Routledge
Taylor & Francis Group

Online Versus Face-to-Face Accommodations Among College Students With Disabilities

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Abstract: Although both the number of online learning opportunities and students with disabilities in higher education has increased over the last two decades, students with disabilities may be overlooked. The purpose of this study was to examine attitudes toward requesting accommodations in the online learning environment among college students with disabilities compared with requesting accommodations in the face-to-face learning environment. Accommodations refer to those adjustments and modification made to instructional and/or curricular requirements in order for students with disabilities to fully participate in a course (Rehabilitation Act of 1973). Results indicate that students with disabilities did not have significantly different attitudes toward requesting accommodations as a whole in the face-to-face versus online learning environments. Results, however, do indicate that students who report having visible disabilities appear to have more positive attitudes toward requesting accommodations in the online versus face-to-face learning environment compared with students who report having hidden disabilities.

The number of online course delivery options in institutions of higher education has exploded over the last two decades (Allen and Seaman 2006). Although the number of online course delivery options has increased, the number of students with disabilities enrolling in institutions of higher education has tripled over the last twenty-five years (Olney et al. 2004). In efforts to improve and create more online learning opportunities efficiently for students, institutions of higher education may overlook the needs of students with disabilities (Edmonds 2004). As noted by Schmetzke (2001), the idea that online distance learning represents a transition of higher education being available anytime and anywhere is quite accurate but not necessarily to everyone. In this sense, students with disabilities can experience a second digital divide

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(Burghstahler 2003). Thus, despite their increasing numbers, students with disabilities can become outpaced in the online learning environment without necessary assistive technologies.

Online learning environments created with persons with disabilities in mind can increase access for all users (Burghstahler 2006). Elements to increase accessibility can be built into the online learning environment from the initial design phase, making the retrofitting of the learning environment to accommodate persons with disabilities unnecessary (Kinash and Crichton 2007). Although this proactive approach to the design of online learning environments would appear to be the most effective, for environments already in existence, retrofitting may be the only option. As such, guidelines produced by agencies such as W3C Web Accessibility Initiative (2008) have been utilized by educational institutions to ensure that online courses are as accessible to persons with disabilities. When guidelines for online learning courses have not been implemented by an institution, accommodations for online courses have to be made on an ad hoc basis and, as a result, may be subject to the discretion of the instructor, the department, or the university. Since providing accommodations in higher education revolves around issues of access, such disparate accommodations may affect the educational institutions' compliance with legal statutes.

Increases in the number of students with disabilities in higher education can be viewed as the result of these legislative statutes and mandates (Metcalfe 2003). The Americans with Disabilities Act (ADA) of 1990 and the Rehabilitation Act of 1973 prohibit universities from discriminating against students with disabilities—acts that ostensibly include courses delivered online (Wall and Sarver 2003). These legislative mandates concerning higher education, however, are in contrast to laws (e.g., Individuals with Disabilities Education Act) governing elementary and secondary education for individuals with disabilities. In elementary and secondary education systems, public schools must seek out and identify students with special needs and provide them necessary accommodations and services. Accommodations refer to those adjustments and modification made to instructional and/or curricular requirements in order for students with disabilities to fully participate in a course (Rehabilitation Act of 1973). In higher education, students with disabilities must request these accommodations from their university in order to receive them.

Although students with disabilities may experience difficulty with this shift of responsibility in receiving accommodations and services, this difficulty does not appear to be more evident with respect to the online learning environment. In examining 604 college students with disabilities enrolled in courses delivered at a distance, Moisey (2004) notes that only 7% of these students did not request necessary accommodations in the online learning environment. As such, students with disabilities do not appear to have any specific difficulty requesting accommodations in the online learning environment.

Students with disabilities, however, may have different levels of comfort reflected in attitudes toward requesting accommodations in the face-to-face versus online learning environments. In a study completed in Australia, university students with learning disabilities claimed to feel embarrassed and guilty about requesting accommodations (Ryan 2007). These attitudes toward requesting accommodations are indeed important as universities would appear to strive to be dedicated to the well-being and success of *all* students in *all* learning environments. If students with disabilities revealed more negative experiences or attitudes toward requesting accommodations in the online learning environment compared with the face-to-face learning environment, universities must be concerned as student-centered institutions and with respect to possible legal ramifications.

Students with disabilities, as a nontraditional student population, represent a growing and diverse group of learners whose needs can vary according to the specific disability and its corresponding severity. Many other characteristics, however, can also impact their higher-education experiences and outcomes. Visibility of an individual's disability, for instance, can influence how persons without disabilities interact with him or her (Smart 2001, 2009). Persons with visible disabilities (e.g., visually impaired, physically impaired, or hearing impaired), whose disabilities may be apparent to others, generally report to have more positive interactions with persons without disabilities (Smart 2001, 2009). Persons with hidden or nonvisible disabilities—for example, learning disabilities, attention-deficit/hyperactivity disorder (ADHD), or health-related impairments—upon disclosure of their disability generally report having fewer positive interactions with persons without disabilities. As such, the fewer positive interactions that persons with hidden disabilities experience can be viewed as a result of cognitive dissonance on the part of the individual without a disability. As a result, persons with hidden disabilities are more often suspected of malingering a disability (Smart 2001, 2009). Such faculty attitudes and perceptions can also impact whether a person with a disability requests accommodations in higher education. Training in accommodations and disabilities for faculty members has been associated with positive perceptions toward students with hidden and visible disabilities (Murray et al. 2009).

The purpose of this study was to examine attitudes toward requesting accommodations in the online learning environment among college students with disabilities compared with requesting accommodations in the face-to-face learning environment. To achieve this purpose, we examined two research questions:

1. Do students with disabilities have significantly different attitudes toward requesting accommodations in the face-to-face versus online learning environments?
2. Do students who report having visible disabilities have significantly different attitudes toward requesting accommodations in the face-to-face and

online learning environment compared with students who report having hidden disabilities?

METHOD

Participants

Approximately seven hundred students (2.9% of the student body) are currently registered with the on-campus office of disability accommodations at the large public university located in the southwestern United States studied. Those students who are registered may or may not request accommodations. There is an additional unknown number of students with disabilities who are not registered with the on-campus office of disability accommodations and thus do not request accommodations through any official or formal channel. The study consisted of eighty-three students reporting to have a disability who self-selected to participate. Participants were assured as to the confidentiality of their responses. Approximately 65% of the participants identified themselves as female ($n = 54$) and 90.4% as white ($n = 75$). A total of twenty-three different academic degree programs were represented. There was a roughly even distribution of participants by level of study (i.e., freshman, sophomore, etc.). The majority of participants reporting have one disability (57.8%, $n = 48$) followed by two disabilities (37.3%, $n = 31$). The disability category with the highest frequency reported by participants was learning disability (38.6%, $n = 32$). Approximately 63% ($n = 52$) of participants considered themselves as having a hidden disability, whereas approximately 37% ($n = 31$) reported having a visible disability.

Measures

For the purposes of this study, attitudes refer to those cognitive perceptions that precede behavior that may be considered influenced by a variety of factors including but not limited to social, emotional, and behavioral needs of the individual. To measure attitudes toward requesting accommodations in the face-to-face learning environment, the Attitudes Toward Requesting Accommodations (ATRA) scale was utilized. The ATRA is a thirty-five-item, Likert-type scale constructed to measure attitudes toward requesting accommodations in traditional face-to-face learning environments with values ranging from *strongly agree* (1) to *strongly disagree* (5) (Barnard-Brak, Davis, Tate, Sulak 2009; Barnard-Brak et al. in press). The ATRA was coded so that higher total scale scores indicate more positive attitudes toward requesting accommodations whereas lower total scale scores indicate more negative attitudes. In a previous study, the ATRA revealed an acceptable internal consistency of scores

for the data obtained with a Cronbach's alpha value of α = .907 (Barnard, Lan, and Lechtenberger 2008). In the current study, the scale revealed a similar acceptable level of internal consistency of scores for the data obtained from the scale with α = .912.

To measure attitudes toward requesting accommodations in the online learning environment, we adapted and modified items from the ATRA. The developed scale consisted of twelve items with a Likert-type response format with values ranging from *strongly agree* to *strongly disagree.* This revised version of the ATRA contextualized to the online learning environment revealed an acceptable internal consistency of scores for the data obtained with a Cronbach's alpha value of α = .938. An exploratory factor analysis using principal axis factoring as the method of extraction followed by a Promax rotation (Kappa = 4) revealed a one-factor solution accounting for 74.48% of the variance. Visual examination of the scree plot supported the conclusion of a two-factor solution. We have included both scales in their entirety in Appendices A and B.

Procedure

Students were contacted via a university Listserv for registered students with disabilities and were invited to participate in an online survey. The same respondents completed both scales regarding face-to-face and online accommodations. The response rate (11.8%, 83 out of 700) was low. Yet, as we recruited participants via the Listserv, we do not know how many students were actually able to open their e-mail messages to consider the study. Additionally, these electronic messages may have been sent to a junk or spam e-mail folder.

We then summed and standardized the total scores for both scales for each individual. All analyses were performed in SPSS (ver. 16.0). Approximately 4% of the cases revealed missing data ($n = 3$). Values for missing data were handled using a linear trend at point as the method of imputation. Multivariate outliers were examined by calculating Mahalanobis distance indicating that such outliers were minimal and were retained in the analysis (Mertler and Vannatta 2005; Tabachnick and Fidell 2006).

Analysis

In examining our research questions, we performed a two-way mixed design analysis of variance. Our first independent variable consisted of attitudes toward requesting accommodations repeatedly measured across participants with respect to the face-to-face and online learning environments. Our second independent variable was visibility of disability as reported by the participants. Participants could report that their disability (or disabilities) was either hidden or visible. The assumption of the homogeneity of variances was met for

both the ATRA and revised ATRA scale scores, respectively, $F(1, 81) = .441$, $p = .50$ and $F(1, 81) = .435$, $p = .51$. The assumption of sphericity did not need to be evaluated as the study consisted of only two measurement repetitions (face-to-face vs. online attitudes). In performing our 2 x 2 mixed design ANOVA, Cohen's d was calculated as the measure of effect size. Cohen's d values of .20, .50, and .80 or larger indicate small, medium, and large effect sizes, respectively (Cohen 1988).

RESULTS

With regard to our first research question, results indicate that attitudes toward requesting accommodations in the face-to-face and online learning environments are not significantly different among college students with disabilities, $F(1, 81) = 1.232$, $p = .27$. Post hoc power analyses were performed in G^* Power (Faul et al. 2007) indicating an acceptable level of statistical power achieved, $1 - \beta = .89$.

Regarding our second research question, results indicate that students who report having visible disabilities have significantly different attitudes toward requesting accommodations in the face-to-face and online learning environment compared with students who report having hidden disabilities, $F(1, 81) = 5.784$, $p = .019$, $d = .38$. This value of Cohen's d indicates a small to medium association between visibility of disability and attitudes toward requesting accommodations in the online versus face-to-face learning environments. Specifically, students who report having visible disabilities ($M_D = .37$, $SD = .62$) have significantly more positive attitudes toward requesting accommodations in the online learning environment versus in the face-to-face learning environment compared with students who report having hidden disabilities ($M_D = .07$, $SD = 1.49$).

DISCUSSION

The results of this study indicate that students with disabilities do not have significantly different attitudes toward requesting accommodations in the face-to-face versus online learning environments. This result suggests that students with disabilities do not have any more negative or positive attitudes associated with requesting accommodations in the online learning environment compared with the face-to-face learning environment. We should note that this result may be exclusive to students with disabilities studying at the institution in this study. Future research will have to replicate the study to determine whether these results are generalizable to other institutions of higher education. This result does, however, offer a positive insight to future research that students with disabilities do not appear to have more positive or negative attitudes

toward requesting accommodations in the online versus face-to-face learning environment.

With regard to our second research question, the results of this study also indicate that students who report having a visible disability have more positive attitudes toward requesting accommodations in the online learning environment versus the traditional face-to-face learning environment. For college students reporting having hidden disabilities, there was minimal difference in attitudes toward requesting accommodations in the online versus face-to-face learning environments ($M_D = .07$, $SD = 1.49$). For students reporting visible disabilities, there appeared to be a preference for—or at the very least more positive attitudes toward—requesting accommodations in the online learning environment over requesting these accommodations in the face-to-face learning environment ($M_D = .37$, $SD = .62$).

Although research has indicated that persons with hidden disabilities may experience fewer positive interactions with persons without disabilities upon disclosure (Smart 2001), it appears that students with visible disabilities may not desire involuntary disclosure despite more positive interactions. The results of the current study suggest that individuals with visible disabilities may simply prefer online courses given that their fellow classmates would possibly never know that they have a disability unless they chose to disclose this information online. Individuals with visible disabilities may want to avoid any stigma or negative interactions on behalf of peers regarding their disabilities. Individuals with hidden disabilities (e.g., learning disabilities or ADHD) would appear not to encounter stigma or negative peer interaction unless they chose to disclose this information.

Additionally, individuals with visible disabilities may be more comfortable requesting accommodations in an online learning environment than in a face-to-face environment, where necessary assistive technology may have to be transported between classrooms. Students with limited mobility (e.g., wheelchair-bound) may also prefer the flexibility and convenience of courses delivered online. Future research should consider examining why students with visible disabilities may have more positive attitudes toward requesting accommodations in the online versus face-to-face learning environment as a function of these variables.

Several limitations emerged as part of conducting this study. First, it should be reiterated that not all students with disabilities register with their university's office of disability accommodations. The results of this study are thus limited in their application to those students with disabilities who choose to register with their university's office of disability accommodations and who volunteered to participate in the study. Future research should consider a qualitative approach that would begin to deconstruct why students with visible disabilities appear to prefer the accommodations process in the online versus face-to-face learning environment over students with hidden disabilities. Upon conducting further qualitative research in conjunction with the results of this

study, the practical implications may be considered numerous such that online courses may be well suited for learners with visible disabilities due to perceived stigma, greater accessibility, or some combination of these factors. Thus, the primary implication of this study may be that online course options could be associated with greater access to higher education among persons with visible disabilities in particular.

REFERENCES

Allen, I. E., and J. Seaman. 2006. *Making the grade: Online education in the United States*. Needham, MA: Sloan-C.

Barnard-Brak, L., T. Davis, A. Tate, and T. Sulak. 2009. Attitudes as a predictor of college students requesting accommodations. *Journal of Vocational Rehabilitation* 31: 189–198.

Barnard-Brak, L., T. N. Sulak, A. Tate, and D. Lechtenberger. In press. Measuring attitudes toward requesting accommodations: A national multi-institutional study. *Assessment for Effective Intervention.*

Burghstahler, S. 2003. Web-based distance learning and the second digital divide. In *Design and implementation of Web-enabled teaching tools*, ed. M. Hricko, 83–97. Hershey, PA: Information Science Publishing.

———. 2006. The development of accessibility indicators for distance learning programs. *Research in Learning Technology* 14 (1): 79–102.

Cohen, J. 1988. *Statistical power analysis for the behavioral sciences*, 2nd ed. Hillsdale, NJ: Erlbaum.

Edmonds, C. E. 2004. Providing access to students with disabilities in online distance education: Legal and technical concerns for higher education. *The American Journal of Distance Education* 18 (1): 51–62.

Faul, F., E. Erdfelder, A. G. Lang, and A. Buchner. 2007. G*Power 3: A flexible statistical power analysis for the social, behavioral, and biomedical sciences. *Behavior Research Methods* 39: 175–191.

Kinash, S., and S. Crichton. 2007. Supporting the disabled student. In *Handbook of distance education*, 2nd ed., M. G. Moore, 193–204. Mahwah, NJ: Erlbaum.

Mertler, C. A., and R. A. Vannatta. 2005. *Advanced and multivariate statistical methods: Practical application and interpretation*, 3rd ed. Glendale, CA: Pyrczak.

Metcalfe, A. 2003. Overcoming organizational barriers to Web accessibility in higher education: A case study. In *Design and implementation of Web-enabled teaching tools*, ed. M. Hricko, 190–208. Hershey, PA: Information Science.

Moisey, S. D. 2004. Students' disabilities in distance education: Characteristics, course enrollment, completion, and support services. *Journal of Distance Education* 19 (1): 73–91.

Murray, C., A. Lombardi, C. Wren, and C. Keys. 2009. Associations between prior disability-focused training and disability-related attitudes and perceptions among university faculty. *Learning Disability Quarterly* 32: 87–100.

Olney, M. F., J. Kennedy, K. Brockelman, and M. A. Newsom. 2004. Do you have a disability? A population-based test of acceptance, denial, and adjustment among adults with disabilities in the U.S. *Journal of Rehabilitation* 70: 4–9.

Rehabilitation Act of 1973. Pub. L. 93–112. 26 Sept. 1973. H.R. 8070.

Ryan, J. 2007. Learning disabilities in Australian universities: Hidden, ignored, and unwelcomed. *Journal of Learning Disabilities* 40 (5): 436–442.

Schmetzke, A. 2001. Online distance education: Anytime, anywhere but not for everyone. *Information Technology and Disabilities* 7 (2): np.

Smart, J. 2001. *Disability, society, and the individual*. Austin, TX: Pro-Ed.

———. 2009. *Disability, society, and the individual*, 2nd ed. Austin, TX: Pro-Ed.

Tabachnick, B. G., and L. S. Fidell. 2006. *Using multivariate statistics*, 5th ed. New York: Harper Collins.

Wall, P. S., and L. Sarver. 2003. Disabled student access in an era of technology. *Internet and Higher Education* 6: 277–284.

W3C Web Accessibility Initiative. 2008. *Web Content Accessibility Guidelines (WCAG) 2.0.* World Wide Web Consortium. Available online at http://www.w3.org/TR/2008/REC-WCAG20-20081211/

Appendix A. Attitudes Toward Requesting Accommodations (ATRA) Scale Items

Item
Accommodations are unfair to other students.
I want to prove I can do college.
Accommodations are for academically weaker students.
I want to stand on my own two feet.
Accommodations are for lazier students.
Students should try to get along without accommodations.
I have never felt like I needed accommodations.
I don't like to admit that I have a disability.
I don't like talking about my disability.
I don't want professors to know that I have a disability.
I don't like people knowing private and personal information about me such as my disability.
The cost of talking about my disability to get accommodations outweighs the benefits.
I have a right to privacy regarding my disability.
I don't want friends to know that I have a disability.
My family doesn't think I am disabled enough to need accommodations.
I don't think I am disabled enough to need accommodations.
I don't know sometimes whether I am really all that disabled.
I prefer to be treated as a nondisabled person.
I want to be like other college students.
I want to have a normal college experience.
There's nothing wrong with me.
I was afraid of being labeled.
People don't think I am disabled.
The Student Disability Services office was unhelpful.
The Student Disability Services office was unapproachable.
The Student Disability Services office did NOT assist me.
I don't trust Student Disability Services to keep my information confidential.
I don't trust professors to keep my information confidential.
I didn't know anything about disability accommodations when I started college.
Going to Student Disability Services is awkward.
Requesting accommodations from professors can be awkward.
Student disability services were NOT discussed at my new student or transfer orientation.

Appendix B. Revised Attitudes Toward Requesting Accommodations (ATRA) Scale Items

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Item

Online courses make accommodations easier.

Online courses make it more difficult to get accommodations.[a]

Online courses allow me NOT to have to ask for all accommodations I would usually request.

Online courses make it easier for me to be accommodated due to my disability.

Online courses are better for me in terms of talking to professors about my disability.

Online courses are better for me in terms of working with fellow students.

I prefer online courses for requesting accommodations.

I prefer online courses so I can choose how much to say about my disability.

I prefer online courses because others will not know that I have a disability.

I do better in online courses with accommodations than face-to-face.

I feel more comfortable in online courses in requesting accommodations.

I prefer online courses for accommodations.

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[a]Indicates item to be reverse-coded.