Postsecondary Students with Learning Disabilities: Can We Do More?

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Despite the large increase of students with learning disabilities entering postsecondary institutions and the legislative emphasis on providing students with disabilities equal access to education, we have yet to develop a more cohesive and comprehensive planning of accommodations for postsecondary students with learning disabilities. The purpose of this review is to synthesize information and research on postsecondary accommodations to examine if more can be done to meet the unique needs of this population. Following the background discussion, relevant themes will be presented. Discussion focuses on the lack of empirical research in efficacy of postsecondary accommodations; promising practices for the use of alternative media; and implication for future research.

Keywords: Assistive technology, Postsecondary education, Learning disability, Accommodations

The ever increasing and emphasis on technology has created a society dependent upon a more educated workforce (Fagella-Luby & Deschler, 2008; National Council on Disability [NCD], 2003). At the same time, in the last decade the job market has increasingly become more competitive. No longer are there numerous opportunities for unskilled jobs afforded to those without a college degree (Gregg, 2007; National Academics, 2006). The increased need for a more educated workforce, coupled with fewer opportunities for individuals without postsecondary degrees, has created a situation whereby more students are dependent upon institutions of higher education to prepare them to successfully enter the workforce. Postsecondary education is no longer a desirable luxury but rather a necessity for all students if they are to sustain a reasonable quality of life as working adults.

Historically, students who struggled in public school were able to transition to successful lives beyond high school by locating trade jobs or other employment opportunities not requiring postsecondary training. Many students with learning disabilities (LD) were able to locate viable careers without a postsecondary degree. However, the rapidly growing technologies

have created an environment in which postsecondary education has become a necessary option for students with LD (Eckes & Ochoa, 2005; Madaus & Shaw, 2006a). The National Center for Educational Statistics (2000) reported that students with disabilities who do graduate from college demonstrate employment rates and yearly salaries comparable to their complement without disabilities. Beyond the mere financial motivation, students with LD are striving to increase their self-esteem and improve their quality of life by being successful at the postsecondary level (NCD, 2003).

Researchers investigating the relationship of students with LD and their participation in higher education programs have found that the number of students identified with LD entering higher education has tripled in the last ten years (Stodden, Conway, & Chang, 2003). Even so, students with LD still enroll in educational programs beyond high school at a lower rate than their typically developing counterparts (Gregg, 2007; Madaus & Shaw, 2006a).

Postsecondary institutions have a rising population of learners needing institutional supports to assist them with a fluid transition and successful completion of their degree programs. Given that students with LD graduate from postsecondary institutions at a significantly lower rate than their peers, the purpose of this article is to examine accommodations for students with learning disabilities in a postsecondary environment to determine if more can be done to meet the unique needs of this population. In what specifically follows, this article will: (a) provide an overview of issues related to transitioning students with LD to postsecondary settings; (b) identify issues related to postsecondary students with learning disabilities; (c) identify traditional accommodations and practices provided to postsecondary students with learning disabilities; and (d) synthesize the body of

research presently addressing accommodations at the postsecondary level for students with LD. Finally, the status of services afforded to learners with LD at the postsecondary level will be evaluated and implications for future research needed for improvements in postsecondary accommodations for postsecondary students with LD will be discussed.

Transition from High School to Higher Education

Laws governing services and programs for students with disabilities in high school are not the same as the laws that apply to those same students once they enter postsecondary settings (Eckes & Ochoa, 2005). Despite the fact that postsecondary settings are not governed by the same legislation and mandates as are K-12 arenas, tactical issues (e.g., accommodations matching learner needs, appropriate documentation of disability, and continuity of services) that are currently addressed in K-12 settings remain relevant for postsecondary settings (Janoski, 2005; Madaus & Shaw, 2006a). Thus, it is prudent for educational leaders, postsecondary faculty, and disability service coordinators at the postsecondary level to fully know the laws governing K-12 education and their expectations and influence on postsecondary institutions. The first step to understanding the consequence of the laws on K-12 and postsecondary settings is to examine the differences between K-12 legislative governance and that of postsecondary legislative demands.

Simply put, the Individuals with Disabilities Education Act (IDEA) and its subsequent reauthorization in 2004, the Individuals with Disabilities Education Improvement Act (IDEIA), are the legal mandates by which K-12 students receive services (Madaus & Shaw, 2006b; Wilhelm, 2003). The reauthorization of IDEA was coupled with No Child Left Behind (NCLB)

act to increase positive outcomes for students with disabilities (Hallahan & Kaufmann, 2006). The spirit of IDEA is to provide students with a disability between the ages of 3 and 21 with a free and appropriate public education. Additionally, local education entities are responsible for identifying, assessing, and providing education for students with disabilities through a comprehensive, nondiscriminatory process. This process is accomplished by means of the development and implementation of an Individualized Education Plan (IEP). The IDEA and NCLB legislations are also referred to as the entitlement legislations (Madaus & Shaw, 2006b).

Contrary to the entitlement legislations, the legislation that guides services at the postsecondary level (i.e., Americans with Disabilities (ADA) and Section 504 of the Rehabilitation Act of 1973) consists of civil rights laws. These laws prohibit discrimination against any individual on the basis of disability and are applicable across the lifespan. Additionally, there are specific guidelines within these laws that enumerate the responsibility of entities receiving federal financial assistance (Wilhelm, 2003). Further stated, the ADA requires that course modifications be afforded to students with learning disabilities at the postsecondary level to the extent that the modifications do not fundamentally alter the program itself (ADA, 2004).

This disparity between the entitlement legislations and the civil rights laws affects students with LD and postsecondary institutions in several ways. First, unlike K-12 settings, there are no legal mandates that require individualized educational programming at the postsecondary level. For that reason, students with LD are often left without such technology support and strategies that had benefited them in high school. Further, the National Center for the Study of Postsecondary Education Supports

(2000) asserts that many students leaving high school are unaware of the specifics and breadth of their disability and/or the function of the accommodations that supported them during their high school experience. Therefore, many students are neither offered effective assistive technology nor taught learning strategies at the postsecondary level. These same students may not have the ability to self-advocate for their postsecondary needs (Gregg, 2007) which may in part explain the high attrition rate at the postsecondary level.

To address this disconnect between accommodations at the high school to postsecondary level, students are now provided with a Summary of Performance (SOP) when exiting secondary settings. The SOP provides a list of modifications and accommodations afforded to the student during high school as well as a statement of recommendations for success at the postsecondary level. Often, though, these accommodations are not accompanied with information relating to the usefulness or effectiveness of such accommodations (Madaus & Shaw, 2006a; Siegel, 1999). Therefore, students with LD not only face the daunting task of transitioning to postsecondary life, but also must create educational supports that were required and provided for them in high school (Chiba & Low, 2007; Mellard, 2005).

Students who qualify for disability services at the high school level will not automatically be eligible for services at the postsecondary level. In addition, unlike K-12 education, students with LD at the postsecondary level must self-disclose their disability and often must advocate for services and accommodations (Skinner & Linstrom, 2003; Stodden et al., 2003). Furthermore, postsecondary students are required to provide documenting evidence of their disability, thus validating the need for educational supports and/or accommodations

based on their current level of functioning (Hadley, 2007; Thomas, 2002).

Once the need for supports and/or accommodations has been validated, another concern for students with LD at the postsecondary level is that faculty members are unprepared to either implement educational accommodations or modify assignments in a manner that will support postsecondary students with LD skill deficits. Learning disabilities are often referred to as hidden disabilities because students with LD have no visual discerning characteristics in their day-to-day interactions; therefore, faculty may not be aware of the challenges for the student or the manifestations of their disability in their classroom. In K-12 settings, many teachers have taken at least one special education course while completing their teacher preparation programs (Eckes & Ochoa, 2005), whereas there is no similar expectation for college level instructors. Even so, the importance of faculty support to student success should not be minimized. Indeed, Vogel, Lyser, Wyland, and Brulle (1999) found a strong correlation between a faculty member's willingness to accommodate students' learning needs with increased graduation rates.

Students with LD at the Postsecondary Level

In the last two decades, special education researchers have recognized that students with learning disabilities endure academic challenges beyond elementary and secondary education and into adulthood (Canto, Proctor, & Prevatt, 2005; Gaddy, Bakken, & Fulk, 2008; Skinner & Linstrom, 2003). The barriers and difficulties that were challenging at the secondary level are still present during their continued postsecondary educational endeavors. In high school, students with LD often have parents, guardians, or teachers advocate for the alignment of their needed supports while providing documentation of students' demonstrated deficits and ability areas. Once in postsecondary settings, students with LD must become self-advocates. However, researchers have shown students with LD to be significantly unlikely to seek educational supports at the postsecondary level (Canto et al., 2005; Hartmann-Hall & Haaga, 2002). In addition, postsecondary students with LD often select, in conjunction with disability support personnel, ineffective generic accommodations (Gregg, 2007; Hadley, 2007).

Traditional Accommodations and Practice

There are few empirical studies examining the validity of accommodations at the postsecondary level (Linstrom, 2007). Given that there is limited research in the area of technology supports at the postsecondary level, most postsecondary institutions select generic accommodations based on category needs or personal opinion (Hadley, 2007). Most accommodations at the postsecondary level are specifically provided for course examinations (e.g., Burgstahler, 2003; Ofiesh, Rice, Long, Merchant, & Gajar, 2002). In qualitative studies, conducted by Sharpe, Johnson, Izzo, and Murray (2005), researchers found the two most frequently assigned postsecondary accommodations were allowing extra time and providing a quiet environment for test administration. In their examination of students' perceptions of the effectiveness of accommodations provided at the postsecondary level, Kurth and Mellard (2006) yielded similar findings.

Even though postsecondary institutions are increasing the services they provide to students needing accommodations, there is still a lack of focus on providing appropriate accommodations to address specific learning needs of individual students. Two of the most recent studies examining the usefulness of extended time were not conducted with postsecondary students.

Lesaux and colleagues (2006) examined comprehension scores of adults in both timed and untimed conditions. In this study, the participants ranged in age from 17 to 60 and had not received accommodations or other support services for their learning disability. Participants with LD scored lower than normally achieving peers at a statistically significant level under the timed condition and received increased achievement when provided with extended time; whereas, adults without LD did not demonstrate similar increases. Likewise, Bridgeman, Trapini, and Curley (2004) examined SAT performance of high school seniors under standard time and time and a half conditions. The researchers found a significant increase in SAT scores for students with LD during the extended time condition, but did not find similar improvements in students without LD under the same condition. While these studies did not have postsecondary students as participants, the researchers conducting the studies did provide insight into the effectiveness of extended time.

Despite the lack of a research base for extended time, research demonstrates that extended time is a frequently used accommodation for students with LD. In a study by Sharpe and colleagues (2005), 139 postsecondary graduates were asked to identify accommodations provided to them from their postsecondary setting. Extra time and a quiet environment during examinations were the accommodations most frequently reported. Utilizing a mixed-methods research design, Kurth and Mellard (2006) found that postsecondary students perceived note-takers and extended time as the most effective accommodations provided to them during their postsecondary education. Interestingly, there have been no empirical studies to support the efficacy of note-takers or the use of a quiet testing environment as an accommodation practice.

Researchers have noted that advances in technology would present more accommodation options for postsecondary students with LD needing instructional and educational supports than extended time or separate settings can provide (Stodden et al., 2003). Evident in the literature, though, is that postsecondary institutions rely consistently on extended time and a quiet testing environment to accommodate postsecondary students with LD, while more technologically enhanced options have not considered.

Literature Selection
In an effort to examine postsecondary accommodations for students with LD, empirical articles were located for review by searching the ERIC, HM Wilson, EBSCO Host, PsycARTICLES and PsycINFO databases for articles focusing on postsecondary students, accommodations, and technology from 2003 to 2011. Given the significant increase in the last decade of students with learning disabilities entering postsecondary institutions, the investigation was extended to explore articles beyond the scope of the five-year window. Therefore, expository articles from 1998 to 2011 were selected which address the phenomena of increased enrollment of students with learning disabilities at postsecondary institutions.

The descriptors used to identify articles were as follows: *accommodations, alternative media, assistive technology, learning disability, postsecondary education, technology, and transition*. In addition, reference lists were reviewed from selected articles to identify additional sources to increase the comprehensiveness of the search. Articles were also hand searched in the areas of assistive technology, learning disabilities, and postsecondary education in the following journals: *Learning Disabilities Research & Practice, Learning Disabilities Quarterly, Journal of Learning Disabilities, Journal of*

Postsecondary Education and Disability, Journal of Special Education Technology, and Journal of Vocational Rehabilitation.

Findings of the Review

The research to date on postsecondary accommodations is limited; however, this search did allow for an adequate investigation of themes that were present in the body of research. Themes were utilized to conduct a critical assessment of the available empirical research in the field of accommodations on postsecondary education for students with LD. In this section, the findings addressed are grouped by the following themes: (a) efficacy of accommodations at the postsecondary level, (b) promising practices for the use of alternative media, and (c) implication for future research agendas.

Efficacy of Accommodations

According to Linstrom (2007), a common accommodation practice is the use of extended time in testing situations. Students with LD, specifically reading disabilities, have a slower reading and comprehension rate than their peers without disabilities. Therefore, the accommodation of allowing extended time in testing situations appears appropriate and is often recommended as an accommodation for students with LD. Although this practice of providing extended time is prevalent, there is conflicting opinion regarding its usefulness (c.f., Lesaux, Pearson, & Seigel, 2006; Zuriff, 2000). Briefly, Lesaux and colleagues (2006) found that only students with LD benefited under an extended time condition, while students without disabilities did not. Zuriff (2000) found different results in the use of extended time in testing situations for students with and without disabilities. In this study, there was increased performance by both groups of students. Therefore, Zuriff contends there is evidence that indicates the practice of extended time benefits all learners,

thus placing students without disabilities at a disadvantage when not made available to all students.

Several researchers (i.e., Engstrom, 2005; Gaddy, et al., 2008; Manset-Williamson, Dunn, Hinshaw, & Nelson, 2008; Trainin & Swanson, 2005) have begun examining instructional strategies and transitional provisions available for students at the postsecondary level. In an effort to improve supports for postsecondary students with LD, greater scientific rigor has been focused on specific strategy or course specific interventions (e.g., graphic organizers, prepared course notes) than on commonly practiced accommodations (e.g., extended time, separate setting, note taking). Although such content and instructional enhancement studies add to the existing body of knowledge for best practices for educating postsecondary students with LD, they do little to create change in the delivery of services or in accommodations for postsecondary students. Accordingly, accommodations primarily relate to testing situations.

In five literature reviews from 2003 to 2006 (Alper & Raharinirina, 2006; Edyburn, 2004; Li & Hamel; Mull & Sitlington, 2003; Sireci, Scarpati, & Li, 2005), authors found limited empirical studies addressing accommodations at the postsecondary level, despite a multitude of such studies evaluating accommodations and instructional supports at the elementary, middle, and secondary levels (Boyle et al., 2003; Gardner, Wissick, Scweder & Canter, 2003; Ives & Hoy, 2003). Additionally, the area of assistive technology is seldom addressed at the postsecondary level with any scientific rigor despite the well-published success of assistive technology supports at the secondary level (Baker, Gersten, & Graham, 2003; Jimenez et al., 2003; Swanson & Deschler, 2003; Higgins & Raskind, 2000).

While several researchers have examined the status of support services

provided to postsecondary students, the studies fall short of identifying the effectiveness of any such services (Alper & Raharinirina, 2006; Gregg, 2007; Mellard, 2005; Sharpe et al., 2005). Still, there is some useful information to be gleaned from studies on the breadth of services available to postsecondary students with disabilities. In a follow-up survey of two- and four-year postsecondary institutions, Tagayuna, Stodden, Chang, Zelenik, and Whelley (2005) found a tremendous increase in the educational services, supports and accommodations provided to postsecondary students with disabilities (e.g., counseling, advocacy, testing accommodations).

Promising Practices with Alternative Media

Linstrom (2007) posited that postsecondary students with LD are increasingly requesting all print materials be converted to alternative formats that, in turn, can then be supported by alternative media programs. Interestingly, the most common accommodations for students with learning disabilities at the elementary and middle school levels include alternative media (Wolfe & Lee, 2007). Often alternative media accommodations co-occur with other accommodations; therefore, teasing out the effectiveness of alternative media alone is difficult. The coupling of Linstrom's conjecture with the increased availability of alternative media technology creates a need to evaluate the effectiveness of such practice at the postsecondary level.

Initial examination of alternative media at the postsecondary level began in 1995 when Raskind and Higgins first examined the effectiveness of speech synthesis on the proofreading aptitude of postsecondary students with LD. The students improved their proofreading skills by demonstrating an increase in identification of errors when using this alternative media versus relying on a human reader or proofreading with no assistance provided. In a

related study of postsecondary students with dyslexia, Elkind, Black, and Murray (1996) examined the effectiveness of using speech synthesis during reading tasks on participants' reading performance. Their results showed participants not only demonstrated improved reading rates and comprehension, but also increased their ability to sustain attention while reading. Next, Higgins and Raskind (1998) examined the use of optical character recognition (OCR) and speech synthesis as a compensation for comprehension difficulties. Again, the results of the study demonstrated an increase in reading comprehension for postsecondary students with LD when alternative media was utilized. More recently, Roberts and Stodden (2005) found that voice recognition was a viable option for compensating for writing difficulties and that the greater the writing skill deficit, the more the postsecondary student with LD perceived the usefulness of the voice recognition program.

Interestingly, for many years Raskind and Higgins (1995) and later Higgins and Zvi (1997), were the only researchers to examine the use of alternative media. Despite the demonstrated success with the use of alternative media in the research findings of the previously mentioned studies, there is limited research of such promising technology for postsecondary learners with LD.

Implication for Future Research

Due to the scarcity of empirical supports aimed at evaluating the effectiveness of postsecondary instructional accommodations (Sharpe et al., 2005), a critical review of accommodations and their validity is essential. Providing meaningful supports and services is paramount in affording students with LD the best opportunity to persevere to graduation. Therefore, more evidence of successful supports that withstand scientific rigor is needed to ensure students with LD are

provided with equal opportunity to successfully complete their education.

The potential for alternative media (e.g., screen readers, text to speech, OCR), although not well documented in the literature for accommodations at the postsecondary level, is showing promise at the elementary and middle grades levels. Further investigation should focus on such practices at the secondary and postsecondary level so that the skill set can then transfer seamlessly into the postsecondary environment. Continuity of services as well as technology will allow students to acclimate successfully to a new learning environment at the postsecondary level.

Postsecondary institutions have the luxury of being exempt from Copyright Act by the Chaffee Amendment (1996). This exemption is afforded to nonprofit organizations or governmental entities for the purpose of training or education (Wolfe & Lee, 2007). Postsecondary institutions can capitalize upon this opportunity to convert print materials into alternative media formats as well as encourage publishers to provide textbooks and other instructional materials in alternative media formats. As more alternative media materials become available, research agendas should be developed to ascertain the most effective format for assisting students with LD across skill areas.

The need for further examination of avenues in which to increase the carryover of successful accommodations and assistive technology from secondary schools to postsecondary institutions is well documented in the literature. As noted previously, a Summary of Performance is often a required component for attaining services at the postsecondary level. Careful and systematic review of documented accommodations and assistive technology that align with the student's skill deficits should provide a clear description of needed supports in settings beyond high school. Future research should

also include examination of students' participation in IEP meetings at the secondary level to determine if their participation better prepares them to effectively self-advocate once they enter postsecondary settings.

Investigation of postsecondary support personnel should address overall knowledge of those personnel's ability to interpret diagnostic evaluations and then translate that information into meaningful postsecondary course supports. Further, a comprehensive examination of how disability support services are organized at the university level is vital in determining system design or administrative frameworks that hold the strongest predictive indicators of success for postsecondary students with LD. Additionally, more research surrounding the role faculty play in the success of students with LD must be investigated to assist with the implementation of accommodation in postsecondary classrooms.

Discussion

The aim of conducting this review was to examine the nature and scope of services and accommodations provided at the postsecondary level in order to determine if the needs of students with learning disabilities were being sufficiently met. Although well intentioned, the literature suggests that personnel at postsecondary settings are not doing enough to accommodate students with learning disabilities. Common practices for providing accommodations are not grounded in empirical evidence. In addition, instructional strategies and modifications provided to students with learning disabilities at the postsecondary level are seldom instrumental in their success at the secondary level. The disparity between disability support services provided at high schools to disability support provided at postsecondary settings places postsecondary students with LD at a disadvantage as they begin their postsecondary education.

Several compelling factors are supporting the effort for increased adequacy of services for postsecondary students with learning disabilities. First, federal legislation has addressed the need for clear and convincing evidence of a secondary student's disability. This is important so that postsecondary students with learning disabilities receive necessary educational supports. Furthermore, federal legislation mandates that related supports and recommendations for postsecondary accommodations be evaluated by the Summary of Performance upon graduation. These summaries must provide an outline of provisions needed for the student to be successful at the postsecondary level. Second, and related to the first, is the general concern that the transition process for students with disabilities from the secondary to postsecondary level needs to be smooth and concise, providing the student with LD the opportunity to participate throughout the entire decision-making process. By providing a transparent process, the student shall be better able to navigate the challenges of self-advocacy in a straightforward framework.

Additionally, this review was conducted to better understand the common practices for accommodating students with learning disabilities at the postsecondary level. The findings indicated that the most common accommodations are not in grounded in research specifically focused on postsecondary students with learning disabilities which is disheartening.

More information is needed on the role postsecondary faculty hold in the educational success at the postsecondary level for students with learning disabilities. The empirical body of research will need to gain pace in order to provide such directives to postsecondary faculties. Once effective strategies, accommodations, and technology are established, faculty must be trained and supported as they work toward including these practices into their classroom environments. Today faculty are encouraged to learn the elements of effective instruction in distance learning environments. The same emphasis should be placed on providing classroom instruction focused on research-based instructional strategies and technologies that benefit students with LD.

Because of the specific nature of this review, there are limitations that should be noted. One possible limitation may be the omission of empirical articles written prior to 2003, or work not published in peer-reviewed journals (e.g., reports, conference papers). Another possible limitation may be the exclusion of articles outside the parameters of the seven descriptors (i.e., *accommodations, alternative media, assistive technology, learning disability, postsecondary education, technology, and transition*). An attempt to conduct an exhaustive search of literature was the ultimate goal; however, there may have been additional search techniques not explored. Given these limitations, additional reviews should be conducted to examine fully the supports, services, and accommodations provided to this population of learners.

Conclusion

More research must be done to address the academic challenges students with learning disabilities face at the postsecondary level. Researchers and educators alike have witnessed the increase in students with learning disabilities entering postsecondary settings. Designing the most effective and innovative accommodations are critical so that students with LD are not denied full benefit from their postsecondary programs of study. As technology, assistive technology, and alternative media continue to advance, so should the breadth and sophistication of accommodations that are afforded to students with LD.

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