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College Students with Disabilities: Increasing Opportunities for Student Success

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Authors' contributions

This work was carried out in collaboration between both authors. Author KBP wrote first draft manuscript and managed literature searches while author JSB edited the manuscript. Both authors read and approved the final manuscript.

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ABSTRACT

This article explores the growing number of students with disabilities enrolled in postsecondary educational settings and the need for faculty to reconsider the format of the traditional lecture by utilizing learning strategies and interventions that have proven successful in the literature. Research studies and literature reviews have investigated the needs of students with disabilities. Our goal was to select examples of three strategies (guided notes, response cards, and think-pair-share) that can be blended purposefully in lectures across different academic disciplines to increase the opportunities for student success.

Keywords: Learning strategies; interactive lecture; guided-notes; think-pair-share; response cards.

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1. INTRODUCTION

Research shows that a significant number of students with disabilities currently attend postsecondary institutions of education, and that number continues to increase. Henderson [1] reported that 10% of college students included students with disabilities. More recently, Newman, Wagner, Cameto, and Knokey [2] reported estimates of up to 26% of students with disabilities attending four-year colleges. However, despite more students with disabilities having access to postsecondary education institutions, it is not clear if this increase in access actually leads to successful degree completion [3]. In fact, it has been reported that many of these students do not succeed in completing their education by earning a degree, and instead choose to leave college early [4,5].

For many students, gaining acceptance into a postsecondary education program is a significant milestone, however without adequate support, this could be the first step in the process of what could be a most difficult and disappointing experience. Students need varying levels of support to be successful, and students with disabilities frequently need more purposeful and intentional support from faculty members who play a critical role in the overall strategy of how each institution provides such support to students. Once faculty members are notified of needed accommodations during the first class session or first week of a new semester, adequate preparation for such students often present specific challenges.

Research studies and literature reviews have investigated and identified the needs of students who chose to pursue postsecondary education. This article both summarizes and examines the legislative and support differences that impact students with disabilities as they transition from high school to postsecondary education settings, in addition to presenting examples of three strategies (think-pair-share, guided notes, and response cards) that can be blended purposefully into lectures across different academic disciplines, for the purpose of increasing opportunities for student success.

2. LEGAL FRAMEWORK ENSURING ACCESS

The United States' public schools in K-12 settings are legally mandated to follow a specific process to identify, assess, and plan for

determining services to ensure access to education for all students with disabilities [6]. While in school, K-12 students with disabilities are protected under the Individuals with Disabilities Education Improvement Act of 2004 [6]. IDEA mandates that students with disabilities be provided a free and appropriate education in the least restrictive environment. Therefore, students with disabilities are provided special education services that are documented by a joint professional and parent approved document called the individualized education program (IEP). IDEA requires that continuous review of the IEP occurs each year, with a more in-depth review occurring every three years. Once these students graduate from high school, they are considered adults. Although the legal protection that they had as children still exists, it now resides under different legislation. At the postsecondary education level, parents are no longer involved in a collaborative agreement with professionals in the educational arena. Additionally, there is no binding document that must be reviewed on a continuous basis. Instead, students with disabilities at the postsecondary education level must now reveal themselves to institutions, informing them that they have a disability and would like to take advantage of the services unique to individuals with disabilities.

Section 504 of the Rehabilitation Act of 1973 [7] and the Americans with Disabilities Act Amendments Act (ADAAA) of 2008 [8] are among several laws that protect individuals with disabilities from being denied access to an equal education at the college level. To aid the reader, Table 1 is provided outlining the laws that protect the rights of students with disabilities in postsecondary settings.

According to both legislative actions, a disability is defined as a physical or mental condition that substantially limits major life activities, such as hearing, mobility, vision, learning, or communication. Two and four-year institutions of higher education are mandated to provide accommodations for the rising number of students with disabilities that they accept. These laws provide students with protection from discrimination, in addition to provisions of reasonable accommodations for students who qualify for services. Rusch, Hughes, Agran, Martin, and Johnson [9] state that although clear legislative mandates exist, the promised postsecondary outcomes have not yet been fulfilled.

Table 1. Laws protecting the rights of students with disabilities in postsecondary settings

Law	Year	Provisions
Vocational Education Act (PL 88-210)	1963	Provided for workforce education to include basic grants to states for vocational education.
The Higher Education Act (PL 89-329)	1965	Provided funding for improving building capacity to serve extension and continuing education students.
Section 504 of the Rehabilitation Act (PL 93-112)	1973	Applies to public and private institutions that accept federal funding; programs must be accessible and reasonable accommodations must be made for students to participate.
Americans with Disabilities Act (PL 101-336)	1990	Prohibits discrimination against individuals with disabilities in a variety of public and private settings.
Latest Amendment: The Carl D. Perkins Career and Technical Education Act of 2006, PL 109-270	2006	Developed stronger linkages between secondary and postsecondary programs such as tech-prep programs that integrate academic content.
Latest Amendment: Higher Education Opportunity Act of 2008, PL 105-244	2008	Provided funding for demonstration projects to ensure that students with disabilities receive a quality higher education; created a National Center for Information and Technical Support for Postsecondary Students with Disabilities.
Latest Amendment: American with Disabilities Act Amendments Act (ADAAA) of 2008, PL 110-325	2008	Expanded "major life activities" by recognizing activities such as reading, bending, and communicating.
Latest Amendment: The Workforce Innovation and Opportunity Act	2014	Aimed at increasing opportunities for individuals with disabilities who face barriers to employment, and to invest in the important connection between education and career preparation.

According to Broadbent, Dorow, and Fisch [10] there are research-based recommendations that faculty may consider adopting when preparing and delivering courses at postsecondary education institutions. Common accommodations for students with disabilities include: Extended time, audiotaping lectures, note-takers or making the instructors' notes available to students, allowing exams to be typed, read aloud, or dictated, adapting text material, permitting multiple methods of assessment, and allowing course substitutions. Additionally, learning strategies such as cooperative learning, peer tutoring, think-pair-share, guided notes, and response cards, in conjunction with purposeful management of the classroom environment could contribute positively to student success.

3. IDENTIFYING STRATEGIES

To determine the strategies that faculty could include in their teaching repertoire, the authors conducted a content analysis of articles that reflected teaching strategies and interventions that are inexpensive, easy to use, and have proven to be successful for students with

disabilities. Content analysis is a specific and methodical investigation of a specific body of information that is gathered to identify patterns or themes [11]. The authors did not endeavor to include literature sources from every available source. Instead, the articles selected were those that targeted wide readerships and consisted of representative literature (i.e., interventions, postsecondary education, college students, learning strategies). The authors also reviewed content needs expressed by students with disabilities who completed a survey at a mid-sized university.

A search for reviews of literature about college students with disabilities was also completed. Additionally, articles about focus groups, surveys, interventions, and interviews were located by searching the ERIC database from 1995-2014. The descriptors used were postsecondary education, college students with disabilities, needs, interventions, learning strategies, faculty support, and college needs. Finally, the references and several journals including the following were hand searched: *American Secondary Education*, *Exceptional*

Children, Interventions in School and Clinic, Journal of Applied Behavior Analysis, Journal of Intellectual & Developmental Disability, and Journal of Positive Behavior Interventions. The authors were able to identify strategies that are relatively inexpensive, easy to use, and have proven successful for students with disabilities by triangulating the information from the aforementioned sources. These strategies included: (a) think-pair-share, (b) guided-notes, and (c) response cards. A summary of each is provided below.

4. RECOMMENDED STRATEGIES

4.1 Think-Pair-Share

In delivering a repertoire of evidence-based comprehension strategies in the context of a first-year university course, Parr and Woloshyn [12] highlighted the need for faculty to engage in comprehension strategy instruction at the postsecondary level. Findings [12] suggest that age-appropriate instruction that is explicit yet flexible, can be integrated within existing course content successfully. Facilitating cooperative interactions among peers has proven effective for supporting students in gaining and demonstrating mastery of content knowledge [13]. Such interactions are age-appropriate, flexible, and are not content-specific. Although various definitions appear in the literature related to cooperative learning, the main premise is that cooperative learning relies on active student-centered engagement, rather than relying on passive, instructor-directed lectures. In other words, students learn more when they participate in the learning process. Furthermore the instructor generates the problem or task at hand, however, the engagement between the students is what drives the internalization of critical content.

Incorporating instructional approaches that support cooperative interactions among students also enhances students' ability to strengthen their higher order thinking skills. Researchers have examined the use of various thinking structures [13-17] that engage learners in working through information together to master content. Think-pair-share is one example of a common, and easy to incorporate cooperative learning structure that has been successfully used with a variety of learners [13,18,19]. This learning structure is a great benefit for all students in general, as not only do students with disabilities struggle with various content across

college campuses, but so do students who are not identified with any specific learning limitations. By engaging in cooperative structures like think-pair-share, faculty can develop more opportunities with student-centered learning that could meet the learning needs of all the students in their courses.

Think-pair-share engages students with material on an individual level, in pairs, and finally as a large group. In this four-step process, students share their understanding of the material at hand. The steps are as follow: First, the instructor poses a problem and students are asked to think independently about the problem, in a specified amount of time. Second, students are instructed to write or draw their responses. Third, students are asked to pair-up with at least one other student, preferably someone sitting near them, and share their responses. While sharing, students are asked to examine similarities and differences in their responses, and to note what part of the problem is still unclear. Fourth, the instructor calls on pairs to briefly summarize their thoughts to the entire class. In this way, students observe the various perspectives of approaching a problem, while the instructor then provides corrective information needed to ensure proper solutions to the proposed problem. Strategies like this provide learners with a bridge to better internalize their learning through social engagement and group problem solving. This is extremely beneficial for many students with processing difficulties who oftentimes have immature metacognitive strategies in thinking about their learning, and remembering key information in any given course context.

Kagan and Kagan [13] offer variations of the Think-Pair-Share. One variation in particular, has students work in teams similar to the think-pair-share, but it is referred to as think-pair-square. This approach includes students working in teams, following the same aforementioned steps. At the pairing step, teams come together. Kagan and Kagan [13] discern this as a more powerful structure because it increases the opportunities for participation and accountability.

4.2 Guided Notes

Guided notes were originally introduced for students who had problems learning and recalling information and were based on the perception that if students take good notes and attend to them later, they will perform better on tests than students who only read the material, or

listened to the instructor's lecture [20]. Guided notes can be defined as teacher-prepared handouts that 'guide' a student through a lecture/discussion with standard cues and prepared spaces in which students can write the key facts, concepts, and/or relationships [21]. Because note-taking can be a difficult task for some students, particularly those with learning or physical disabilities, the use of guided notes can give students a standard set of notes for future reference (e.g., tests and quizzes) as well as eliminate the possible frustration, lack of motivation, and off-task behaviors that may exist due to poor note-taking skills [22,23]. Guided notes are fairly easy for faculty to utilize in their instructional settings. According to Boyle [24] note taking serves two purposes for students: (a) notes aid students' understanding of lecture information, and (b) notes serve as reference materials for later study. Overall and quite broadly, when partially completed notes are made available to students, they provide a foundational instructional guide for students to follow. Students do not have to feel compelled to write, listen, and comprehend the instructor's lecture and understand how the concepts fit into the larger contexts of learning all at the same time. Moreover, research on the use of guided notes shows that when guided notes were used, students' listening and attentiveness to instruction while taking notes, also increased. In addition, students' notes were more accurate, complete, and their scores improved on quizzes and tests [23]. In fact, Peper and Mayer [25] found a positive correlation between the amounts of notes taken, and test scores.

4.3 Response Cards

Response cards (RC) are cards, signs, or items that students hold up simultaneously to display their responses to each question or problem presented by the teacher [26]. Typically, students are given a small (9"x 11") write-on board and dry erase marker and are asked to write and hold up simultaneously their responses to each teacher question or problem. In postsecondary education settings, a small card or single sheet of paper can be utilized. Maheady, Michielli-Pendl, Mallette, and Harper [27] identify the obvious advantages to this procedure, that all pupils can respond to each teacher question, the teacher can visually assess all pupils' understanding of questions/problems, and the activity itself (writing on a dry erase board) may be more fun than simply raising one's hand.

The effects of response cards on elementary and secondary students' active response rates, academic performance on daily and weekly quizzes, and general satisfaction with instructional procedures have been examined and the findings show that when RC are used, students: (a) make significantly more academic responses, (b) score higher on daily and next day quizzes, as well as on review tests, and (c) generally prefer RC over more traditional teaching conditions [28]. Armendariz and Umbreit [29] also found that the use of RC significantly decreased the amount of disruptive behavior in a general education classroom. More recently, RC were found to be an effective intervention strategy for decreasing off-task behaviors, while improving academic performance and positive outcomes for students with emotional and behavioral disorders [30]. RC were also found to be effective in increasing academic responding, opportunities to respond, and correct academic responses of students with mild intellectual disability [31].

In addition, there are some significant advantages to the use of response cards in instructional settings. For example, everyone participates when response cards are in effect. In addition, because each student response on the card faces the instructor, the instructor is usually the only person (with the exception of the student) who can view the student's answer on the card. Without unnecessary (and unwanted) attention, the instructor can confirm or clarify concepts, and continue teaching while students participate in ways that are highly interactional, in addition to offering students protection from ridicule or embarrassment.

5. IMPLICATIONS FOR PRACTICE

Teaching and learning strategies have unique implications for teachers. Think-Pair-Share is an active teaching-learning strategy that not only fosters students' engagement in their own learning, but also motivates students to think first, before sharing their thoughts with their peers. This process serves to develop and validate the critical thinking process so students can gain further knowledge from many perspectives [32]. Marzano and Pickering [33] emphasized the following advantages for teachers and students when using the think-pair-share: It is quick, preparation time is minimal, the personal interaction motivates many students with little intrinsic interest in the topic; the teacher can ask many different questions; it engages the

entire class, and this strategy increases the likelihood of student participation because it allows quiet-students to answer questions without having to stand out from their classmates, as the pressure to respond in front of the whole class is removed [34].

According to Boyle [25], guided notes involve the use of teacher prepared handouts that provide an outline with information about the lesson. It also involves cues from the teacher so students will know which information is important. This process requires that both teachers and students are active participants in the learning process. Careful planning for instruction with emphasis on the sequence of concepts to be presented, in addition to a focus on the organization of material is important in engaging students over the duration of the lesson when using guided notes. This strategy also affords students the advantage of listening, comprehending, and participating more meaningfully to achieve successful outcomes in their college courses, given that they are not forced to write continuously.

As with other instructional strategies, incorporating response cards routinely into postsecondary educational settings necessitate forethought so that the strategy is implemented intentionally with the learners and their specific needs in mind. Such planned cues provide structure and should prompt simultaneous responses from all students. This allows the lesson to flow at a brisk pace and encourages students to maintain engagement in the lesson without unnecessary disruptions [35]. Having access to postsecondary education is clearly not enough for many college students with disabilities. Even with access, some students frequently struggle to succeed in college courses. The think-pair-share, guided notes, and response card strategies provide three viable alternatives for increasing the academic engagement of students, in addition to offering the potential for increased academic gains for students as well.

6. CONCLUSION

This article aims to identify effective learning strategies that would address the needs and increase the possibility of success for college students with disabilities. Such teaching and learning strategies are effective because they work in a variety of settings, for the majority of learners with multiple and varied learning styles, and across varying age and grade levels.

Instructional strategies and interventions like think-pair-share, guided notes, and response cards have proven effective for learners with disabilities, and can easily be adapted and modified for learners in postsecondary education settings. In addition, these options provide learners with a strategy to better internalize their learning through social engagement and group problem solving. Equally important to the process of instruction, is an understanding of accommodations that assist in the ongoing evaluation of accommodations that support students in maximizing their full potential [36]. In other words, faculty can help fill the gaps that exist for students who are not aware of how to best have their needs met, or how to engage in self-advocacy during their college years and beyond. It is important to note, however, the instructor does not deliver such programming without effort. Lectures are a traditional and convenient means of delivering content, and are managed solely by the instructor for a large number of students, irrespective of the academic discipline. It is a traditional and comfortable approach utilized by many faculty, however this method of delivery can promote a passive role for students without planning for differences in abilities, learning styles, age, cultural and linguistic diversity, or disabilities.

Finally, regardless of the faculty best efforts, there are students who will require additional support for achieving successful outcomes. Such support can be provided through strategies that encourage student interaction, while also increasing students' awareness and understanding of their personal metacognitive processes. An awareness of these strategies is the first important step for faculty.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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