

Inclusive Education at a Crossroads: Assessing Accommodations for Online Students with Disabilities

L'éducation inclusive à la croisée des chemins: L'accès aux aménagement pour les étudiants en ligne handicapés

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Abstract

The rapid growth of online learning in higher education necessitates reevaluating accommodations for students with disabilities. This study aimed to examine the differences in accommodation requests and satisfaction between online and traditional learning environments for students with disabilities, identify barriers to accessing accommodations, and assess the impact of these accommodations on students' sense of belonging and academic engagement. A survey was developed to collect feedback from students with disabilities across various disciplines at a large public university in the United States. The study utilized quantitative and student first-person qualitative measures to capture comprehensive data on accommodation requests, barriers to access, satisfaction levels, and the relationship between accommodations and students' sense of belonging. Quantitative data were analyzed using chi-square and logistic regression. Students with disabilities studying on campus were approximately seven times more likely to seek accommodations than their online peers (OR = 0.14, $p = .002$). Additionally, students with disabilities generally expressed satisfaction with the

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accommodations received, though barriers such as a lack of awareness and administrative hurdles were common. Feeling a sense of belonging at the university was also significantly correlated with the likelihood of seeking accommodations. We invoke a critical disability framework to examine the implications of the study results. The study underscores higher education institutions' need to adopt more inclusive and accessible practices to support students with disabilities in online and traditional learning environments.

Résumé

La croissance rapide de l'apprentissage en ligne dans l'enseignement supérieur nécessite une réévaluation des aménagements pour les étudiants en situation de handicap. L'objectif de cette étude était d'examiner les différences de demandes d'aménagements et de satisfaction entre les environnements d'apprentissage en ligne et traditionnels pour les étudiants en situation de handicap, d'identifier les obstacles à l'accès aux aménagements et d'évaluer l'impact de ces aménagements sur le sentiment d'appartenance et l'engagement académique des étudiants. Une enquête a été élaborée afin de recueillir les commentaires des étudiants en situation de handicap de diverses disciplines dans une grande université publique américaine. L'étude a utilisé des mesures quantitatives et qualitatives à la première personne pour recueillir des données complètes sur les demandes d'aménagements, les obstacles à l'accès, les niveaux de satisfaction et le lien entre les aménagements et le sentiment d'appartenance des étudiants. Les données quantitatives ont été analysées par le khi-deux et la régression logistique. Les étudiants en situation de handicap étudiant sur le campus étaient environ sept fois plus susceptibles de demander des aménagements que leurs pairs en ligne (OR = 0,14, p = 0,002). De plus, les étudiants en situation de handicap se sont généralement déclarés satisfaits des aménagements reçus, bien que des obstacles tels que le manque de sensibilisation et les obstacles administratifs soient fréquents. Le sentiment d'appartenance à l'université était également significativement corrélé à la probabilité de demander des aménagements. Nous utilisons un cadre critique du handicap pour examiner les implications des résultats de l'étude. Celle-ci souligne la nécessité pour les établissements d'enseignement supérieur d'adopter des pratiques plus inclusives et accessibles pour soutenir les étudiants en situation de handicap, tant dans les environnements d'apprentissage en ligne que traditionnels.

Keywords

Inclusive education, online learning, disability accommodations, accessibility, digital divide.

Mots-clés

Éducation inclusive, apprentissage en ligne, aménagements pour les personnes handicapées, accessibilité, fracture numérique.

Introduction

In recent years, the growth of online learning environments in higher education has brought about the need for significant shifts in pedagogical approaches and student engagement strategies. However, this digital transformation has also highlighted the disparities in accessibility and accommodations for students with disabilities, underscoring the urgent need for research that scrutinizes how these learners navigate both traditional and virtual classrooms. The rise of online education is celebrated for its potential to democratize access to knowledge, yet for students with disabilities, this promise remains only partially fulfilled. The unique barriers impacting accommodation requests and their usage in online versus face-to-face learning environments are not fully understood, creating a gap in the literature and institutional practices. This study aims to bridge this gap by investigating the rates and types of accommodation requests, the barriers to those requests, and the overall satisfaction with the accommodations provided. By focusing on the experiences of students with disabilities, this research attempts to unveil the complexities of accessibility in the digital age, critically assessing how higher education institutions can better serve all students in increasingly diverse learning environments.

The significance of this topic cannot be overstated, as it directly confronts what sociologists call the 'second digital divide'—a term that encapsulates the disparities some marginalized students, including those with disabilities, face in accessing and benefiting from online education (James & James, 2020). Despite the legal frameworks established by the Americans with Disabilities Act (ADA) and the Rehabilitation Act of 1974, which mandate equal educational opportunities for students with disabilities,

evidence suggests that a considerable gap remains in implementing these accommodations in online learning. This current study, which surveyed students with disabilities across multiple disciplines, aims to provide empirical evidence of these disparities. By engaging with a diverse group of students, this research seeks not only to document the existing challenges but also to identify actionable insights that can inform policy and practice at institutes of higher education. This paper aims to promote change towards more inclusive educational environments that recognize and address the specific needs of students with disabilities, ensuring that the transformative potential of online education is fully realized for every student, regardless of their physical or cognitive abilities.

Background

Online Learning

Online learning is characterized by delivering educational activities exclusively over the Internet (Tzafilkou et al., 2021). This method of instruction is becoming increasingly popular for post-secondary education worldwide (Aslam et al., 2021). In higher education, online learning is frequently adopted as part of a blended approach, serving as a supplement to in-person learning and increasing accessibility for students facing geographical, financial, or time-related constraints (Hrastinski, 2019). Online education has grown especially fast in higher education (Zhu, 2021). The rapid expansion of online programs in colleges and universities has led institutions to create various strategies and processes to maintain high educational standards in their online courses (Britto et al., 2013).

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Online learning in higher education has experienced significant growth over the past 20 years. The advancement in e-learning accelerated after the introduction of Massive Open Online Courses (MOOCs) in 2011, which facilitated the mass acceptance of e-learning (Shahzad et al., 2020). An early instance of a MOOC was when Stanford University initially made three of its courses available online at no cost, which led to the enrollment of over 100,000 students in these courses (Shah, 2020). Research has indicated that providers of MOOCs recognize the value these courses offer in aiding learners with accessibility requirements, especially in the areas of professional growth and certification (Iniesto et al., 2021). Nevertheless, a discrepancy exists between the anticipated advantages and the actual accessibility of MOOCs for individuals with disabilities. Although MOOCs are theoretically designed to be inclusive, the practical implementation of their interfaces and designs frequently creates obstacles for people with disabilities, including those with visual impairments or blindness (Ferati et al., 2016).

Online learning saw even greater exponential growth during the COVID-19 pandemic, which forced many institutions to shift entirely to online teaching (Dhawan, 2020; James, B. R., Leinbach & MacDonald, 2022; Zhao & En-yun, 2022). From 2019 to 2021, the percentage of students who took at least one online course at the post-secondary level nearly doubled from 15% to 28%. Among public 4-year higher education institutions, the percentage of online-only undergraduates in 2021 was 20% (National Center for Education Statistics, 2022). However, it is not just the push from global events or technological advancements that have driven this shift; adult learners' motivations play an important role. Adult learners decide to pursue online degrees for a

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multitude of reasons, such as the flexibility afforded in terms of both time and location, enhanced accessibility to educational resources, and the economic advantages associated with online learning, including potentially lower costs compared to traditional brick-and-mortar institutions (Ilgaz & Gulbahar, 2017).

The benefits of online learning in higher education are multifaceted. First, online learning provides flexibility, thus allowing students to access educational resources and complete coursework at their own pace (Dhawan, 2020; Hung et al., 2010). This flexibility is particularly beneficial for non-traditional students, such as working adults and those with family responsibilities, who may be unable to attend traditional classes. Additionally, online learning can utilize various forms of multimedia, such as digital texts, audio, and videos, thus enhancing the learning experience and catering to diverse learning styles (Zhu, 2021).

Online learning also offers increased accessibility to higher education, breaking down geographical barriers and allowing a more diverse student population to access educational opportunities (Moloney & Oakley, 2019; Bourne et al., 2019). Students can now remain where they are without having to relocate to pursue higher education at a premier university. This inclusivity is vital for minoritized groups and individuals in remote or underserved areas (Bourne et al., 2019). Additionally, the lower costs associated with online learning can make higher education more affordable and accessible to a broader range of students (Ali, 2021).

Online Learning for People with Disabilities

Research indicates an upward trend in the participation of traditionally marginalized groups in online education, with these populations engaging in online courses at higher

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rates than their counterparts (Coy et al., 2014; Alamri & Tyler-Wood, 2016). The adaptability and self-directed approach of online learning has proven to be especially advantageous for students with disabilities, offering greater autonomy over their learning and the ability to progress at a pace that aligns with their personal and academic needs (Kotera et al., 2021). The shift towards online education has not only altered the learning format from traditional on-campus settings to virtual platforms but has also changed the nature of learning materials, thereby enhancing the inclusion of students with disabilities in higher education (Kinash et al., 2018; Reyes et al., 2022).

Despite these advancements, the transition to online learning has not been without its challenges for students with disabilities. Research has uncovered deficiencies in providing adequate online accommodations for this demographic, underscored by communication, funding, and staffing issues within disability services offices (Catalano et al., 2021). Furthermore, these students may face numerous psychological challenges, like loneliness and belonging, due to the difficulty adapting to online learning formats (Paramasivam et al., 2022; Kotera et al., 2021). Also, there are still many issues with access and participation. While these platforms facilitate access to higher education for individuals with disabilities (Encuentra & Gregori, 2021), the effectiveness and appropriateness of such learning environments for this group remain areas of concern (Smith & Harvey, 2014). Specifically, people with intellectual disabilities encounter barriers in accessing the Internet to the same extent as individuals without such disabilities, and those with profound and multiple learning disabilities face additional obstacles due to the complex nature of their conditions (Chadwick et al., 2016; Caton et al., 2022).

Disability Accommodations

The history of disability accommodations in higher education has evolved significantly over time, reflecting changes in policy, social attitudes, and institutional practices. The ADA, the Rehabilitation Act, and other anti-discrimination legislation have played a crucial role in shaping the provision of accommodations for students with disabilities in higher education (Shallish, 2015). These laws mandate that institutions provide reasonable accommodations to ensure accessibility and full participation in academic activities for students with disabilities (Hsiao et al., 2017). As a result, disability services offices have been established in most higher education institutions to offer individualized support through disability accommodations, referral information, and educational sessions designed to inform and educate students and faculty about the need for disabilities (Ozelie et al., 2019).

The provision of accommodations has been recognized as a critical factor in supporting the academic success of students with disabilities in higher education (Getzel & Thoma, 2008). Research has shown that accommodations are important in supporting students' academic success and promoting their inclusion in general education activities (Bolt et al., 2011). Despite this, the process of requesting accommodations in post-secondary institutions differs from that in elementary and secondary education, as students with disabilities must self-disclose their disability status to a college or university and request specific supports (Newman et al., 2016). Thus, this shift places the onus on the individual student to advocate for themselves, marking a significant transition from primary and secondary education settings where

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the responsibility primarily rests with the institution to identify and provide necessary accommodations.

The transition from high school to higher education has been recognized as particularly challenging for individuals with disabilities, highlighting the importance of counselors in supporting this population by teaching self-advocacy skills to obtain access to necessary accommodations and services for success in the higher education academic environment (Phillippe et al., 2020). Furthermore, the attitudes and preparedness of faculty and staff in higher education have also been identified as crucial factors in providing accommodations for students with disabilities (Stevens et al., 2018). Faculty knowledge and attitudes towards students with disabilities and their willingness to provide reasonable academic modifications and accommodations are essential for the success of all students with disabilities in post-secondary institutions (Leyser & Greenberger, 2008).

Purpose of the Study

This study examines the disparities in accommodation requests and their usage by students with disabilities in online versus face-to-face learning environments in higher education, particularly in a post-COVID environment. It aims to investigate the rates and types of accommodation requests, identify barriers affecting them, and assess student satisfaction with the accommodations provided, along with their awareness and utilization of support services. This study seeks to understand how online and traditional classroom settings differentially impact students with disabilities, aiming to enhance accessibility and support across all learning environments.

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The research questions for this study address the multifaceted issues surrounding accommodations for students with disabilities in higher education, specifically contrasting online and traditional face-to-face learning environments. These questions guided the study in uncovering a comprehensive understanding of the current landscape of educational accommodations and developing actionable insights (i.e., policy and practice recommendations). The research questions were:

1. What is the likelihood difference in seeking disability accommodations between on-campus students with disabilities and their online peers?
2. What barriers do students with disabilities encounter when requesting accommodations, and how do these barriers differ between online and face-to-face learning contexts?
3. How satisfied are students with disabilities with the accommodations they receive in online versus face-to-face learning environments?
4. What is the relationship between a student's sense of belonging at the university and their use of disability accommodations?

Materials and Methods

The survey in this study was designed by a collaborative team of researchers specializing in disability and online learning. Additionally, the university disability services office at the study site was consulted during the survey development to ensure the survey instrument accurately reflected the real-world challenges and needs faced by students with disabilities. This multidisciplinary approach ensured the survey comprehensively addressed the nuances of accommodation requests and usage by students with disabilities in online and face-to-face learning contexts. Finally, the

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questionnaire was pre-tested with a small group of students with disabilities ($N = 5$) to refine questions for clarity, relevance, and sensitivity.

The study site was a large, public U.S. university known for its diverse student body and extensive online and traditional educational offerings. To ensure a wide-reaching perspective, the survey was distributed across four different colleges within the university, encompassing a range of disciplines, including social work, business, nursing, and communications. Utilizing the university's internal communication channels (e.g., email lists and learning management systems), the survey invitation was extended to all students enrolled in degree programs with on-campus and online programs in these four schools.

Eligibility to participate in the survey was extended to students who had a wide range of disabilities, as determined by a screener questionnaire. This inclusive approach aimed to capture a broad spectrum of disabilities, including those not always visible or traditionally recognized in academic settings. The survey was available for completion over two weeks (from February 6 to February 20, 2024), offering flexibility for students to participate at their convenience and ensuring adequate time for a comprehensive response rate.

To identify and categorize students with disabilities, the survey employed three distinct disability measures:

1. The Washington Group Questions with Mental Health Additions: This set of questions is internationally recognized for its effectiveness in identifying functional limitations across various domains. It is enhanced with additional

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queries to capture aspects of mental health disabilities (e.g., anxiety and depression) often overlooked in standard assessments.

2. Self-Identification: Participants were asked if they identified as having a disability. This self-report measure acknowledges the personal understanding and acceptance of one's disability status.
3. Social Security Disability Benefits: Asking about receiving Social Security benefits for disability served as an objective measure to corroborate the presence of a recognized disability, providing a triangulated validation of disability status among respondents.

The survey garnered 116 responses from students with disabilities across the four colleges within the university, reflecting a diverse cross-section of the student population. This sample size provided a solid foundation for drawing meaningful insights into the accommodation needs, barriers, and satisfaction levels among students with disabilities in different learning environments.

Measures

The study utilized a comprehensive survey to investigate the accommodations provided to students with disabilities. The instrument encompassed various components to capture a holistic view of students' experiences, accessibility to accommodations, and the impact of these accommodations on their educational experience. Demographic questions gathered included age, gender, race/ethnicity, enrollment status (i.e., part-time, full-time), income level (categorical), employment status, and marital status. These variables helped to understand the diverse backgrounds of the study participants.

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Disability accommodations questions focused on the specifics of accommodations requested (“Have you requested disability accommodations from [the disability services office]?”) and utilized by the respondents (“Have you used the accommodations you have?”), their enrollment in online or face-to-face programs, and their satisfaction levels with the provided accommodations. Questions also explored the barriers faced in requesting accommodations and awareness of support services.

The School Belongingness Scale (SBS) (Arslan & Duru, 2017) was developed to assess students' sense of belonging within their educational environment, emphasizing emotional and social connectivity at school. This validated scale comprises two dimensions across 10 items, reflecting aspects of inclusion, happiness, care, and social relationships within the school community. Its psychometric properties suggest strong structural reliability and validity, making it an effective tool for gauging school belongingness among students.

Two open-response questions also solicited feedback from respondents on the challenges related to seeking accommodations and recommendations for improving support for students with disabilities. This qualitative data offered depth to understanding students' needs and experiences. Integrating a range of quantitative and qualitative measures, the survey aimed to capture a detailed picture of the accessibility and effectiveness of disability accommodations at the university, contributing valuable insights to the ongoing discourse on inclusive education.

Analytic Strategy

Survey responses were analyzed using bivariate and multivariate techniques, specifically chi-square tests and logistic regression, to identify patterns and disparities in

accommodation requests, barriers to access, and overall satisfaction with the provided support. Chi-square tests assessed associations between categorical variables, such as enrollment type and accommodation use. At the same time, logistic regression was employed to model the likelihood of key outcomes, such as requesting or utilizing accommodations, based on student characteristics. These methods were selected because they allow for identifying significant relationships between variables and predicting outcomes while controlling for confounding factors. All quantitative data were analyzed using Stata 15 (StataCorp, 2017). Open-response data were analyzed through a content analysis approach to uncover more profound insights into student experiences and evaluate the effectiveness of existing policies and practices. This method systematically coded textual data to identify recurring themes and patterns, highlighting students' perceptions and interactions with the educational environment. The study was conducted with strict adherence to ethical guidelines to protect participants' confidentiality and privacy, and received approval from the University of Tennessee's Institutional Review Board.

Results

Sample characteristics are presented in Table 1. Our final sample included 116 respondents, with a nearly even split between online (51%) and on-campus (49%) students. The sample was diverse in age, race, ethnicity, employment, income, and marital status. Age distribution showed a statistically significant difference between groups ($\chi^2 = 25.22$, $p < .001$), with on-campus students more likely to be younger (75% aged 18–29) and online students more likely to be older (71% aged 30–55).

Employment status also differed significantly ($\chi^2 = 42.41$, $p < .001$): 84% of on-campus

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students were unemployed, compared to just 27% of online students. In contrast, 44% of online students were employed full-time versus only 2% of on-campus students. Income levels reflected this employment pattern, with on-campus students more likely to report lower incomes (<\$20k) than their online counterparts (79% vs. 34%, $\chi^2 = 29.84$, $p < .001$). Marital status also varied significantly ($\chi^2 = 29.12$, $p < .001$), as the majority of on-campus students had never married (76%), while a majority of online students were married (65%). No significant group differences were found for race, ethnicity, or disability status.

Results for disability accommodation rates, satisfaction with accommodations, and barriers are presented in Table 2. Among all students, 26% reported having disability accommodations through the student disability services office. A Chi-Square test revealed a significant difference between online and on-campus students' access to accommodations ($\chi^2 = 10.17$, $p = .001$), with only 14% of online students reporting accommodations compared to 39% of on-campus students. Satisfaction among those with accommodations was generally high, with 84% reporting they were somewhat or extremely satisfied. On-campus students reported slightly higher satisfaction with their accommodations (87%) than online students (76%). However, this difference was not statistically significant (Fisher's Exact Test, $p = .61$). Reported barriers to accessing accommodations included lack of awareness (49%), administrative challenges (23%), stigma (17%), and other reasons (26%), with some variation across modality.

When asked about barriers encountered while seeking accommodations, the most commonly reported issue by both online and on-campus students was a lack of awareness about available accommodations, with 27% of online and 22% of on-campus

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students noting this issue. Furthermore, on-campus students faced more administrative hurdles in accessing accommodations, with 16% reporting such challenges, in contrast to 7% of online students. This difference suggests that on-campus students may encounter more bureaucratic obstacles than their online counterparts when securing necessary support.

Results for the School Belongingness Scale for university students with disabilities are presented in Table 3. A substantial portion of students reported feelings of social acceptance, with 70% of online and 83% of on-campus students agreeing they feel like they belong at the university. Experiences of social exclusion were relatively low overall, with only 9% of online and 1% of on-campus students reporting being ignored by friends. However, feelings of isolation were more common among online students (36%) than on-campus students (4%). This suggests that while both groups generally feel accepted, online students may be more likely to experience loneliness or disconnection from peers.

Bivariate Results

The analysis revealed significant associations between various demographics and conditions of online versus on-campus students with disabilities. Age, employment, income, marital status, and the presence of walking difficulties showed notable disparities. Specifically, online students were significantly older than on-campus students ($\chi^2 = 9.87, p < .001$), indicating a potentially different set of life circumstances, responsibilities, and preferences that may influence their choice of learning environment and impact their engagement with disability accommodations. Additionally, significant differences in employment status ($\chi^2 = 42.41, p < .001$), income ($\chi^2 = 29.84, p < .05$),

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and marital status ($\chi^2 = 29.12, p < .05$) indicate socioeconomic factors that may affect their access to or need for disability services. Finally, on-campus students reported higher rates of walking difficulties ($\chi^2 = 5.23, p < .01$), suggesting a potential influence on their choice or necessity for online learning.

Associations between learning format and school belongingness indicate apparent differences in social acceptance and exclusion between online and on-campus students with disabilities. Notably, on-campus students reported higher happiness at the university ($\chi^2 = 9.99, p < .001$). In contrast, online students experienced significantly higher rates of social exclusion, including being ignored by friends ($\chi^2 = 17.67, p < .001$), not being included in plans ($\chi^2 = 26.27, p < .001$), not having close bonds with anyone at the university ($\chi^2 = 11.66, p < .01$), and feeling isolated at the school ($\chi^2 = 19.13, p < .01$). These findings highlight the significant impact of the learning environment on the social integration of students with disabilities, emphasizing the need for targeted interventions to address social exclusion among online learners.

Regression Results

We used logistic regression to analyze the relationship between learning format (i.e., online vs. on-campus) and the likelihood of students seeking disability accommodations, controlling for variables such as age, race, ethnicity, enrollment status, awareness of accommodations, and social belongingness (please refer to Table 4). The overall model demonstrated a significant association between the learning format and seeking accommodations ($\chi^2 (8) = 24.16, p = .002$), with a pseudo- R^2 of .35, indicating a moderate explanatory power. Specifically, the learning format variable

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revealed that on-campus students were significantly more likely to seek accommodations than online students (OR = .14, $p = .002$), suggesting that on-campus students with disabilities are approximately 7 times more likely to seek accommodations than their online counterparts. This finding underscores the critical impact of the educational setting on accessibility and the utilization of support services for students with disabilities.

Awareness of accommodations also emerged as a significant predictor of seeking accommodations. Students familiar with the accommodations process were much more likely to seek accommodations than those unfamiliar (OR = 15.4, $p = .004$). Finally, students with disabilities who scored higher on the social belongingness scale (i.e., feel a greater sense of belonging at their university) were significantly more likely to seek out accommodations from the student disability services office (OR = 0.92, $p = .04$). This suggests that not only does familiarity with the accommodation process increase the likelihood of students seeking help, but a strong sense of social belonging within their university community also plays a crucial role.

Open-Response Results

Barriers to Requesting Accommodations

The first open-response question —“What barriers, if any, have you faced in requesting accommodations?”—revealed a complex landscape of obstacles that students with disabilities often face. Many students described a lack of information or clarity surrounding the accommodations process. As one respondent put it, they were “unsure of what would be considered an accommodation or how to go about requesting one,” reflecting widespread confusion about eligibility and procedures. Administrative and

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procedural burdens were another central theme. One student noted the challenge of “diagnostic work required when previous work done elsewhere was insufficient,” pointing to the sometimes redundant and costly documentation demands that can serve as a gatekeeper to access. These processes—described as “difficult to navigate and time-consuming”—can be especially prohibitive for students with executive functioning challenges.

Financial concerns also emerged, particularly around the affordability of required assessments. One respondent noted that evaluations to document disabilities can be “prohibitively expensive,” reinforcing existing disparities. On the instructional side, students pointed to gaps in faculty support and systemic inconsistencies. One student commented on the “difficulty with accessing accommodations (solo classroom testing, physical access, and sensory limitations)” and called attention to the need for “classrooms with light and sound accommodations.” Another student highlighted the stigma that can still accompany requesting accommodations, simply stating: “Stigma.” These insights reinforce the need for institutions to adopt universal design principles. As one student observed, clearer and more accessible course materials “from the outset” might reduce the need for individual accommodation requests entirely.

Suggestions for Improving Accommodations

When asked how institutions could better support students with disabilities, students emphasized the need for clearer communication and proactive outreach. Several respondents recommended more “explicit information about mental health accommodations” and the introduction of “informational sessions on accommodations available and how to access them.” Training for faculty was also a consistent theme.

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One student suggested “better information and training for faculty regarding disability awareness and accommodations,” underlining the importance of ensuring that academic staff are prepared to meet diverse needs. Students also indicated a need for more inclusive physical and digital learning environments. For example, some buildings were mentioned as lacking appropriate sensory and access-friendly classroom designs. As one student noted, “Efforts to accommodate must go beyond digital captioning and extend into the physical and pedagogical design of the learning environment.” These responses underscore the need for structural improvements, stronger communication strategies, and ongoing efforts to destigmatize disability and accommodation use in higher education.

Discussion

This research sheds light on the 'second digital divide' and the subsequent disparities students with disabilities encounter in online learning environments. Despite the progress of inclusion in online education, this study has identified persistent gaps in support and accommodations for these students. These disparities risk exacerbating inequalities and impacting academic success and adherence to legal standards such as the ADA and the Rehabilitation Act. The findings of this study are vital for universities as they strive to understand and meet the specific needs and challenges of students with disabilities. By highlighting these disparities and providing insights from stakeholders, this research pushes for the advancement of equity in higher education by ensuring that students with disabilities are equipped to succeed in both online and face-to-face educational settings.

Accommodation Rates for On-Campus vs. Online Students with Disabilities

The regression results revealed a glaring difference in the utilization of disability accommodations based on the mode of learning. On-campus students with disabilities were found to be approximately seven times more likely to utilize accommodations than their online counterparts. This significant disparity highlights a potential gap in the accessibility and provision of support services in online learning environments. The implications of this finding are profound, indicating that institutions with online educational platforms may need to enhance their accommodation process to ensure equitable support for all students. The importance of this result cannot be overstated, as it sheds light on the urgent need to address the barriers that online students with disabilities face in accessing necessary and basic accommodations.

The discrepancy in accommodation use between on-campus and online students takes on added significance in the current educational landscape. The post-COVID world has seen an irreversible shift towards online learning platforms, making the necessity for robust online support systems even more critical. As remote education becomes increasingly normative, ensuring that online students with disabilities have equal access to accommodations is not just a matter of compliance but of educational equity. This finding should serve as a call for institutions to re-evaluate and enhance their online support structures, ensuring they are as accessible as the on-campus services, as well as to examine more critically the experience of stigma related to disability from the emic student perspective, and how the experience of stigma may have important qualitative differences between the in-person and online learning environments.

Social Exclusion and Accommodations

Our study suggests that inadequate accommodations for online students with disabilities can lead to social exclusion and a sense of disconnection from university life and the broader community. These students often encounter obstacles in accessing course materials, participating in online discussions, and fully engaging with the digital campus environment, all contributing to social isolation. This is compounded by the lack of physical presence on campus, limiting their social interactions, participation in extracurricular activities, and access to informal support networks. These issues can exaggerate feelings of exclusion, thereby affecting their educational experience and potentially their mental health and academic outcomes.

The literature examining student mental health during and after COVID-19 supports the unique and disparate mental health impacts to college students, who demonstrated greater levels of stress and rates of mental health disorder than the general population (Hasan et al., 2020; Holmes et al., 2020; Malik et al., 2023; Zhu et al., 2021). Further, if populations with serious mental illness, intellectual/ developmental disabilities, serious emotional disturbance, and substance use disorder also experienced disparately negative mental health impacts in connection with the pandemic (Alavi et al., 2021; Bhattacharjee & Acharya, 2020; Drake & Bond, 2021; Galea & Ettman, 2021; Riblet et al., 2021), universities run the risk of operating as what critical disability scholar Liat Ben Moshe (2013) refers to as exclusion societies for students with disabilities. Adding to this equation the surveillance power of governments, institutions, and private industry, the lack of market regulation across the tech sector and others, and the dismantling of rights and protections for people with

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disabilities in the United States conjures Foucault's Panopticism (1995) when trying to imagine exclusion societies in the digital age.

To mitigate these challenges, universities must implement comprehensive support systems that not only enhance the accessibility of online platforms and course materials but also promote community engagement among students with disabilities. This could be achieved by aligning online platforms with accessibility standards, offering virtual versions of the accommodations available on campus, and establishing online spaces dedicated to social interaction and support. Furthermore, training faculty in inclusive teaching practices and integrating online students into campus life through virtual events and hybrid clubs could also be crucial. By prioritizing accessibility and inclusivity, universities can foster a more equitable and interconnected online learning environment for students with disabilities.

Enhancing Policy and Practice

Based on the study findings, there is a need for institutional policies that explicitly address the unique requirements of online learners with disabilities. We should advocate for policies that streamline the accommodation request process, ensuring that it is transparent, user-friendly, and responsive to the rapid growth of online learning. Additionally, we recommend that universities establish a centralized digital resource hub. This hub could serve as a repository of information on accommodations, accessible learning tools, and resources for inclusive education, providing a one-stop shop for students, educators, and support staff. In some example cases, this is achieved through online portals available on disability services offices' websites.

Bridging the Technological Gap

Technology can be a double-edged sword, offering the potential to facilitate learning for students with disabilities while also posing significant barriers if not correctly implemented. Institutions should commit to ongoing evaluations of their online learning platforms to ensure they are accessible and user-friendly. Regular assessment and user feedback are key to refining online services, making them more inclusive. This involves not just compliance with accessibility standards but also understanding the diverse needs of students with disabilities to remove unintended hurdles. Institutions should consider forming committees that include students with disabilities to review and update accommodation practices regularly, thus fostering an environment where technology truly levels the playing field in education.

Community Building and Social Integration

Our study underscores the need for concerted efforts to build a sense of community among online learners. Community of Inquiry, the best practice for teaching online, supports strong teaching connections and bolstering peer-to-peer interactions (Garrison, 2017). Accommodations support students to be full participants in the online learning environment, including collective problem-solving and knowledge exchange, which facilitates a greater sense of belonging. Students' sense of belonging increases retention in online courses (Shatila, 2023). Institutions should also consider developing programs and initiatives that foster interaction between online and on-campus students, such as mentorship programs, virtual study groups, or online student organizations. These measures can provide students with disabilities greater opportunities for

socialization and engagement, reducing feelings of isolation and promoting a more inclusive university culture.

Policy and Practice Recommendations

This research has implications beyond academia and addresses a critical social concern in our increasingly digital world. It emphasizes the urgent need for higher education institutions to thoughtfully ensure that the shift towards online education includes provisions for students with disabilities. By responding proactively to this issue, universities can set a precedent for a more inclusive and fairer digital society.

Consequently, we end with a set of proposed recommendations for policy and practice improvement, grounded in the data collected from both the quantitative and qualitative aspects of this study:

1. Establish Clear Accommodation Procedures: Universities should streamline the accommodation process, ensuring transparency and ease of access, particularly for online students who may face unique challenges navigating digital systems.
2. Develop Inclusive Technology Policies: As educational technology evolves, policies should be implemented to routinely assess and ensure the accessibility of all new online learning tools and platforms.
3. Increase Awareness and Training: Implement university-wide awareness campaigns to inform students about available accommodations and support services, and provide mandatory training for faculty and staff on inclusive practices and accommodations.

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4. Invest in Community Building: Create virtual spaces and events designed to foster a sense of belonging among all students, focusing on inclusivity for those with disabilities.
5. Promote Research and Development: Encourage ongoing research into the effectiveness of accommodations and develop innovative solutions to improve online learning experiences for students with disabilities.
6. Engage in Policy Advocacy: Advocate for changes at the legislative level to support the rights of students with disabilities in online learning environments.

Limitations

This study is not without its limitations. Although adequate for initial analysis, the sample size is relatively small and drawn from a single large southern university, which may not fully represent the diversity of experiences across different institutions and geographical regions. Moreover, the self-reporting nature of the survey could introduce bias, as it relies on participants' perceptions and self-disclosed information about their disabilities and accommodation needs. The study also did not account for the variability in the severity of disabilities, which can significantly influence the type and extent of accommodations required. Additionally, the quick growth of technological advancement means that the data and conclusions drawn might not keep pace with the current state of online learning environments and their accessibility features. These factors suggest that the findings should be interpreted cautiously and seen as a snapshot rather than a comprehensive overview of the landscape of accommodations for students with disabilities in online learning.

Future Directions

The findings of this study open several avenues for future research. Longitudinal studies would provide valuable insights into how accommodation needs and the effectiveness of support services evolve over time, especially as technological advancements continue to shape online learning environments. Comparative research across different types of institutions, including community colleges, online-only universities, and traditional four-year colleges, could highlight the variances in accommodation practices and help identify best practices. Additionally, there is a need to explore the impact of specific accommodations on academic success and retention rates among students with disabilities. Furthermore, studies focusing on the training and preparedness of faculty to meet the needs of students with disabilities in online settings are necessary to develop comprehensive training programs. Ultimately, research that includes a broader demographic and a more extensive array of institutions will provide a more generalizable understanding of how to create truly inclusive online learning environments.

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