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HOW CAN THE ORTON-GILLINGHAM APPROACH BE USED AS AN EFFECTIVE TOOL TO RECEIVE A DEEPER UNDERSTANDING OF SYLLABLES AND WORD SPELLING FOR STUDENTS WHO ARE HARD OF HEARING?

by

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A capstone submitted in partial fulfillment of the Requirements for the Masters of Literacy Education.

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Abstract

Students who are deaf or hard of hearing come to school with limitations to learning that the average student does not have. Being able to hear words and sounds is an important part of learning to spell those words. This paper will identify some characteristics in the development of learning word syllable recognition and phonics, as well as, strategies to help improve learning for students who are deaf and hard of hearing by using the Orton-Gillingham Approach. The Orton-Gillingham Approach uses a multisensory strategy that includes audio, visual, and feeling to help solidify word recognition and spelling. Although the approach was intended for students with dyslexia I feel it can benefit students who are deaf and hard of hearing.

TABLE OF CONTENTS

Page
CHAPTER ONE:5
Introduction5
Personal Background5
Life lessons6
Welcome to Deaf and Hard of Hearing
Research Question9
Summary9
CHAPTER TWO: Literature review
Introduction11
The Science of Hearing Loss
Basic Ear Anatomy11
Why does a Teacher Need to Know this
Causes of Hearing loss
Types of Hearing Loss
Student Engagement17
Teaching styles
Social and emotional learning
Support19
Best Practices and Intrinsic Activities
Accommodations
Chapter summary22

CHAPTER THREE: Project Description.	23
Introduction	23
Orton-Gillingham Theory	24
Methodology	26
Pre and Post Assessments.	26
Lesson and Anecdotal Notes	26
Implementation	27
Chapter Summary	30
CHAPTER FOUR: Reflection and Conclusion.	31
Practice Thoughtful Inquiry and Reflection	34
Appendices	37
Appendix A Pre Assessment Lesson Plan	38
Appendix B Orton-Gillingham Lesson Plan One	39
Appendix C Orton-Gillingham Lesson Plan Two	43
Appendix D Orton-Gillingham Lesson Plan Three	45
Appendix E Orton-Gillingham Lesson Plan Four	47
Appendix F Orton-Gillingham Lesson Plan Five	50
Appendix G Orton-Gillingham Lesson Plan Six	53
Appendix H Orton-Gillingham Lesson Plan Seven	56
Appendix I Post Assessment Lesson Plan	59
Appendix J Pre and Post Assessments	60
Appendix K Video Sources	61
References	62

CHAPTER ONE

Introduction

Personal Background

I remember times when I have been in a crowded room and someone was trying to tell me something; it was difficult to hear and understand what the person was saying. I would have to strain my ears to hear. Imagine if the only sound you heard was muffled. How much information would be absorbed? I've often neglected to view that perspective until I started to teach students with hearing difficulties.

Words are formed by the sounds we make. Before we can create a word we have to be able to make a sound and distinguish that sound from other sounds. In order to make a sound we need to be able to hear it. The importance of the sounds may be taken for granted by most people; however, I am curious about those individuals who may have deaf and hard of hearing difficulties.

I believe conditioning to the world around us begins with hearing. I also believe the conditioning, through sound, to the world around us starts before birth and continues automatically throughout our lives. There are studies that suggest that toward the end of pregnancy a fetus in the womb can absorb sounds and relate those sounds to the mother (Samakow, 2016). Children who cannot hear are missing a valuable learning experience. When my children were babies I relied on my hearing to recognize their needs. There was a different pitch to their cries when they were hungry as opposed to when they were uncomfortable. I taught my children, through sound and then words, how to be safe. I used sound cues to get their attention when I wanted it. When I was growing up I listened to sound cues from my parents too. I knew when something serious was being said by the tone of my father's voice. I could tell

by the way my mother's footsteps sounded as to whether I was in trouble or if she was just walking towards me. I am able to sense danger from dogs because of the sound they make. I can distinguish a growl or a happy whine because of my background knowledge and experience from hearing those sounds and distinguishing what they mean. My curiosity still includes the questions about how students learn without the ability to hear the sounds of words.

Life Lessons

My life in the elementary grades could be considered average. I was enrolled in a public neighborhood school in a mid-sized city. Most students were the same ethnicity as me. Most ancestors from my neighborhood had immigrated from Eastern and Western Europe. The school I attended did teach students with hearing disabilities. Some of the students had other physical or mental limitations as well, but because they had a hearing loss they were enrolled in the same school as me.

As an elementary student I never thought of the perspective of someone with a hearing loss. It never occurred to me what it must be like not to hear with clarity. Deaf and hard of hearing was a special education class and there wasn't much interaction with the general education classes. I didn't get lot of information to help me understand the complexities of hearing loss. I used to think that all you need to do is talk louder. The only times I remember interacting with students with a hearing loss were during gym class and recess. With no knowledge of how incredibly difficult it was to function without hearing, my friends and I were not very inclusive. Because some kids were different, my friends and I would not include them in our activities. During recess, the games we played were very rough. I never thought the boys who had to wear hearing aids would be able to take it. At the time, the hearing aid equipment was quite cumbersome. Some students had equipment that was a chest harness wired to an ear

piece. One boy, "Jeff," had one of the chest harnesses, about the size of a lunchbox, which he had strapped to his chest. One day at recess I was playing football with friends and I threw the ball. The ball sailed over my friend and hit "Jeff" right in the chest. The ball hit squarely on the hearing aid box and it shattered. I was never more scared then that moment. My friends took off running trying to look like they weren't involved. I ran too, but then I looked back and saw "Jeff's" face. Even at that age I could see the pain and sorrow of what had happened. I stopped and ran back to him and helped him collect what was left of his hearing aid. I helped "Jeff" back into the school and we both went to the office. I confessed to breaking the hearing aid. The principal sat me down and told me how important the hearing aid was to "Jeff." This was probably the first time that I became aware of how important hearing aids were to people. I sincerely apologized to "Jeff." He wasn't able to repair his hearing aid for about two weeks. What a loss because of me; I still cringe when I think about what happened.

After the incident I felt more comfortable approaching peers who had hearing loss. I became an advocate for them. I tried to include them in games that we played. I met another boy, "Mike". "Mike" was a gifted athlete. He had severe hearing loss, but that didn't stop him from competing in sports. "Mike" was from a city close to my town, but because his town didn't have classrooms for students with hearing loss he was bussed to my school. At times I would think about how it must feel to have to come to a different school than where you are from and riding a bus with only a few people that you know. It must be very isolating. Football was his favorite sport. He was always one of the fastest kids on the field. I tried to pick him for my team every chance that I got. Communication with "Mike" was a struggle at first, but we were able to overcome it. We developed hand signals that were more effective than talking. It kept the defense from hearing our plays. I marveled at his ability to know where others were even though

he couldn't hear them. "Mike" must have had a great visual sense of his surroundings. In high school he became a starting linebacker for the football team. I often reflected on how "Jeff" and "Mike" learned. If you can't hear, do your other senses become more hyper-sensitive? What if you have other limits to your ability?

Welcome to Deaf and Hard of Hearing

Being able to hear is an integral part of learning. What happens if that sense is not there? How do you learn? What cues must be in place in order for you to be successful? I had these questions as I stepped into the role of a second grade teacher. Now these questions became even more important as I volunteered to teach the deaf and hard of hearing (DHH) classroom at Bamber Valley Elementary in Rochester, Minnesota. This was a new experience for me because I had no direct connection to hearing loss in children and educational instruction. My questions were many. I wanted to know how to effectively reach students with hearing loss. I was introduced to many pieces of technology to help students hear the message, such as microphones, speakers, FM boots connected to hearing aids, as well as strategies like visual cues, but not a lot of reasons why these things were used. What I was lacking was the reasons and background of how students with hearing loss learn. After reviewing a slide presentation with information about deficiencies and the struggles these students face, I felt I still lacked the background information on how students with hearing loss learn. I wanted to know more. I wondered if there was more information that could be gathered for all teachers, especially DHH teachers, which would help facilitate best practices for students with a hearing loss.

Research Question

My desire to know more about how to reach these students led to my inquiry based research question: How can the Orton-Gillingham Approach be used as an effective tool to receive a deeper understanding of syllables and word spelling for students who are hard of hearing? I will explain, in detail, the process of learning for these students and how to effectively use best practices to reach each student's appropriate grade and age level of learning. Through collecting data and research analysis I will be able to explain the needs and necessary steps to take that will help students who have hearing loss achieve grade level and age appropriate success. I will use the term integrated because it defines the types of classrooms in my building. I believe the lessons I will be talking about can provide useful instructional methods for any instructor. Each classroom contains children with a multitude of learning abilities and students come from all walks of life. Students with hearing loss are integrated within my classroom as well. I must be able to differentiate their ability and achievement level within the classroom community.

Summary

I find many situations in life are interpreted first from what I hear and then recognizing the sound and reacting to it. There are many hearing situations I take for granted. I can be lying in bed in the morning and know what time it is by hearing the pitter-patter of my dog Pearl's toenails on the hardwood floor; the sound coming closer to the bed. I know from that sound that it is close to 5:15, she is ready to be let out for a bathroom break, and then ready to eat. No words were spoken, but through sound recognition and conditioning, I am able to interpret what is going on around me. It doesn't happen with people who have a hearing disability in the same way. These circumstances continued my passion to find ways to teach students who are deaf or

hard of hearing to the best of their abilities. With the lessons I intend to create and implement I hope to reach DHH students more effectively. This drives my research question: How can the Orton-Gillingham Approach be used as an effective tool to receive a deeper understanding of syllables and word spelling for students who are hard of hearing? My research question is important to me because I want to be sure my students who have hearing loss get the best educational opportunities to meet their needs.

Chapter two will provide a literature review of peer reviewed sources and articles to help explain deaf and hard of hearing issues and causes as well as intrinsic student motivation and parent involvement factors. Chapter three will explore the lessons, methods, participants and setting along with the data analysis methods. Chapter four will conclude key learnings; explore possible limitations and implications as well as recommending future research on this topic.

CHAPTER TWO

Literature Review

Introduction

It is necessary to understand how hearing loss affects the learning process in order to better understand the question: How can the Orton-Gillingham Approach be used as an effective tool to receive a deeper understanding of syllables and word spelling for students who are hard of hearing? This chapter will present the basics of hearing and define normal and abnormal hearing ranges, name the main contributors to hearing loss, explain how hearing loss changes the brain, and present research that identifies how learning is affected by hearing loss. Additionally, student engagement is an important aspect of success in learning, so this chapter will include evidence of student motivation, understanding and acceptance of hearing loss, self-advocacy, and support from home.

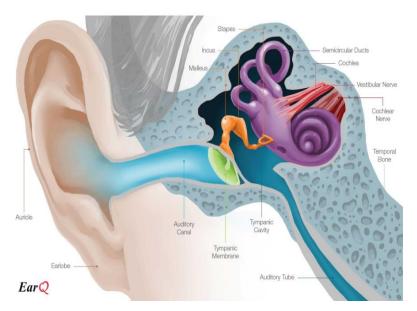
The Science of Hearing Loss

Basic Ear Anatomy

The ear is made up of three parts: the outer, middle, and inner ear. All three parts of the ear are important for detecting sound by working together to move sound from the outer part through the middle and into the inner part of the ear (EarQ, 2017). Information obtained from this website will explain the anatomy of the ear. The outer ear is made up of the auricle (cartilage and skin on both sides of the head), an auditory canal, and the tympanic membrane (eardrum outer layer). See image below, obtained from EarQ (2017). The middle ear has the eardrum, tympanic cavity, and three tiny bones called ossicles. The three bones in that make up the ossicles are the malleus (hammer), incus (anvil), and the stapes (stirrup). The inner ear has

an oval window which connects the middle ear and the inner ear, semicircular ducts that are filled with fluid. The ducts are attached to cochlea and nerves and transmit information about balance and head position to the brain. The cochlea is a spiral-shaped organ that turns sound into signals for the brain. An auditory tube, in the middle ear, drains fluid to the throat. For normal hearing to occur there needs to be a conduction of sound as well as transducing of that sound to a neural code in the central auditory system. This is a very complex process involving all parts of the ear. The outer and inner ear work to conduct the sound. The sound then is conducted through the ear canal. The ear canal is layered with skin that secretes cerumen (wax) that contains a slight

antibacterial/antifungal
property. Accumulation of
this wax is a common cause
for hearing impairment. The
skin of the ear canal is a
sensory receptor and
innervated by four cranial
nerves; trigeminal, facial,
glossopharyngeal and the



EarQ. (2017). Retrieved from https://www.earq.com/hearing-loss/ear-anatomy#inner

auricular branch of the vagus nerve. Stimulation of the canal can affect heart rate and blood pressure causing some to faint or lose consciousness. The middle ear also works to conduct sound (EarQ, 2017).

The inner ear contains the cochlea, which is the processing center for hearing. This snail shaped bony structure contains two types of hair cells, the outer hair cells and inner hair cells that

are the actual sensory receptors of hearing. The outer hair cells are active and move in response to sound. The inner hair cells transfer sound to a neural code in the central auditory system.

Each cell neuron reacts to the sound frequency (EarQ, 2017).

Why Does a Teacher Need to Know This?

DHH specialists work with classrooms to help teachers and students understand the complexities and workings of the ear and how hearing is developed. Knowing this information helps students and teachers have empathy towards fellow students and classmates. Each individual DHH child has his or her own unique abilities to hear and this process is very different for non DHH children.

Causes of Hearing Loss

There are many types of hearing loss. Half of all congenital deafness discovered during childhood is related to genetic abnormalities (Tran & Grundfast, 2005). Other causes of congenital hearing loss are the result of the mother's exposure to a viruses or disease during pregnancy. Cytomegalovirus (CMV) is the most common cause of congenital, viral-induced hearing loss (Strauss, 1997). Other viral infections linked to fetal adverse events are viruses related to herpes simplex, toxoplasmosis, rubella, and syphilis. Congenital deafness occurs in 1 out of every 1,000 to 2,000 births. Autosomal recessive inheritance is the most common form, accounting for more than 75% of all congenital deafness. Non-inherited congenital deafness abnormalities account for roughly 20% of congenital deafness (Hong-Bo, 2007). Dr. Hong-Bo goes on to explain the types of causes for hearing loss:

Non-Syndromic Deafness- means that deafness occurs in isolation, without other associated disorders. About 80% of genetic hearing loss is non-syndromic.

Syndromic deafness, which accounts for the remaining 20% of congenital deafness, is linked to many other complications and disorders.

Jervell and Lange-Nielsen Syndrome-Jervell and Lange-Nielsen Syndrome is associated with cardiac arrhythmias and is associated with severe to profound damage to the inner ear (cochlea) or nerve pathways to the brain (sensorineural).

Non-Inherited Congenital Deafness-These types of hearing abnormalities account for about 20% of congenital deafness, with the rest originating from genetics.

Acquired hearing loss can occur as the result of an injury to any part of the inner ear.

Noise-induced hearing loss as a cause of deafness and hearing impairment affects about twenty eight million people in the United States (Daniel, 2007). The article from Daniel explains the rise in hearing loss among adults and children because of their voluntary exposure to loud noise. The article also explains the decibel level of a source sound and a person's typical response to it. Using the Table 1 chart obtained from Daniel, decibel (dB) noise ranges from 0 to 150. As the noise level and decibel increases, the louder

the sound is. Zero dB is the softest sound that can be heard. 110 dB is about the noise in a busy video arcade, and 150 dB is the sound of a firecracker. The dB levels constitute the source of the sound, as well as, the typical physical response to it. *Table 2*: A table showing levels of hearing loss (Clark, 1981). The figure explains the range a severity of

Table 1. Decibel Chart*

Decibel Level (dB)	Source	Typical Physical Response
0	Softest sound that can be heard	Ha W HENNY
10	Normal breathing	Barely audible
30	Whisper	Very quiet
50-65	Normal conversation	Quiet
80-85	City traffic noise	Annoying
95-110	Motorcycle	Very annoying
100	School dance, boom box	Very annoying
110	Busy video arcade	Very annoying
120	Nightclub	Can damage hearing after 15 minutes exposure per day
110-125	Stereo, personal music player	Can damage hearing after 15 minutes exposure per day
110-140	Rock concerts	Noise may cause pain and brief exposure can injure ears
150	Firecracker	Noise may cause pain and brief exposure can injure ears

 ^{*}American Tinnitus Association, http://www.ata.org/about_tinnitus/consumer/healthy_hearing1.htm

hearing loss. The range in each category is the range that a person does not hear the sound.

Table 2 Degree of hearing loss	Hearing loss range (dB HL)
Normal	-10 to 15
Slight	16 to 25
Mild	26 to 40
Moderate	41 to 55
Moderately severe	56 to 70
Severe	71 to 90
Profound	91+
Source: Clark, J. G. (1981). Uses and	d abuses of hearing loss classification. Asha, volume 23,
497.	

There is a correlation between the degree of hearing loss and the dB range that is unable to be heard. If a person with normal hearing loss (-10 to 15 dB) he/she would potentially not hear dB levels below the softest sound heard and normal breathing. A mild hearing loss (26-40 dB) would have a person unable to hear dB levels up to whispering. A person with moderately severe hearing loss (41 to 55 dB) would have a hard time hearing up to a normal conversation. Profound hearing loss (91+dB) would have a person unable to hear sound up to normal traffic.

Types of Hearing Loss

The three types of hearing loss are conductive, sensorineural, and mixed. Conductive means that sound does not travel efficiently through the outer eardrum to the inner eardrum. Sensorineural occurs when there is damage to the inner ear. Mixed is a combination of outer, middle, and inner ear damage. According to the Configuration of Hearing Loss website, hearing loss can be classified and configured into four categories:

- Bilateral versus unilateral. Bilateral means hearing loss in both ears. Unilateral means hearing loss in one ear.
- Symmetrical versus asymmetrical. Symmetrical means the degree and configuration of
 hearing loss are the same in each ear. This means that the damage and loss of hearing is
 the same. Asymmetrical means degree and configuration of hearing loss are different in
 each ear.
- Progressive versus sudden hearing loss. Progressive means that hearing loss becomes
 worse over time. Sudden means hearing loss that happens quickly. Such a hearing loss
 requires immediate medical attention to determine its cause and treatment.
 Fluctuating versus stable hearing loss. Fluctuating means hearing loss that changes over
 time—sometimes getting better, sometimes getting worse (Configuration of Hearing
 Loss, website).

Understanding the types of hearing loss and conditions associated with hearing loss can help teachers improve their ability to reach each student at their level of understanding. The various significant causes and conditions of hearing loss affect each individual very differently. Teachers, parents, and students all work together to understand this process and this can lead to more effective learning. This understanding can help keep students engaged and motivated to

participate in the Orton-Gillingham Approach of teaching. Student's motivation to learn is also a key factor in reaching DHH students in the classroom.

Student Engagement

Student motivation is an important aspect of the desire to learn. The way teachers approach teaching, social constructs, and student ability, play important roles in how students learn. The first part of the section will focus on factors that motivate students and the teaching styles that contribute to student motivation. The second part will focus on personal and peer pedagogies that promote intrinsic motivation.

Teaching Styles

Teachers play an important role in whether students are engaged in their work, or not. The ability of the teacher to awaken intrinsic motivation in the student is a valuable tool in the classroom. Geoffrey L. Herman (2012) writes about Contributing Student Pedagogy (CSP) and how it enables a student's internal motivation to learn. In CSP, teachers give students the power and control over some elements of the classroom. Students perform better during "high-cognitive" tasks, such as learning, problem solving, and thinking creatively, when they are intrinsically motivated to complete the task (Pink, 2011). A possible solution to student inactivity or disengagement is having highly intrinsic lessons available for students to complete. Teachers can also include students in conversations about how they are learning through a process called self-determination (SD) which can help with intrinsic motivational learning. "Self-determination is a combination of attitudes, knowledge, and skills that enables individuals to make choices and engage in goal-directed, self-regulated behavior" (Luckner & Sebald, 2013, p. 377). Luckner and Sebald (2013) write that teaching translates to teachers providing the opportunity and training for students to develop the attributes of SD. They also suggest

providing opportunities for student-centered learning in daily routines, teaching the component elements of SD, and structuring experiences that require these skills. Creating an opportunity to choose from various activities to learn from promotes the intrinsic value of the task. The article goes on to talk about how SD opportunities include students setting learning goals for themselves, problem solving, and practicing self-regulation. According to Luckner and Sebald (2013) students who are deaf or hard of hearing may need explicit instruction to be able to acquire the language, knowledge, and skill they need to become self-determined. An example of explicit instruction could be one on one instruction or modeling. One of the goals of student centered learning is to increase student motivation. This also brings awareness to social and emotional learning.

Social and Emotional Learning

Learning difficulties can coincide with social difficulties for most students with a hearing loss as they are integrated into a mainstream classroom. Some students who are deaf or hard of hearing do well and feel accepted in mainstream classrooms (Anita, Jones, Luckner, Kreimeyer, & Reed, 2011; Leigh, Maxwell-McCaw, Bat-Chava, & Christiansen, 2008). However, some studies report pervasive and persistent difficulties in social and emotional well-being within integrated settings. This finding is likely to be particularly detrimental to positive social interactions, subsequent social competence, and overall well-being and development (Hintermair, 2014; Spencer & Marschark, 2010; Wauters & Knoors, 2007).

It is hard to separate emotional and social learning from educational learning for students with a hearing loss. According to the same article, it is important for the teacher to understand the value of the social and emotional aspect of learning for students with a hearing loss (Norman & Jamieson, 2015). Social and emotional learning focuses on the development and application of

skills that are fundamental to life, as it involves teaching children how to handle themselves, their relationships, their work, and their conduct (Norman & Jamieson, 2015).

Social and emotional learning difficulties of some DHH children pose barriers that can inhibit learning. Teachers who are aware of the social and emotional needs of students can work to break down the barriers that may influence negative culture or attitude in learning in the classroom. Another aspect of understanding and supporting the social and emotional needs is the support from both parents and special education teachers.

Support

Parent involvement is particularly important to the academic achievement of students.

Across the literature, higher levels of parent involvement are consistently associated with positive outcomes such as greater academic success (Catsambis, 2002; Chen & Gregory, 2009; Froiland, Peterson, & Davison, 2012; Jeynes, 2007; Keith et al., 1998). With the help of Individualized Education Plans (IEPs), teachers, DHH specialists, parents, and students, the best plan can be crafted for the student's success. "The most supportive parents were satisfied with their involvement in the IEP planning meetings, were comfortable advocating for their child, and thought the meetings were generally effective and clear" (Cawthon & Caemmerer, 2014, p. 17). IEPs provide a clear perspective and path for all involved to help accomplish. The teacher's role in the IEP process is to provide input as to how the child is doing in the classroom and ideas for how the instructor can help ensure the child is successful. Special education teachers ensure DHH students have IEPs that are specific to their learning needs because of their hearing condition. The Orton-Gillingham Approach of instruction, which may be utilized by special

education and classroom teachers, can be modified to include IEP's for students in the school setting.

Best Practices and Intrinsic Activities

It is important to have effective instruction that meets the needs of the individual student. Creating effective instruction includes: Screening for reading problems and monitoring progress and schedule regular peer-assisted learning opportunities (Gersten et al., 2007), providing smallgroup instructional intervention to students struggling in areas of literacy and English-language development (Baker et al., 2014), teaching a set of academic vocabulary words intensively across several days using a variety of instructional activities, and provide regular, structured, opportunities to develop written language skills (Baker et al., 2014). The teacher should work to integrate language instruction into content-area teaching on a regular basis. The more familiarity DHH students can have with vocabulary and reading instruction, the better chances of success they will have in the classroom, thus, many research based strategies are literacy based. Herman, Roy, and Kyle (2014) state in their research, "Of interest, the profile of phonological deficits associated with poor literacy at this age was strikingly similar for deaf and hearing dyslexic children. In line with previous evidence, tasks involving the manipulation of sounds (e.g. phoneme deletion, spoonerisms) were particularly significant for reading, and naming speed for digits was significant for spelling" (p. 13). All of these methods listed above are highly effective for all learners in the classroom.

Accommodations

Most classrooms have students with a variety of abilities. Differentiation within the classroom is a method used to reach all students. For students who are deaf or hard of hearing accommodations can be a method of differentiation. Accommodations can be during classroom

lessons and assessment. Although accommodations change the way students work on lessons or take assessments; it does not alter the difficulty. Accommodations are meant to increase access to the test content while allowing for the core content to be interpreted in the same manner as that for a test taken without an accommodation (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 1999). Accommodations can include extending work time (Bolt & Thurlow, 2004), working in a least restrictive environment, adapting technological resources, or providing human resources for support (Dekemi & Luckner, 2016).

One of the most common accommodations allowed on state assessments is extended time. The least restrictive environment (LRE) was introduced in Public Law 94-142, the Education for All Handicapped Children Act of 1975, which has been subsequently reauthorized as the Individuals with Disabilities Act (Bolt & Thurlow, 2004). The article talks about the Individuals with Disabilities Act requiring students with like disabilities to be in the same classroom much as possible. Another accommodation is the use of technology. Technology usage can include digital hearing aids, cochlear implants, and FM systems (Dekemi & Luckner, 2016). Technology enhances students' ability to access the classroom materials at the same rate as their non-DHH peers. Many more resources are available for DHH students. The article from Ayantoye and Luckner mention that human resources include parents, teachers of the students who are deaf and hard of hearing, interpreters, general education teachers, counselors, speech therapists, and resource teachers. According to the teachers and parents from the test group of Ayantoye and Luckners' article, teachers provided major support with vocabulary and parents praised and used strength-based positive learning perspectives. Researchers and practitioners who support the strength-based positive psychology perspective focus on human strengths rather than weaknesses (Seligman & Csikszentmihalyi, 2000). Both proved beneficial to improving learning with students who have hearing loss.

Summary

It is very important provide learning opportunities in a way that students are able to understand. Differentiating learning and providing accommodations for students benefits the students by creating multiple opportunities to achieve. Using parents and support staff along with strength-based positive perspective strategies allows student to do their best. Accommodations for students who are deaf or hard of hearing include extended periods to work on assessments, peer-to-peer interaction, and technology use. The uses of accommodations directly affect students' ability to achieve. Chapter three will explain the use of Orton-Gillingham Approach within my instruction to reach students who are hard hearing.

Chapter Three will discuss the project that incorporates the Orton-Gillingham Approach to syllable word recognition and phonics. There will be information about how the project will teach, assess, and help students who are hard of hearing will be implemented using lesson plans, the methodology behind it, and anecdotal notes.

CHAPTER THREE

Project Description

Introduction

The literature review discussed the needs and methods of instruction for students who are hard of hearing. The research suggests that accommodations should be initiated within the classroom not only by the teacher, but with parents and support teachers as well. There are many accommodations that can be used and I propose a lesson method with the purpose of identifying best practices to help students who are hard of hearing learn using lessons that include the Orton-Gillingham Approach.

Chapter three will explain the lessons and method that is going to be used to teach students who are hard of hearing. The reason for the research is to provide sound evidence and data that support the use of accommodations and the use of the Orton-Gillingham Approach of instruction for students who are deaf and hard of hearing. Observations will be used to provide qualitative analysis of accommodations in vocabulary acquisition. Grammar assessments will be used for quantitative analysis. The Orton-Gillingham Approach will be used during vocabulary, letter name, and syllable recognition lessons by teacher led instruction and can have accommodations with parent and special education support. The lesson will begin and end with an assessment measuring student's knowledge of spelling six syllables. Strength-based positive learning perspectives will be initiated and observed for qualitative analysis of learning.

Orton-Gillingham Approach Theory

The Orton-Gillingham Approach has traditionally been used for teaching students with dyslexia. Although dyslexia and deafness are different forms of learning limitations there are some similarities that I propose will help those with hearing loss. Further analysis revealed the main difference between the deaf and hearing dyslexic group to be the key role of vocabulary for reading and spelling for the deaf children (Herman, Roy, & Kyle, 2014, p.13). The analysis from the article stated that many of the underlying deficits for children who are deaf and hard of hearing are comparable to those with dyslexia (Herman et al., p.16). The official Orton-Gillingham Academy website provides the following background information on its methodology:

Orton-Gillingham is an instructional approach intended primarily for use with persons who have difficulty with reading, spelling, and writing of the sort associated with dyslexia. It is most properly understood and practiced as an approach, not a method, program, system or technique. In the hands of a well-trained and experienced instructor, it is a powerful tool of exceptional breadth, depth, and flexibility. The Orton-Gillingham Approach is most often associated with a one-on-one teacher-student instructional model. Its use in small group instruction is not uncommon. A successful adaptation of the approach has demonstrated its value for classroom instruction. Reading, spelling and writing difficulties have been the dominant focus of the approach although it has been successfully adapted for use with students who exhibit difficulty with mathematics. (Academy of Orton-Gillingham Practitioners and Educators, 2012).

According to the Academy of Orton-Gillingham Practitioners and Educators (2012), the OG Approach includes many learning pathways that contribute to students' capability of using

phonics and phonetic awareness to decode syllables in words. By letting the student see and hear letter sounds and words while writing, students use multisensory learning to help in their understanding. It takes advantage of the sound/symbol relationships inherent in the alphabetic system of writing.

Several terms for teacher research is encountered in education literature, including: action research, practitioner research, teacher-as-scholar, practical inquiry, interactive research, classroom inquiry, and practice-centered inquiry (Downhower, Melvin, & Sizemore, 1990; Williamson, 1992). Although these terms may not be completely interchangeable, a common thread running through various conceptions of teacher research is that the teacher is an active constructor of knowledge rather than a passive consumer of it (Miller & Pine, 1990; Williamson, 1992). To this end, my study will assess the effect of multiple classroom interventions on students who are deaf or hard of hearing over the course of seven weeks in comparison to their peers. The teacher seeks to answer questions and solve problems that arise from daily life in the classroom and to put findings into immediate practice (McKay, 1992; Twine & Martinek, 1992). These findings will help me and colleagues understand the needs of students with hearing loss in the classroom by providing effective instruction tools.

Lessons using the Orton-Gillingham Approach are intended for a classroom teacher in small group setting. The student makeup is intentionally for DHH in this project. Additional support can be used including DHH specialists, paraprofessionals, and volunteers depending on the need and IEP requirements. ADHH specialist can provide push-in support during the student's individual work time to help.

Methodology

I am going to use the mixed method approach to my Orton-Gillingham Approach.

Observational and qualitative data from the surveys will help identify variables that may not be anticipated before the research. For research purposes the timeline is seven weeks in order to collect data for each lesson; however, a classroom teacher may use however long he/she feels needed to measure students' success rate. During the seven weeks of research pre and post assessments, spelling lessons, quizzes, hands-on activities, and anecdotal field notes will be collected.

Pre and post assessments

There will be a pre and post assessment given. The assessments will provide a classroom instructor an understanding of each student's needs and provide qualitative data for the teacher to see growth in student achievement or where intervention may be required. With data received from the assessments; instructors can determine if reteach is necessary or enrichment can be given. Reteach can be implemented for the specific areas needed and enrichment can be used to solidify students understanding by giving them a chance to find words in books, creating their own sentences, having peer to peer interaction looking and writing words together, etc.

Lessons and Anecdotal Notes

A review of the previous lesson and an introduction to the net lesson will take place at the beginning of every week. A final spelling quiz will take place at the end of each lesson with an exception to the lesson one where there will be no quiz. The data will be analyzed and recorded in order to have summative information on whether each student was able to distinguish between the six types of syllables. I will teach vocabulary and letter name recognition lessons using the

Orton-Gillingham Approach to provide hands-on lessons. Stevens & Neville (2006) report, "Taken together, the present data suggest that foveal contrast sensitivity does not differ in deaf or dyslexic groups, whereas motion processing is selectively modifiable and can display either vulnerability or enhancement. Results from the static perimetry task indicated that neither the deaf nor dyslexic group differed from controls in foveal contrast sensitivity" (p. 708). Research shows the very close similarities between dyslexic and deaf or hard of hearing students, therefore this is why I chose the Orton-Gillingham Approach for this project.

CLOVER syllable recognition will also be used to reinforce spelling combinations.

CLOVER stands for the six combinations of syllables used in spelling, but not necessarily taught in that order; Closed, consonant Le, Open, Vowel teams, vowel-consonant-E, and R controlled. These lessons can use accommodations (small group setting, FM receivers, push-in support, IEP requirements, and extra time to work). I will record students working on their lessons using anecdotal notes. The seven lessons will include the Orton-Gillingham Approach (see appendices A through J) and will include a pre and post assessment to determine growth and intervention needs.

Implementation

An introduction to the six types of syllables (CLOVER) that will be taught, as well as, vowel sound recognition will start the first week. Long and short sound recognition lessons and activities will begin and end with an auditory assessment of the current lesson. Each week thereafter a portion of the CLOVER syllable recognition will be taught which will include a review of the previous lesson. Each consecutive week will have a syllable lesson in the order of closed syllable, open syllable, consonant-le, vowel teams, vowel-consonant-e, and r-controlled

syllables. According to Barbara Zelinske (personal communication, 2017), Director of Teacher Training at the Reading Center Dyslexia Institute of Minnesota-Rochester, it is important that students are introduced and taught the six syllables in the order mentioned. Zelinske mentioned that the open and closed syllables are easier to understand and the complexity in syllable recognition increases in this order. For each lesson students will be able to practice syllable recognition visually, orally, and kinesthetically. According to Herman, Roy, and Kyle (2014) "Deaf children's specific difficulties with the rhyme tasks were fully accounted for by their problems with vocabulary and the key phonological tasks significant for both deaf and hearing children. Roughly equal proportions of the deaf sample made mainly phonetic errors, mainly non-phonetic errors, or a 'mixed' pattern of phonetic and non-phonetic errors" (p. 13). The findings in these articles and Barbara Zelinske's expert knowledge helped me decide to use Orton Gillingham in a small group with students who are deaf and hard of hearing. Each lesson will have an activity that will be collected for quantitative data and should be taught within 10-15 minutes in length. The lessons will follow recommended procedures of The Reading Center/Dyslexia Institute of Minnesota.

Minnesota and Common Core Benchmarks that will apply to the OG lessons are:

- 2.3.1.4-Know and apply grade-level phonics and word analysis skills in decoding words.
 - a. Distinguish long and short vowels when reading regularly spelled one-syllable words.
 - b. Know spelling-sound correspondences for additional common vowel teams.

Language Benchmarks (Common Core Language Standards) 2.10.2.2-Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

d. Generalize learned spelling patterns when writing words (e.g., cage → badge; boy → boil) i.e. −le (pickle), vce (cake), -r controlled (tart). (Minnesota Academic Standards English Language Arts, 2010).

All lessons are accessible in the appendices section. Lesson one is an introduction to the six syllable patterns. As part of the daily warm up students will practice the phrase, "Every syllable will have at least one vowel." They will also practice seeing, saying, and writing five vowels, a-e-i-o-u. Students will begin the lesson by saying the short sound first and then the long sound. According to Zelinske it is important to practice the sounds in order of frequency used in ordinary conversations, reading, and writing (personal communication, 2015).

Lesson two will include a review of short and long vowel sounds and the introduction and teaching of closed syllable sounds. There are videos available in the appendices describing either how to teach the certain vowel sound or describing the certain syllable pattern and spelling. A quiz identifying and spelling closed syllable words will end lesson two.

Lesson three will review short and long vowel sounds along with closed syllable words. This lesson will introduce and teach open syllable words. A quiz identifying and spelling open syllable words will end lesson three.

Lesson four will review long and short vowel sounds along with open syllable words.

The lesson will introduce syllables with consonant "le." A quiz identifying and spelling consonant "le" syllable words will end lesson four.

Lesson five will review short and long vowel sounds along with the syllable consonant "le." The lesson will introduce and teach the vowel team syllable and words. A quiz to identify and spell vowel team syllables will be given at the end of the lesson.

Lesson six will review short and long vowel sounds along with vowel team syllable words. The lesson will introduce and teach the vowel consonant e sound in a syllable.

Lesson seven will review short and long vowel sounds along with vowel consonant "e" syllables. The lesson will introduce and teach "r" controlled syllable sounds. A quiz to identify and spell "r" controlled vowels in a syllable will be given at the end of the lesson. Various tools, artifacts, and graphic organizers can also be used at the teacher's discretion. See samples in the appendices.

Summary

The Orton-Gillingham Approach was initiated to help students with dyslexia. From the research gathered in my literature review, I found similarities of learning patterns within the deaf and hard of hearing community and dyslexia that can benefit from The Orton-Gillingham Approach.

Student and parent surveys, a home inventory, lessons delivered in a specific order, along with summative and formative assessments will provide teachers with more effective instructional tools specifically for deaf and hard of hearing students. The data collected will give me a chance to show how students who are deaf or hard of hearing learn with these provided accommodations and lessons.

Chapter four will discuss the intentions and reflections of building a lesson project for students who are deaf and hard of hearing. This will include a review of the curriculum outlined in chapter three.

CHAPTER FOUR

Reflection and Conclusion

Reflection

My research question is; how can the Orton Gillingham Method be used as an effective tool to receive a deeper understanding of syllables and word spelling for students who are hard of hearing? My intention for this paper was to increase the success of syllable and word spelling for students who are deaf and hard of hearing. I had forgotten the times when I was in elementary school when I had interacted with my peers who were deaf until I had a chance to volunteer to teach DHH students. The memories came back to me as vivid as the days I was with them in grade school. I really had a difficult time when I was younger understanding the differences and needs of others. It was hard to see anyone else's perspective besides mine. Through life experience and education I have learned to have empathy towards others. I have really developed a passion to want to help others and give them opportunities to become better people. Looking back at my elementary years and what had happened to a classmate because of my actions increased my desire to become a change for the better in the lives of students now. There was an opportunity to take a position in my building to teach students who are deaf and hard of hearing. I jumped at the chance. After accepting the position as the teacher for students who were deaf or hard of hearing, I started to understand the limitations and difficulties those students had when trying to learn. I began to have an understanding of the delays in word and sound recognition because of their hearing loss. My school district offered a chance for me to enroll in an Orton Gillingham Approach to learning phonetic and basic English spelling skills. Upon taking the course I noticed a similarity in struggles of phonics and word recognition

between children with dyslexia children who were deaf and hard of hearing. This is when the question occurred to me, how can the Orton Gillingham Method be used as an effective tool to receive a deeper understanding of syllables and word spelling for students who are hard of hearing? I wondered if teaching the Orton Gillingham Approach would benefit students who were deaf and hard of hearing and if they would improve their ability to spell one syllable words. Evidence on page twenty four in Chapter Three from Herman, Roy, & Kyle, (2014, p.16) stated that there are many underlying deficits to students with dyslexia and students who are deaf and hard of hearing. That was one reason I chose the Orton-Gillingham Approach.

I decided to use the Orton Gillingham Approach with the six syllables used in spelling. I would implement the lessons in a small group setting by using templates provided by The Reading Center Dyslexia Institute of Minnesota-Rochester. In my opinion, I felt it was necessary to work with students who are deaf or hard of hearing in a small group setting in order for them to get a deeper understanding of how letters form a sound because of the lack of hearing experiences the average child receives from birth as evidenced in Chapter Two, page eighteen by Hintermair (2014); Spencer & Marschark, (2010); Wauters & Knoors (2007) that integrated settings can be particularly detrimental to positive social interactions, subsequent social competence, and overall well-being and development. An in-depth, small group, multisensory lesson seemed to be a good match. I am concerned, however, with the limitations to learning with students who have multiple limitations or challenges to learning. I think a challenge for teachers is to keep track of information and distinguish the barriers in learning for students with more than one learning challenge. Each lesson teaches one type of syllable. The intent is to incorporate audio, visual, and hands on learning all in the same lesson. Each syllable can be taught in one 10-15 minute session. Each lesson works with the previous lesson using reviews to

help students build an understanding of how word spelling is connected to each other. A challenge I see to the lessons is keeping each lesson within or under 15 minutes. I think it is important to create explicit expectations and small group norms with the students in order to have a flow in the lessons.

Accommodations can include dry erase markers, white boards, blank sheets of paper, pencils, erasers, shaving cream, and books to read that have the syllables being taught in them. Pre and post assessments will be given to each student in the small group.

Pre and post assessments will be given to each student in the small group. During the small group sessions teachers can review prior learning using the pre-assessments in order to know where to begin and they will also be able to monitor progress often by taking anecdotal notes while teaching the new material. Teachers can give a summative assessment at the end of the lesson to see if the students have retained new knowledge. I feel that the data from pre and post assessment, as well as anecdotal notes, can help determine additional needs, modifications, or differentiation adaptations for students who either struggle or excel within the lessons. The Orton Gillingham Approach has helped educators build another way to reach students in their learning. I've seen, firsthand, how practicing with Orton-Gillingham helps struggling students identify syllable sounds and then use the six syllable rules to increase their ability to say words correctly and spell them correctly as well. I've noticed that some students who struggled with the concept of Orton-Gillingham's Approach to the six syllables were able to benefit from practicing writing the sound or word as they verbally said the syllable or letter sound. The Orton-Gillingham Approach can also benefit the whole classroom, as needed, when other peers in the class might be struggling with word spelling.

I plan on sharing these approaches with my 2nd grade team and eventually I would like to establish a building wide plan that can be accessed by every teacher and provider in the building. I think it will serve as a great alternative or additional tool to help students know their syllable rules and become better spellers. The approach is very basic to the concept of syllables in words and can help students in any grade level that are not confident or proficient with the syllable rules. Parents, Paraprofessionals, and Special Education teachers can all use the approach as a one-on-one at home or a pull-out/push-in intervention guide to improving phonics and syllable spelling for students.

Practice Thoughtful Inquiry and Reflection

All students deserve the chance to succeed to the best of their abilities. Some have learning challenges that include physical and mental situations that increase the need for more interventions and at times receive services away from a whole classroom approach. I often wonder how "Jeff" coped without a hearing aid because I had broken it. What kind of impact did I have in "Jeff's" ability to learn? I feel that I hurt his ability tremendously by breaking a valuable tool of his. My intention in this paper is to accommodate students with hearing deficiencies by giving them a chance to learn in a small group setting. My question, "How can the Orton-Gillingham Approach be used as an effective tool to receive a deeper understanding of syllables and word spelling for students who are hard of hearing?" helped me find learning alternatives to the whole class approach. My paper provides teachers and caregivers reasons for my desire to help students who are deaf and hard of hearing, normal hearing pathways and some reasons for hearing loss, and an approach to learning that offers students a chance to learn in a small group setting.

For the average person learning begins from the first day of birth through hearing. Many students who begin life without hearing are already losing a great learning opportunity. Students who lose their hearing in their childhood also lose a learning opportunity. With a small group setting I hope to provide an opportunity for students who may be delayed in phonics and syllable recognition because of hearing loss. The Orton-Gillingham Approach provides multisensory learning through audio, visual, and tactile syllable practice. The effect of multisensory learning helps the brain understand syllable and word recognition with greater ease (Academy of Orton-Gillingham Practitioners and Educators, 2012).

I used Hamline's Conceptual Framework as a guideline to provide essential learning opportunities for students who are deaf and hard of hearing, I feel this project provides equity (PE) to a particular group that had been disadvantaged because of their inability to hear. The project and the paper helps shape a better understanding of students that have a hearing challenge and how to help them as a contributing member of society. Causes (page 13) and Student engagement (page 17) from Chapter Two gives examples of some causes of student hearing loss and effective student engagement. By knowing what students are missing and how to effectively reach them this paper and project helps instructors provide intentional learning for students with hearing loss. Teachers can build an understanding of where learners are and how they process their own understanding by reading this paper. Sharing this information with my at-grade teammates along with the building staff will help my school become an agent of change for helping all students. Teachers can also collaborate with other providers to ensure a welcoming learning environment for their students. On page seventeen teaching styles are talked about and on page twenty best practices and intrinsic activities are discussed. Creating a safe and welcoming learning environment is important in helping to build communities of teachers and

learners (BC). The lessons in the project provide scaffolding to learning syllable sounds and their spelling. The Orton-Gillingham Theory in Chapter Three (page 24) explains how to begin syllable lessons with a basic understanding of vowel sounds using multisensory practice. Each lesson reviews previous lessons learned and connects the following lesson to vowel sounds. The information helps instructors understand the needs of the students and help in the process of constructing knowledge (CK). Teachers are able to use thoughtful inquiry and reflection (PR) by using pre and post assessments to determine growth or a need for intervention. By using the assessments teachers can adjust and modify lessons to what the student needs and have a greater understanding of where the student is in learning. There is also research included on page 24 in Chapter Three from Herman, Roy, & Kyle, (2014, p.16) that relate to the use of Orton-Gillingham with struggling students and the connection to how it helps with phonics and syllable recognition.

My biggest dilemma was taking the vastness of the Orton-Gillingham Approach and only using a small portion of it for the project. Creating it was gratifying, but I wasn't sure where to have a cut off and still have the lessons make sense. In the end, I realized this was just a stepping stone into the remainder of what Orton-Gillingham had if I wanted to pursue student learning in that direction. That helped me find a reasonable stopping point without jeopardizing learning for the students.

I have used other small group learning using the Orton-Gillingham Approach and I have seen an increase in student engagement during word practice. Students often are able to spell words correctly by using the syllable rules that they have learned. I have also seen a significant increase in word knowledge with my students as they read. Students continually point out words in a story that reflect a syllable rule that they have learned. I feel that the Orton-Gillingham

Approach does help students increase their understanding of phonics and syllable spelling. In my opinion, learning one syllable words, vowel sounds, and knowing the rules to the six syllables is foundational to every student's ability to spell and read multisyllabic words they will encounter as they journey through academia and life.

Rm ___

Appendix A

Orton-Gillingham CLOVER Pre Assessment

$\label{lem:clover} \textbf{DHH-Orton Gillingham Approach CLOVER} \ \textbf{syllable lesson plan}$

Building:_

Grade:__

Name:_

Focus Connect to the Common Core Standards	2.3.1.4 Know and apply grade-level phonics and word analysis skills in decoding words. a. Distinguish long and short vowels when reading regularly spelled one-syllable words. b. Know spelling-sound correspondences for additional common vowel teams. Lesson-Final assessment of the six syllables known as CLOVER.					
Materials Letter cards CLOVER sheet Markers/whiteboard (paper/pencil, shaving creametc) Syllable identification sheet	Beginning Review: Explain that this is a time to find out what students already know and what can be taught if they don't know. Hand out the syllable identification sheet and read through and explain that students can answer each section as best as they can. Collect the syllable identification sheets and distinguish the mastery and needs of the students. Introduce 5 vowel sounds and explain that they have a short sound and a long sound.					
Visual Recognition Exercise	-			cognize groups of letter		
Show card Students say sound/s	sound associations.	This builds automation i(2)	u(2)	d the following phono	gram cards or affix	es/roots.
	e(2)	o(2)				
	Note-yo	u may add vowels to	sound out associa	ted with one syllable w	ords that will used in	the lesson
Auditory Recognition Exercise Students watch teacher's mouth as she says sound. Students repeat sound. Students write the spelling/s for the dictated sound. Teacher asks placement and linguistic rule questions. WATCH, REPEAT, WRITE	Purpose of Auditory reinforcement for the I have selected the f	student's mastery of ollowing sounds or	f words. affixes/roots to did	ection between speech :	sounds & written uni	ts, a crucial
Connection to Language	Word study activity	with a specific con	nection in mind.			
Structure Underline the vowel pattern	A listing of some id	eas:				
Write the syllable pattern above	Take the syllable ide	entification assessm	ent.			

Rm #_____

Appendix B

Orton-Gillingham Lesson Plan One

DHH-Orton Gillingham Approach CLOVER syllable lesson plan

Name: _____

Grade: _____ Building_____

Focus Connect to the Common Core Standards	Identify Common Core Standard connection. 2.3.1.4-Know and apply grade-level phonics and word analysis skills in decoding words. a. Distinguish long and short vowels when reading regularly spelled one-syllable words.					
Materials Letter cards CLOVER sheet Markers/whiteboard (paper/pencil, shaving creametc) CLOVER words to identify Sentences with 6 syllable types	Introduction to the 6 syllable types using CLOVER Closed, consonant Le, Open Vowel teams, pinching E, R controlled.					
Visual Recognition Exercise Show card	Purpose of Visual Exercise: Students need to be able to recognize syllable spelling. This builds automaticity.					
Students say short and long sounds(2) Students watch teacher's mouth as she says sound. Students repeat sound.	I have selected t	the following photos	u(2)	or affixes/roots	s.	
Students write the spelling/s for the dictated sound.	e(2)	o(2)				
	Note-you may ad the lesson.	d consonants to s	sound out associ	ated with one sy	yllable words that	will used in
Connection to Language Structure	Word study activ	vity with a speci	fic connection i	in mind.		
Show students all of the syllables by using words associated with the syllables.	Introduce the 6 syllable sounds.			o make it		

	Name	Pattern	Example
C			
L			
O			
V			
E			
R			

Every syllable has a vowel pattern.

Vowels- a,e,i,o,u

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CLOVER

Acronym	Syllable Patterns	Description	Example
С	Closed vc	A closed syllable has only one vowel and ends in a consonant. The vowel is usually short.	a cab b bed i his o mop u fun y
L	Consonant le cle	A consonant le syllable is a final syllable in which the <u>e</u> is silent; thus it sounds like a consonant-l.	-ble -ckle -dle -fle -gle -ple -tle -zle
O	Open cv	An open syllable ends in one vowel. The vowel is usually long.	a ba (baby) e he i I o go u music u ruby y can <u>dy</u> /sk <u>y</u>
V	Vowel Team vv	A vowel team syllable has two vowels that together make one sound. This sound has to be learned, as it often takes on a sound different than either single vowel.	ay day oy boy igh night ow snow ee need oo soon ai rain ea meat oa boat
E	Silent e vce	A silent-e syllable has one vowel followed by a consonant followed by an e. The e is silent and makes the preceding vowel long.	a-e came e-e these i-e ike o-e home u-e fuse u-e june y-e style
R	R Controlled vr	An r-controlled syllable has a vowel followed by an r, which modifies the vowel sound.	ar car ear near er/ir/ ur her/bird/hurt or for *er merit

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Students should	ock if available. Cusay the short soun and sentences as ne	d first, then th	e long sound.	·Ţ		
a	e	i	0	u		
I can tickle a hen while she eats.						
Fun is so off the charts.						
	Ted	has th	e flu.			
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Appendix C

Orton-Gillingham Lesson Plan Two

DHH-Orton Gillingham Approach CLOVER syllable lesson plan

Name:		Grade:	Building		Rm #	
Focus	2.2.1.4 Know on	d apply grada lay	ol phonics and we	and analysis skills	in deceding word	la a Distinguish
Connect to the Common Core Standards	2.3.1.4-Know and apply grade-level phonics and word analysis skills in decoding words. a. Distinguish long and short vowels when reading regularly spelled one-syllable words.					
	Lesson-closed syl	llable				
Materials Letter cards-a,e,i,o,u Markers/whiteboard (paper/pencil, shaving creametc) Closed words to identify	Beginning Review: Short and long syllable sounds. Focus on short syllable sounds. Short Vowels 0001					
Visual Recognition Exercise Show card Students say short and long sounds(2)	Purpose of Visual Exercise: Students need to be able to recognize syllable spelling. This builds automaticity. I have selected the following phonogram cards or affixes/roots.					
Students watch teacher's mouth as she says sound.	a(2)	i(2)	u(2)			
Students repeat sound.	e(2)	o(2)				
Students write the spelling/s for the dictated sound.						used in the lesson. u have introduced.
	What placement/l Where is short se		•	ask? Where is t	he short sound us	sed in a word?
	To check on stud to spell during the			written words, wh	nat words could yo	u ask your students
	This exercise can	be done using pa	per/pencil, dry era	ase boards, shavir	ng cream, etc.	
Connection to Language Structure	Word study activ	vity with a specif	ic connection in	mind.		
Underline the vowel pattern stop	 Explain that every syllable has at least one vowel and the vowel is either short or long. Sorting between two syllable patterns Word sort with a focus on vowels and consonants 					
Write the syllable pattern above vc stop	Connecting a syllable pattern with the closed syllable vc stop Identifying vowel patterns in words (syllable patterns are built around vowel patterns) This is what I'm including for word A closed syllable pattern has only one vowel and ends in a consonant.			d vowel patterns).		
	-	able to underline			he vowel pattern	above the word

Closed Syllable (vc)

A closed syllable has only one vowel and ends in a consonant. The vowel is usually short

vc <u>a</u> t	in	up
ten	pep	not
sit	gum	had
will	sack	fetch
sled	grab	stop
lint	hand	must

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Note: Closed syllables make up around 43% of syllables in English words.

Appendix D

Orton-Gillingham Lesson Plan Three

DHH-Orton-Gillingham Approach CLOVER syllable lesson plan Name: _____ Grade: ____ Building____ Rm #_____

Focus Connect to the Common Core Standards		vels when reading re	onics and word analy gularly spelled one-sy		ng words. a. Distii	nguish
Letter cards-a,e,i,o,u Markers/whiteboard (paper/pencil, shaving creametc) Open words to identify.	Beginning Review: Short vowel sound, open vowel sound, Closed syllable. Long vowels 0001			0001		
Visual Recognition Exercise Show card	Purpose of Visual Exercise: Students need to be able to recognize groups of letters and remember their correct sound associations. This builds automaticity. I have selected the following phonogram cards or affixes/roots.					
Students say short and long sounds(2)	a (2)	i (2)	u (2)			
Students watch teacher's mouth as she says sound.	e (2)	o (2)				
Students repeat sound.	Note-you may add	consonants associated	with one syllable word	ds that will used in	the lesson.	
Auditory Recognition Exercise Students watch teacher's mouth as she says sound.	crucial reinforceme I have selected the fe	nt for the student's not solve of the student's not sound or after the student's not solve or after	•	•		,
Students repeat sound.	a (2)	i (2)	u (2)			
Students write the spelling/s for the dictated sound. Teacher asks placement and linguistic rule questions.	e (2)	o (2)				
This exercise can be done using paper/pencil, dry erase boards, shaving cream, etc.	What placement/lin is long sound used in	guistic rule questions n a word? t understanding of th	ecting your students s could you ask? Whe e above in written wo	nere is the long sou	ınd used in a word	? Where
Connection to Language Structure Underline the vowel pattern go Write the syllable pattern above cv go	A listing of some id patterns This is what I'm inc An open syllable is a Use real and nonser	cluding for word wor syllable that ends in a use words to practice	focused on open sylla	a, de, re, bli, mi, zo,	, he, me	

Open Syllable (cv)

An open syllable has only one vowel at the end of a syllable. The vowel is usually long.

c v fl <u>a</u> -	° ∨ b <u>a</u> .by	
go	re-	sla-
ba-	vi-	me
tri-	mu.sic	de-
pro-	ha-	cre-
ho.tel	ru.by	a.ble

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Appendix E

Orton-Gillingham Lesson Plan Four

${\bf DHH\text{-}Orton\text{-}Gillingham\ Approach\ CLOVER\ syllable\ less on\ plan}$

Name:	Grade:	Building_		Rm #		
Focus Connect to the Common Core Standards	2.3.1.4-Know and apply grade-level phonics and word analysis skills in decoding words. a. Distinguish long and short vowels when reading regularly spelled one-syllable words. Lesson-consonant le					
	Beginning Review	: short vowel sou	nd, long vowel so	und, open vowel so	ound. <u>Cle syllables</u>	<u>s 0001</u>
Visual Recognition Exercise Show card	Purpose of Visual correct sound associ	ciations. This buil	ds automaticity.		ps of letters and re	emember their
Students say sound/s	a (2)	i (2)	u (2)			
	e (2)	o (2)				
Auditory Recognition Exercise	Purpose of Audito				en speech sounds	& written units,
Students watch teacher's mouth as she says sound.	I have selected the (I have indicated the Examples: m (1)			my students to wri	ite)	
Students repeat sound.	-ble	-fle	-gle	-zle	-cle	
Students write the spelling/s for the dictated sound.	-ckle	-dle	-ple	-tle		
Teacher asks placement and linguistic rule questions. WATCH, REPEAT, WRITE	Indicate how many spellings you are expecting your students to write based on what you have introduced. 9 spellings with consonant le. Sounds like –ull (quick, short sound)				ave introduced.	
	What placement/lir To check on student to spell during the	at understanding of auditory exercise?	f the above in wri	tten words, what w	vords could you as	k your students
	This exercise can b				ream, etc.	
Connection to Language Structure Underline the vowel pattern <u>Cle</u>	Word study activi A listing of some i		connection in m	ind.		
Write the syllable pattern above cle	This is what I'm in		el patterns / syllal d work: A word	•	open, closed, cons	sonant le words.

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Print on card stock if available. Cut out syllables. Reprint syllables as needed.				
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Consonant-le Syllable (cle)

A consonant-le syllable (cle) is a final syllable in which the e is silent; thus it sounds like a consonant-l. A cle syllable needs at least one more syllable to form a word.

-ble -ckle -dle -fle -gle -ple -stle -tle -zle

giggle	handle	simple
feeble	gentle	cradle
sniffle	puzzle	buckle
chuckle	wrestle	jostle

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Cut out and use with each consecutive lesson.

Note: -cle is an advanced consonant le ending. The word 'uncle' uses -cle but for the most part, words using -cle are more advanced.

particle, receptacle, obstacle, clavicle, chronicle, etc.

Appendix F

Orton-Gillingham Lesson Plan Five

$\label{lem:clover} \textbf{DHH-Orton Gillingham Approach CLOVER} \ \textbf{syllable lesson plan}$

Name:	Gra	de:	Building:_		Rm	
Focus Connect to the Common Core Standards	2.3.1.4 Know and apply grade-level phonics and word analysis skills in decoding words. a. Distinguish long and short vowels when reading regularly spelled one-syllable words. b. Know spelling-sound correspondences for additional common vowel teams. Lesson-vowels teams					
	Beginning Review short vowel sound, long vowel sound, open vowel sound, Cle sound. Between the Lions: "When Two Vowels Go Walking"					
Visual Recognition Exercise	Purpose of Visual Exercise: Students need to be able to recognize groups of letters and remember their correct sound associations. This builds automaticity. I have selected the following phonogram cards or affixes/roots.					
Show card Students say	-ble	-fle	-gle	-zle	-cle	
sound/s	-ckle	-dle	-ple	-tle		
	Note-you r	nay add vowels to	sound out associ	ated with one syllable word	ds that will used in th	ie lesson
Auditory Recognition Exercise	Purpose of Auditory E reinforcement for the st			nection between speech sou	ands & written units,	a crucial
Students watch teacher's mouth as she says sound. Students repeat sound.	Definition: A vowel team syllable has two vowels that together make one sound. This sound has to be learned, as it often takes on a sound different than either single vowel. I have selected the following sounds or affixes/roots to dictate. Vowel teams that are used inside the word. Extension: Introduce multiple spellings for oi(oy), ou(ow), oa(ow),					
Students write the spelling/s for the dictated sound.	au(aw), ai(ay) ee	oa	au	ou		
Teacher asks placement and linguistic rule questions.	ea	oi	ai			
WATCH, REPEAT, WRITE	Indicate how many spellings you are expecting your students to write based on what you have introduced. What placement/linguistic rule questions could you ask? Where can you find the vowel teams we learned? Inside the word. To check on student understanding of the above in written words, what words could you ask your students to spell during the auditory exercise? This exercise can be done using paper/pencil, dry erase boards, shaving cream, etc.					
Connection to Language Structure Underline the vowel pattern <u>ee</u>	Word study activity with a specific connection in mind. A listing of some ideas: word sort activity, connecting to vowel patterns / syllable patterns This is what I'm including for word work: A word sort activity using yowel team, closed, and open syllables.					
Write the syllable pattern	Vowel team (vv)	Clos	ed (vc)	Open (cv)		
above vv(above the vowel team)	feet, seat, boat soil, caught, rain, ou	· ·	t, ask, bend	twi, blo, fla		
		1				

Print on card stock if available. Cut out syllables. Reprint syllables as needed.				
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	۵.			

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Vowel Team Syllable (vv)

A vowel team syllable has two vowels that together make one sound. This sound has to be learned, as it often takes on a sound different than either single vowel.

out	day	mood
read	pain	saw
join	head	loud
shook	haunt	knew
free	float	key
night	eight	taught

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Appendix G

Orton-Gillingham Lesson Plan Six

DHH-Orton Gillingham Approach CLOVER syllable lesson plan

Name:	_ Grade:		Building:	Rm _		
Focus Connect to the Common Core Standards	2.3.1.4 Know and apply grade-level phonics and word analysis skills in decoding words. a. Distinguish long and short vowels when reading regularly spelled one-syllable words. b. Know spelling-sound correspondences for additional common vowel teams. 2.10.2.2 Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. d. Generalize learned spelling patterns when writing words (e.g., cage → badge; boy → boil). i.e. −le, vce, -r controlled. Lesson-Silent e					
	Beginning Review:	short vowel, lo	ong vowel, open vowel,	vowel team sounds.	Silent e" by The Ba	<u>zillions</u>
Visual Recognition Exercise Show card	sound associations.	This builds aut	ents need to be able to a comaticity.		ters and remember	their correct
Students say sound/s	ee	oa	au	ou		
	ea	oi	ai			
Auditory Recognition Exercise Students watch teacher's mouth as she says sound. Students repeat sound. Students write the spelling/s for the dictated sound. Teacher asks placement and	reinforcement for th I have selected the	e student's mas following sour	nds or affixes/roots to dellings that I expect my	dictate.	/ō/ (2) o, o-e	units, a crucial
linguistic rule questions. WATCH, REPEAT, WRITE This exercise can be done using paper/pencil, dry erase boards, shaving cream, etc.	Indicate how many spellings you are expecting your students to write based on what you have introduced. 5 spellings. What placement/linguistic rule questions could you ask? What is the pinching e rule? Where is v-e most often found? To check on student understanding of the above in written words, what words could you ask your students to spell during the auditory exercise? map, tape, bike, Pete, hit, bib, pond, hope, cute, vade					-e most often
Connection to Language Structure Underline the vowel pattern	Word study activity with a specific connection in mind. This is what I'm including for word work: A word sort activity using open, closed, and silent e syllable patterns. Children will label vowel and syllable patterns with given words and sort the words together. A review of open and closed syllables might be needed.					
$\underline{v}(draw \ a \ loop \ under \ the \\ consonant)\underline{e}$ Write the syllable pattern above $v(over \ vowel)dash(over$	Open (cv)		Closed (vc)	Silent e (vce)		
consonant)e(over pinching e)						

Print on card stock if available. Cut out syllables. Reprint syllables as needed.				
۵	D			
Ф	Ф	D		
0		\		
D	D	D		

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Silent-e Syllable (vce)

A silent-e syllable has one vowel followed by a consonant followed by an e. The e is silent and makes the preceding vowel long.

v c e at<u>e</u>	eve	ape
note	cube	time
same	hope	ripe
hike	cage	type
slate	grape	smoke
shape	choke	whale

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Appendix H

Orton-Gillingham Lesson Plan Seven

$\label{lem:clover} \textbf{DHH-Orton Gillingham Approach CLOVER syllable less on plan}$

Name:	Grade:	Bu	ilding:		Rm		
Focus Connect to the Common Core Standards	2.3.1.4 Know and apply grade-level phonics and word analysis skills in decoding words. a. Distinguish long and short vowels when reading regularly spelled one-syllable words. b. Know spelling-sound correspondences for additional common vowel teams. 2.10.2.2 Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. d. Generalize learned spelling patterns when writing words (e.g., cage → badge; boy → boil). i.e. − le, vce, -r controlled. Lesson-"r" controlled syllables						
	Beginning Review UR ER IR - R cor			wel sound, open	vowel sound	l, pinching e sounds.	
Visual Recognition Exercise Show card	_			_		f letters and remember the	
Students say sound/s	/ā/ (2) a, a-e	/ĭ/(1) i	/ū/ (2 u, u-6		` ´	/ō/ (2) o, o-e	
Auditory Recognition Exercise Students watch teacher's mouth as she says sound.	crucial reinford	nditory Exercise: cement for the stud syllable has a vow	dent's maste	ry of words.		n speech sounds & written	units, a
Students repeat sound. Students write the spelling/s for the dictated sound.	ar	ir	ur	er	or		
Teacher asks placement and linguistic rule questions. WATCH, REPEAT, WRITE	Indicate how many spellings you are expecting your students to write based on what you have introduced. What placement/linguistic rule questions could you ask? In what way does the r change the sound? To check on student understanding of the above in written words, what words could you ask your students to spell during the auditory exercise? car, her, stir, for, pur This exercise can be done using paper/pencil, dry erase boards, shaving cream, etc.						
Connection to Language Structure Underline the vowel pattern turn	Word study activity with a specific connection in mind. A listing of some ideas: word sort activity, connecting to vowel patterns / syllable patterns This is what I'm including for word work: A word sort activity using open, closed, silent e, and r controlled syllable patterns. Children will label vowel and syllable patterns with given words and sort the words together. A review of open and closed syllables might be needed.						
Write the syllable pattern above vR turn	Open (cv)	Close	d (vc)	Silent e	(vce)	R controlled (vr)	_
	twi, blo, fla	suds, bi	lot, ask,	date, mule,	bake	car, her, stir, for, pur	

Print on card stock if available. Cut out syllables. Reprint syllables as needed.				
2	9	-		
9				

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R-Controlled Syllable (vr)

An r-controlled syllable has a vowel followed by an r, which modifies the vowel sound.

v r <u>Or</u>	art	her
for	verb	chart
stir	twirl	germ
storm	smart	short
cor.ner	mur.der	bor.der

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Cut out and use with each consecutive lesson.

Note: r trumps all making ear, eer, our, air r-controlled patterns versus vowel team.

near deer scour stair

Appendix I

Orton-Gillingham CLOVER Post Assessment

DHH-Orton Gillingham Approach CLOVER syllable lesson plan

Name:		Grade:	Building:		Rm
Focus Connect to the Common Core Standards	short vowels when readditional common vo	ading regularly spell owel teams.		b. Know spelling-sound	a. Distinguish long and l correspondences for
Materials Letter cards CLOVER sheet Markers/whiteboard (paper/pencil, shaving creametc) Syllable identification sheet	Beginning Review: F	Review the short and	long vowel sounds. exp	plain the six syllables	
Visual Recognition Exercise	_		_		remember their correct cards or affixes/roots.
Show card Students say sound/s	a(2)	i(2)	u(2)	v von vinnig privinogrami	
22.22.2	e(2)	o(2)			
	Note-you lesson	u may add vowels to	sound out associated v	with one syllable words	that will used in the
Auditory Recognition Exercise	crucial reinforcement	for the student's ma		n between speech sound	ls & written units, a
Students watch teacher's mouth as she says sound.	closed syllable	open syllable	consonant le syllable	vowel team syllable	silent e syllable
Students repeat sound. Students write the spelling/s for the dictated sound.	r controlled syllable				
Teacher asks placement and linguistic rule questions. WATCH, REPEAT, WRITE	What placement/lings To check on student spell during the audite	uistic rule questions of the ory exercise?	could you ask?	write based on what you, what words could you having cream, etc.	
Connection to Language Structure Underline the vowel pattern	and the words from e	very lesson.		sorts using a CLOVER	chart (from lesson one)
Write the syllable pattern above	. Take the syllable ide			. , ,	

Appendix J

Pre and post assessment

	Syllable Iden	tification	Name_	
Directions:				

Underline the vowel pattern in each word.

Determine the syllable pattern and label above the word.

Blend and say each nonsense word.

Write each nonsense word under the correct syllable heading.

			, , , , , , , , , , , , , , , , , , ,		
Word	Closed	Open	Vowel	Silent e	R controlled
	vc	cv	team	vce	vr
			VV		
Crit					
ZO					
ceeb					
zoy					
tobe					
verm					
toit					
garn					
vee					
fy					

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Appendix K

Video Sources

<u>Short Vowels 0001</u> video courtesy of The Reading Center Dyslexia Institute of Minnesota-Rochester(2012).

<u>Long vowels 0001</u> video, courtesy of The Reading Center Dyslexia Institute of Minnesota-Rochester(2012).

<u>Cle syllables 0001</u> video, courtesy of The Reading Center Dyslexia Institute of Minnesota-Rochester (2012).

Between the Lions: "When Two Vowels Go Walking" (2009).

"Silent e" by The Bazillions (2014).

<u>UR ER IR - R controlled vowels song!</u>" (2014).

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