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Language and Academic Performance: Intensive Research and Field Inquiry to study the relationships between Language, Communication, and Education

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Abstract

This independent research endeavor is focused on gathering information of, and further analyzing, content covered in the course "Language Acquisition and Literacy Development" (EDU 4500) available at Merrimack College. This specialized course from the education program focuses on studying theory and practice of Linguistics, its history, its development in children, and the ramifications of integrating it, as well as its deviations, into Education. This paper is intended to define certain material from the course as well as further analyze them and their roles in the field of Education. The introduction will consist of a basic summation of the content to this informational and research report. Following the introduction will be the rest of the paper, including the definitions, distinctions, and history of the five elements of language, Speech, Language, and Communication, the variations from their typical development, and the importance of them in schooling (specifically planning, instruction, and differentiation). The final portion of this paper discusses a personal fieldwork endeavor by the author of this report, describing their findings and its connections to the overarching topic. Overall, the purpose to this report is to better inform educators and other stakeholders of the knowledge (of human development, including linguistic and other areas) needed to be adequately prepared to instruct and assist various students (typically and atypically developing) found in every classroom.

Key words: *Speech, language, communication, linguistics, education, instruction, differentiation, inclusion, development*

Introduction

"Language Acquisition and Literacy Development" (EDU 4500) is a higher level education course available at Merrimack College. This course has been pursued for a deeper analysis of its subject matter as part of an extension through the Honors Program of studies. This paper is intended to cover content from the course, but with greater depth. Additionally, other material not covered in this section of the course (such as sensory disabilities) will be explored and discussed. The overall goal of this paper is to make further connections of the field of linguistics to education and provide further insight on the implications there are for educators who work with children that are both typically and atypically developing. Better knowledge of the development of children can further prepare instructors who are responsible for the education of their students. Various aspects of schooling are affected when there is a deviation from typical development in linguistics, thus leaving educators with the task of refining curricula and instruction. If educators are ill-informed on the development of children, it negatively impacts them in their duties to teach students from different populations. Therefore, it is imperative for professionals in the field to familiarize themselves with this information, as their knowledge and handling of it will have a direct impact on the students they are instructing.

Definitions of the five elements of language

In the discussions and analyses of language and communication, this paper will frequently refer to the five elements of language (phonology, morphology, syntax, semantics, and pragmatics). For clarification and transition purposes, these elements will all be defined below.

Phonology

This element, defined by Kuder, is the study of sounds systems in language (14). These systems are comprised of individual sounds known as phonemes. For example, the English alphabet has identified 44 phonemes to identify its letters, meaning each symbol may have more than one sound to represent it in language and communication (Kuder, 14). In terms of education, this element is vital because this is the foundation to education in early childhood prior to phonics and literacy instruction; in terms of typically developing children, the ability to use and manipulate speech is an important predictor to success in areas such as reading (Kuder, 88-92).

Morphology

This element, defined by Kuder, is the study of words and how they are formed (16). This system consists of morphemes, or the smallest identifiable units of meaning in a language. Morphemes is an umbrella form of classification including root words and affixes (prefixes and suffixes). Some morphemes are bound, meaning they must be attached to another word in order to have meaning (for example, "un" in "unhappy"). Other morphemes are free, meaning they do

not need to be attached to another word to convey its own meaning, but can be (for example, the

words "base" and "ball" in baseball) (Kuder, 15-17). In terms of education, students need to

build their use and knowledge and language for other uses that are important not only in

education, but in other areas of life (literacy, communication, etc). Once students have gained the

ability to use and manipulate individual sounds as part of their speech, they can string them

together into larger units and begin understanding meaningful language and communication.

Syntax

This element, defined by Kuder, is the study of rules that govern the structure of language

(Kuder, 17). Syntax is more complex than simply sentence structure; this element accounts for

other characteristics of language, such as phrasing and correct punctuation (which is needed to

elicit a certain response, for example a question mark is needed if one want an answer to

something, lest it be an exception such as rhetorical questions). Most sentences require basic

elements to constitute as such, including a subject, nouns, verbs, articles (for example, the),

auxiliaries (for example, is) and proper punctuation. Linguists have devised a system of coding

that represent the structures of sentences to better organize the complexities of language variety

(for example, the coding "S = NP + VP" translates to "a sentence consists of two basic elements:

a noun phrase and a verb phrase. A noun phrase needs an article [Art] and a noun [N] whereas a

verb phrase needs and auxiliary [Aux], a verb [V] and a noun phrase) (Kuder, 17-19). In terms of

education, students are further building the complexity of their language and communication. As

students are now working with sentences and larger bodies of words, they will increase their

ability in areas such as academics and conversation, both of which (with other elements) are

integral to their everyday lives.

Semantics

This element, defined by Kuder, is the study of the meaning of the components language

is comprised of (Kuder,19). Syntax consists of sentences, which is the smallest unit of meaning

in this context. However, even with the correct sentence, structure, language could possibly still

have no meaning. A famous example cited by Kuder is the sentence "*Colorless green ideas sleep

furiously*". Although all elements of the sentence have been incorporated appropriately, there is

no sense to the contents of this formed language. This is where the use of Semantics is important

in truly incorporating meaning into the language used. Restrictions have been set on what words

and phrases in the English language can be combined; were language not to conform to these

rules, it would be classified as an oxymoron (a contradictory word, idea, or phrase where the

contents have opposite meanings and conflict with one another. For example, an oxymoron could

be *married bachelor*) (Kuder, 19). Exceptions are made in language to ensure there is clarity and

reason when messengers and recipients are communicating. In terms of both in and beyond

education, the meaning of language is needed for appropriate and meaningful discourse. To

understand and use language appropriately is more than just the knowledge of vocabulary; there

are many layers of meaning, consisting of variables such as culture, politics, religion, and more.

Pragmatics

This element, defined by Kuder, is the use of language to transfer ideas, thoughts, and feelings to others (Kuder, 20). The primary purpose of language is to communicate to others, and pragmatics studies its use as well as the rules that govern that use. How language is formed and utilized molds the messages people send to each other. As a result, misinterpretations, cultural barriers, and other obstacles can interfere with communication between the people involved. When this element is considered, conversation is at the helm; people want to use language so they can send messages to others for a plethora of reasons, from giving a request to expressing an emotion. The use of communication is important to any individual who desires to interact with others. Some deviate from typical, verbal communication; this is explained further in the report. In terms of both within and beyond education, communication is the ultimate goal of linguistics; to use language to express thoughts, ideas, feelings, and other abstract elements of the human psyche are important to education, conversation, career aptitude, and everyday functioning with others.

Definitions, distinctions, and history of Speech, Language, and Communication

Speech

This aspect of linguistics, according to Kuder, is defined as the biophysical production of sound (Kuder, 2). Normal aspects of biological functions, such as burping, can be considered a type of speech. Although sound is being produced through speech, no actual language or communication are present. Such sounds are not contributing to a meaningful conversation, therefore language and communication are not involved. Some people need speech in order to

communicate, while others do not. This is specifically the case with deviations in language, which are thoroughly explained later in this report.

Language

This aspect of linguistics, according to Kuder, is defined as a system of shapes and symbols specifically designed to convey meaning (Kuder, 3). Language can stand on its own without the accompaniment of speech; an example of this would be sign language, utilized by the visually impaired (a deviation of linguistics discussed in depth later in this report). Language is a vital element in communication; language grounds linguistics so that it can give meaning to the sounds we create.

Communication

This aspect of linguistics, according to Kuder, is defined as the exchange of feelings, thoughts, and ideas between two or more people (Kuder, 4). Communication needs some basic elements to be classified as such: a sender to transmit a message, a recipient to obtain that message, an intent to communicate, and a shared means of communication. Without these elements, it is no true communication. As previously mentioned, communication can occur even without speech; communication can be both verbal and nonverbal, so long as all of the basic elements are present (for example, two people signing with one another is classified as communication). Nevertheless, however it is transmitted between two or more people, communication is a necessity for interaction.

History of Development

The presence of these linguistic abilities trace back several millennia. Examples include discoveries of visuals across the world; civilizations that existed eons ago left behind examples of how they used language and communication. One prevalent example is ancient Egyptian hieroglyphs, many of which have been discovered and preserved for observation and further analysis (Scoville). Approximately five thousand years ago, despite the poor understanding behind their origin, hieroglyphs were created and put on various materials for decoration, scholarship, and other purposes. Although there remains much speculation over the exact origin of hieroglyphs, many plausible hypotheses have risen, one of the most prominent being that they were created by ancient Egyptian tribes. Artifacts discovered and preserved under this hypothesis show that hieroglyphs were generally put on pottery vessels and papyrus, containing information such as numbers, goods descriptions, and even administrative notes and files (Scoville). A more well known use of hieroglyphs lie in their use of burials created for rulers. Hieroglyphs would cover the interiors of walls and other areas of ruins to the palaces and tombs. Many of these hieroglyphs commemorated the achievements of royalty during their reigns. Generally speaking, with regards to this time period, those who had the authority to attain the status as a scribe were the aristocracy, which explains why many of the visuals preserved were found in areas such as sealed tombs, specifically reserved for rulers and other royalty. Nevertheless, these scribes had the painstaking task of sculpting or writing a plethora of complex images and symbols; sometimes these intricate images filled up entire walls in tombs and other rooms (Scoville).

Another example of language and communication being utilized dates even farther back; archeological sites have been discovered and are under study in Indonesia (Marchant). The

approximate age of the cave paintings found in these archeological sites is believed to be at least

thirty-five thousand years old. The significance of this discovery is to learn that language and

communication have been tools to pass down stories, theories, traditions, scholastics, and other

concepts and inventions through generations over the course of thousands of years. Whether it be

in Ancient Egypt or Indonesia, visuals were primarily used as systems of language and

communication to exchange thoughts, ideas, stories, and other aspects that defined the social and

cultural foundations to their civilizations.

As time progressed, systems of writing took on simpler forms, such as more abstract

shapes and symbols, than the intricate (but concrete) images created in civilizations like ancient

Egypt. The first known system of writing, as believed through archaeological discoveries, hails

from the Sumerians, a group that once resided in Mesopotamia. This group of people created

their own system of writing for means of long distance communication as a agent for faraway

trade and commerce. The Sumerians took a step forward in language systems beyond the

Egyptians and other ancient civilizations by creating pictographs, which were simple symbols

meant to represent objects. This step into the abstract is the catalyst to the creation of other

systems of language across the world, including those found in Greece, Rome, China, and other

nations and civilizations (Mark).

In terms of the origins of language development, as mentioned before, remains mostly

unknown on how exactly these skills formed in humans thousands of years ago. As of now, there

are theories and speculation as to how people gained the ability to speak, use language, and

communicate. Much of the available ideas on the development in linguistics lies in evolution,

which occurred over the course of millions of years. It is believed, over time, that language and

communication were gradually built based on sounds used to name objects and other things in

immediate surroundings. As time progressed over millions of years, this repertoire of names and

titles built into systems of language and communication (Jackendoff). The real challenge to all of

this is the serious lack of evidence left on linguistics and its development; different from fossils,

these skills cannot be preserved and analyzed. The strongest understanding of language and

communication development lie in the archaeological sites discovered.Therefore, much remains

unanswered in the history of linguistics.

Typical Development in Language and Communication

Most children follow a typical pattern of linguistic development from birth through

adulthood, and it occurs in multiple stages with other outside variables involved in the process.

From birth to early childhood, children play with the sounds they are able to produce and

become increasingly intentional in their use of oral language; they will transition through the pre

locutionary, illocutionary, and illocutionary stages (from unintentional to intentional use of

language and communication. Additionally, children will increasingly distinguish

protodeclarative (declarative statements made) and protoimperative (requests made)

communication, a milestone in their understanding and use of semantics (Kuder, 61-62).

Additionally, children will begin babbling, which may not be language and communication yet

but it is a major step toward it. These babbles will build into words, and these words will

constitute the language they will become somewhat skilled in even before formal schooling

(Kuder, 65). By the preschool years, the five elements of language become central to their

language acquisition and literacy development. In the early academic years, the focus will be on

distinguishing phonemes and morphemes. Once students have grasped the complexities of these elements, syntax, semantics, and pragmatics will be built into this. Once students have learned the structure and ,meaning of language enough to utilize properly for communication, the milestone to written language begins; at this point, emergent literacy and phonics are at the helm of education in which students are now connecting their oral language to what is on paper. As students begin to build their literacy and fluency, comprehension (the ultimate goal of reading) will become the focus of English Language Arts later in their education.

Variations in Language and Communication

Many deviations from typical linguistic development occur due to extenuating biological, neurological, and environmental circumstances. These deviations leave certain individuals deficient in or without one or more elements of linguistics (speech, language, communication, or the five elements [phonology, morphology, syntax, semantics, pragmatics]). It is important for people, specifically those in positions who work with these children, to understand their differences from typically developing students; this will shape the instruction, curriculum, and accommodations those exceptional students will need in the classroom.

Intellectual Disabilities

Intellectual disabilities, defined by Kuder, are distinctions in specific populations which result in various patterns of ability and deficits not seen in the typically developing (Kuder, 129). Intellectual disabilities can be genetic, such as Down Syndrome, Williams Syndrome, and Fragile-X Syndrome, as well as influenced by the environment (care, health, exposure to

teratogenic [hazardous] elements etc) (Kuder, 129-131). Most individuals that fall under the

classification of intellectual disabilities generally develop similarly to typical trends. The major

differences come with the prevalence of delays and distinctions in particular disabilities. For

example, individuals with Williams Syndrome contain an abundant repertoire of vocabulary.

Further, they have the capacity to use this diction correctly in many different situations (all

strengths in semantics). On the other hand, those with Down Syndrome have greater deficits in

all areas of language (Kuder, 133-141). The underlying issue that remains for children with

intellectual disabilities is the effect it has on language; many children have significant issues with

language as a result of their preexisting disorders (Kuder, 133). As a result these children, from

the beginning, are at a disadvantage in the areas of language acquisition, which will consequently

affect them in their education later on; without the appropriate accommodations, these students

will quickly fall well behind their typically developing students. The role of language acquisition

in schooling is discussed in further depth later in this report.

Autism Spectrum Disorder

Autism Spectrum Disorder (ASD), defined by Kuder, is a socioemotional disorder that

falls on a gradient of severity going from mild (previously referred to as Asperger's) to severe

(Kuder, 163). People diagnosed with ASD suffer from social and linguistic impairments. Most

ASD patients are emotionally isolated, refusing to make eye contact and interact with others.

Additionally, others distance themselves from them due to their fixations on certain activities,

hobbies, and rituals. In terms of language and communication, it is believed that nearly up to half

of all people with ASD are nonverbal, and this further hinders their capacity to communicate.

People with ASD are generally average or above average in all areas of language with the exception of pragmatics; because of their social deficits, many of these patients struggle to communicate with others on how they feel, what they want etc. Additionally, their deviations from cultural norms tied into communication (such as eye contact in many western societies) further burdens them. Something as simple as a conversation is a daunting task for most people with ASD, verbal or nonverbal. Many with this disorder fail to adjust their language for their audience, fail to initiate and maintain a conversation properly, become confused with nonliteral language (despite their general strength in the area of semantics), and fail to stay on topic, thus interrupting the flow of the discussion (Kuder, 173). This weakness with pragmatics can certainly affect them in school, a social climate in which they are expected to interact with others, but can't or struggle to. With that, this can also have consequences for their ability to be successful with their academics.

English Language Learners

English Language Learners, defined by Kuder, are people who do not speak the primary language of a country they have immigrated to (Kuder, 367). This language barrier can seriously limit the ways one can communicate with others; with no language in common as a foundation, transmitting information from one to another is incredibly challenging if not impossible. This can also be a formidable challenge for educators who do not speak the same language as their ELL student; how is the teacher supposed to go about instruction or curriculum planning in any content area if they cannot communicate with the child? The reality is people are immigrating or seeking refuge in our nations, and not always are people prepared to handle a situation where

language cannot be used. The inability to use language and communication in the new environment they find themselves in results in serious consequences for their academics. Even with these specialized services (if their institution has access to them) these students could still possibly fall behind their peers in schooling quickly. The issue is far worse for children who are of both ELL and Special Education status, susceptible to not only the issue of language but also for their disabilities, and they end up being ostracized for both (Kuder, 369). Even for ELL students with no special needs, they may be labeled as such or otherwise stigmatized because of their lack of skills in a language they are not familiar with.

Visual Impairments

Visual Impairments, defined by Kuder, is a limited or no use of vision (Kuder, 242). Visual impairments fall on a spectrum, from mild vision loss to complete blindness. While language development may generally be similar to those of typically-developing children, with the exception of some delays in acquisition and growth, the real issue lies in the use of language. Their abilities to read and write are hindered by their limit of lack of vision. While the blind have the use of the system of braille (a specially-designed alphabet constructed of carefully aligned dots, raised on pages and other devices to enable these visually impaired to rely on their sense of touch), those with mild to moderate vision loss actually face greater challenges if they do not receive early intervention to receive and build the skills they need (Kuder, 246-247). The other issue in this is that there could possibly be other disabilities at play, and they can be hard to detect. Learning disabilities could also be at fault for the struggles in literacy (Kuder, 248). For example, a child could suffer from another issue that affects their ability to read such as Dyslexia

(the learning disability in which an individual struggles to decipher language [Kuder, 100]). With all of this in mind, educators need to use other approaches to further assist them, such as relying on their other senses to navigate their immediate environment, and areas such as vocabulary development, nonverbal communication, voice modulation, and pronoun usage should be of particular focus in instruction (Kuder, 248).

Hearing Impairments

Hearing impairments, defined by Kuder, are any hearing disability ranging from mild to severe (in which case, the extreme end of the spectrum has hearing impairments referred to as "deaf") (Kuder, 219). The reason this type of sensory disability is unique is due to one major area of linguistics absent from the individual in question: speech. Because the hearing impaired and deaf don't or don't necessarily rely on sound, speech is not, or not likely, a skill they need, therefore they have other means of communication. Those with mild to moderate hearing loss develop similarly to non deaf children in terms of language acquisition, and they may rely on speech complemented with visuals and sign language (a system of hand movements, gestures, facial expressions, and body mannerisms used to communicate). Additionally, some may even rely on medical devices, such as cochlear implants, to improve their hearing (Kuder, 225, 240). However, due to their hearing loss, areas such as phonology and morphology are extremely challenging, as they already are for many typically developing children; the subtle differences in language are hard to pinpoint without proper hearing for additional support (Kuder, 226). Also, there are those who must rely on their sight for means of communication and interaction; the deaf will use their visual of their immediate surroundings and skills in sign language to

maneuver their environments and everyday tasks. With speech being a skill many of the hearing impaired don't necessarily need, questions are raised on what shape language instruction for them should take on; people in the field have gone back and forth on whether the hearing impaired should be instructed through oral or sign language. This issue is further difficult considering the spectrum that hearing impairments fall on. Nevertheless, more educators in the field, at least for now, have turned to programs and curriculums where both oral and sign language are incorporated (Kuder, 233-234).

Importance of Language and Communication in schooling (Kuder)

The skills built in linguistics plays a critical role in early education, and S. Jay Kuder covers this topic in depth in his work, specifically examining the implications there are for development of literacy. Regardless of whether the child in question is typically or atypically developing, the changes in language and communication overtime are essential to their success in academia and other areas of their lives.

From Linguistics to Literacy

As discussed earlier, much language development precedes formal schooling, where literacy begins with the transition from oral to written language. This is because decades of research have indicated the deep connections between language skills and reading success. One of the most significant components to this connection is found in phonemic awareness (the ability to distinguish individual sounds in a spoken word). The individual sounds, identified with this oral skill, are called phonemes. Through phonics programs, phonemes are connected to their

written counterparts, referred to as graphemes. Graphemes are the building blocks of written language that gradually bring a child from speaking to reading, writing, and comprehending full texts and compositions; this mission in helping children achieve literacy become one of the overarching goals of educators during the rest of their formal primary and secondary education (Kuder, 88-92).

Implications of Atypical Linguistic development in Education

Those students who do not fit into categories of typically developing children will require different paths through education in order for them to also achieve a level of success in their academia and other areas of life. In order to ensure they have as much chance as being successful as their typically-developing peers, educators must be prepared to deviate instruction and curriculum goals in different fashion to meet the diverse needs of these exceptional students.

Inclusion

Inclusion is the practice of general and special educators coming together in the same environment to meet the needs of all students, typical and atypical (The understood team). Overtime, education has evolved to include, not isolate, children who need special education services; under the Individuals with disabilities in Education Act (referred to by the acronym "IDEA") by law all students must be included in the least restrictive environment, which is the inclusive classroom with typically developing students (IDEA). Further, as a moral and ethical issue, it would simply be wrong to ostracize students due to their developmental and intellectual differences from their classmates. Therefore, general curriculum instructors are becoming

increasingly involved in the inclusion and instruction of special education students. In terms of

language, instructors are now responsible for the education of students who are receiving

services due to their deviation from typical linguistic development. As a result, instruction must

be differentiated to meet the needs of the child who have exceptional differences in language

acquisition and use.

Differentiation

Differentiation, or differentiated instruction, is the pedagogical practice of adjusting

teaching methods to be suit the needs of individual students (Tomlinson). With regards to

atypical language and communication, differentiation is vital to ensure students are receiving the

individual support they need in the classroom. Whether it be using different media, having a

paraprofessional help, supplying the room with special equipment and materials, etc. all

necessary steps must be taken to tailor instruction to a student who needs it due to their

exceptions which would otherwise result in them unable to function in a regular classroom. Any

of the individuals mentioned (sensory-impaired, intellectually disabled, autistic, foreign language

etc.) need differentiated instruction from their teacher to ensure they can be as successful as their

typically developing peers. If educators are not aware of typical and atypical linguistic

development, they cannot be fully prepared in best meeting the needs of any child they work

with.

Recapitulation and reflection on fieldwork (lesson and activities at Massachusetts school)

To gain insight on the understanding of language and communication in children, as well as to correct any misconceptions, a small experiment was conducted at a Massachusetts Elementary school: Penn Brook School, located in the district of Georgetown. This experiment consisted of a lesson plan in which a presentation and activities were given to a fifth grade class. The experiment conducted at the school goes as follows:

- Before the presentation formally began, the presenter (also the author of this report) gave the students in the class a pre assessment in which they asked to answer three questions:

1) What do you think language is?

2) What do you think communication is?

3) Do you think language and communication are important? Why?

    This assessment was built in both before and after the presentation (the end of the lesson) to measure the change of understanding in students.

- Presentation was opened and the presenter introduced the topic: "The Importance of Language and Communication".

- Presenter covered and transitioned between the slides and their contents, frequently stopping to take questions, comments, and connections regarding the content.

- After presentation was completed, students were given same three questions as their post assessment. The comparison of these before and after responses were critical to measuring increase in understanding.

Many students, throughout the entirety of the lesson, showed interest in the topic and presentation, which covered speech, language, communication, variations in them (sensory

disabilities, Autism, and ELL status), and the importance of them in daily functioning and living. In terms of understanding, the assessments were analyzed for growth in understanding of linguistics. There were deep discussions on the conditions these people have and how they are affected by them (in terms of language and communication. There was also the inclusion of color blind people and the challenges they face. Prior to the lesson, many students were able to agree that language and communication were important. However, students could not explain why linguistics are significant, and many could not distinguish language and communication from each other. These anecdotal notes experienced significant change following the presentation; while a few of the twenty students showed minimal change, the majority of the classroom demonstrated a greater understanding through the assessments. In the post assessment, most students were able to specifically give reasons as to why language and communication are important (it is important to interacting with others, expressing emotions, utilizing it for inventions and other areas of our lives etc.) and many were able to distinguish the two elements (language is comprised of shapes and symbols, whereas communication is more about talking to others [i.e. using language]). Overall, it seemed this experiment was successful, information was gained, and further information on the field of linguistics was disseminated.

*Note: presenter and instructor was IRB certified before conducting this experiment; they are knowledgeable of crafting their work to eliminate and inherent harms that could potentially affect the participants involved.

Personal reflection (on topic and its impact on education)

Most people can agree that language and communication are integral aspects to our everyday functioning with other human beings. However, with regard to the field of education, how many are trained and taught the development, specifics and deviations of language? In the United States, over twenty percent of children, adolescents, and young adults between the ages of three and twenty one have some classified speech or language impairments (National Center for Education Statistics). This doesn't include the autistic, intellectually impaired, or hearing impaired, who comprise an additional fifteen percent of the aforementioned population (National Center for Education Statistics). The reality of these statistics is that most, if not all, educators will have at least a few students during each academic year who fit into any of these special populations. In effect, educators not only need to be be trained in the pedagogical strategies and techniques (such as differentiation and inclusion), but also in human development (both typical and atypical) because this subject matter knowledge is important to better understanding their students and shaping the instruction for them so they can get the most out of their education.

Conclusion (thoughts, feelings, and future exploration)

This personal endeavor conducted provided a further understanding of the field of linguistics, its components, its variety, and its connections to education. More has been learned by further analyzing the work of linguist Kuder, discovering information from other linguists, historians, and archeologists, and teaching students at Penn Brook School. The significance of this work is the capitalization of the knowledge in multiple fields educators need to efficiently run a classroom with diverse learners; without the knowledge of how children develop and learn, educators are at a great disadvantage when planning and instructing them as students. Therefore,

there needs to be more emphasis on the knowledge and understanding of human development for

success in the classroom.

Works Cited

IDEA—the Individuals with Disabilities Education Act (2014, May). *Center for parent*

information and resources, Retrieved from:

http://www.parentcenterhub.org/repository/idea/

Jackendoff, R. (2006) How did language begin?, *Linguistic society of America, Cambridge*

University Press, 1-8 http://www.linguisticsociety.org/content/how-did-language-begin

Kuder, S., J (2008), *Teaching Students with Language and Communication Disabilities,* Upper

Saddle River, NJ, Pearson.

Marchant, J. (2016, January). *A Journey to the Oldest Cave Paintings in the World,* Retrieved:

http://www.smithsonianmag.com/history/journey-oldest-cave-paintings-world-180957685/

Mark, J., J. (2011, April). *Writing,* Retrieved from: http://www.ancient.eu/writing/

National Center for Education Statistics (2016, May). *Children and youth with disabilities,*

Retrieved from: https://nces.ed.gov/programs/coe/indicator_cgg.asp

Scoville, P. (2015, July). *Egyptian Hieroglyphs,* Ancient History Encyclopedia, Retrieved from:

http://www.ancient.eu/Egyptian_Hieroglyphs/

The Understood Team, Osewalt, G. (ed) (2017). *5 benefits of inclusion classrooms,* Retrieved:

https://www.understood.org/en/learning-attention-issues/treatments-

approaches/educational-strategies/5-benefits-of-inclusion-classrooms

Tomlinson, C., A. (2000). *What is Differentiated Instruction?*, Retrieved from:

http://www.readingrockets.org/article/what-differentiated-instruction