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A Research-Based Educator's Guide to Auditory Processing Disorder: Does it Improve Teachers' Confidence?

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Abstract

Auditory processing disorder (APD) occurs in an estimated 5-10% of the population, yet many educators are unaware it even exists, let alone have confidence in how to support students in their classroom with this disorder. With a shortage of professional resources and training for teachers about APD, many educators struggle to understand the disorder and know what strategies and interventions to implement to help students with APD. After reading a guidebook of research-based information about APD specifically designed for educators, it was hypothesized teachers' confidence levels in working with students with APD would increase. Forty-three participants responded to the initial part of the survey and indicated that they knew little about APD. Of those participants, 20 read the guidebook and completed the remainder of the survey. It was found educators did feel the guidebook was helpful in increasing their knowledge of APD and they felt more confident in knowing how to teach students with APD. With this guidebook about APD shown to be effective in improving teachers' confidence, educators now have a reference that is research-based and teacher-friendly.

Keywords: Auditory processing disorder, teachers' confidence, strategies and interventions, inclusive education, universal strategies, learning

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Introduction

As more is becoming understood about auditory processing disorders (APD), an increasing number of children have been diagnosed with them. Researchers estimate between 5-10% of children have some degree of [Central] Auditory Processing Disorder ([C]APD) (ASHA, 2005; Medical Research Council Institute on Hearing Research, 2004). Children with auditory processing difficulties can have challenges in the classroom, especially with language, oral communication, and reading. These challenges often have a negative impact both academically and socially. It is important research be conducted to find ways to minimize these negative impacts. Compared to the more commonly known exceptionalities seen in classrooms, such as learning disabilities and autism spectrum disorder, there is very little research and literature directed at teachers to help them support children with APD.

Currently throughout North America, teachers are expected to create inclusive classrooms where curriculum is delivered to students through various means and mediums depending on the students' needs (Specht et al., 2016). It is imperative then that teachers have knowledge and resources about strategies they can implement to meet the greatest number of needs with the least amount of restrictions. In order to know which strategies to implement, teachers must know and understand the needs of their students, be aware of what strategies are available to them, and know how effective those strategies are. By providing information to teachers that is specifically designed to help them decide effective strategies to implement, efficient and effective teaching and learning can happen.

Unfortunately, research shows that few teachers have a good awareness and knowledge of the needs of students with APD and what strategies they can use in their classroom to support these students. In a study conducted in the Republic of Ireland, almost 90% of teacher participants reported poor/very poor awareness and knowledge of APD (Ryan & Logue-Kennedy, 2013). This lack of knowledge is a serious concern which needs to be addressed as children are being diagnosed with APD and schools are putting these children on Individual Education Plans (IEP) for having these disorders (categorized often as a speech/language or communication disorder). Given teachers have a responsibility to meet the needs of these children as best they can, one of the best ways to support them would be to offer them comprehensive, teacher-friendly literature that is backed by research. Unfortunately, very few research-based professional resources on APD exist and those that are available are written mainly for an audience of audiologists or speech-language pathologists (SLPs) (The Canadian Guidelines on Auditory Processing in Children and Adults, 2012).

This survey-based research study examined if an evidence-based resource written specifically for educators about APD that includes appropriate intervention strategies helped improve teachers' confidence and knowledge when working with students with APD. A survey was provided to teacher participants in two parts. The first part asked general questions about their teaching experience, how familiar they were with APD and how confident they felt about teaching students with APD. After completing the first section, they were given a download of "A Research-Based Educator's Guide to Auditory Processing Disorder" to read which was authored by the researcher for the purpose of this study. After reading the guidebook, participants were

prompted to complete the second part of the survey. These survey questions inquired about whether participants felt more confident about teaching students with APD after reading the guidebook, whether they felt the interventions outlined in the guidebook were practical to implement and any questions they felt the guidebook left unanswered.

The hope was that teachers' confidence in supporting students with APD would increase after reading the guidebook and this professional resource could be considered a viable tool to help teachers understand and provide interventions for their students with APD.

As the researcher in this study works with students with APD, a direct impact could be made to the researcher based on the findings of this study. As she personally experienced the difficulty in trying to locate resources and information geared for her as an educator to support her students with APD, she felt it worthwhile to conduct this research.

Review of Research Literature

What is known about APD?

Hearing involves two important processes: First, the physical act of sensing sound vibrations, known as peripheral hearing (If one is deaf or hard of hearing, it is due to a deficit with peripheral hearing.); the second being the act of processing those sound vibrations into meaningful information the brain can understand and utilize as a "message", known as central hearing. Involved in central hearing are cognitive aspects such as interpreting, distinguishing and processing sounds. When the central hearing processes do not occur as they

should, it can indicate an auditory processing disorder (ASHA, 2005). For the purposes of this study, any referral to “auditory processing disorder” (APD) is understood to mean any disorder, deficit or impairment to one’s central hearing processing that is not a result solely of sounds being inaudible.

The term “auditory processing disorder” holds only a working definition, as “there is presently no general agreement or consensus, either nationally or internationally, on diagnostic markers for APD” (Hind, 2006, p.12). The American Speech-Language Hearing Association (ASHA) is considered one of the main references for researchers in the field of APD. ASHA outlines a definition of auditory processing and disorders which accompany it, as well as other important information relating to diagnostic methods. Most researchers use ASHA’s definition as the standard definition of APD. What is agreed upon is APD involves an impairment, deficit or deficiency in auditory perception and auditory language processing (American Speech-Language-Hearing Association [ASHA], 1996; Iliadou, Bamiou, Kaprinis, Kandylis, & Kaprinis, 2009; Jerger & Musiek, 2000; Musiek & Chermak, 1995). More specifically, APD presents as difficulties determining where sound is coming from, being able to distinguish one sound from another (both consecutively and concurrently), being able to identify changes in pitch, volume, timing and patterns of sound, and being able to perceive speech when there is background noise.

Table 1 is based on the work of Yalçinkaya & Keith (2008) and provides an overview of the symptoms and common behaviours of children with auditory processing disorders.

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Table 1. Symptoms and Characteristics of Auditory Processing Disorders

1. Acts as if they have physical hearing loss (e.g., speaking louder than necessary in conversation, turning up the television or radio louder than necessary, thinking people are frequently mumbling)
2. Difficulty or diminished ability to discriminate among speech sounds (phonemes)
3. Difficulty remembering and manipulating phonemes (e.g., tasks related to reading, spelling, and phonics)
4. Difficulty distinguishing speech in the presence of background noise
5. Difficulty with auditory memory, either span or sequence, unable to remember auditory information or follow multiple instructions
6. Inconsistency across subtests relating to speech-language and psycho-educational tests, with particular weakness in auditory-dependent areas
7. Poor listening skills evidenced by decreased attention for auditory information, distractible, or restless in listening situations
8. Sometimes responds inappropriately to auditory information, particularly during conversations with multiple participants
9. Receptive and/or expressive language disorder, may have discrepancy between expressive and receptive language skills
10. Difficulty understanding rapid speech or persons with an unfamiliar dialect
11. Poor musical abilities, difficulty recognizing sound patterns and rhythms, poor vocal prosody in speech production

It is the responsibility of an audiologist to make a final diagnosis of APD. This audiologist should have additional education regarding APD beyond the typical scope of his or her professional educational preparation (ASHA, 2005). The audiologist would work in tandem with speech-language pathologists (SLP) and other highly trained professionals. Once an accurate diagnosis has been made, a child may experience improvement of his or her auditory deficit through intensive, specific interventions provided by highly trained audiologists and SLPs. There is conflicting research as to what the best interventions are for *correction* of APD, however, researchers generally agree there are effective *coping* strategies and interventions; (ASHA, 1995; Baldry & Hind, 2008; Fey et al., 2011; Hind, 2006).

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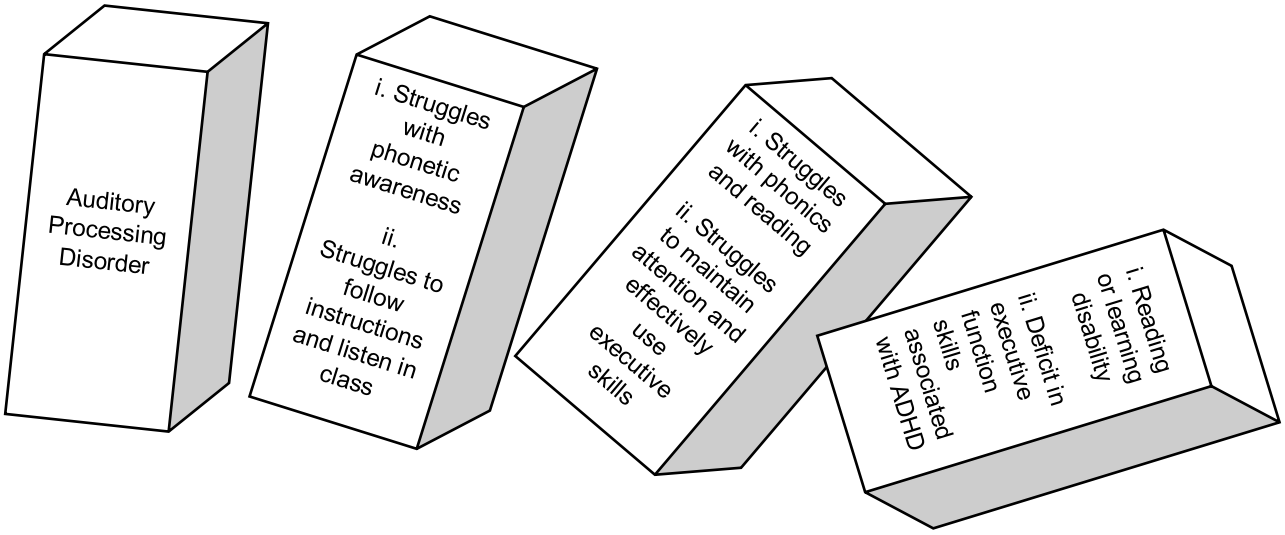
Auditory processing works in tandem with other cognitive components critical to learning. Thus, if a child has an auditory processing issue, it can affect his or her language and reading skills, cognitive thinking skills and/or attention. APD, attention-deficit hyperactivity disorder (ADHD), learning disabilities (LD) and language disorders are all separate and distinguishable in their own right, but they all can affect a child's "attention, learning, motivation and decision processes", as well as his or her "listening, communication, and academic success" (ASHA; 1996, p. 9; 2005, p. 19).

Cacace and McFarland (1998) explain that auditory processing is highly involved in the explanation of why a child may be struggling with learning: "The rationale to evaluate for APD in school-aged children is based on the assumption that a deficit in auditory perception can be the underlying basis of many learning problems, including specific reading and language disabilities" (p.355). Auditory processing difficulties essentially can have a domino effect that leads to learning problems and attention issues (see Figure 1).

Figure 1. Domino Effect of Having an Auditory Processing Disorder



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The domino effect APD can have is especially predominant in relation to reading and language disorders. Sharma and Purdy (2009) estimate through their research that 47% of those with APD also have a reading disorder and/or language impairment. Reading and language comprehension are two skills that are critical to success in school and they are two skills most commonly affected by APD because auditory processing is an integral part of being able to understand and communicate language, both spoken and written. If there is a deficit in one's ability to process auditory information, there may also be a deficit in their phonological processing abilities which is imperative to one's ability to understand and communicate language. Components involved in the auditory processing necessary to understand and communicate language include: auditory discrimination or being able to distinguish between sounds such as the difference between "tack" and "track", auditory memory or being able to remember what has been previously read/heard, auditory sequencing or being able to remember the order of items in a list or a sequence of sounds, and auditory blending or being able to blend sounds to make words. If a child's phonological processing is compromised by an auditory processing disorder, he or she may struggle to properly learn sounds and relate those sounds to written or oral language. This can result in difficulty with understanding phonetical rules and decoding words, which is the basis of reading and language disorders. By understanding how APD and reading/language skills are connected, educators would be better able to help students who struggle with these skills.

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Although APD is a very complex disorder, it is vital all professionals involved in the diagnosis and interventions be knowledgeable about this disorder and understand APD can be the root cause of many learning issues a student may be experiencing. This is why educators need to be supported in understanding APD and how to properly implement accommodations and modifications to effectively support the child in the classroom. Luckily, from the standpoint of a teacher in an inclusive classroom, interventions to help students cope with APD would look very similar, if not the same to interventions for students with ADHD, LD and/or language disorders.

How much do Professionals Know about APD?

Sally Hind from the Institute of Hearing Research in Nottingham, UK was one of the first to begin an acquisition of information as a form of "preassessment" to see what various professionals know about APD before beginning to create training and education programs. Her primary samples have been general practitioners (GP); ear, nose, and throat specialists (ENT-C); audiologists and speech-language therapists. Her general findings have been disappointing; overall, the majority of professionals surveyed indicated "not very" or "hardly at all" when asked how well informed they were about APD (Hind, 2006). A second study done by Baldry and Hind (2008) found similar results when GPs and ENT-Cs were surveyed about their level of self-awareness regarding APD. They report, "generally, respondents reported being not well informed about APD with 36.8% of respondents rating themselves with the most negative option 'not at all well informed', 43.6% 'not very well informed' and only

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1.0% reported that they were ‘very well informed’” (Baldry & Hind, 2008, p.198). If medical professionals, especially those who work in the specific field of audiology have little knowledge and awareness of APD, it would be logical to assume that educators also have little knowledge and awareness about APD. Based on a study by Ryan and Logue-Kennedy (2013) exploring the awareness and knowledge of APD among mainstream primary teachers in the Republic of Ireland, they found the majority of participants had “very poor” awareness regarding APD. They also compared their results with a similar study done in Northern Ireland and found their results very comparable (See Figures 2 & 3).

Figure 2. Comparison of primary school teachers’ awareness of (C)APD

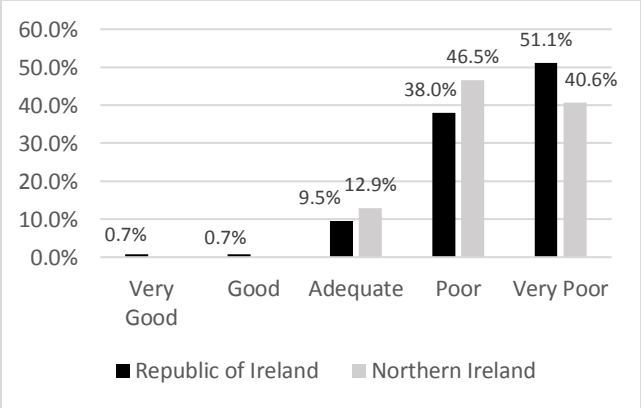
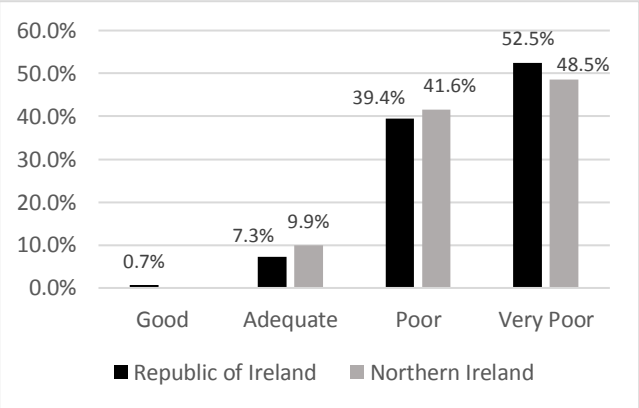


Figure 3. Comparison of primary teachers’ knowledge of (C)APD



Teachers’ knowledge and awareness of auditory processing and disorders affiliated with it should be just as important as a medical professionals’, although this knowledge does not need to be nearly as extensive. The teacher is a vital component in supporting a child with APD to be successful. They would be able to notice gaps in a child’s language acquisition, communication abilities, reading comprehension levels, phonemic awareness, etc. Once they recognize these deficits, and an accurate diagnosis of APD is made, teachers can provide

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interventions to help the child be successful in their learning and everyday coping skills.

APD Interventions and Inclusive Education

Over the past twenty years, a movement toward having all students in an inclusive classroom has taken place, regardless of their disability or exceptionality. Even though this movement is being strongly encouraged in many school boards, “most general education teachers tend to make few specialized adaptations in their classrooms to meet the specific needs to students with disabilities” (McLeskey et al., 2014, p.ix). That being said, the presumed reason for this is because many teachers are ill-trained in how to effectively make adaptations that meet the needs of the most students with the least disruption to the natural “flow” of the classroom. If teachers had adequate knowledge and training in how to implement universal accommodations and modifications and had confidence in dealing with a variety of exceptionalities, more universal adaptions to meet the needs of all students would likely be made by educators (“Universal” being those strategies which would help several students with several different learning needs. For example, providing instructions orally and written is helpful to almost everyone in a classroom setting.) .

Many research-based interventions to help students with APD can be implemented within the inclusive classroom. With proper professional development opportunities and resources available for educators about APD,

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teachers could very effectively help children with APD cope in the classroom and regular day-to-day life.

There is a two-pronged approach to interventions for children with APD; bottom-up and top-down. Bottom-up treatments are used to remediate APD through very complex methods that “focus on access to an acquisition of the auditory signal and include auditory training to improve the listening environment and enhance access to acoustic signal” (Bellis & Anzalone, 2008). These bottom-up interventions often involve audiologists, speech-language pathologists, and other specialized professionals. They can help improve auditory processing abilities, but it is not yet determined if APD can be “cured” entirely. Some of these suggested interventions include: speech-sound discrimination programs performed at audiologist clinics, and dichotic listening training done in a sound booth with a two way channel audiometer (Bellis & Anzalone, 2008). Bottom-up interventions would be nearly impossible for a teacher to implement in a classroom.

Top-down interventions, however, are more accessible for teachers. These interventions include modifications to instructional and communicative practices, as well as the physical and social environment the student interacts within (Bellis & Anzalone, 2008; The Canadian Guidelines on Auditory Processing in Children and Adults, 2012). Of course, differentiated instruction and Universal Design for Learning (UDL) are beneficial to all learners and are good teaching practices; thus basic differentiation in a classroom based on need is a good first step for children with and without APD. Differentiation occurs when

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a teacher presents new learning in a variety of different ways to meet the various learning needs, experiences and interests of his or her students. UDL, as defined by Dr. Jennifer Katz, a leading specialist in inclusive education, is the diversification of “curriculum, instruction, and assessment in such a way that students who have previously not been able to participate can be actively involved” (2012, p.15). Katz (2013) has done significant research to conclude that UDL, when implemented correctly, is an effective way to meeting the needs of all students within an inclusive classroom. In addition to differentiated instruction and UDL, there are several other universal interventions that research indicates are helpful to children with any combination of APD, ADHD and LD. Figure 4 is a compilation of some strategies suggested by various researchers including ASHA (2005), Bellis and Anzalone (2008), Bamiou et al. (2006), Blazer (1999) and O’Regan (2002). Although these strategies would help a child with any of the aforementioned disorders in a classroom setting, they are implemented to allow the child to cope; they are not implemented with the idea that they are corrective treatments.

The Canadian Guidelines on Auditory Processing in Children and Adults (2012) categorized top-down interventions for APD into two categories – physical environment & listening factors and social & communication factors. All the interventions they suggest are designed to be implemented in an inclusive classroom. The “universal interventions” outlined in Figure 4 can also all be implemented in an inclusive classroom.

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Addressing the physical environment entails reducing noise, adding sound-absorbing materials (improving reverberation), and reducing the effects of distance. Addressing the social environment entails teaching the student and

Figure 4. Compiled strategies for teachers dealing with children with APD, ADHD and/or LD

Strategy	APD	ADHD	LD
Reduction or removal of competing noise	✓	✓	✓
Be in close proximity to student when talking to them	✓	✓	
Preferential seating	✓	✓	✓
Direct line of vision with teacher	✓	✓	
Preteach new vocabulary	✓		✓
Use a variety of visual cues	✓	✓	✓
Write instructions	✓	✓	✓
Speak slowly and clearly	✓	✓	✓
Teach active listening	✓	✓	
Present concrete information, avoid abstract	✓	✓	✓
Provide a note taker	✓	✓	✓
Rephrase instructions and information	✓	✓	✓
Chunk information and assignments	✓	✓	✓
Avoid distracting stimuli (heaters, doors, windows, etc.)	✓	✓	
Provide additional time	✓	✓	✓
Provide one-to-one support	✓	✓	✓

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those involved in the student's life (peers, parents, etc.) about auditory processing and how a deficit can affect their learning, as well as teaching effective strategies for communication such as asking for clarification when something is unclear.

Physical adaptations may include keeping doors and windows closed to reduce outside noise, having students with APD sit in closer proximity to the teacher and placing sound absorbing materials on the walls and ceiling of the classroom to reduce reverberation time. (This last suggestion is often difficult, however, due to high cost and fire code restrictions.)

Good acoustics in a classroom is very important for academic success of all students, not just those with auditory processing difficulties. Although this is a widely known fact, many classrooms do not meet preferred acoustic standards (Knecht et al., 2002). Poor acoustics in a classroom can have detrimental effects on how students listen, learn and behave.

In addition to these more basic environmental adaptations is the use of assistive hearing devices, such as FM systems. An FM system uses a transmitter (usually a mic) and a receiver in the form of a speaker, headphones or a hearing aid to send direct sound to a person with hearing deficits. This helps a child with APD to hear what the speaker is saying more clearly. FM systems do not reduce noise levels, but they amplify the sound that is important to be heard. FM systems connected to speakers for all students to hear are ideal because they help everyone in the classroom - by definition, universal design: "everyone benefits equally with no stigma attached to an individual student, require little

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physical effort, and are easy to use. Once they have been installed, they require minimal maintenance other than nightly battery charging" (Millett, 2009, p.4).

Addressing the social environment and communication factors for a student with APD can also have positive outcomes for their learning. These interventions might include teaching the student, his/her classmates and the school staff about auditory processing, listening strategies, and different means of communicating. In addition to this, teaching the student to recognize ideal listening environments and teaching them how to manage better in non-ideal listening environments, both at school and at home, can help the student advocate for themselves and be self-sufficient in addressing their learning environment needs. For example, teaching students that it is okay and appropriate to request to work in a quieter working environment when the classroom is noisy is a good strategy for students to take more responsibility for their learning.

Scaffolding a student to improve their organization and communication is also important if they have APD. For example, showing a student how to effectively use an agenda, and encouraging the student to use it daily could be an important communication tool to help the teacher, student and parents ensure they are all interpreting information the same way. It is important to teach children with APD metacognitive strategies to cope with their auditory deficit. Some of these strategies can include, "verbal rehearsal, mnemonics, analogies, chunking, creating mind maps, note taking and visualization" (Canadian Guidelines, 2012, p.32).

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Teaching children to ask questions to clarify things they misheard or did not understand is a simple, yet effective strategy. When children learn to do this, it often aids in communication breakdowns and lessens frustration felt by adults in the child's life.

Teaching children with APD to cope in learning and social environments can be very effective in minimizing the challenges of having APD. Katz posed an important point when she asked "Are individuals disabled, or environments disabling?" (2013, p.28). Students with APD can be very successful if their environment (both physical and social) is conducive to their needs.

The Current State of APD in Education in North America

In the United States, The Individuals with Disabilities Education Act (IDEA) mandates "that all children with disabilities are entitled to a free, appropriate public education to meet their unique needs and prepare them for further education, employment, and independent living" (1997). In addition, "Canadian provinces have education laws which ensure that all students receive free and appropriate education" (Kohen et al., 2010, p.10). According to the Ontario Ministry of Education: "The IEP reflects the school board's and the principal's commitment to provide the special education program and services, within the resources available to the school board, needed to meet the identified strengths and needs of the student" (2000, p.5). Similarly, the British Columbia Ministry of Education mandates, "The teacher responsible for a student with special needs is responsible for designing, supervising and assessing the educational program for that student" (2013, p.17). Similar mandates are enforced across other

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provinces and states in North America. This means across all of North America, a teacher has a legal, professional and moral responsbility to provide interventions for a student with APD whether they have an IEP or not.

The concern with this situation is that currently there is a lack of published research to indicate North American teachers would have a sufficient knowledge of APD to properly support an identified student. In Canada, the Ontario Ministry of Education currently has no information on APD within their Special Education Documents for professionals, particularly “Special Education: A Guide for Educators” (2001), one of the most common resources used in Special Education in Ontario. The British Columbia Ministry of Education also has no mention of APD in their primary document titled “Special Education Services: A manual of Policies, Procedures and Guidelines” (2013). If Ministries of Education are not informing teachers about APD, it is unrealistic to expect teachers to know about and be able to support students with APD. If a teacher has a legal, professional and moral obligation to meet the needs of his or her students, but does not have knowledge, understanding or support from the Ministry of Education regarding APD, how can they adequately fulfill their obligation?

Even if teachers are exposed to information and recommendations regarding APD, the information is often not presented with educators in mind, but rather audiologists and SLPs who have a better understanding of complex terminology and strong background understanding of auditory processing. The Canadian Guideline of Auditory Processing Disorder in Children and Adults

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points out: “school staff [do] not understand management recommendations, or management recommendations [are] inappropriate or not implementable in a typical classroom” (2012, p.26). This is why it is critical research-based professional resources about APD and classroom interventions to support APD be designed and shared specifically with educators.

Introduction to Research Study

The purpose of this research study was to:

a) bring awareness to the lack of research-based professional resources for educators regarding APD.

b) review a research-based professional resource for educators about APD to determine if it increased teachers’ confidence in supporting students with APD through teacher-friendly language and practical suggestions to supporting students with APD.

In order to meet the two goals of this study, North American teachers within a private school system were given opportunity to share their confidence levels regarding teaching students with APD before and after reading the guidebook, as well as provide feedback about the practicality of the suggested interventions and other questions they may have had concerning the literature.

It was hypothesized that teachers would indicate they feel there is a lack of research-based resources for them to access. It was further hypothesized that

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the guidebook would help boost teachers' confidence and be deemed a helpful resource based on participant feedback**.**

Method

Participants

The teachers asked to complete this survey were employees at a private Christian school board with 38 locations spread across all of North America and the Caribbean. These educators taught all types of learners, including identified students, from grades 3 to 12. The researcher of this proposed study was an employee of this school board which provided her access to these teachers. All teachers asked to participate held proper credentials and licenses to teach in the state/province/country in which they taught.

Approximately 150 teachers from within this school board were asked to participate in this study. Sixty-one teachers opened the survey but 18 of them did not participate in the survey, and therefore their entries were not included in the data analysis. Forty-three teachers completed only part one of the survey and 20 teachers completed both part one and part two of the survey.

In order to describe the sample, a number of demographic variables were collected in part one of the survey. In terms of teaching experience, 39.5% of participants had 0-5 years of teaching experience, 20.9% of participants had 6-10 years of teaching experience, 4.7% of participants had 11-15 years of teaching experience and 34.9% of participants had 16 or more years of teaching experience. Of these teachers, 81% identified as general education teachers,

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14.3% identified as special education teachers, and 4.7% identified as both. Forty-four percent of the teachers indicated that they had taught a student with APD, and only 18.6% indicated receiving any professional development in APD.

Instrumentation

Teachers were provided with a link to an online, anonymous survey via Qualtrics (an online survey software program). The survey contained 16 forced-choice questions, and also 5 open-choice questions where their thoughts could be included and/or elaborated on (see Appendix A). The survey came in two parts. The first few questions collected demographic data and information on experience with APD and confidence to teach students with APD. The second part contained questions to be answered after reading the educator guidebook on APD. This resource guidebook entitled “A Research-Based Educator’s Guide to Auditory Processing Disorder” was developed by the study’s author for the purposes of this research study. It contained evidence-based strategies for working with students with APD in the regular classroom (see Appendix B).

The primary researcher for this study was a special education specialist working as a Special Education Coordinator in Ontario. With seven years of experience in the special education field, she had worked with many students with APD and recognized the lack of professional resources which would help her support these students. Using insights she generated throughout her experience and research literature, she authored “A Research-Based Educator’s Guide to Auditory Processing Disorder”. This guidebook covered topics including:

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- What is Auditory Processing Disorder and why do teachers need to know about it?
- What does Auditory Processing Disorder look like in the Classroom?
- APD and Reading
- The Multidisciplinary Team: Who and How?
- Understanding Comorbidity: APD, ADHD and LD
- Universal Interventions
- Specific Interventions

The guidebook was a compilation of key research ideas the author found and thought would be useful to educators based on her own practice. She compiled the ideas and information, then went through a process of narrowing down information that would be most pertinent for educators to know. The guidebook was then reviewed by professors of education and audiology to ensure the information was accurate and sufficient.

Several interventions outlined in the guidebook were backed by major researchers in the field of APD. The chosen outlined interventions were pragmatic and straight-forward, meant to be implemented into a UDL classroom and could be helpful to students both with and without APD. The guidebook was written with educator-friendly language and meant to be a quick-reference guide rather than an extensive text that would be time-consuming to read.

Procedure for Survey Participation

Sampling: Teachers from the private Christian school board were invited to participate in this study via email (see Appendix C). This email was delivered from the researcher to the Educational Directors of each region in the school board. These Educational Directors then forwarded the email to all teaching staff.

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It contained the link to review the Letter of Information and Consent and the survey (see Appendix D).

Completing the survey: In the email sent to participants, a web link to the survey was provided. Participants completed the first part of the survey before being provided the guidebook. The first part of the survey was designed to take approximately five to ten minutes for participants to complete. After completing the first part of the survey, a downloadable version of the guidebook was provided within the survey to the participants. Once they had read the guidebook, which should have taken approximately fifteen minutes, participants returned to the survey by using the same link (as long as they were using the same computer they initially used) to complete the second part of the survey. The second part of the survey was designed to take approximately twenty to thirty minutes to complete. A reminder email was sent out three days after initial distribution of the survey link to prompt participants to complete the second part of the survey.

Analysis

Analysis of data cumulated from part one of the survey offered insights to teachers' past experiences in working with students with APD, training and professional development opportunities, as well as searching for adequate resources about APD. Quantitative analysis was used to determine teachers' average confidence levels in working with students prior to reading the guidebook. Quantitative analysis was also employed to provide descriptive

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statistics related to the perceptions of usefulness and confidence in teaching student with APD after reading of the guidebook. Qualitative analysis was used to provide an in-depth explanation of teachers' thoughts after reading the guidebook. Thematic content analysis was undertaken to gather general thoughts on the perception of teachers on the usefulness of the guidebook, as well as any ideas for improvement (Braun & Clarke, 2006). The qualitative data was coded by grouping prominent ideas and issues found within responses, then analyzed to establish themes. As Braun and Clarke emphasize, the themes were determined not by how often ideas were duplicated, but "rather on whether it capture[d] something important in relation to the overall research question" (2006, p.10)

Results

In order to get a general sense of how many people had taught students with APD and their professional development in the area, descriptive statistics were calculated. In the total sample of those who completed part one of the survey, 42.2% of the respondents indicated they had taught a student diagnosed with APD. However, only 18.6% indicated they had ever received any professional development related to APD. Of the teachers who had taught a student with APD, 26.3% of them had received training. In comparison, 12.5% of teachers had received some training in APD while never having taught a student with the diagnosis.

When looking at what kind of training these teachers had received about APD, participants indicated most of their training came in the form of a seminar

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or presentation hosted by someone knowledgeable in the field of auditory processing (50%). The next most common form of training came in the form of course content in a post-secondary or additional qualification course (37.5%) and a small amount of training occurred as one-to-one sessions with a specialist or someone knowledgeable in the field of auditory processing (12.5%).

The results of key questions asked in part one of the survey are outlined in Table 2 below. As one of the main foci of this study was to determine if teachers were able to find an adequate amount of professional resources and readings about APD, several survey questions were asked on this topic. For the question relating to knowing if the resource was scholarly or backed with research, several participants declined to answer and those who did were unsure.

Table 2

Pre-Reading Responses

Question	Yes	(N)	No	(N)	Not sure	(N)
Have you ever taught a student identified with an Auditory Processing Disorder (APD)?	42.2	19	57.8	24	0	
Have you ever received specific training or professional development regarding APD?	17.8	8	82.2	35	0	
Have you ever sought out professional resources/reading materials regarding APD?	25.6	11	74.4	32	0	
Were you able to find an adequate amount of professional resources/reading material geared toward educators that were able to provide you with the knowledge you needed to confidently teach a student with APD?	27.3	3	72.7	8	0	
Did you feel the professional resources/reading material you found were scholarly and/or backed with research?	0		0		27.2	3

Note Numbers indicate percentage responded.

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When asked what concerns teachers had about teaching students with APD, general themes were found through the thematic content analysis. The first theme was being unaware of or not understanding the disorder. Some responses from teachers included: “I don't really understand it...or how to help a student who deals with APD”, “Not fully understanding how they process information” and “I would like to know more about it so that if I encounter students with APD, I'll be able to assist them to the best of my ability.”

Another theme found was a lack of knowledge of strategies and interventions to help students with APD. Some participants expressed their concerns saying: “Not sure how to assist them”, “What strategies help students with APD?” and “I'm just not knowledgeable enough about it to know if I'm teaching them in the best possible way”.

A third theme regarding teachers’ concerns was a lack of resources and training about the disorder. Participants said: “Lack of readily available resources”, “I do not have a pool of resources and strategies that I would be able to comfortably and confidently implement” and “I am not properly trained on the information needed to accommodate an APD student”.

The second primary focus of this study was to determine if the guidebook could help improve teachers’ confidence levels when educating students with APD. Therefore, participants were asked to indicate their confidence levels in teaching students with APD before and after reading the guidebook based on a scale of 1-10, 1 being low, 10 being high. A dependent sample t-test to determine

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if confidence levels for teaching students with APD changed after reading the guidebook indicated a significant increase difference from pre-reading (M=6; SD=2.03) to post-reading (M=7; SD=1.75), $t(14) = 2.64$ $p < .05$.

Tables 3 and 4 present the results of the questions asked after the teachers read the guidebook. Both these tables seem to indicate positive results when looking at the overall effectiveness of the guidebook in helping teachers be more aware of practical strategies they can use to help their students and providing a resource they felt was worth re-referencing in the future.

Table 3

Teachers' perceptions of "A Research-Based Educator's Guidebook to Auditory Processing Disorder"

Question	Min.	Max.	Mean	SD	(N)
How helpful did you find "A Research-Based Educator's Guide to Auditory Processing Disorder" in educating you about APD and helpful interventions to use while teaching students with ADP?	6	10	7.91	1.04	20
How practical and easy do you think the interventions suggested in "A Research-Based Educator's Guide to Auditory Processing Disorder" are to implement?	4	10	7.23	1.54	20

Note Scale represents 1 -10. 1 being low, 10 being high.

Table 4

Post-Reading Responses

Question	Yes	(N)	No	(N)	Maybe	(N)
Would you reference "A Research-Based Educator's Guide to Auditory Processing Disorder" again if you were teaching a student with APD?	77.2	16	0	0	22.7	4
Do you feel "A Research-Based Educator's Guide to Auditory Processing Disorder" was written appropriately for an audience of educators?	95.5	19	4.6	1	0	

Note Numbers indicate percentage responded.

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For the question asking if participants felt the writing of the guidebook was appropriate for educators, the one participant who said “no” explained their choice by saying, “It speaks to the experience of an educator”. It is unclear what was meant by this comment.

As one of the purposes of this study was to bring attention to the fact that not many educators know about APD, one participant’s response to the question asking why they felt the guidebook was helpful emphasized this fact conclusively: “I was unaware that APD existed as a specific condition that affects listening and learning. I would have attributed the symptoms to a general lack of interest or at the extreme, label them as resulting from ADHD”.

When participants were asked to explain their answer in regards to how helpful they found the guidebook, some common themes were found. The first theme was that the text was clear, concise and well laid out. Some participants said: “Clear, concise and specific”, “I liked that it first started off by giving a clear explanation as to what ADP is”, “The information was presented in a succinct and readable format” and “The information was clearly laid out and grouped according to topic in a very logical manner”.

The second common theme was that the guidebook provided good general information about APD that many participants did not previously know. Participants quoted: “It did a good job explaining what ADP is and various approaches to helping students and how educators can work with the child, parent and other professionals to help students”, “This is especially good for a reader like me who has little to no prior knowledge of the disorder” and “I found it

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helpful that the article went through all of the different things to look for when diagnosing someone with APD and who can help, by doing what needs to be done".

One participant wrote a response that encapsulated many of the common themes other participants spoke of as well. This response reads:

> “The reading was quite detailed and I liked that it first started off by giving a clear explanation as to what ADP is. This is especially good for a reader like me who has little to no prior knowledge of the disorder. The strategies and interventions were also very detailed and I liked that it listed the professionals that would be involved to ensure that a student is succeeding in the classroom. An additional feature of the reading that I liked was the case study. I was able to compare some of my current and past students to Curtis, and I was able to see some correlation between Curtis' behaviour and my students.”

One common criticism about the guidebook was that the strategies provided were not specific enough. One participant wrote: “While the reading is useful for defining the disorder and does provide some tangible strategies, many of the techniques given feel generalized”. Another said, “Strategies could be even more explicit”.

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When asked for an explanation of why or why not participants would reference this guidebook again, some common responses were found. Several participants found future reference would be helpful when deciding on specific intervention strategies to provide, professionals to contact for support, and explaining APD to parents. These participants said, “I would refer back to the guide mostly for the list of strategies teachers can use with students who have APD in order to be sure I'm implementing as many as I can into my classroom”, “I attempted to save it on my computer as a resource for when it's time to write an IEP (Individual Education Plan) for a student who has APD, for the strategies”, “I would be able to quickly refer to it to see which professionals I would need to contact and what interventions I would be able to implement” and “I would use it as a reference when communicating to parents”.

When participants were asked what questions they may have had regarding the information in the guidebook, very few were offered. They include: “I'm curious about the Fast ForWord program, if more research is planned and what other improvements could be made to the program in order to increase its effectiveness”, “I was wondering to what extent experiment in this area has been successful”, and “How can we ensure that APD students are included in group work effectively without the environment being distracting?”.

Suggestions for improvement provided by participants were very scarce and they were to add more visuals/graphics and provide resource websites.

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Discussion

The findings in this study were very comparable to those of the Ryan and Logue-Kennedy study (2013) exploring the awareness and knowledge of APD among mainstream primary teachers in the Republic of Ireland. Nearly half of the teacher participants in their study had very poor awareness and knowledge of APD. Similarly, in this research study, less than 20% of the teachers surveyed in North America received any training about APD and the average confidence level of teaching students with APD was a 6 on a scale of 1-10. Several teachers indicated in their open-ended responses that they do not understand the disorder, do not feel properly trained, and do not have a good idea of what strategies to use with students with APD. This would indicate a low level of knowledge and awareness of the disorder, parallel to the findings in the Republic of Ireland.

Ingvarson et al. (2005) did a study on various factors that impact the effectiveness of professional development on teachers' knowledge, practice, student outcomes and efficacy. They point out a very important idea; teachers need professional development to gain knowledge. In a study by Garet et al. (2001), they found the three most important factors to having effective professional development are: "(a) focus on content knowledge; (b) opportunities for active learning; and (c) coherence with other learning activities" (p.1). Very few teachers (less than 20%) who participated in the first part of the survey indicated they received any professional development about APD. Of the teachers who had received training in APD, the majority of training came in the

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form of a seminar. It is very possible that teachers still felt unsure about teaching students with APD after attending a seminar, as this method of professional development likely did not provide opportunity for active learning and coherence with other learning activities – two of the main factors needed for effective professional development. With the percentage of participants who had received training being very low in relation to the percentage of participants who had taught students with APD, it demonstrates again the need for educators to be better informed about APD and how to support a student with APD in a classroom.

If researchers' estimate 5-10% of children have APD (ASHA, 2005; Medical Research Council Institute on Hearing Research, 2004), the percentage of teachers who have taught a student with APD should be much higher than was indicated in the results of part one of the surveys. It is possible that teachers who indicated they had not taught a student with APD may have actually taught a student with APD, but did not have the knowledge to recognize the student(s) had APD, or the APD had been misdiagnosed as a different disorder. One teacher's response demonstrates this possibility when he/she wrote "I was unaware that APD existed as a specific condition that affects listening and learning. I would have attributed the symptoms to a general lack of interest or at the extreme, label them as resulting from ADHD". Many other participant responses also expressed a lack of understanding or knowledge about this disorder. Although it is not an educators responsibility to identify disorders such as APD or ADHD, it is important they know these disorders exist and how to

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distinguish them (if possible). By bringing more awareness of this disorder into the education field, teachers can build a repertoire of strategies they can implement to help their students.

Of the 25.6% of participants who had sought out professional resources about APD, roughly one quarter of those participants found an adequate amount to be sufficiently helpful. Of this, no participant indicated the resources they found were backed by research. This finding coincides with this researcher's personal experience trying to find professional resources herself and demonstrates the need for more professional resources on the topic that are research-based and written specifically for educators.

With it being clear teachers need more professional development and professional resources about APD geared specifically to educators, having a guidebook for educators that is research-based, yet practical would be ideal. Thus, the guidebook created and offered in this study did in fact prove to be statistically beneficial to educators. Nearly 80% of participants felt it was appropriately written for teachers and provided them with pertinent and helpful information to support students with APD. The overall confidence levels of the participants increased after reading the guidebook, which was an intended result. Nearly 75% of participants said they would reference the guidebook again, indicating it contains information teachers felt was important enough to keep on hand for future reference. Several teachers indicated they would reference the guidebook again for the list of strategies to support students with APD in the classroom. This part of the guidebook may be considered one of the most

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important sections for educators and so it is positive teachers felt it was worthy of being re-referenced.

The primary criticism from participants about the guidebook was the strategies provided were too generic. This was an expected criticism, as the bottom-up interventions designed to specifically cater to those with APD are very complex and normally administered by highly specialized professionals. The top-down interventions and strategies offered in the guidebook were provided to help a student *cope* in a classroom and be easy enough for educators to implement in their day-to-day lessons. The strategies offered were also designed to be "universal" in that they were offered to help students with various learning needs or disorders. This idea was in promotion of Universal Design for Learning – what is necessary or good for one student is most likely to be helpful to many other students. Copfer and Specht offer a reason why teacher participants may have been detracted from the more universal interventions provided in the guidebook. They suggest many educators are not adequately prepared enough to teach in the inclusive classroom and may not yet understand how accommodations that meet the needs of a variety of learners may be better than accommodations that are specific and only meet the needs of learners with specific disabilities (2014). As educators become more familiar with the UDL approach to teaching and learning, a better appreciation for the "universal" strategies outlined in the guidebook may occur.

Although some participants were hoping for more specific interventions for students with APD, very few actually exist. Almost all research-based

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interventions shown to be effective for students with APD are also effective for those with other learning barriers such as a learning disability or ADHD, as outlined earlier in Figure 4. Thus, when educating teachers about UDL, they must be informed that “universal” strategies are actually better to implement in the classroom, as they help a greater number of students, rather than just specific students with specific disorders. Katz emphasizes this idea saying: “A key principle of UDL is that instructional practices can be designed to allow all learners to enter into the learning in a general education classroom, that is, without requiring a separate program for each child with special needs” (2013, p.2). That does not discount the importance of understanding a student’s specific disorder and being cognizant of their specific needs as a learner.

It is also important to note that children with APD must learn how to cope in regular social environments where special, specific accommodations may not always be available. Thus, by providing “universal” accommodations and modifications that are developmentally appropriate (young children will find it harder to use meta-cognitive skills such as self-advocating, for example), a student with APD can learn to adapt and cope in their environment without being dependent on overly-specific accommodations and modifications that may not transfer across various social and physical environments they will encounter. For example, if a child with APD learns to have a direct line of vision with whomever is speaking and learns how to actively listen in their classroom (considered “universal” interventions), these skills/adaptations can be transferred over to social situations such as having a conversation with friends. Whereas, if a highly

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technical and specific accommodation is provided such as creating environments with minimal reverberation (sound-proofing), the child would not learn how to transfer those accommodations/skills across multiple environments.

Based on participant feedback, to improve the guidebook, more visuals can easily be added. Potentially, creating a shorter version of the guidebook may entice more educators to look at it. Considering the number of participants who started the survey, but did not complete part two, which involved reading the guidebook, it could be speculated educators may have felt the guidebook was a bit too lengthy to spend time reading the entirety given teachers' busy schedules teaching, planning, assessing, marking, supervising, etc. Through the experience of this researcher, finding time for “extras” such as reading materials is very difficult within the school day. Thirdly, addressing the following participant’s question within the text may be important: ““How can we ensure that APD students are included in group work effectively without the environment being distracting?”. This is a very valid concern many teachers may have, and by providing some options or solutions, teachers may feel more prepared to have students with APD be fully included with their peers in a variety of group work tasks.

Limitations of the Study

Although there was a respectable number of participants who completed part one of the survey (approximately 30% of the ~150 invited to participate), only 13.3% of those invited to participate completed the entire survey. This low percentage could be seen as problematic when making generalizations about the

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findings of the study. A larger number of participants could have also allowed for opportunity for deeper analyses into areas such as which experience level of teachers had the most understanding and prior knowledge of APD and the highest confidence when teaching students with APD. Teachers who had experience with students with APD and/or previous training on the topic may have also felt more inclined to participate in this study. Having an equal sample of those with and without experience with APD may have provided some other insightful overall findings.

It would have also been helpful to ask participants what they specifically knew about APD, what typical behaviours they saw in students they have taught with APD, and how they would define APD prior to reading the guidebook. Knowing teachers' specific prior knowledge might have led to more insights on how much or little teachers initially knew about APD and how much the guidebook educated them about it.

Another limitation to the survey was the brevity of some participants' qualitative responses. For example, it was very difficult to interpret what, "It speaks to the experience of an educator" meant when the participant was asked if they felt the guidebook was appropriately written for an audience of educators. More prompting within the survey to have participants expand their responses could have been beneficial when finding themes and drawing conclusions.

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Future Directions and Conclusions

Once an improved version of the guidebook is created based on relevant survey responses, the next step could be to find ways to get the guidebook to teachers of students with APD. Communication with school boards or Ministries of Education are a possibility. Being able to tell leaders in education there is a research-based guidebook which has been critically-reviewed by educators and proven to be helpful is a big step towards filling the void of professional resources available about APD. Designing an active-learning style professional development workshop opportunity to accompany the guidebook would also be a very important step to bringing more knowledge and confidence to teachers about APD.

Continuing to educate teachers about UDL and implementing “universal” accommodations/interventions that have been shown to be effective will not only improve the quality of learning for students with APD, but for all students.

At its most basic level, teachers do not know enough about APD and are not confident teaching students with APD. Thus, the best next step is to find ways to distribute a revised version of “A Research-Based Educator’s Guide to Auditory Processing Disorder” to educators in addition to finding other effective and efficient ways to educate teachers about APD.

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Appendix A

SURVEY

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Survey: Guidebook of APD for Educators

How many years of experience do you have as a teacher?

- ❍ 0-5 years
- ❍ 6-10 years
- ❍ 11-15 years
- ❍ 16+ years

In what state(s) and/or province(s) are you qualified to teach?

In what state or province did you receive your teacher training (Bachelor of Education)?

What kind of teacher are you?

- ❍ General Education Classroom Teacher
- ❍ Special Education Teacher
- ❍ Other: Please explain _____

Have you ever taught a student identified with an Auditory Processing Disorder (APD)? (Also sometimes labelled as Central Auditory Processing Disorder)

- ❍ Yes
- ❍ No

Have you ever received specific training or professional development regarding APD?

- ❍ Yes
- ❍ No

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Answer If Have you ever received specific training or professional development regarding APD? Yes Is Selected

What form did this training or professional development take?

- ❍ Seminar/presentation hosted by someone knowledgeable in the field of auditory processing
- ❍ Course content in a post-secondary or additional qualification course
- ❍ One-to-one session with a specialist or someone knowledgeable in the field of auditory processing
- ❍ Other: Please explain _____

Have you ever sought out professional resources/reading materials regarding APD?

- ❍ Yes
- ❍ No

Answer If Have you ever sought out professional reading materials regarding APD? Yes Is Selected

Were you able to find an adequate amount of professional resources/reading material geared toward educators that were able to provide you with the knowledge you needed to confidently teach a student with APD?

- ❍ Yes
- ❍ No

If No Is Selected, Then Skip To On a scale of 1-10, how confident are...

Did you feel the professional resources/reading material you found were scholarly and/or backed with research?

- ❍ Yes
- ❍ I'm not sure
- ❍ No

On a scale of 1-10, how confident are you teaching students with APD? (1 being not confident at all, 10 being extremely confident),

What concerns do you currently have about working with students with APD?

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The first part of this survey is now complete! Please download and read the following document carefully and completely. Once you are finished reading, please continue with the survey. You can close this survey and come back to it within 7 days. You do not need to complete all components of this survey at once.

Please open the following link to "A Research-Based Educator's Guide to Auditory Processing Disorder". Please read this guidebook completely and carefully, then return to the survey for further questions.

On a scale of 1-10, how helpful did you find the "A Research-Based Educator's Guide to Auditory Processing Disorder" in educating you about APD and helpful interventions to use while teaching students with ADP? (1 being not helpful at all, 10 being very helpful),

Please explain your choice for your above response.

After reading "A Research-Based Educator's Guide to Auditory Processing Disorder", on a scale of 1-10, how confident are you teaching students with APD? (1 being not confident at all, 10 being extremely confident),

On a scale of 1-10, how practical and easy do you think the interventions suggested in "A Research-Based Educator's Guide to Auditory Processing Disorder" are to implement? (1 being impossible to implement, 10 being very easy to implement)

Would you reference "A Research-Based Educator's Guide to Auditory Processing Disorder" again if you were teaching a student with APD?

- ❍ Yes
- ❍ Maybe
- ❍ No

Please explain your choice for your above response.

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Do you feel "A Research-Based Educator's Guide to Auditory Processing Disorder" was written appropriately for an audience of educators?

- ❍ Yes
- ❍ No: Please explain _____

What questions do you have regarding the information in "A Research-Based Educator's Guide to Auditory Processing Disorder"?

What suggestions do you have to improve "A Research-Based Educator's Guide to Auditory Processing Disorder"?

Other comments

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Appendix B

A RESEARCH-BASED EDUCATOR'S GUIDE TO AUDITORY PROCESSING DISORDER

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A Research-Based

Educator's Guide to

Auditory Processing Disorder

A Research-Based Teacher's Guide to Auditory Processing Disorder

Section 1: What is Auditory Processing Disorder and why do teachers need to know about it?

Hearing involves two important processes:

1. Peripheral Hearing: the physical act of sensing sound vibrations. This takes place in the ear and ear canal.

2. Central Hearing: processing those sound vibration into meaningful information the brain can understand. Central hearing involves cognitive aspects such as interpreting, distinguishing and processing sounds.

When the central hearing processes do not occur as they should, it can indicate an auditory processing disorder.

The term "Auditory Processing Disorder" currently holds a working definition, as "there is presently no general agreement or consensus, either nationally or internationally, on diagnostic markers for APD" (Hind, 2006). However, the American Speech-Language Association (ASHA), a frequently cited reference of researchers in the field of auditory processing disorders, has outlined a very clear definition of auditory processing and disorders that accompany it, as well as other important information relating to diagnostic methods.

Their definition is quite technical and better understood by audiologists. The more easily understood version of their definition could be:

> Auditory Processing Disorder occurs when aspects such as being able to know where a sound is coming from, being able to distinguish one sound from another (both consecutively and concurrently), being able to identify changes in pitch, volume, timing and patterns of sound, and being able to perceive speech when there is background noise is compromised due to a deficiency in brain's ability to process sounds.

Auditory Processing Disorders can be categorized more specifically. Most commonly referred to is Central Auditory Processing Disorder (CAPD) (Sometimes seen as "CAP" on students' IEPs).

If you are a teacher with little formal education in the area of auditory disorders, auditory processing impairments are not easy to understand, but having a knowledge and awareness of them is crucial to the life of a child who has difficulties with them. The Medical Research Council Institute of Hearing Research suggests that up to 10% of children have some degree of Auditory Processing Disorder (APD) (2004).

Children are being diagnosed with auditory processing disorders, schools are putting these children on Individual Education Plans (IEP) or School Based Intervention Plans (SBIP) for having these disorders and

teachers have a responsibility to meet the needs of these children as best they can.

> ***A child with auditory processing difficulties can have "problems with language and learning, including difficulty expressing themselves through speech and problems with reading. [C]APD may therefore have a negative impact upon a child both educationally and socially"*** *(Baldry & Hind, 2008).*

Section 2: What does Auditory Processing Disorder look like in the classroom?

Have you ever been in a situation like this before?:

Curtis has come to your school in the third grade. In the first week of school, he is found to be high-energy, but shows enthusiasm and excitement toward learning. When you, as the teacher, are giving instructions to the class to decorate their name tags, Curtis is focused on the water-bottle on this desk, talking to the person beside him, playing with his erasers and pencils and admiring the decorations on the wall. When it is time for Curtis to follow your instructions, he is unaware of what he is to do. You repeat the instructions directly to Curtis again, but he is still unclear on exactly what he is to do.

The week progresses and as you continue to talk to the class, Curtis begins to get up from his desk, grabs a picture book from the book shelf and begins flipping through the pages - too quickly to be reading the words. It appears he is very interested in the pictures. When he is done flipping through one book, he gets up and collects another. This is happening several times a day while you are trying to give lessons to cover the curriculum. You give Curtis a diagnostic reading assessment and determine he is reading at a low grade 1 level.

One day, after recess, Sally comes to speak to you about Curtis. She says that at recess, when the kids are talking about their class field trip to the museum, Curtis butts in and begins talking about going to summer camp. Sally is concerned that Curtis is not being a "good friend" and isn't following what the other kids are ever talking about.

Curtis shows many signs of APD. His difficulty to attentively listen when instructions are being given, his lack of understanding of the verbal instructions, his disinterest in reading the books and low reading level, and his struggle to follow along with the other childrens' conversation are all typical signs of a student struggling with auditory processing.

Recognizing and understanding auditory processing disorders in a classroom is critical for students like Curtis trying to learn. This is because Auditory Processing Disorder can affect a child's "attention, learning, motivation and decision processes", as well as their "listening, communication, and academic success" (ASHA; 1996, 2005).

Sometimes Curtis's behaviour can be misconstrued as boredom, inattentiveness, or an unwillingness to participate. It is important that educators understand this isn't true for students with APD. They can hear all you are saying, but they can't file what they are hearing into the right place in their brain, making engagement in learning very difficult.

Symptoms of a child with auditory processing difficulties can be easily identified by parents and teachers if they are familiar with with what to look for. APD often present the following symptoms in children:

Symptoms and Characteristics of Auditory Processing Disorders

1. Acts as if they have peripheral hearing loss
2. Difficulty or diminished ability to discriminate among speech sounds (phonemes) (ex. Confusing "tack" and "track"
3. Difficulty remembering and manipulating phonemes (ex. tasks related to reading, spelling, and phonics)
4. Difficulty distinguishing speech in the presence of background noise
5. Difficulty with auditory memory, either span or sequence, unable to remember auditory information or follow multiple instructions
6. Inconsistency across subtests relating to speech-language and psycho-educational tests, with particular weakness in auditory-dependent areas
7. Poor listening skills evidenced by decreased attention for auditory information, distractible, or restless in listening situations
8. Sometimes responds inappropriately to auditory information, particularly during conversations with multiple participants
9. Receptive and/or expressive language disorder, may have discrepancy between expressive and receptive language skills
10. Difficulty understanding rapid speech or persons with an unfamiliar dialect
11. Poor musical abilities, difficulty recognizing sound patterns and rhythms, poor vocal prosody in speech production

(Based on Yalçinkaya & Keith 2008's work)

Section 3: APD and Reading

Quite often, children with APD struggle with reading. This is because auditory processing of sounds is an integral part of reading. Several researchers have found correlations between auditory processing disorder and reading disorders (Sharma et al.,2006; Rosen, 1999; Ahissar, et al., 2000).

"Strong phonological and phonemic awareness and a good understanding of the alphabetic principle are fundamental skills for reading development and success" *(Wendling & Mather, 2009).*

Several components are involved in the phonological processing necessary for reading:

- **Auditory discrimination:** being able to distinguish between sounds. Example: tack vs. track
- **Auditory memory:** being able to remember what has been previously read/heard. A sentence will most likely not make sense if we get to the end of it and have already forgotten the beginning.
- **Auditory sequencing:** being able to remember the order of items in a list, or a sequence of sounds. This skill is strongly used when decoding words.
- **Auditory blending:** being able to blend sounds to make words. Example: /t/ /r/ /a/ /ck/ makes the work "track".

If a child's phonological processing is compromised by an auditory processing disorder, they may struggle to properly learn sounds and relate those sounds to written language. This can result in difficulty with understanding phonetical rules and decoding words.

Section 4: The Multidisciplinary Team: Who and How

A multidisciplinary team approach to supporting students with APD has been shown to be the most effective (Slauterbeck, 2009). Several different professionals can all use their expertise to approach APD from different perspectives. **It is imperative that all these professionals work closely with one another to come up with an intervention plan that is student-specific and does not contain any contradictory intervention suggestions that may confuse teachers or parents.** Speech-Language pathologists, audiologists, educational psychologists, educators, and parents all have important roles in supporting students with APD.

Who is involved?	How do they help?
Speech-Language Pathologist (SLP)	SLPs teach a variety of strategies to help a student cope with: listening, memory, phonological awareness, vocabulary, self-advocacy, organization, following directions and processing information. SLPs are often the first involved in the referral process of a student suspected of having APD.
Audiologist	Audiologists diagnose APD and provide specialized treatments design to improve central hearing abilities. Audiologists ensure assistive hearing devices, such as an FM. system, are set up and working properly.

	Audiologists can provide suggested strategies to educators and parents.
Educational Psychologist (Ed Psych)	Educational Psychologist can provide diagnostic assessments to determine if a child has APD in isolation, or may have other disorders that often accompany APD (See section 5). Educational Psychologists can provide suggested supports to parents and teachers and help them understand how APD is connected to and affects learning.
Educators	Educators are responsible for ensuring they provide a learning environment and teaching method that is conducive to the needs of all their students, including those with APD. Educators need to implement plans created to help students with APD (often set out in an individual education plan (IEP)). Educators must keep in close contact with other professionals involved in their students APD supports and ask for clarification when they are unclear on anything.
Parents	Parents should reinforce strategies at home that are taught or implemented at school to help their child. Consistency within multiple environments is very helpful to children with APD. Parents should maintain close contact with the entire professional team to ensure they understand the needs of their child and can gain further clarification on anything they are unsure of.

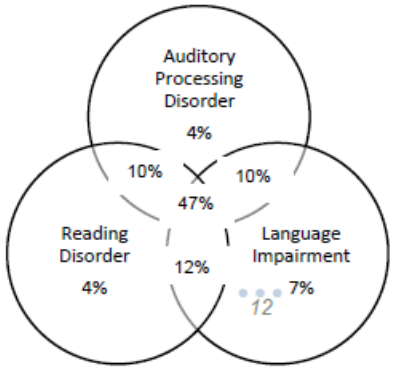
Section 5: Understanding Comorbidity: APD, ADHD and LD

Auditory processing is an important component to learning. If there are deficiencies in one's processing abilities, it can have a ripple effect that contribute to and/or cause other disorders, most often Attention-Deficit Hyperactive Disorder (ADHD), Language/Reading Disorders and Learning Disabilities. Children with auditory processing disorders, "exhibit normal intelligence and normal [peripheral] hearing. APD may present against a background of neurological disease or developmental disorders, as well as in isolation" (Yalçinkaya & Keith, 2008).

Comorbidity (*adj.*): presenting simultaneously (usually in reference to medical conditions)

Some studies, including one by Cacace and McFarland in 1998, have found that a deficit in auditory processing abilities can actually be the cause of other disorders, including learning disabilities. Also, Sharma and Purdy (2009) found, "more children have a combination of difficulties [in reading and language] (47%) than a 'pure' diagnosis of a single disorder".

Overlap of APD, LI and RD. (Sharma & Purdy, 2009).



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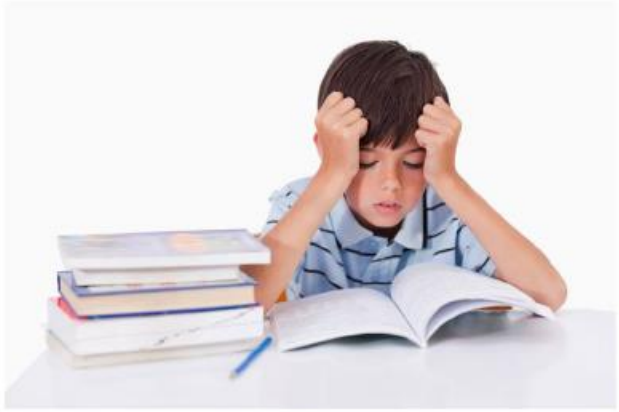
In a study by Riccio et al (1994), they found that 50% of those diagnosed with CAPD were found to have ADHD. W.D. Keller even goes as far as to say, "The diagnosis of CAPD or ADHD may be largely dependent on whether the child is evaluated by an audiologist or a psychologist" (1992). With such a strong relationship between CAPD and ADHD, teachers should be aware of how the two are related as well as how they differ.

It is important for teachers to understand this comorbidity because it is their responsibility to ensure their students are learning. If a student is struggling academically, an understanding as to *why* they are struggling is crucial to being able to effectively teach and support that student. Answering the "why" is the job of educational psychologists and audiologists; however, it is still important teachers have a good understanding of how these disorders coincide with one another in able to help their students as much as possible.



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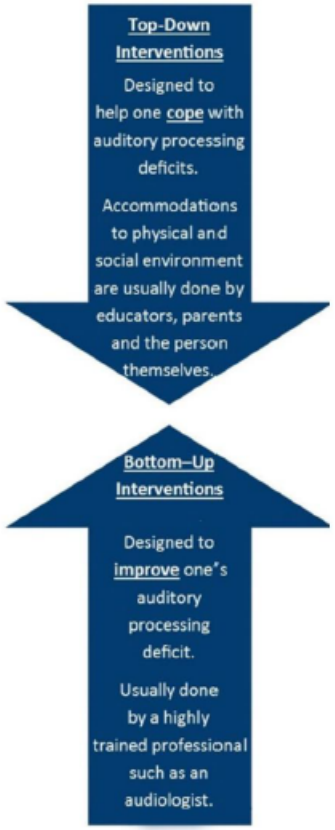
Section 6: Universal Interventions

There is a two-pronged approach to interventions for people with APD; bottom-up and top-down. Bottom-up treatments "focus on access to an acquisition of the auditory signal and include auditory training to improve the listening environment and enhance access to acoustic signal" (Bellis & Anzalone, 2008). These bottom-up interventions often involve audiologists, speech-language pathologists and other specialized professionals. Some of these suggested interventions include: attribution training, speech-sound discrimination programs performed at audiologist clinics, and dichotic listening training done in a sound booth with a two way channel audiometer (Bellis & Anzalone, 2008). Bottom-up interventions would be nearly impossible for a teacher to implement in a classroom.



Top-down interventions, however, are more accessible for teachers. These interventions include "modifications to instructional, communicative, and other methods of

imparting and learning information" (Bellis & Anzalone, 2008). Being that APD, LDs and ADHD present so many similar characteristics, these "top-down" interventions could boast positive results if moderated and implemented by a teacher for a child with APD, ADHD, and/or LD.

Of course, differentiated instruction is beneficial to all learners and is good teaching practice; thus basic differentiation in a classroom, based on learning style and need, is a good first step for children with and without APD. In addition to differentiated instruction, there are several other universal interventions research indicates is helpful to children with any combination of APD, ADHD and LD. On the next page is a compilation of some strategies suggested by various researchers including the ASHA (2005).

Although these strategies would help a child with any of the aforementioned disorders in a classroom setting, they are implemented to allow the child to cope; they are not implemented with the idea that they are corrective treatments.

For all interventions, it is important the students' individual needs, and the specific circumstances they are involved in be taken into account. For example, modern classrooms may not be set out to have desks sat in rows. Thus, "preferential seating" can mean different things in different classrooms at different times in a day.

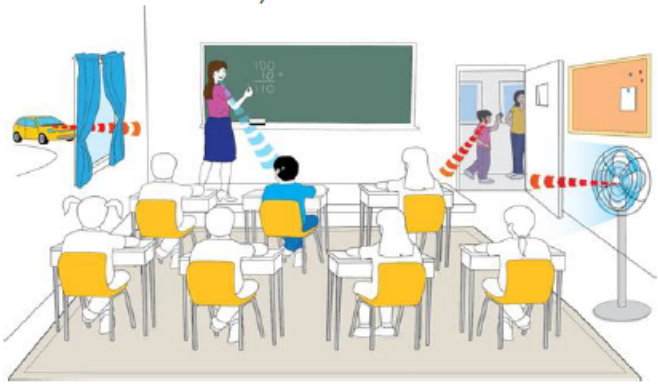
"Universal" Strategies to help students with APD, ADHD and/or LD	
Intervention	**What it means**
Reduce or remove competing noise	Try to keep the classroom door and/or windows closed Try to reduce noise coming from vents, air conditioners, computer speakers, or other items in the room making distracting noise
Be in close proximity to student when talking to them	Stand or sit directly in front of the student, ensuring they have eyes on you. The closer you are to them, the easier it is for them to hear you, and block out other background noise
Offer preferential seating	Have the student sit where they can best see and hear you, or another speaker, or important visual aids such as the whiteboard or Smartboard
Offer direct line of vision with teacher, or other important visual aids	If the student can see the speaker, they may find it easier to understand what is being said because they can see facial expressions, hand gestures and lips moving.
Pre-teach new vocabulary	When new vocabulary terms are being used in the classroom, teach them to the student one-on-one ahead of time. This will ensure they are spending less time trying to understand what the words mean, and more time understanding the context they are being used in.
Use a variety of visual cues	Provide pictures, charts, diagrams or other visual aids to support auditory information. This will help supplement content to keep students engaged and understand the content.
Write instructions	Jot down instructions in an easy to see place in step-by-step form to accompany auditory instructions. This will help if students cannot retain more than one or two pieces of information at a time.
Speak slowly and clearly; repeat key information	Speaking in short, clear sentences will allow the listener to process what is being said more easily. By repeating key questions or information, it will allow a student to process it if they missed it the first time.
Teach active listening	Prompt the student before giving instructions, asking questions and giving key information. Saying something like "I'm going to ask an important question now, is everyone listening?". Give the student opportunity to ask things such as, "Can I have more time to think about it?", "Can you write it on the board?, "What does _____ word mean?"

Provide a note taker or provide notes/lesson outline	Give the student photocopies of notes, ideally prior to the lesson, or have someone take notes for the student (a partner, educational assistant, etc.).
Present concrete information, avoid abstract	Offer concrete examples to support what you are explaining, try to use examples of things they can relate to in their own lives
Chunk information and assignments	Give large amounts of information in small pieces. Supplement the information with bullet points in a handout or on the board. Divide the information into logical pieces and only give one piece at a time to avoid the student becoming overwhelmed.
Avoid distracting stimuli	During important teaching time, turn the class PA onto silent, put a "do not disturb" sign on the door, and any other preventative measure to minimize disruption and distraction.
Provide additional time	Give the student extra time to process what they have just heard. Give the student extra time on tests and assignments as they may take more time to process information.
Check for understanding	Have the student confirm they understood your instruction by having the student repeat the instructions, or asking them if they understood and need anything re-explained or repeated.
Keep to Routine	Students are less likely to misunderstand instructions if they are routine. Keep routines such as schedules and transitions as consistent and predictable as possible.
Use small group instruction	Providing small group instruction allows less distraction, closer proximity, and more customized lessons/instructions.

Section 7: Specific Interventions

The Canadian Guidelines on Auditory Processing in Children and Adults (2012) categorized top-down interventions (Those interventions meant to help cope in day-to-day living, not cure the disorder) into two categories – **physical environment & listening factors** and **social & communication factors**. Addressing the physical environment entails reducing noise, adding sound-absorbing materials (improving reverberation), and reducing the effects of distance. Addressing the social environment entails "scaffolding the child's understanding of auditory information. These include activities such as modeling effective communication repair strategies or giving in-service training to school staff on the nature of the child's processing difficulties" (Canadian Guidelines, 2012).

Physical adaptations: may include keeping doors and windows closed to reduce outside noise, having students with APD sit in closer proximity to the teacher and placing sound absorbing materials on the walls and ceiling of the classroom to reduce reverberation time. (This last suggestion is often difficult, however, due to high cost and fire code restrictions.)



Good acoustics in a classroom is very important for academic success of all students, not just those with auditory processing difficulties. Although this is a widely known fact, many classrooms do not meet preferred acoustic standards. (Knecht et al., 2002). Research has gone on to document that poor acoustics in a classroom can have detrimental effects on "students' auditory comprehension, learning, behaviour and teachers' vocal health" (ASHA, 2005).

Assistive Hearing Devices (FM Systems):

In addition to these more basic environmental adaptations is the use of assistive hearing devices, commonly referred to as FM systems. An FM system uses a transmitter (usually a mic) and a receiver (in the form of a speaker, headphones or a hearing aid) to send direct sound to a person with hearing deficits. This helps a child with APD hear what the speaker is saying more clearly.

The Canadian Guidelines clearly recommend caution be used when implementing an FM system stating: "Given the number and complexity of variables involved in recommending a specific assistive technology for use in the classroom, recommended best practice is for collaboration between clinical and educational

audiologists, where the clinical audiologist is responsible for the clinic-based assessment and the educational audiologist is responsible for overseeing and managing classroom-based assessment and determining need and eligibility" (2012).

FM systems do no reduce noise levels, but they amplify the noise that is important to be heard. FM systems are ideal because they help everyone in the classroom; by definition, universal design: "everyone benefits equally with no stigma attached to an individual student, require little physical effort, and are easy to use. Once they have been installed, they require minimal maintenance other than nightly battery charging" (Millett, 2009).

Social and Communication Factors: These interventions might include teaching the student, his/her classmates and the school staff about auditory processing, listening strategies, and different means of communicating. In addition to this, teaching the student to recognize ideal listening environments and teaching them how to manage better in non-ideal listening environments, both at school and at home, can help the student advocate for themselves and be self-sufficient in addressing their learning environment needs. For example, teaching the student that it is okay and appropriate to request to work in a quieter working environment when the classroom is noisy is a good strategy for the student to take more responsibility for their learning.

Scaffolding a student to improve their organization and communication is also important if they have APD. For example, showing a student how to effectively use an agenda, and encouraging the student to use it daily could be an important communication tool to help the teacher,

student and parents ensure they are all interpreting information the same way. It is important to teach children with APD metacognitive strategies to cope with their auditory deficit. Some of these strategies can include, "verbal rehearsal, mnemonics, analogies, chunking, creating mind maps, note taking and visualization" (Canadian Guidelines, 2012).

Teaching children to ask questions to clarify things they misheard or did not understand is a simple, yet effective strategy. When children learn to do this, it often aids in communication breakdowns and lessens frustration felt by adults in the child's life.

A note about Fast ForWord:

Fast ForWord is a computer program sometimes recommended by audiologists that uses a "variety of exercises aiming to improve auditory and language abilities and claims 'to train the brain to process at faster rates and help create or modify the neural pathways'" (Bamiou et al, 2006). The Fast ForWord program has a variety of programs for different age levels and one that target language principles specific for reading. Ideally, a user would use the program 30-60 minutes a day, 5 times a week for 3-4 months.

In the various research studies conducted to examine the effectiveness of the program, there are very mixed results. According to a systematic review of evidence-based interventions for APD, Fey et al (2011)

analyzed 16 studies that examine the efficacy of Fast ForWord. They found "no firm conclusions …concerning the listening/auditory discrimination program". They also noted, "the largest and most rigorous efficacy studies have found either no improvements on language measures or gains similar to other, equally intensive language interventions" (Fey et al, 2011).

In G. M. McArthur's study, *Auditory processing disorder: Can they be treated?,* she reviews four studies that examine Fast ForWord used for auditory training. Her final conclusion was that "training had no effect on their APD". However, in Slauterbeck's critical appraisal of McArthur's study, she states, "Because of the poor design methods of conducting studies on training programs specifically addressing APD, there is no evidence to support … Fast ForWord interventions for the treatment of APD".

This being said, it is difficult to determine if the use of the Fast ForWord program would be worthwhile in the classroom. Perhaps the time spent on this program could be more wisely spent implementing other more evidence-based interventions.

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Appendix C

INVITATION EMAIL

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Email Script for Recruitment

Subject Line: Invitation to participate in research

Hello Educational Directors,

Please forward the following to all Sterling teachers:

You are being invited to participate in a study that we, Danielle Fletcher, Dr. Jacqueline Specht and Dr. Prudence Allen are conducting. Briefly, the study involves teachers taking a survey that asks about their experience and confidence in working with students with (Central) Auditory Processing Disorder (APD). The survey comes in two parts: The first part asks simple questions about teachers' experiences and training in APD. This should take no longer than 10 minutes to complete. Teachers will then be given "*A Research-Based Guide for Educators on Auditory Processing Disorders"* to download and read. This should take approximately 15 minutes to read. The second part of the survey should take about 30 minutes to complete. Participants will have up to 7 days from beginning part one of the survey to return to the survey and complete the second part of the survey that inquires about their experience reading the guidebook and how useful and helpful they thought it was.

A reminder email will be sent out 3 days from now to encourage participants to return to the survey to complete it if they have not already done so.

If you would like to participate in this study please click on the link below to access the letter of information and survey.

https://uwo.eu.qualtrics.com/SE/?SID=SV_41qubq4RDO2wBff

Thank you,

Danielle Fletcher
Sterling Education – North Region PSEC
[redacted]

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Appendix D

LETTER OF INFORMATION AND CONSENT

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Western

Letter of Information and Consent

A Research-Based Educator's Guide to Auditory Processing Disorder – Does It Improve Teachers' Confidence?
Letter of Information and Consent for Teacher Participants

Principle Investigator:
Dr. Jacqueline Specht
Professor at the Faculty of Education – UWO
[redacted]

Student Investigator:
Danielle Fletcher
Faculty of Education- UWO
[redacted]

I would like to invite you to be part of a research study that examines educators' knowledge and confidence in teaching students with Auditory Processing Disorders (APD).

The purpose of this study is to gain insights regarding APD from the perspective of educators. It looks at how confident teachers are about supporting students with APD, how much training they receive regarding APD and their experience with professional resources about APD.

This study is being done in an effort to create a helpful professional resource for educators that is research-based and contains easy-to-implement interventions for students with APD.

The study will also give participants a chance to read a guidebook about APD designed specifically for educators and give feedback about the usefulness and helpfulness of the guidebook.

By participating in this study, you can offer insight and feedback about what educators need to feel confident and successful in teaching students with APD.

Participation in this study is voluntary. You may choose not to participate, skip questions or withdraw from the study at any time without any effect on your employment. Western University uses specific survey software that ensures confidentiality and anonymity. The survey you will take uses this software.

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If you agree to participate in this study, you will be given access to an anonymous online survey that comes in 2 parts. The first part asks simple questions about your experiences and training in APD. This should take no longer than 10 minutes to complete. You will then be given "*A Research-Based Guide for Educators on Auditory Processing Disorders"* to download and read. This should take approximately 15 minutes to read. The second part of the survey should take about 30 minutes to complete. You will have up to 7 days from beginning part one of the survey to return to the survey and complete the second part of the survey that inquires about your experience reading the guidebook and how useful and helpful you thought it was. As long as you use the same computer and Internet browser, the link you receive will return you to wherever you left off in the survey within the 7 days. If you are not able to use the same computer throughout the completion of the survey, you will need to complete the entire survey in one sitting or opt not to participate.

By beginning the survey using the link below, you are consenting to being a part of this study. You do not waive any legal rights by consenting to this study. If you choose to leave the study, any data you have already provided will not be used in the analysis of this study.

If you have any questions about the conduct of this study or your rights as a research participant you may contact the Manager, Office of Research Ethics, Western University at [redacted] or [redacted]. If you have any questions about this study, please contact Danielle Fletcher at [redacted] Dr. Jacqueline Specht at [redacted], [redacted] or Dr. [redacted], [redacted]

* Representatives of The University of Western Ontario's Non-Medical Research Ethics Board may require access to your study-related records to monitor the conduct of the research.

This letter is yours to keep for future reference.

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Appendix E

ETHICS APPROVAL

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Western Research

Research Ethics

Western University Non-Medical Research Ethics Board
NMREB Delegated Initial Approval Notice

Principal Investigator: Dr. Jacqueline Specht
Department & Institution: Education\Faculty of Education,Western University

NMREB File Number: 108181
Study Title: A RESEARCH-BASED EDUCATOR'S GUIDE TO AUDITORY PROCESSING DISORDER: DOES IT IMPROVE TEACHERS' CONFIDENCE?

NMREB Initial Approval Date: July 27, 2016
NMREB Expiry Date: July 27, 2017

Documents Approved and/or Received for Information:

Document Name	Comments	Version Date
Western University Protocol		2016/07/20
Recruitment Items	Recruitment email	2016/06/16
Letter of Information & Consent		2016/07/20
Instruments	Appendix A: Survey	2016/05/25
Instruments	Appendix B: A Research-Based Educator's Guide to Auditory Processing Disorder	2016/05/25

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the above named study, as of the NMREB Initial Approval Date noted above.

NMREB approval for this study remains valid until the NMREB Expiry Date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario.

Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB.

The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Ethics Officer, on behalf of Dr. Riley Hinson, NMREB Chair or delegated board member

Ethics Officer: Erika Basile ___ Nicole Kaniki ___ Grace Kelly ___ Katelyn Harris ✓ Vikki Tran ___ Karen Gopaul ___

Danielle Fletcher

Profile

Passionate, experienced and self-motivated candidate looking for career advancement position working with students with a variety of learning needs. Experience in a leadership role directly relating to special education and working with students with various exceptionalities. Committed to finding effective strategies for struggling students to help them achieve success at the University level. Continuously striving to gain more professional knowledge in the field of special education. Highly efficient in communication and task-management. Open to new experiences and working in a dynamic environment. Proficient in commonly used computer applications and programs including Microsoft Office, as well as assistive technology programs such as Dragon Naturally Speaking and Kurzweil.

Education And Training

Western University *Sept 2014 - Present*
Masters of Arts in Education – Special Education and Educational Psychology
(Expected completion 2017)

Elementary Teachers Federation of Ontario *Aug 2010 – December 2012*
Part I, II & Specialist Part III Special Education Additional Qualification Courses
Part I Reading Additional Qualification Course

Wilfrid Laurier University, Ontario, Canada *April 2009*
Bachelor of Arts, Majoring in English and Contemporary Studies

Nipissing University, Ontario, Canada *April 2009*
Bachelor of Education, Junior/Intermediate/Secondary – English Teachable
Concurrent Education Program

Ontario College of Teachers Certificate (568876) *July 2009*

Career Related Experience

Professional Special Education Coordinator (PSEC)
Sterling Education –North Region, Mossley, ON *April 2013 – Present*

- Ensure all students with special needs receive appropriate learning support and accommodations by supporting, training and managing Learning Support staff across eleven schools in Canada
- Attend and host regular management meetings regarding best practices, curriculum implementation, training and policy
- Travel around North America to liaise with management and teaching staff
- Work with outside parties including Ministries of Education in multiple provinces, psychologists, speech language pathologists, occupational therapists, and medical professionals.
- Recently redrafted all Learning Support forms for Sterling Education, including IEPs and Behaviour Intervention plans

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- Conduct various tests for assessment including Woodcock Johnson Test of Achievement, Test of Visual Perception Skills and Test of Auditory Processing Skills
- Assist Learning Support staff with conducting IEP meetings and writing student IEPs
- Liaise with staff and parents to plan and implement learning support strategies
- Ensure all appropriate paperwork is properly completed and both Sterling and Provincial policies are adhered to
- Ensure all students adhere to school ethos and policy

Learning Support Coordinator

Sterling Education – Mossley, ON *Sept 2010 – June 2014*

- Ensured students with special needs including autism spectrum disorder, intellectual disorders, developmental disorders, physical disorders and learning disorders receive appropriate learning support and accommodations
- Worked with parents and teacher to create and meet goals for students on IEPs
- Worked with teachers to modify and accommodate course work to meet students' needs
- Conducted in-school assessments on students to track progress, establish needs and decide if further referral to outside professionals is needed
- Collaborated with Learning Support staff to share resources and knowledge, set team goals and follow best-practices
- Worked with Regional PSEC to ensure policies were being followed, and upper management was aware of concerning situations that may require further action

Year 7 - 9 Teacher

Castlebrook High School, Unsworth, UK *Sept 2009 – May 2010*

- Taught Year 7 Math, English and Drama
- Headed the Literacy Plus and 1-2-1 Tuition intervention programs
- Responsible for Virtual Learning Platform for Math and English department

Practicum Teacher/ Teacher Candidate – Special Education & Grade 10

St. David's, Dorchester & , St. Mary's High School, Woodstock, ON, LDCSB Feb- March 2009

- Worked with Special Education Teacher (SPST) to assist students with special needs, observed Woodcock-Johnson testing, and was involved in the revision of students' IEPs
- Assumed responsibilities of teacher, including the planning and implementation of lessons and assignments, assessing students' work and ensuring good classroom management

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Private Tutor
Self – Employed, Oxford County, ON *Sept 2008 – 2012*

- Tutored students from ages 10 to 15 in subjects including French, math and literacy
- Provided differentiated instruction and activities to meet the needs of the student
- Taught at their own home to provide comfort and convenience and allow the parents to be involved in their child's learning if they wish

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Volunteer Work

2012 - Present
- Volunteer tutor for low-income family

2010 - 2012
- Big Sister with Woodstock and District Big Brothers and Big Sisters

2009
- Implemented a Youth Group program for the grade 7 & 8 students in Ontario, Canada.

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