

Dana Gullo

Link to the survey: https://ycp.co1.qualtrics.com/jfe/form/SV_0BPEF4pzhnY251j

Appendix B

Students with Disabilities Experiences During the Transition to Remote Learning in Spring 2020 Survey

Thank you in advance for completing the survey. Your responses to the survey will help us better understand students with disabilities' experiences during the transition from face-to-face instruction to online-only classes during the spring 2020 semester due to COVID-19. Your responses to the survey will be confidential and no one will be identified in the study. You may withdraw from the study at any time. Throughout this survey, the term "remote learning" will describe any face-to-face class that transitioned to an online course taken during the spring 2020 semester.

If you have any questions or concerns, please feel free to contact Dana Gullo at dgullo002@my.wilmu.edu or my dissertation chair, Dr. Joanne Damminger joanne.k.damminger@wilmu.edu. This survey will take approximately 15-20 minutes to complete. By clicking to the next screen, you are providing consent to participate in this research.

Q1) I was given the following amount of notice that my courses would be transitioning to remote learning in the spring 2020 semester.

0-6 days
1 week
2 weeks
3 weeks
Other

Q2) The communication from the college about the transition to remote learning in the spring 2020 semester was (Check all that apply)

Timely
Helpful
Clearly understood
Not helpful
No communication

Q3) Please rate the timeliness of the support(s) the college offered to help students with disabilities complete their courses during the transition to remote learning in the spring 2020 semester. Just-in-time support (5), Late support (4), I did not receive support until I reached out (3), Didn't need support (2), No support was offered (1)

Technical
Support in the use of Blackboard
Chat function for immediate help
Academic advising support

Faculty
Library
Student support services
Tutoring
Accessibility services
Testing services
Mentoring support
Financial aid information
Other

Q4) Please indicate the number of online class(es) you had taken prior to the spring 2020 semester. (Check all that apply)

Zero
One
Two
Three
Four
More than four
Enrolled in a fully online program

Q5) Please rate your satisfaction with the following services during remote learning in the spring 2020 semester? Extremely satisfied (5), Somewhat satisfied (4), Neither satisfied nor dissatisfied (3), Somewhat dissatisfied (2), Extremely dissatisfied (1)

Technology (Blackboard Collaborate, Microsoft Teams, Zoom)
Faculty interaction
Library
Peer interaction
Blackboard
Student Support
Academic advising
Accessibility services
Tutoring
Testing services
Financial Aid
Mentoring
Other

Q6) Please rate your level of confidence with the following during the remote learning in the spring 2020 semester: Complete Confidence (5), Much Confidence (4), Some Confidence (3), Very Little Confidence (2), No Confidence at all (1)

I could finish online homework assignments by deadlines.
Use the library to get information for online class assignments.
Organize my online coursework.
Participate in class discussions.

Take notes during class instruction.

Q7) Please elaborate on your reasons for your selection in the previous question.

Q8) How helpful were the following people/services to you during the transition to remote learning in the spring 2020 semester? Very Helpful (5), Helpful (4), Undecided (3), Slightly Helpful (2), Not Helpful at All (1), Did not use (0)

Friends
Classmates
Faculty
Significant other
Parents
Siblings
Other family members
Student Support Services
Accessibility Services
Tutoring support
Financial Aid Department
Admissions
Academic Advising
Counseling and Psychological Services
Special support program(s) (please name in "other" below)
Other

Q9) Please rate the ease of your access to each of the following course components in Blackboard during remote learning in the spring 2020: Extremely easy (5), Somewhat easy (4), Neither easy nor difficult (3), Somewhat difficult (2), Extremely difficult (1)

Organization of the course
Communication with faculty
Submission of assignments
Communication with classmates
Access to course grades
Comfort using Blackboard
Access on any technology devices (laptop, tablet, smartphone, iPad)
Taking exams
Other/Comment

Q10) Did you experience any difficulty reading any of the following file types?
(Check all that apply)

Word document
PowerPoint presentation
Google document
Excel spreadsheet
PDF file

Other

Q11) Please elaborate on your reason for your selection(s) in the previous question.

Q12) Please indicate any of the following media resources you used in your spring 2020 courses. (Check all that apply)

Websites (links to academic articles, TedTalks, etc.)

YouTube videos

Instructor recorded videos

Podcasts

Simulations

VoiceThread

Padlet

Other (explain)

None

Q13) Please rate your experience using the media resources you selected in the previous question. Very good (5), Good (4), Acceptable (3), Poor (2), Very Poor (1), Did not use (0)

YouTube videos

Instructor recorded videos

Podcasts

Simulations

VoiceThread

Padlet

Websites (links to academic articles, TedTalks, etc.)

Q14) Please rate the helpfulness of the following materials to your remote learning in the spring 2020 semester. Very Helpful (5), Helpful (4), Undecided (3), Slightly Helpful (2), Not Helpful at All (1), Did not use (0)

YouTube Videos

Images

Instructor created videos

Podcasts

Websites (links to academic articles, TedTalks, etc.)

Textbook readings

Q15) Did you have an Individualized Education Program (IEP) or 504 plan in High School?

Yes

No

Q16) Have you been diagnosed with any disability or impairment?

Yes

No

Prefer not to respond

Q17) How do you describe your disability/ability status? (Check all that apply)

- I do not have any disability or impairment
- A sensory impairment (vision or hearing)
- A mobility impairment
- A learning disability (eg. dyslexia)
- Neuro-cognitive difference (ADHD and Autism)
- A mental health disorder
- A chronic pain disorder
- A disability or impairment not listed here
- Other
- Prefer not to respond

Q18) How aware are you of the services offered to students with disabilities at the Office of Accessibility Services? Extremely aware (5), Very aware (4), Moderately aware (3), Slightly aware (2), Not aware at all (1)

Awareness of the Office of Accessibility Services?

Q19) Did you disclose a disability to the Office of Accessibility Services?

- Yes
- No
- Prefer not to respond

Q20) Do you require accommodations for your classes?

- Yes
- No

Q21) Why did you not disclose your disability to the Office of Accessibility Services? (Please explain)

Q22) Describe your experience with the Office of Accessibility Services.

Q23) Did you use any of the following accommodations in your remote courses in the spring 2020 semester. (Check all that Apply)

- Extra time on tests
- Extra time on assignments
- Taking an exam in alternative formats
- Assistive listening devices
- A quiet room for test taking
- Screen reader
- Sign language interpreters
- Note taker
- Tape recorder
- Other (explain)
- Did not use accommodations

Q24) Please indicate the level of helpfulness of your instructor providing accommodations to your remote course. Very Helpful (5), Helpful (4), Undecided (3), Slightly Helpful (2), Not Helpful at All (1)

In the spring 2020 semester, please rate the helpfulness of your instructor(s) in providing accommodations in your remote classes.

Q25) Please indicate your level of agreement or disagreement with the following statement

Strongly Agree (5), Agree (4), Undecided (3), Disagree (2), Strongly Disagree (1)

In the spring 2020 semester, the accommodations I used in my online class(es) helped me to complete my courses.

Q26) What is your gender?

Male

Female

Other

Q27) What is your age?

18-20

21-29

30-39

40-49

50-59

60+

Q28) What is your race/ethnicity?

African American

Asian

Bi-racial

Caucasian

Hispanic

Latin American

Native American

Other

Q29) Are you interested in a Zoom interview to discuss your online experiences in more detail?

Yes

No

Q30) If you are interested in a Zoom interview to discuss your online experiences in more detail, please leave your name and email address in the fields below.

Name

Email address

Appendix C

Interview of the Vice President for Academic Affairs at The Community College

Hello, thank you for your willingness to meet with me today. I would like to ask you a few questions to get more detail about the timeline and transition to remote learning at The Community College. I will use the information to learn how colleges can better support students, including those with disabilities, to succeed in online courses.

You don't have to answer any question if you would prefer not to, and we can stop the interview at any time if you request to do so. Do you have any questions before we start?

Interview Questions

1. Can you talk about the decision to move to remote learning and describe the timeline to go fully online?
2. How did you communicate to students and faculty about the remote transition? What tools did you use to communicate? Which works best, in your opinion?
3. How did the college prepare the students for online learning?
4. How did the college prepare the faculty for online learning? Is there a required training for online learning?
5. How many faculty members previously taught online?
6. Name three key steps the college implemented to make the transition to remote learning successful?
7. What would you do differently in preparing for the next crisis?