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Effective Teaching Strategies for Students with Autism Spectrum Disorder and Attention-Deficit/Hyperactivity Disorder

Introduction

The topic of my research is best practices for teaching students with Attention-Deficit/Hyperactivity Disorder and Autism Spectrum Disorder in the college classroom environment. The goal of this document is to provide current and future faculty with the best practices in teaching students with an emphasis on reading, writing, and critical thinking skills in an effort to highlight the importance of accessibility and equity for these students. I interviewed five learning disabilities specialists and several Learning Skills instructors at Ventura College, Oxnard College, and Moorpark College. I also discussed best practices with English professors, attended several conferences, and read many books and articles devoted to the subject. Prior to the sabbatical, I took a course on learning disabilities, which included content about ADHD and ASD and another course through Lynda.com titled "How to Make Accessible Learning." All of these resources have led me to the conclusion that the best practices to teach students with these disorders is multi-faceted:

- Instructors may use effective instruction strategies, address different learning styles, and increase their general understanding of what these disorders are to assist this population of students.

- With compassionate understanding, we can assist these students to ensure their success, increase their completion rates to promote equity, and raise the awareness of the importance of neurodiversity in the college classroom.

- ADHD and ASD occurs in all races, ethnic and socioeconomic backgrounds, and sexual orientations.

- The numbers are on the rise: The percent of children with an ADHD diagnosis has increased from 7.8% in 2003 to 9.5% in 2007 and to 11.0% in 2011-12 ("Attention-Deficit/Hyperactivity Disorder Homepage"). The Centers for Disease Control and Prevention state that one in 68 children were diagnosed with ASD in 2010 doubling the previous statistic of one in 150 in 2000 ("Autism Spectrum Disorder Homepage").

The Differences and Similarities between Autism Spectrum Disorder and Attention-Deficit/Hyperactivity Disorder

ASD is a social relational disorder while ADHD is primarily an executive functioning disorder and a self-regulation disorder. One article published in the journal *Molecular Autism* in 2016 states the following: "As described in the *Diagnostic and Statistical Manual of Mental Disorders*, *Fifth Edition* (DSM-5), core symptoms of an ASD diagnosis do not overlap with core symptoms of ADHD, though research suggests that 30-75 % of children with a diagnosis of ASD have symptoms of ADHD and 20-60% of children with ADHD have ASD-like social difficulties" (Grzadzinski et al.) In other words, there is a high percentage of students with ADHD *and* ASD.

ASD and ADHD students share some of the same traits:

- Low working memory and lack of executive functioning skills, such as being able to see the big picture and understand the appropriate hierarchy of tasks, but they possess an excellent long-term memory for areas of interest and mastered subjects.

- They need assistance in organizational and time management skills, which may be achieved through the use of audiovisual aids, graphic organizers, and timelines to complete assignments. Therefore, diagramming steps for planning and organizing are important to complete larger tasks.

- They have a difficult time transitioning. Instructors may use transitional cues to move between activities in the classroom.

- They have difficulties in social relationships with their peers.

A Note on Federal Guidelines: Universities and colleges address needs through Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 while high schools, etc. adhere to Individuals with Disabilities Education Act and Individual Education Plans. While students may self-disclose about their disability to instructors and sign up for services to document the disability for classroom accommodations, parents may not be involved in getting their services prepared (FERPA) and contacting instructors about accessibility. This is the job of the student. Students in college are considered adults and information is kept confidential.

Autism Spectrum Disorder

According to the fifth edition of the *Diagnostic Statistical Manual of Mental Disorders* (DSM-V) of the American Psychiatric Association (2013), the definition is now only Autism Spectrum Disorder and does not include Asperger's syndrome as a separate entry. ASD is a

neurological disorder and the definition includes two symptoms: (1) Restricted, repetitive behavior and (2) deficits in social interaction and communication. These students have trouble with the following: Executive Functions, Theory of Mind, and Central Coherence. These individuals also have trouble with sensory processing. Loud sounds, strong smells, uncomfortable seats, and bright lights will prove to be a great distraction and will have a negative impact on learning. Executive functioning skills refers to our ability to put things we need to achieve in an order of hierarchy which impacts organization, planning, working memory, time management, and prioritization. Theory of Mind refers to shared perceptions of others regarding thoughts, desires, and beliefs. ASD individuals lack shared perception and will misunderstand vocal and physical cues that the average person will pick up. In addition, ASD students lack what is known as Central Coherence, which is the ability to see the big picture and the "ability to determine what is important and relevant and what can be discarded is a crucial component to success in college" (Harris Delieru). These four areas give us insight into how to assist an ASD student, such as the need to repeat and show expectations and provide projects in manageable chunks to address time management and organization. Essentially, ASD is a social relational disorder and it is important to note that college instructors will usually only encounter high functioning autistic students.

Autism rates are on the rise and the rate has doubled between 2000, when the Centers for Disease Control and Prevention first started collecting statistics, and 2010. In a study of eight-year-olds, the Centers for Disease Control and Prevention assert that one in 68 children in 2010 were diagnosed with ASD, one in 88 in 2008, and one in 150 in 2000 ("Autism Spectrum Disorder Homepage"). ASD occurs in all racial, socioeconomic, and ethnic groups. No one knows for sure what causes autism but there is no evidence to prove a link with autism and

vaccines. However, genetics and environmental factors have been proven to be linked with autism. In a meta-analysis of more than 100 scientific papers published over the last 20 years, Sam Wang of Princeton University found that genetic factors outweighed non-genetic risks (Glazer). In fact, a Swedish large-scale study of families found that 50% of cases were genetic and the other 50% were thought to have environmental causes (Glazer). A county-by-county University of Chicago study linked pollution to autism, such as pesticides and plasticizers (Glazer). As an example, a University of California at Davis study found that "pregnant women living within a mile of a field where organophosphate pesticides had been applied were 60 percent more likely to have an autistic child than pregnant women who did not live close to pesticide-treated areas" (Glazer). From these studies, it may be seen that genetic and environment factors are part of the cause.

While it is not a learning disability, aspects of ASD may challenge traditional learning in a mainstream classroom. For example, these students may not understand verbal or physical communication cues that normal students take for granted. Physical space and boundaries may not be respected or acknowledged, transitioning between activities is a hardship if not prompted ahead of time, and the inability to always show emotions and reactions through expected facial expressions hinders how people may interpret their emotions. However, ASD students have a good long-term memory and usually specialize in a particular area of interest. These students are highly intelligent and most place in the average to above-average range. Therefore, it is easier for an ASD student to complete assignments when the goals are specific and achievable, and the classroom content is organized and kept at a consistent pace.

ASD students are also predominately visual learners so lectures should be balanced with audiovisual resources, lessons and tasks may also be written on the board, and visual examples

of work to be completed along with verbalized expectations of appropriate behavior should be shown when applicable. Handwritten assignments will prove challenging due to fine motor skills so allowing an alternative of typed assignments is helpful. Students may also use assistive technologies, such as Dragon Naturally Speaking to record what they say for an essay or screen readers to read back to them what is on the page. Most academic articles found in library databases have an auditory component so the students may listen to the article instead of read it. These strategies may also be used for students with ADHD. Yet, when a student has an in-class assignment or an essay where handwriting is needed, a mechanical pencil with a soft pencil grip will ease the process and may be suggested.

Autistic students are at risk of not completing their degree for various reasons. The HEATH Resource Center at George Washington University provides a detailed document for educators entitled "Students with Autism in the College Classroom" which includes an estimate that 0.7 to 1.9 percent of college students are on the autism spectrum with an 80% incompletion rate (VanBergeijk et al. qtd. in Harris Delrieu). The report includes an important statistic regarding the high rate of comorbidities: "70 percent of adults with autism have at least one additional disorder such as social anxiety and attention deficit / hyperactivity disorder and oppositional disorder" (Siminoff et al. qtd. in Harris Delrieu). Furthermore, "obsessive compulsive disorder, Tourette's syndrome, insomnia and depression are also commonly found in people with autism" (Attwood qtd. in Harris Delrieu). Here are a few signs that a student may be on the spectrum: "Odd prosody, excessive talking, abnormal focus on a particular subject/activity, talking too little, and repetitive pattern of speech" (Harris Delrieu). While not always socially aware and overly concerned with his or her topic of interest, these students are a gift to any classroom.

The Wisconsin Technical College disability staff created an "Autism Spectrum Disorders Guide" for instructors. They list the positive aspects of having an autistic student in the college classroom: "Perseverance, rarely judges others, not distracted by social cues or random small talk, attention to detail and sustained concentration, excellent long-term memory, honest and loyal, tolerance of repetition and routine, and the ability to think outside the box and find creative solutions." Most of our students are high functioning and as most material on this subject will attest, autistic students provide very positive attributes and contributions to the college classroom. While this student may not be able to see the forest for the trees, he or she will remember and be able to interpret very difficult concepts and relate it with ease to the entire class.

Best Practices for Teaching Students with Autism Spectrum Disorder:

- Be consistent with the organization of class time and content and be prepared for a high level of anxiety for pop quizzes, surprise exams, and last-minute projects.

- Since autistic students are very sensitive to their surroundings, they will hear the clock ticking, smell the stink of the garbage, and feel the markings of the chair more than the average student. It is best to minimize bright lights, loud sounds, and strong smells, especially all at the same time.

- If a student displays an expression that does not match the pervading attitude or expectation, please know that it may not directly match how the student feels on the inside. It is always best to ask the student how an instructor may clarify the material. The autistic student is very honest and will tell you how he or she feels and how you can help.

- This student has endured adversity in social settings for years. If he or she seems stand-offish or disgruntled about being in groups, please understand that it isn't personal. It

makes sense that a shield is put up prior to getting to know everyone in the group. An instructor can make this student feel more comfortable by giving each person in the group a task: Speaker, notetaker, researcher, moderator, and timer.

- If there are behavioral issues, explain to the student what is expected and suggest a behavioral modification, such as keeping a bubble of personal space around him or herself. Self-regulation strategies are also helpful with targets for improvement. He may get off topic to his area of specialty. The target is to commit to doing this only once or twice per class and then work on relating it to the class discussion.

Common accommodations are extended time for in-class essays, exams, and quizzes; alternate location for exams; tape recorded lectures; notetakers; and speech synthesis and recognition computer systems. Some students will bring a form to request accommodations while others will not. Instructors will have students in their classrooms who are aware they are autistic and those who do not. Therefore, it is a best practice for all our students to provide the accommodations everyone. Here are a few ways to do this:

- Type up the lecture or print the PowerPoint ahead of time and provide as a copy at the beginning of class or online so students may print it.

- Allow assignments to be typed.

- Provide ample time to complete quizzes and assignments in class.

- Provide the material through various modalities: Visual, auditory, and kinesthetic.

As a general practice, create clear guidelines for expectations, use cues to transition between activities, repeat expectations, and be consistent.

Attention-Deficit/Hyperactivity Disorder

According to the fifth edition of the *Diagnostic Statistical Manual of Mental Disorders* (DSM-V) of the American Psychiatric Association (2013), Attention-Deficit/Hyperactivity Disorder includes two main categories: Poor sustained attention and hyperactivity-impulsiveness. Core symptoms are inattention, hyperactivity, and impulsivity but no two students exhibit the exact same behavior. One student may daydream while another speaks out of turn and fidgets. The Centers for Disease Control and Prevention notes that while statistics vary with some reports assert that 5% of children 4-17 are diagnosed with ADHD and others cite 11% everyone can agree that the numbers are on the rise ("Attention-Deficit/Hyperactivity Disorder Homepage"). As a case in point, the percent of children with an ADHD diagnosis has increased from 7.8% in 2003 to 9.5% in 2007 and to 11.0% in 2011-12 ("Attention-Deficit/Hyperactivity Disorder Homepage"). One-third of students with ADHD also have learning disabilities, and they have coexisting psychiatric disorders at a higher rate than the average student without ADHD according to *Teaching Children with Attention-Deficit/Hyperactivity Disorder: Instructional Strategies and Practices* (2008) published by the U.S. Department of Education. Some comorbid behaviors are depression, anxiety, compulsive behaviors, and oppositional defiant disorders. Therefore, a student with ADHD may also have Obsessive-Compulsive Disorder and anxiety while another may have ADHD and depression. ADHD is not a learning disability but the symptoms impact how learning takes place because of the inability use executive functioning skills for time management and hierarchy of tasks along with an inability to effectively use a working memory during writing and reading. Time management, motivation, confidence, and self-regulation are key components for success in completing tasks and in succeeding in college, which puts these students at a disadvantage. Some people believe that it should be renamed as an

executive functioning disorder since this is the main concern. The current approach in K-12 schools is multimodal and includes behavior modification, such as Applied Behavioral Analysis, medication, accommodations, and counseling (Reid). The positive contributions that a student with ADHD contributes to the college classroom are as follows: Hyperfocus, resilience, risk-taking, spontaneity, creativity, and out-of-the-box thinking.

Here are some instructional, organizational, and behavioral strategies for these students from the document above and from my research in this field. *In addition, these strategies are effective for all students.*

Best Practices for Students with Attention-Deficit/Hyperactivity Disorder:

- Break down assignments into smaller tasks. This helps with time management and organizational skills, which are two areas ADHD students struggle with.

- Use a highlighter to note key words and phrases on handouts *prior* to passing them out.

- Reduce timed tests and reduce anxiety or provide an extended time for everyone.

- Ask students to work together: Think-Pair-Share. You may ask the entire class a question to respond to on paper. Then, a student shares her response with a neighbor. The pair of students shares with another pair and forms a group to address the whole class. This reduces anxiety and promotes inclusivity.

- It is also effective to use the 10-2 strategy: Lecture for 10 minutes and ask the students to discuss the material in pairs, write a response, or complete an activity for two minutes.

- Allow students to choose their own assignments so students are motivated to complete the task by focusing on an area of special interest. Students may have an area of specialty that they would like to share.

- Encourage self-regulation strategies with targets, such as raising their hand to speak and contributing to discussion three times to allow for other students to contribute. On the other hand, a student may need to sit up front as a target and complete at least one full page of notes by the end of class. Students may also use a timer during a task as a target.

Teaching to Different Learning Styles

By addressing different learning styles in the classroom, an instructor may ensure progress for not only ADHD and ASD students but for all students. ADHD/ASD students are very visual but also kinesthetic and auditory learners. By asking students to listen and take notes while paying attention to instruction, they will address the visual, tactile, and auditory aspects of learning. Asking students to work individually will help the intrapersonal learner while groupwork will encourage the interpersonal learner to succeed. Asking students to repeat what was said in lecture to present findings from the group will assist the linguistic learner and providing the logical background or reasoning of what is being learned will help the logical learner. This is why it is important for any instructor to cycle through various strategies to address all learners in one classroom. Since many ADHD and ASD students have difficulties with either reading comprehension or with getting started on an essay assignment, most of the strategies are for comprehension and prewriting. Here are some examples:

Strategies for Teaching Different Learning Styles: Visual, Auditory, Kinetic, Intrapersonal, Interpersonal, Logical, and Linguistic

Pair/Share/Square: Ask student to pair up and discuss a prompt related to a reading assignment, the pair shares it with another pair, the four students now address their findings and present it to the class.

Line Up and Share: Ask students to get into two lines outside the classroom. They read their journal entry responding to a reading assignment to the student in front of them and vice versa. The line moves down until all students have discussed their entries with each student. Once everyone is back in the classroom, discuss similarities and differences in what they heard.

Jigsaw with Elements of Fiction: Jigsawing refers to giving students a task in a group and then moving the group members to create new groups. There may also be a "traveler" involved to move between groups. Give students an index card with the name of the element of fiction on one side (plot, setting, character, style, and point of view). They discuss the element with students who share their card. Then, they turn the card over to find a number. They get into the group with their number and the person with plot discusses the plot, the person with setting discusses the setting, and so on. After each person has discussed their element, the group addresses possible themes based on their discussion of each element and makes a list.

All in One Prewriting: Brainstorm a list of subjects for an essay on the board as a class. Students choose one and freewrite for five minutes and then pair up and read their freewrite to another student. The student who is listening to the freewrite asks two questions to clarify the content and vice versa.

Film Clip Paragraph with Sensory Details: Show a film clip and ask the students to make a list of what they see, hear, taste, touch, and smell. After the clip has ended, ask students to call out what they wrote for each sense and write them on the board. Using what they just wrote, ask students to describe what they saw in one paragraph using all five senses. Ask students to either share their paragraph with a partner or volunteer to read the paragraph out loud to the class. Comment on the effective use of sensory details and their creative approach to the assignment.

Nutshelling: Ask students to pair up and describe the goal of their essay to another student while he or she writes it down. If done effectively, it will be a clearer representation of a thesis since some students can vocalize their argument better than write it down.

Looping: Ask students to complete a freewrite in response to an essay prompt. They swap their freewrite with a partner and read it while underlining the one sentence they feel best wraps up the main point or is the most intriguing. The students swap back and use the underlined sentence as the first sentence of the next freewrite. The goal is the narrow the focus of a future essay.

Multisensory Approaches: Use multisensory approaches that include three sensory modalities: Visual, auditory, and tactile. Landmark Outreach Staff provide the following: "Visual presentation techniques include graphic organizers for structuring writing and pictures for reinforcing instruction; auditory presentation techniques include conducting thorough discussions and reading aloud; tactile presentation techniques include manipulating blocks and creating paragraphs about objects students can hold in their hands." Incidentally, Landmark College is exclusively for students with ADHD, ASD, and learning disabilities.

Scaffolding: This concept refers to breaking down an idea or project in manageable chunks. It may be done with an essay through the essay process of prewriting, writing, revising, and editing. It is best to break large assignments down into parts with scheduled due dates. An example is to complete prewriting for an essay in class, the outline is due the class period, the student brings his essay to peer-response, the essay is due to the instructor, and a date is provided for an optional revision.

The English Composition Classroom

Writing an essay is difficult for the average student so one may only imagine how difficult it is for a student with ADHD or ASD, the combination of both, or with the added comorbidities of anxiety, OCD, and learning disabilities, such as dyslexia, which is the most common. In "Writing Characteristics of Students with Learning Disabilities and Typically Achieving Peers: A Meta-Analysis," the authors analyzed 53 studies and published their findings in 2016. They focused on text production skills: Sentence fluency, handwriting, spelling, and grammar. Their description of the complexity of the writing process is very perceptive: "It requires the orchestration of handwriting, typing, spelling, and sentence construction skills that allow for composing to take place; strategies for planning, evaluating, monitoring, drafting, and revising text; topic, genre, linguistic, and semantic knowledge for creating meaning; and the motivational aspirations to put these skills, strategies, and knowledge into play" (Graham, Collins, and Riby-Wills). Their findings noted the remarkable difference in the level of writing between students with learning disabilities and those without. They concluded their findings with a request for teachers to focus on text production skills and noted the importance of explaining different types of texts to students along with the vocabulary used for writing about them. It is interesting to note that they felt that increasing students' confidence and motivation to write was pivotal to their success. Students build confidence in their ability to write when they write well but they are only able to produce a body of work when they are sufficiently motivated. For autistic students, they may interrupt class discussion to impart something about their specialized area of interest. It may appear unrelated but some researchers feel that it is. This would be a good opportunity for an instructor to take note and include this area of specialty as an option for a larger assignment. As for students with ADHD, time is elusive and the ordering of tasks feels

insurmountable so in-class prewriting strategies would appear to be of paramount importance for getting these students motivated to complete a task under timed conditions in order to have at least the first step completed.

When a student cannot or does not want to take notes during class or complete in-class assignments, such as freewriting, this does not exempt a student from doing the work. As the old adage goes, practice makes perfect. Most research shows that a variety of methods should be taught to achieve any goal and that ignoring a problem simply makes it worse. If an instructor gives a student an oral exam in lieu of a written one, the student still has to grapple with writing an essay the next time it is assigned. In areas of research for handwriting and spelling instruction, a variety of methods are encouraged in order to move slowly but surely towards the goal: " . . . teachers need to explicitly teach these skills while simultaneously capitalizing on incidental and less formal methods of instruction, such as frequent reading and writing, taking advantage of teachable moments, teacher modeling of correct handwriting and spelling, and so forth" (Graham). This may be also said of teaching the writing process. Modeling samples, providing individual conferences, and assigning peer-response has been proven to work. Step-by-step instruction is crucial to the writing process and should be used in tandem with procedural facilitations involving declarative knowledge (what has to be done) and procedural expertise (how to do it), especially since executive functioning skills are lacking (Rodriguez et al.). When a student is not succeeding, it is important to find out why so that an instructor is able to locate the issue or area of concern. Here are a few questions that may be asked to find out how to help the student: What is challenging for you about the assignment? What are your options? How may I help you? (Simple but effective.)

In a comprehensive study of the literature published in 2013 about learning disabilities in the college classroom from 1990 to 2000, the researchers found that the use of computers to type essays helped students the most along with peer-response, portfolios, self-reflection assignments, and other assistive technologies along with work on basic writing skills and emotional support (Li and Hamel). Since ADHD and ASD students share similar struggles to students with learning disabilities, this information is important to note. Furthermore, many journal articles include ADHD and learning disabilities in the title due to the high rate of comorbidity. Even though the above study was published in 2003, it bears a striking resemblance to even more recent results of research in this area, such as the above meta-analysis published by Graham, Collins, and Riby-Wills in 2016. Yet, all research agrees that students need to continue to work on their areas of weakness whether it is prewriting and planning, handwriting, or grammar.

A Note on the Use of Assistive Technology

It has been proven that use of assistive technology levels the playing field for students who have difficulties with fine motor skills (Collins qtd. in Li and Hamel) and students with learning disabilities. However, it should be noted that while a screen reader may read back a text, it will not note errors in grammar and syntax in the same way as a human being would so it is important that a fellow student, instructor, or tutor reads the material as well, especially for essays. An example would be for the student to read his or her essay aloud during peer-response. The following may be used as one facet of a larger systematic approach to teaching students with ADHD/ASD: Word processors, speech recognition software, such as Dragon Naturally Speaking, screen readers, and multimedia. Some researchers suggest that college English instructors could provide at least one alternative to an essay assignment and instead ask students to "construct a presentation or research report by using multimedia, integrating audio, visual,

graphic, and textual information, as well as hyperlinks" (Speziale qtd. in Li and Hamel). An instructor could even include a presentation after an essay is submitted and include it as part of the overall grade.

The Online Classroom

Most of what has been discussed so far may also be applied to the online classroom environment. It is best to present the material in multiple formats (video, audio, and written) to address any ADHD and ASD students along with those who may also have learning disabilities. You may use close captioning through YouTube or CCC Confer for all videos uploaded to the course. Designated healings may be added to lectures for the ease of screen readers. Modules may begin with a list of what the student will learn along with a summary at the end. This adds to clarity and structure of course content.

At the Online Teaching Conference in June 2017, Adam Kuntz, who represented Canvas Infrastructure, presented the results of a Quality Matters Survey from 2014. Students listed the following as their top five desires for online course quality:

1. Clear instructions for getting started and finding course components.
2. Clear grading policy and participation expectations/criteria.
3. Logical, consistent, and efficient navigation.
4. Provided list of required technology.
5. Appropriately spaced and course-relevant assessments (quizzes, exams, papers, projects, etc.)

Students listed the following as not as important:

1. Discussion introductions.

2. Links to Student Support services.

3. Etiquette (or "netiquette") guidelines.

Perspective: Learning Disabilities Specialists

When I first began my research back in November of 2016, I met with Silva Arunyan and Melanie Masters of Moorpark College. Silva and Melanie alerted me to Universal Design for Learning as well as to the importance of assistive technology. Silva has been integral to my research. She led me to Landmark College's programs, as well as to the pre-conference workshop by Dr. Jane Brown at the CAPED conference. From the beginning, she championed my research and led me in the right direction.

Also, I visited Matt Cassaro's and Norma Letinsky's Learning Skills classes at Moorpark College on September 28, 2017. Both instructors handed out a summary of the lecture at the beginning of class so students could follow along as the course proceeded. At one point, Matt asked the students to stand and answer questions related to the lecture. When they spoke, they were able to sit down which ensured that everyone had an opportunity to participate. Norma used a 10/2 strategy by speaking for ten minutes and then asking the students questions, showing a video, or making a list of their responses on the board for two minutes.

On Ventura College's campus, I met with Gabriel Arquilevich who is an English professor who teaches basic skills courses and provides effective instruction with ADHD and ASD students. He was kind, funny, compassionate, understanding, flexible, and intelligent. This led me to the conclusion that most instructors have the knowledge base to teach the content but

the above attributes are also needed to ensure the success of these students. Strategies should accompany understanding and compassion regarding a student's disability.

I also met with Patty Wendt and Leah Silverman at Ventura College who are Learning Disabilities Specialists. Patty informed me of the research of Dr. Jane Brown, who I later took a workshop from at the CAPED conference in October. Patty gave me access to a wealth of resources along with fidget toys and a book entitled *Helping Students with Autism Spectrum Disorder Express their Thoughts and Knowledge in Writing* by Elise Geither and Lisa Meeks. Leah provided tips for dealing with student behavior. She uses Applied Behavioral Analysis techniques: Provide a highly structured environment, repeat expectations, provide structured worksheets for rules for completion, and provide consequences for the breakage of those rules. Students who interrupt may speak up to three times per class, students who are reading are told "we are doing math today" and rerouted or they must leave, and ADHD students are asked to use a timer while working on the computer. These are all "secret contracts" so students may modify their behavior for optimum learning.

Finally, Della Newlow of Oxnard College provided me with information about the services on her campus along with the Educational Assistance Center's Faculty Handbook, which is very thorough and helpful.

The Importance of Neurodiversity

Neurodiversity is the idea that hiring individuals with autism, ADHD, and other disorders in the workplace is an advantage and contributes to diversity initiatives and inclusionary practices. As Gary P. Pisano of Harvard Business School asserts, "Their intellectual horsepower is quite high. They do things differently and they behave differently, but the question is, can you

turn that into a virtue? That's part of the thinking on this idea of neurodiversity; that we do better when we mix people who think differently or are wired a bit differently" (qtd. in Holland). In May of 2013, SAP, an Internet technology company, started an Autism at Work program as part of their Diversity and Inclusion division: "We focus on everyone's unique ability to contribute, rather than a person's perceived limitations. This view has helped us see new possibilities. SAP's internationally-recognized Autism at Work program is a shining example of this commitment, with nearly 120 colleagues on the autism spectrum onboard and the program in nine countries. By embracing differences, we help spark innovation — while challenging assumptions and inspiring change" (SAP). They were inspired by Specialisterne, which is a software company that employs individuals on the spectrum and was started by a man whose son is autistic: "We harness the special characteristics and talents of people with autism and use them as a competitive advantage, and as a means to help people with autism secure meaningful employment" (Specialisterne). By focusing on diversity in the workplace, these two companies embrace employing autistic individuals by focusing on how they may contribute in positive ways and also to ensure inclusivity for a smooth transition into the company. With 0.7 to 1.9 percent of college students on the autism spectrum and an 80% incompletion rate (VanBergeijk et al. qtd. in Harris Delrieu), it is imperative that these individuals are taught with the best practices in mind so that they may be employed and continue to enrich workplaces. Routine-oriented environments may be boring compared to varied and unpredictable environments that are more stimulating and fast-paced. Short attention span, restlessness, and impatience are assets in this environment. Weill Cornell Medical College clinical psychiatry professor Richard A. Friedman says in a *New York Times* article, "Let's not rush to medicalize, their curiosity, energy and novelty-seeking; in the right environment, these traits are not a disability, and can be a real asset."

Conclusion

Through compassion and understanding along with specific strategies for instruction, instructors may improve the education of these students and reverse the low completion rates. The numbers of students with ASD and ADHD are on the rise so addressing this population and using inclusionary practices in the classroom will improve success rates along with ensuring the importance of promoting neurodiversity and equity. It is integral to our practice as educators to create conducive environments for students with invisible disorders and disabilities that impact all races, ethnic and socioeconomic backgrounds, and sexual orientations.

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