

The Potential Impact of Online/Distance Education for Students with Disabilities in Higher Education

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ABSTRACT

The current investigation sought to understand if online and distance course offerings were providing a needed bridge to a post-secondary degree for students with disabilities. The results of this investigation suggest that there is an absence of empirical research on this topic in the existing published research. Results presented include findings from the K-12 data examining this impact, and the results from federal investigations on the prevalence of individuals with disabilities attending post-secondary institutions.

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1. INTRODUCTION

Today, 98 percent of public postsecondary institutions report they have enrolled students with disabilities compared to only 3 percent in 1978. Most of these colleges and universities provide some level of services, supports and accommodations [1]. The number of students with learning disabilities (LD) attending colleges and universities has increased as a result of the efforts of postsecondary institutions to provide more support, services, and transition planning [2]. Zalaznick [3] suggests that the standard for institutions to ensure students with disabilities have access to the same materials and interactions as their peers can be provided via a digital platform to provide the specially designed instruction they desire. "Online courses and blended courses (combining online and face-to-face) have been used for more than a decade" in education [4]. As technology is developed to enhance the learning experience for students, schools are continually exploring strategies to implement new learning tools. These technological advancements have provided the opportunity for asynchronicity to transition from the norm for content delivery in online courses, now, combined with some synchronous tools, such as instant messaging software for feedback or questions, the virtual classroom more closely mimics the experience of face-to-face classroom interaction [4],[5].

Distance education courses were initially designed to support educational opportunities to students who were limited due to geographic location or lifestyle to attend a face-to-face educational setting. The availability of online learning tools has provided flexibility and the opportunity to complete course requirements from nearly any location. According to Burton and Goldsmith [6](p.3), "the increased ease of communication between participants, greater equality of participation in the discussion, anonymity of participants, reduction in bias, ability to recruit diverse population, and the ability to address more controversial topics" are some of the advantages to distance education. Johnson, Zascavage and Gerber [7] indicate that graduation is the ultimate goal of every college student, their parents, and teachers. Grade point

averages (GPA) act as a measuring stick for short-term success that leads to graduation which is the ultimate goal in the college process for all students, including those with disabilities.

1.1. Choice

Expenses incurred by both colleges and universities, which ultimately impact the student in the form of fees and opportunity costs make the establishment of distance education models a financial risk. "Students would be attracted to less burdensome options if institutions were to offer more flexible approaches to study that have a lower cost of provision and hence lower fees" [8](p.5). The purchase, development, and implementation of online learning tools which include, a learning management system (LMS), as well as content storage and retrieval systems, email communication, document drop boxes, grade inquiries, discussion boards, learning objects and content, as well as online testing capabilities make the appearance of an online program intimidating to construct. However, these features are both attractive and welcomed changes to today's students who embrace the opportunity to work with technology to create a flexible mode of delivery. The introduction and implementation of online components into course delivery benefits both the schools, because of reduced costs, and the learner, through greater flexibility and convenience [9].

A careful examination of the available data indicates that student with disabilities are overwhelmingly attending 2-year public schools [10]. Data indicates that upwards to 49% of students with disabilities are attending two-year institutions, which according to the NCES report reflects "the fact that Vocational Rehabilitation support for students with disabilities is frequently oriented toward vocational training at less-than-two-year institutions (p 26). This also reflects the fact that these types of institutions are generally available closer to home, than traditional four year institutions. However, without increased access to the 4 year institution, many individuals with disabilities will face limited earning potential. That fact alone makes it imperative that the online/distance opportunities at 4-year schools increase and improve so that the disabled students truly do have equal access.

1.2. Student Achievement

Positive factors that increase the rate of success for students with disabilities in postsecondary settings include; attendance at a junior or community college, family support, a supportive seminar course for incoming students, participation in regular academics with collegiate peers [11]-[13]. Participation in a two year institution such as a community college or junior college are more likely to provide links with community resources, provide written policies on technology, and developmental or remedial instruction, whereas four year postsecondary programs may provide note takers, course work to improve study skills, and memory training skills [14]. Green believes that supportive interventions should begin with the initial college experience and that a freshman seminar program for general students and students with disabilities leads to success [12]. Another key to success for college students with disabilities is family support. Interviews with successful college students by [13] show early family support, early identification and good self-esteem as key to their competency.

A study conducted by John Richardson [15] analyzed the role of being disabled as a factor in the attainment and experiences of over 2,300 distance-learning students awarded post-secondary degrees in the United Kingdom. Richardson's study highlighted problems at the collegiate level regarding disclosure of student disabilities in both the United Kingdom and the United States. The findings suggest that the attainment and overall experience of graduates who reported disabilities that they had not previously declared to the university were similar to those of graduates without a disability [15].

Similarly, a study conducted by Johnson, Zascavage, and Gerber [7] using independent samples t-tests to compare grade point averages earned at the university of students who attended junior colleges showed there were no significant differences in the grade point averages between students who had attended a junior college prior to admission to the university, however the primary post-high school goal for the student, parental expectations, high school type, annual household income, and academic performance were significant predictors of participation in postsecondary settings. Ruban, McCoach, McGuire and Reis' 2003 study [16] also suggests that the relationships between perceived usefulness, routine memorization, and GPA did not present dramatically different results between students with learning disabilities and without learning disabilities. Dadeppo's findings [17] that explored the influence that academic and social integration have on the academic success and intent to persist of college freshman and sophomores with learning disabilities are consistent with previous research which has demonstrated a positive correlation between high school GPA and college GPA with unselected samples [18]-[21].

The first attempt to examine prediction of postsecondary outcomes in a nationally representative sample was completed by Haber, Mazzotti, Mustian, Rowe, Bartholomew, Test, and Fowler [22]. Their meta-analysis of in-school predictors of postsecondary employment, education, and independent living of youth with disabilities examines 35 sources and 27 samples (N=16,957) published from January of 1984

through May of 2010. This study explored in-school predictors to post-school outcomes including employment, education and independent living outcomes using gender, ethnicity, disability impact prediction, student-focused planning, interagency collaboration and parent involvement as moderators. This study provides insight into the importance of selecting specific interventions that fit the needs of the postsecondary outcomes, populations, and setting characteristics with differing relationships with education versus employment.

In contrast, Feldman and Messerli [23] argue that some special education procedures and environments in the K-12 educational setting may lead to failure in postsecondary education. Special education programs may foster dependence and inhibit a student's self-advocacy skills that are necessary for success in a collegiate environment. Chiang et al. [11] conducted a backward logistic regression analysis which suggests that the primary post-high school goal for the student, parental expectations, high school type, annual household income, and academic performance were significant predictors of participation in postsecondary education. A backward logistic regression analysis was used for this study that found the primary post-high school goal for the student; parental expectations, high school type, annual household income, and academic performance were significant predictors of participation in postsecondary education.

In light of the mixed findings on the limited existing research, it is difficult to draw clear-cut conclusions about the impact of online/distance instruction on the achievement of students with disabilities in postsecondary settings. A meta-analysis of these studies would be an appropriate and effective approach to synthesizing and integrating the conflicting results from the existing quantitative research. This approach would provide a general measure of the impact of online instruction on student achievement for students with disabilities that might otherwise be obscured by the conflicting results. It also would be beneficial to an overall understanding of the impact of online instruction on students with disabilities by investigate how the impact on student achievement is affected by grade level, core discipline area, measurement type, and year of the investigation.

2. RESEARCH METHODS

A meta-analysis is a methodological approach in which data from multiple sources can be quantitatively synthesized in an effort to determine the overall effect of the phenomena of interest. Glass, McGaw, & Smith, [24] described meta-analysis as "Analysis of analyses". The proposed purpose of the current meta-analytic application is to synthesize the data collected from multiple studies examining the impact of distance education participation by students identified as "special education". This analytic approach makes it possible to determine the significance of multiple variables against an outcome variable, specifically student achievement for the current investigation. Glass et al. (1981) explains that a meta-analysis allows for studies with smaller sample sizes to be combined, thus, producing a much larger sample size. This in turn will increase the statistical power and reliability of the estimates [25].

3. RESULTS AND ANALYSIS

A thorough search of available search engines such as GoogleScholar, Academic Search Complete, and EBSCO revealed that there were no empirical studies that specifically examined the impact on the use of online/distance classes for individuals with disabilities who are attending a post-secondary institution. A number of studies were found that examined the impact of online/distance education on students with disabilities, and these results were reported in Larwin, Erickson, & Given[26]. Results from 2015 study indicate:

- 1) Achievement results for special education/disabled students online versus all others not online: No significant difference with a grand mean overall effect size measure $d = -.015$, $p < .848$, a non-significant negative effect according to Cohen's [27]
- 2) Achievement results for special education/disabled online versus special education not online: Significantly higher for special education online. Twenty-eight of the 54 effect sizes (51.8%) that were used in this study were negative which implies that control group students performed better, whereas thirty-one (48.1%) were positive indicating students in the treatment group performed better.
- 3) Achievement for special education/disabled online versus non-special education online: Significantly higher for non-special education students who are online. Results indicated that students with disabilities perform significantly better in online/distance learning classes than similar groups of special education students in traditional face-to-face instruction on measures of student achievement ($d = .497$). This suggests a large positive impact for the use of online/distance education for students identified as special education or with disabilities.

Interestingly, the available data on the number of students with disabilities in higher education indicates that there is a need for the impacts observed in the K-12 arena to happen in the post-secondary arena. As stated above, data accessed from the NCES indicates that the largest proportion of students with disabilities earning post-secondary degrees, are attending 2-year institutions. As indicated in Table 1, there is a clear difference between those with disabilities and those without on degree attainment.

Table 1. Proportion of Degree Attainment from NCES (2015)

Institution Type	Some Post- Secondary but No Degree	LICENSE	ASSOCIATE	BACHELOR	MASTER	DOCTORAL
Public, 4-year						
Disabled	30.3	3.3	4.5	55.3	5.6	0.9
Not Disabled	31.0	2.8	1.1	61.5	3.5	0
Private, 4-year						
Disabled	20.6	2.2	2.9	63.7	8.8	1.8
Not Disabled	21.9	1.6	3.9	53.1	15.3	4.1
Public, 2-year						
Disabled	58.5	12.5	14.2	13.9	0.8	0.1
Not Disabled	61.1	14.2	10.0	12.6	2.1	0
Other institutions						
Disabled	38.7	39.1	17.3	4.9	0.1	0
Not Disabled	39.8	43.8	15.5	1.0	0	0

Additionally, the results of the NCES report indicate that disabled students attaining post-secondary degrees are overwhelmingly those with orthopedic disabilities. These results support the expansion of accessibility for disabled populations via online and distance education opportunities.

4. DISCUSSION

The results of the current investigation are concerning. It is evident, after a search of the existing research that there is a need for research examining students with disabilities in post-secondary institutions, and how the use of online and distance education is impacting their success and degree attainment. While Larwin et al.[26] strongly suggests that this type of educational option has had a positive impact on the success of disabled and special education students in K-12, it can only be surmised as to whether these same levels of impact are being experienced by like students in the post-secondary arena. It is hypothesized that the impacts are the same.

An examination of the [10] reveals some troubling patterns from the 2000 data. First, students with disabilities are predominately attaining degrees from 2-year institutions. This type of degree can limit the earning potential for these individuals. Secondly, according to the NCES report, disabled students attaining post-secondary degrees are predominately those with orthopedic limitations. While this data is dated, it sheds further light on the need for research specifically examining the impact of online and distance education in changing the tide for students across all disability groups regarding their post-secondary degree attainment.

In light of federal mandates including the Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, there are many questions as to why so few students are limiting their educational opportunities to two year institutions when they are ensured equal access to college. Equal access for students that are identified as disabled should be granted far beyond admission and should be more aware of what resources are available to them.

5. CONCLUSION

The current investigation revealed a large gap in the current literature: How is today's use of technology in higher education impacting the lives of students with special needs. It is expected that research on this topic should reveal that technology has the ability to positively impact the degree accomplishments of students identified as disabled, because technology has the ability to serve as an equalizing agent. And, it is expected that online and distance opportunities create a bridge for students with special needs to be able to pursue more Bachelor's and graduate degrees. This investigation made it clear that more research is needed.

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