Nurturing the Linguistic Abilities
of Verbally Gifted Children

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Abstract

Providing an appropriate and challenging academic environment for gifted children is seems to be difficult for most schools. Part of the problem is that not everyone believes that there is any such thing as gifted children. Another part of the problem is that the term “gifted” has no single clear definition, so even those who recognize the existence of giftedness do not agree on just what it is. While most everyone recognizes that not all gifted children are gifted in all areas and believe that we should challenge these children in their area of strength, such as math or language, they still do not always recognize all the strengths and interests of those gifted children whose strength lies in language, the verbally gifted. The types of programs usually offered to these children consist of creative writing and foreign language learning. Some verbally gifted children, however, are most interested in the study of language itself. They want to know how language began, how it works, why words are spelled as they are. In other words, they want to study language scientifically, as linguists do. Very little is offered to these children, beyond a study of word etymologies. One reason is that few teachers, including English teachers have much background in the study of linguistics. This study investigates whether teachers with no background in linguistics could teach basic linguistic principles to verbally gifted children. The conclusion is that, yes, it is.
CHAPTER ONE -- Introduction

Background

A two-year old child teaches himself to read. By age 5, this child reads fluently, and with full comprehension, books meant for third graders. However, when he enters kindergarten, he must “learn” the alphabet with the other children. Another child, this one in second grade, has been teaching herself French at home and yearns for formal lessons, but her school system does not offer any foreign language instruction until middle school. Yet another child, an eight-year-old, enjoys playing with language and creating puns. He never misses an opportunity in the classroom to make a verbal joke, causing his teacher to consider him the class clown. Still another child baffles her parents by asking questions they can’t answer about the English language: “Why is there a k in knife?” “Why do we say won’t instead of willn’t?” How did language start? This child also does not hesitate to point out errors in other people’s grammar. She is only six.

These children represent the verbally gifted, gifted children with a natural linguistic competence too often left to develop on its own or to wither from neglect. Lehr (1983) goes so far as to say that these verbally gifted children are the most neglected group in American schools (p. 51). Part of the reason for this neglect is that too few teachers understand what lies behind the linguistic competence of these children. Early readers are seen simply as precocious children whose skills appear early but signify little need for anything beyond the standard classroom fare taught to their age mates. The child who uses verbal humor in the classroom is often considered disrespectful and viewed as a disruptive influence on the class. Children who correct the teacher’s grammatical errors are often considered argumentative and disrespectful of authority.

While this misunderstanding of linguistic competence may contribute to the neglect of verbally gifted children, Lehr (1983) suggests additional reasons, such as budget restrictions, a belief that these children can succeed on their own, anti-intellectualism, and anti-elitist attitudes. Budget restrictions are understandable and affect a variety of special programs, although like music programs, programs for the gifted are among the first to go, while athletic programs generally remain intact. The belief that gifted children can succeed on their own is one of many myths preventing gifted children from getting the services they require, although this myth at least acknowledges that some children are in fact gifted. Anti-intellectualism and anti-elitism are more difficult problems to overcome, particularly for verbally gifted children.

Lehr believes that anti-intellectualism in our society prevents the positive evaluation of knowledge not immediately productive and practical. This belief makes sense in light of what Andrews (1997) says about the neglect of linguistic competence: schools view language as a tool used for other subjects, and the purpose for teaching it, therefore, is “to improve student achievement in other areas, such as the next grade, for high school, for college, for work” (p.3). This view is justifiable. After all, children must learn to read to function well in society, but then what is the justification for teaching reading to a child who already knows how to read?

Anti-intellectualism also prevents people from appreciating exceptional intellectual ability in the same way they appreciate other exceptional abilities, such as athletic ability. Singling out those who demonstrate exceptional intellectual ability is considered elitist in a way singling out exceptional athletes is not. Both anti-elitism and anti-intellectualism have contributed to the growing trend toward egalitarianism in education, which causes supporters to believe that all children must be treated the same way. However, equal treatment is appropriate only if all children are the same. Few people today seem to be willing to accept the idea that some children
have intellectual abilities beyond those of their age mates because that would suggest that children are not the same. Whatever the reason, schools are not meeting the needs of verbally gifted children. Verbally gifted children are both exceptionally good with and interested in language in some form or another. They may enjoy creative writing, or they may enjoy reading or learning a foreign language. Some of these children, however, are intrigued by the very nature of language itself. It is for these children that this project was undertaken.

Theoretical framework/foundations

Numerous definitions have been suggested for the term gifted, but no single definition is accepted by everyone or even by a majority of people. The various definitions result from the history behind the use of the term, which was first used in 1869 by Francis Galton. He referred to adults who demonstrated exceptional talent in some area as gifted, for example, a gifted chemist. Children could inherit the potential to become a gifted adult, and Galton referred to these children as gifted children. Galton’s view left us with the idea that to be a gifted child is to demonstrate an exceptional talent in a particular area. Lewis Terman expanded Galton’s view of gifted children to include high IQ and in the early 1900s began his a long-term study of gifted children, whom he defined as children with IQs of 140 or more. He found that IQ alone could not predict success in adulthood. Definitions of gifted based on Terman’s work begin by looking at adults who have demonstrated exceptional achievement in their chosen field, like Einstein, and work backward to see what traits, such as high motivation, other than high IQ that adult had in childhood. A child without that trait, regardless of IQ, is not gifted according to these definitions.

A final view of gifted comes from the work of Leta Hollingworth, who also believed that the potential to be gifted was inherited. However, she felt that providing a nurturing home and school environment was also important in the development of that potential. Definitions that consider giftedness as potential to be developed make a distinction between what a child is capable of achieving and what the child will achieve. The fact that a child has exceptional potential is part of what makes him or her gifted. The child’s environment determines whether that potential leads to achievement. This view of gifted forms the basis of the work presented here.

Defining Linguistics

For many educators, the terms “linguistics” and “grammar” are interchangeable, so when they discuss the need for a linguistic component in an English curriculum, their primary consideration is some form of traditional grammar. For them, grammar consists of the rules for constructing sentences. In a broader sense, grammar refers to the structural patterns of a language, the ways in which words and their component parts combine to form sentences, the system of inflections, syntax, and morphology of a language. The teaching of grammar then becomes the teaching of those rules. Traditional grammar is, therefore, prescriptive grammar, which dictates how sentences should be constructed. Most of what primary and secondary school students learn when they study grammar in schools consists of this traditional, prescriptive grammar study.

Linguists, however, study language descriptively. That is, they seek to describe the way speakers of a language use it. They empirically observe the morphologic, syntactic and semantic rules of a language as it is used by its speakers. Linguistics, therefore, is the scientific study of language. It is a science because it objectively attempts to answer the same type of questions any
science asks about its subject matter: What is it? What is it made of? How does it work? For linguists the questions are about language: What is language? What are the meaningful sounds in a particular language? How are the sounds combined? How are sentences structured? What do all languages have in common? How does one language differ from other languages? It is by answering such questions that linguists attempt to describe language, and as Freeman and Freeman (2004) note, they describe language in order to study it (p. xiv). Although linguistics is the scientific study of language, it has, as Fallon (2003) remarks, “the potential to act as a bridge between science and the humanities” (p. 1492). It is at the same time, the most scientific and the most humane of the humanities: the most scientific because it looks at language “as a set of empirical facts subject to hypotheses about the nature of language” (Fallon, 2003, p. 1491); the most humane because it is “the thing that is central and common and peculiar to mankind” (Roberts, 1963, p. 333). It is this interdisciplinary aspect of linguistics that makes it an ideal area of study for verbally gifted children.

Earlier research
Since most programs for the verbally gifted focus primarily on verbal reasoning, reading, foreign language and creative writing (Lehr, 1983, p. 51), it is not surprising to find that much of the literature on teaching verbally gifted children focuses on these areas, although some can be found that focus on expository writing and grammar as well. In only a few cases are studies conducted to determine the benefits of a particular strategy or content. One notable example is Joyce Van Tassel-Baska’s (1987) study of the benefits of teaching Latin to verbally gifted children. She found that Latin increases English vocabulary and grammatical competency. Another study is one by McGinn, Viernstein, and Hogan (1980) on fostering the intellectual development of the verbally gifted. They found that helping students develop skills in creative and expository writing improved divergent thinking and led to gains in verbal reasoning scores. One study looked not at a single aspect of language arts, but at the effectiveness of an integrated curriculum model, which combined literary analysis, persuasive writing, and grammar (Van Tassel-Baska, Johnson, Hughes, & Boyce, 1996).

The majority of the literature on teaching verbally gifted children provides suggestions and recommendations for curriculum and instruction. In reading, for example, Bailey (1994) notes that it is important to present high ability students with reading material advanced not only on readability scales, but on the cognitive level of thought needed to construct or generate meaning. Moore (2004) suggests that appropriate reading materials for gifted readers include advanced language and rich vocabulary as well as ambiguous endings and characters who are either professional role models or are themselves gifted (p. 44). Brown and Rogan (1983) recommend small group instruction and encouragement for children to read “widely, creatively, and critically.”

Recommendations for teaching creative writing include exposing children to literary models while encouraging them to be observant and record their observations (Finn, 1981). Feldhusen and Van Tassel-Baska (1989) add that verbally gifted children should be given abundant opportunities to write since those opportunities will not only improve their writing skills, but also help develop their ability to think. The study of a foreign language can also provide opportunities to think. In the case of foreign language learning, however, the thinking comes from exposure to the intellectual content of poetry and prose of another language (Thompson & Thompson, 1996, p. 187). Feldhusen and Van Tassel-Baska (1989) add that children can benefit a great deal from the study of a second language to enhance their grasp of the structure and
semantics of their own language and that foreign language instruction should begin in
dergarten (p. 224). Thompson and Thompson (1996) agree that foreign language can enhance
students’ understanding of their native language, but add that it can also provide a deeper
understanding and wonder of language itself (p. 176).

The study of language itself is almost always included in the list of required subjects in a
curriculum for verbally gifted children. Van Tassel-Baska (2003) believes that the goal of
language study should be to understand grammar and its usage, develop vocabulary, improve
understanding of word analogies and etymologies and develop an “appreciation for semantics,
linguistics, and the history of language” (p. 2). Although Van Tassel-Baska includes an
appreciation for linguistics in her goals for language study for the verbally gifted, it is likely that
she is doing what Andrews (1997) says many educators do – seeing linguistics as little more than
a “newer kind of glorified method of analyzing sentences” (p. 18), in other words, grammar. In a
study on the effectiveness of an integrated language arts curriculum done with Johnson, Hughes,
and Boyce, Van Tassel-Baska (1996) found that verbally gifted children were able to increase
their linguistic competence. However, the portion of the curriculum devoted to language study
was self-taught grammar related to reading students were doing and the researchers defined
linguistic competence as the “identification and use of appropriate syntactic forms and functions”
(p. 467); that is, grammar and usage.

Other recommendations for teaching language to verbally gifted children include word
games with portmanteaus, study of etymologies, looking at grammatical patterns in a
Shakespeare play, and working with questions that require judgment, value, defense, or
justification of a choice or solution (Lehr, 1983, p.52). These are recommendations and practices
echoed by Michael Clay Thompson, who has created a vast array of language learning materials,
such as “Word Within a Word,” which builds vocabulary through etymology, and “Classic
Words,” which explores sentence structure and vocabulary through classic literature.

Literature on teaching language beyond some form of grammar or vocabulary building is
scarce and concerned primarily with linguistics as a method of teaching scientific discovery. For
example, O’Neil (1969) and Honda (1994) both believe that linguistics offers an ideal context for
science teaching. Students speak at least one language and therefore have more knowledge of
language than they have of other natural phenomena. When students investigate their knowledge
of language both the explanations for particular linguistic phenomena and linguistic concepts
necessary to formulate them are conceptually available to them (Honda, 1994, p. 35). As O’Neil
(1969) notes, experimental problems need not be constructed that lead children to foregone
conclusions. Such problems are no better in his view than rote learning. What using linguistics
as the basis of scientific inquiry can do is teach theory construction itself, a way to offer
consistent and coherent explanations of data, thereby gaining “insight into the nature of formal
explanations and formal systems” (p. xv). Additionally, Honda claims that students need not
understand or even know linguistic theories in order to construct hypotheses about language (p.
49) and provide sophisticated explanations that make use of linguistic concepts (p. 57).

Honda, Maya, and O’Neil (1993) also believe that questions arising from linguistic inquiry
represent a reasonable way to encourage students to seek answers to their questions and
introduce them to scientific research. They found that junior high school students could grasp
linguistics problems, had no trouble generating relevant data, and could easily make linguistic
judgments. The students could formulate questions, formulate hypotheses, search for
counterexamples, and revise their hypotheses as necessary. Students, even a couple who did not
do well in school, demonstrated not only an ability to work with linguistic problems, but also an eagerness to do so (Honda, 1994, p. 58).

Although using linguistics to teach scientific discovery does seem to provide junior high school students with an intellectual confidence they can carry with them to other subjects in the science curriculum (Honda & O’Neil, 1993, p. 244), the focus is on language learning as a means to an end, not the end itself. In other words, it is used to teach science, not to learn about language itself. Yet as Fallon (2003) notes, questions of language are “the most important and central subject of all humanistic studies” (p. 1491). O’Neil, Honda, and Pippin (2004) believe that the study of language itself is an overlooked area in the English classroom, while Freeman and Freeman (2004) believe language study should be introduced early in school (p. xi).

Very few studies have been done on teaching linguistics to students at the elementary school level. One study with fifth graders by Fabb (1985) had limited success because linguistic theory was introduced at too complex a level (p. 59). The idea was to learn the rules of language by helping them create their own rules. Students were able to discuss simple language issues, but not able to construct structural descriptions of language. Fabb, like O’Neil (1969) Honda (1994), Honda and O’Neil (1993), and Honda, Maya, and O’Neil (1993), feels that a problem-solving approach to grammar could help children learn the scientific method (p. 59). Nevertheless, Honda (1994) points out that what Fabb’s work tells us is that primary school students find linguistic phenomena inherently interesting and accessible (p. 43).

Goodluck (1991) also explored the possibility of teaching linguistics to fifth grade children. In her case, she selected gifted children to work with. They were not necessarily verbally gifted, but had been identified as qualifying for their school’s gifted program. She concluded that ten-year olds could be interested in linguistics-based activities, but noted that while the children enjoyed the activities, they did not find the linguistic explanations exciting (p. 39). However, she also acknowledges that she started with the “misguided idea that 10-year olds could be given a watered down version of the sort of linguistics class that goes down well with undergraduates” (p. 35). In addition, it appears that her attempts to get the children interested in linguistic explanations were through lecture and “blackboard explanation” (p. 36), not a particularly appealing method for children who enjoy more “hands-on” types of learning.

One final study with fifth graders, this one by O’Neil, Honda, and Pippin (2004), found that students could examine data to formulate hypotheses that would account for the data and test their hypotheses against counterexamples (p. 1). They were even able to discriminate between syntax and semantics. While they do not focus on using linguistics to teach scientific inquiry, they do note that the linguist’s approach to language appeals to math and science type students, who enjoy demonstrating their reasoning skills within the world of language (p. 6). They believe that linguistic study can trigger in such students an interest in language, an area in which they had previously had little motivation or success. For example, one student in their study had wanted to be a scientist, but after participating in the linguistics class, he decided he wanted to be an English teacher.

Clearly, a need exists to explore teaching linguistics to verbally gifted children. Educators in the gifted field recognize the need to provide verbally gifted children with material and instruction that will develop their verbal talent and even recommend that the materials and instruction include a linguistic component. However, they tend to think of linguistics in terms of some form of traditional grammar, although some will also include morphology and the history of the English language as well. Linguists, on the other hand, view linguistic instruction differently. Some believe that linguistics, as the science of language, can be a useful tool in
teaching scientific discovery and that this strategy can be used with primary school students. Others find that the study of linguistics can lead students to a new-found interest in English. However, no one has yet explored how the teaching of linguistics might nurture the linguistic abilities of verbally gifted children.

Aims and Scope

The aim of this dissertation is to explore the feasibility of teaching linguistics to elementary aged verbally gifted children as a way to nurture their inherent linguistic ability. The feasibility of teaching linguistics to young children is determined by several issues: the ability of teachers untrained in linguistics to teach it, the ability of young verbally gifted children to comprehend it, and teachers’ views of what it means to be gifted and the way the gifted should be taught.

Elementary school teachers are required to master the basics in a variety of subjects, such as math, reading, history, science, and language arts, which includes reading, writing and grammar. It is unrealistic to expect all teachers to be equally proficient in each of these areas. Some of the teachers are certainly interested and proficient in the language arts, but their knowledge of linguistics and even of grammar depends largely on their educational background. Some elementary school programs do include a basic linguistics course for their elementary school majors, but many do not. Most college elementary school programs focus on reading, writing and basic grammar, making it unlikely that a graduate of the program will come away with much more than a basic knowledge of traditional English grammar or with an understanding of language as a course of study in its own right.

Even if elementary school teachers had some training in linguistics, their students might not be capable of understanding its concepts. An interest in language does not necessarily reflect the level of abstract thought needed to work with linguistic principles. A verbally gifted child may love phonics, but will that child also love phonetics? In addition, gifted children may find the study of linguistics challenging, but if it is too challenging, they will not benefit from it. What all learners, including gifted ones, need is an appropriate match between their abilities and the academic demands made on them. An appropriate match is an “optimal” one; it challenges learners to work just beyond their cognitive grasp (Tangherlini & Durden, 1993, p. 431). When learners experience an optimal match, they achieve what Csikszentmihalyi calls “flow,” a state of pleasure or satisfaction that results from that match. Work that is insufficiently challenging can lead to disinterest while work that is too challenging can lead to frustration. The goal of teaching verbally gifted children linguistics would be to provide them with an optimal match, to provide them with appropriate challenges in a subject that rarely challenges them in school.

Finally, a teacher with an understanding of linguistics may have students capable of learning linguistics, but still may not successfully teach them because a good part of that success depends on the way that teacher views gifted children and therefore the methods for teaching them. Many teachers, particularly those not trained to recognized giftedness, believe that gifted children are those who excel effortlessly with little help from a teacher. They are eager to learn all that a teacher gives them and will do so without complaint, displaying exemplary behavior in class at all times. While this description may fit some gifted children, it certainly does not fit all of them. In fact, teachers may miss some gifted children because the children display opposite behaviors. They can be fidgety and disruptive, disorganized and unwilling to do assigned work. Even when gifted children are recognized, some teachers provide them, not with challenging work, but with “enrichment,” which, according to Feldhusen and Van Tassel-Baska (1989), is work that often purposefully avoids higher-level content (p. 220). Programs for gifted children,
particularly pull-out programs, provide enrichment experiences in response to teacher complaints. Teachers in higher grades fear that they will have nothing left to teach if children in lower grades are taught more advanced level work. However, if a school’s policy is to provide enrichment activities for its gifted students, a teacher may be unaware of the reason and simply believe that such activities are appropriate for gifted children.

Research questions
1. Will verbally gifted children be able to understand, appreciate, and enjoy learning about language beyond the concepts of traditional grammar?
2. How can linguistics be presented to elementary school age children?
3. Will a teacher untrained in linguistics be able to teach linguistics to his or her students?

Method/Approach
The method chosen to study the feasibility of teaching linguistics to elementary school age children was an exploratory case study. The case studied was a linguistics course designed for verbally gifted children in grades four through six. The course was part of a Saturday enrichment program for gifted children sponsored by a local gifted organization unaffiliated with any school corporation. The teacher for the course was chosen because she had several years of experience working with gifted elementary school children and expressed an interest in teaching a language class in the program. She did not, however, have any training in linguistics.

An exploratory case study was chosen because no body of research exists on teaching linguistics to elementary age children, no conceptual framework to test or build upon. Both Yin (2003) and Shank and Orlando (2004) consider such a situation one for which an exploratory case study would be most useful. The purpose of qualitative research such as case studies is to understand better the object of study. To use Shank and Orlando’s metaphor, it is like a lantern that illuminates the darkness. In the case of this study, the darkness is the current approach to nurturing the linguistic abilities of verbally gifted children.

The goal of this research is to explore what happens when a teacher with experience working with gifted children but without a background in linguistics attempts to teach linguistics to a group of verbally gifted elementary school children. The study will determine what, if any, problems arise in the attempt to teach linguistics to young gifted children, including the preparation of materials to be used, the ability of the teacher to understand linguistics sufficiently to allow her to present it to the students, and the degree to which students participate in the classroom, both as a result of their ability to understand the material and of their apparent interest in the material. By shining a light on the use of linguistics to meet the needs of verbally gifted children, new materials and activities can be developed.

Significance
If verbally gifted children have specific needs that aren’t being met and that in turn can cause problems with motivation and success for these students in school and in life after school, then it is important to find ways to meet those needs. Part of the problem is the lack of materials and methodologies available for this kind of instruction. Unfortunately, little research has been done on exposing children to the study of linguistics, in spite of the vast amount of support for language study for verbally gifted children. The research tends to focus on prescriptive grammar
study, vocabulary, foreign language study, and creative writing. One purpose of this study was to
determine whether it is feasible for teachers without a background in linguistics to provide
lessons in linguistics to verbally gifted children. Another purpose was to see whether children
would be interested in and challenged by the material being presented. Providing this kind of
instruction might help prevent or possibly even reverse the underachievement of many verbally
gifted children who are not being sufficiently challenged in their area of expertise.

Limitations
The study will not provide any quantitative data on the effects of teaching linguistic principles to
young children. It is entirely possible that the children will be capable of learning these
principles and thoroughly enjoy learning about them. However, it is also possible that learning
and working with these principles will not have an appreciable effect on a student’s motivation
to learn or have an effect on his or her learning experiences. On the other hand, it is important to
determine whether teaching these principles is feasible. It will not help us much to know that
students will benefit from such instruction if it is impossible to provide that instruction.
CHAPTER TWO – Characteristics and Needs of Verbally Gifted Children

Problems Defining Gifted

The history of the term gifted leads to a problem in defining it. Does it refer only to a demonstrated skill or talent, or does it refer to a potential skill or talent that must be nurtured in order for it to develop? Some, like Lohman and Korb (2004), do not even approve of the term gifted.” Other terms, like high ability, have been suggested to replace it and are already in widespread use. The National Association for Gifted Children, for example, says that its two quarterly publications, Gifted Child Quarterly and Parenting for High Potential, provide “developments, information, and resources in nurturing the potential of high-ability children.” However, the term high ability does not really remove the problems that exist with the term gifted, and may even create additional problems.

As the term implies, high-ability children are those with more ability than other children, but how are those children recognized? Is it a demonstrated talent or skill that marks these children as having high ability or is it the potential? The fact that the terms high ability and gifted are frequently used interchangeably seems to suggest that they refer to the same state or condition. The term high ability, however, seems to focus on ability alone; it does not account for the intense sensitivities that tend to accompany those children with high ability. Lohman and Korb (2004) would probably not approve any more of the term high ability than they do of the term gifted. They dislike the term gifted because it leads educators to focus on a “fixed state” (p. 11), and they believe that educators should focus instead on superior achievement. Regardless of the term being used, no consensus exists as to whether potential or performance defines these children. While Lohman and Korb want educators to focus on achievement, Gagné (1989) believes a distinction should be made between potential and performance (p. 71). Focusing on achievement means focusing on performance rather than potential, and while some children will stand out because of their exceptional achievement, those who do not demonstrate superior achievement but have potential for such achievement will be missed, and these are the high potential children most in need of help (Gallagher, 1976, p. 123). This does not mean that these children have greater needs than children with less potential, but that they have the same right to an appropriate educational experience. As Glass (2004) notes, “All students should have the right to exercise their talents to the fullest potential” (p. 28 original emphasis).

The debate over potential versus performance as an indicator of giftedness illustrates the difficulty in arriving at a precise definition of giftedness. However, the fact that giftedness is difficult to define does not mean that it does not exist. Poetry is difficult to define as well, but no one would suggest that it does not exist. Most people can recognize a poem when they see one, but not everyone agrees on what characterizes a poem. Some people include rhyme as a defining characteristic of poetry while others, citing the rhymes in greeting cards, leave it off the list of characteristics. In addition, some poetry looks like prose, but is recognized as poetry, while some prose can be characterized as poetic, but is not recognized as poetry.

In the same way, characteristics of giftedness can be difficult to pinpoint, a problem that contributes to the difficulty of defining it. However, many experts (Silverman, 1989; Feldhusen; Johnson, 1989; Alvino, 1985; Baska, 1989) seem to agree on a number of characteristics, which
include the following:

- Acutely perceptive
- Perfectionist
- Energetic
- Sensitive
- Creative
- Altruistic and empathetic
- Concerned with moral issues
- Interested in applying concepts
- Interested in subtleties of words and their uses
- Concerned with justice and fair play
- Able to handle abstractions, see relationships, and synthesize
- Has keen sense of humor
- Interested in death and mortality
- Has long attention span and exceptional memory
- Learns quickly and retains learning easily
- Enjoys intellectual activity
- Has large and advanced vocabulary
- Reads avidly

Some of these characteristics, such as the concern with justice and fair play, the sensitivity, altruism, empathy, and interest in death and mortality reflect something more than mere high ability or even high potential.

In any case, while these characteristics typically appear on lists defining giftedness, others like Steiner and Carr (2003) and Renzulli (1986) add traits like motivation and task commitment to their list of characteristics. These characteristics lead once again to the debate over potential versus performance, ability versus achievement. Some argue that ability alone is insufficient, that the ability must be manifested by achievement, while others argue that it is the responsibility of the school to help those unmotivated, high-ability students achieve. Just as some people mistake anything that rhymes for poetry, some people see any highly motivated student as gifted while at the same time overlooking students with high ability because they are not motivated to achieve in school. Gagné (1989), for example, questions how one can deny that a child with an IQ of 130 or more is gifted simply because his or her aptitude is not confirmed by academic achievement. In addition, Redding (1989) notes that students with IQs of 130 and above can find academic tasks boring, and because they are often motivated by challenge, they can lose their motivation to achieve (p. 279).

In spite of the problems defining giftedness and the disagreement over the characteristics that represent giftedness, it is hard to deny that some children appear to be more advanced than their age mates. The child who teaches himself to read at age two is certainly more advanced than most two year olds. Winner (2000) believes that these exceptional abilities, since they appear before any intensive instruction and training, reflect an atypical, innate ability (p. 160). Some people will concede that a few children may be advanced as toddlers and even as young elementary age children, but claim that such precocity disappears by the time such children reach 4th grade, when they claim differences in intellectual ability among children “even out.” Shore (2000), however, argues that if giftedness is no more than precocity, it leaves adult giftedness unexplained (p. 168). Mozart, for example, was not merely a precocious musician as a child, but a very gifted one as an adult as well. The debate over the exact nature of giftedness is important because it determines the best educational strategy to use with gifted children. If it is nothing more than precocity, then acceleration is the best strategy. If, however, giftedness involves different ways of thinking, then more than a fast pace and increased level of difficulty is needed (Shore, 2002, p. 168).
Recent cognitive studies seem to support the view that giftedness is more than precocity. In fact, Shore (2000) believes that the thinking of gifted children is both quantitatively and qualitatively different from their non-gifted peers (p. 181). One difference between gifted and non-gifted children is the speed at which they are able to process information. Gifted children can process information more quickly than non-gifted children, which accounts for their ability to grasp information after only one or two repetitions, rather than the ten or twelve repetitions required by non-gifted students. This speed of processing is, as Steiner and Carr (2003) point out, one of the most noted characteristics of giftedness (p. 222) and it can be observed even in infants, suggesting that giftedness is an innate quality and not the result of training or instruction.

Evidence for speed of processing in infants comes from studies on habituation and preference for novelty (Steiner & Carr, 2003). In the former, some infants become habituated to a stimulus; that is, they look away from it more quickly than other infants. In the latter, some infants look more often at a new stimulus rather than at a stimulus to which they had already become habituated. Steiner and Carr (2003) note that a high correlation exists between high intelligence as indicated by tests children take when they are eight years old and quick habituation and preference for novelty these same children exhibit as infants.

Perhaps it is this speed of processing that allows gifted children to assimilate information quickly, a trait Scruggs (1983) describes as one of the distinguishing characteristics of gifted children (p. 171). It is undoubtedly this ability to quickly assimilate information that gives gifted children such a broad knowledge base, another distinctive trait of gifted children. This broad knowledge base is so distinctive that breadth and depth of knowledge are the two most obvious characteristics noted by both parents and teachers (Hagan, as cited in Steiner & Carr, 2003, p. 225). However, simply knowing information is not enough; one must also know which information is useful and when it should be applied (Glaser, 2000, p. 125).

While a collection of facts is certainly one type of knowledge, it is not the only type. Problem-solving strategies comprise another type of knowledge. Evidence suggests that gifted children not only have a larger repertoire of such strategies, but that they also have a better understanding of which strategies are appropriate for a given situation (Steiner & Carr, 2003; Shore, 2000). In addition, gifted children are able to focus more on critical parts of a problem while ignoring irrelevant parts, unlike their non-gifted counterparts (Siegler, 1989; Jaušovec, 2000). Glaser (2000) notes that this ability is found in competent adults, that is, experts. Experts will represent problems in a way that will facilitate problem solving, while novices represent problems in terms of surface features.

The focus on relevant parts of a problem is just one difference in the way the gifted approach problem solving from the way the non-gifted approach it. Shore and Lazar (as cited in Steiner & Carr, 2003) found that while gifted adolescents take less time overall to solve complex recognition problems than their non-gifted peers, they spend more of that time during the exploration and planning stages. Perhaps spending time on the initial stages of problem solving is what allows the gifted to represent problems in ways that make them easier to solve. This different approach to problem solving probably contributes to the observed superior cognitive abilities of gifted children, although it does not necessarily explain their ability to manipulate abstract symbol systems.

The Verbally Gifted

According to Winner (2000), some gifted children are “globally gifted”; that is, they demonstrate advanced abilities in math, language, and analytical thinking (p. 164). These are the
children most often recognized as “truly” gifted children. However, as Winner notes, most evidence indicates gifted children have an uneven distribution of abilities. In fact, evidence suggests that verbally gifted and mathematically gifted children have distinctly different cognitive profiles. According to Benbow and Minor (1990), mathematically gifted kids perform better on spatial, nonverbal reasoning, speed, memory, and mechanical comprehension tests, while verbally gifted kids perform better on verbal and general information tests and tests of English expression (p. 24). This finding could explain why some gifted children have so much trouble with the “mad math minute” in third or fourth grade, when they have to complete a hundred simple multiplication problems in one minute. These children could be verbally rather than globally or mathematically gifted.

In their study of mathematically and verbally gifted teenagers, Dark and Benbow (1991) found that the mathematically gifted teens were better able to handle digit stimuli and better able to manipulate information in working memory. The verbally gifted teens, on the other hand, were better able to handle word stimuli and had quicker access to verbal information in long-term memory (p. 58). This evidence of a distinct cognitive profile for verbally gifted children should make defining verbal giftedness an easy task, but as Tangherlini and Durden (1993) tell us, a precise definition is elusive, and this elusiveness is hard to understand given the fact that verbal giftedness is generally easy to recognize.

Bailey (1996) defines verbally gifted children as those who demonstrate at an early age, complex behaviors in listening, speaking, reading, and writing (p. 97). These children have a “true agility” in manipulating linguistic symbols as well as the codes necessary for turning thought into expression or in the case of reading, expression into thought (Bailey, 1996, p. 101). Van Tassel-Baska (2003) puts it another way: “Gifted children achieve language competency at an earlier age than their chronological age-mates” (p. 1). They have, according to Van Tassel-Baska, mastered the fundamental reading skills and excel in reading, literary analysis, creative writing, poetry, and prose. Tangherlini and Durden (1993) consider verbal giftedness from a practical, educational perspective and believe that verbal talent can be divided into five categories: “oral expression, reading, foreign language, creative writing, and general verbal reasoning” (p. 429). This is an interesting perspective as it can determine what special classes or subjects should be made available for verbally gifted children, an issue that will be considered later.

How exactly does this verbal talent manifest itself? What does it look like? Bailey (1996) and Van Tassel-Baska (1987) have each created a list of characteristics of verbally gifted children.

Bailey’s List of Characteristics (p. 108)
- Fluid, descriptive oral language
- Early mastery of the phonetic code
- An advanced ability to use a linguistic symbol system
- Active engagement in reading or writing tasks for extended periods of time
- Playful doing of a skill coupled with seriousness of purpose
- Ability to express complex thoughts
- Craving of challenge

Van Tassel-Baska’s (1987) List of Characteristics (p. 17)
- Reads fluently and well
• Interested in words and word relationships
• Uses an advanced vocabulary
• Processes key ideas in what is read
• Enjoys talking about literature
• Writes descriptively and communicates a story
• Reads often inside and outside of class
• Enjoys verbal puzzles and games
• Plays with language in oral and/or written forms
• Exhibits an understanding of the structure of language in speaking and writing

Many of these characteristics show up in very young children. Bailey (1996), for example, describes a young gifted boy named David, who before he was even one year old, would stop and trace the letters on fire hydrants and stop signs. By the time he was eighteen months old, he was able to say the alphabet. At age 2½ he was reading books like *Ten Apples on Top* and at 5, he was reading *Chronicles of Narnia*. He developed this ability even though he had never had any formal reading instruction. His only reading instruction came from watching the Sesame Street video, “Getting Ready to Read” (p. 104).

This writer’s son followed a similar path, including the stopping and tracing letters and early self-taught reading at age 2. However, he preferred nonfiction to fiction books, reading about dinosaurs, black holes, and other elements of the universe, his favorite subject. By the time he was 4, he was able to explain the difference between a brontosaurus and a brachiosaurus to any interested party and would worry about the earth 2000 years in the future when Polaris would no longer be the North Star. He gained this information not through instruction, but through his own reading. The ability to gain knowledge through reading is unusual at this age. According to Bailey (1996, p. 101), it is not until fourth grade that children generally move from learning to read to reading to learn. The ability to read for knowledge at such young ages gives these verbally gifted children a head start in school. These early readers start school with a much broader knowledge base than average children, who spend their first years in school learning how to read.

It is interesting to note that many people believe that it is in third or fourth grade that “everything evens out,” by which they mean that any advantage “precocious” readers may have had is lost as the other children have “caught up” and have learned to read. However, as cognitive studies clearly demonstrate, while average children and adolescents may appear to have caught up with the gifted early readers, the qualitative differences in thinking between the two groups remain the same. In any case, unless verbally gifted children demonstrate some other exceptional talent or ability, they may not be recognized as being gifted.

One way that verbally gifted children can demonstrate exceptional talent is through creative writing. For many verbally gifted children, words “dance and sing” (Black, 1998). They are playthings and like a teddy bear, they can be “hugged, embraced, beat up, twisted, [and] spit out” (Bromfield, 1994). Through words, verbally gifted children can experience the way language makes them see and feel and they can express what they see and feel in language, as can be seen in the poem below.

```
You are alone
In your long exploration
Of the world of difference.
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Yet, as the light consoles the desolate wick,
So a friend brightens the darkness in your heart
And makes life a joy.

Most people would agree that this tree-shaped poem reflects poetic talent. What makes the writer of this poem exceptional is that she was only 8 years old when she wrote it (Gross, 2004).

Gardner (1983) considers linguistic intelligence to be one of 7 distinct intelligences and sees poetry as the ultimate reflection of that specific intelligence. He believes that poetry requires sensitivity to semantics, phonology, syntax, and even pragmatics since a poet needs to be aware of a variety of what he calls speech acts, for example, lyrics, epic descriptions, order, and pleas. Tanglherlini and Durden (1993) claim, however, that poetic talent is distinct from other types of linguistic talent (p. 429). Passow (1996) agrees: the potential for creating poetry may be one kind of talent seen in language arts, but it is not the only one. In fact, any kind of creative writing, or even writing in general, may be a type of language talent not all verbally gifted children have and certainly not all verbally gifted children enjoy. David, the early reader described by Bailey (1996), although able to read Chronicles of Narnia at age 5, hated to write.

Ravid and Tolchinsky (2002) define linguistic literacy as the “increased control over a larger and more flexible linguistic repertoire” along with a growing awareness of “one’s own spoken and written language system (p. 420). The 8-year-old writer of the tree-shaped poem seems to demonstrate linguistic literacy, and has demonstrated it quite early. How early does such literacy ordinarily develop? According to Ravid and Tolchinsky (2002), the linguistic proficiency of a five year old “hardly matches an adult or even a twelve-year-old” (p. 418, emphasis added). However, in her pioneer case study of the development of linguistic ability in a verbally gifted child, Hoh (2005) found that the development of linguistic literacy can be years ahead of that of non-gifted children.

Hoh (2005) notes that most studies on linguistic skills of gifted children focus on reception, rather than on production, that is on reading and listening rather than speaking and writing (p. 178). She found that the linguistic development of a verbally gifted child is advanced in the following areas: phonological, morphological, lexical, syntactic, and semantic. For example, Bailey (1996) points out that most children are just beginning to generalize their knowledge of language at age three, which leads them to create sentences like “I goed to the store” (p. 99). Such a sentence indicates that the speaker has learned the rule for the creation of the simple past tense and has generalized that rule to all verbs, both regular and irregular. A typical three-year-old is also able to manage three word sentences, and by the time the typical child is 7 or 8, he or she is able to use longer compound and complex sentences with ease.

The child in Hoh’s case study, however, was using sentences like “You don’t have to do it if you don’t want to” at age 2 years and 3 months. Exactly one year later, the child was using sentences like “Dad, even though you gave me a ginger, you’re pretty lucky because I still love you” (p. 180). Hoh notes that this use of although-type clauses is not common even in 11 year olds. At age 3, this child’s linguistic ability seems to be equal to, if not somewhat greater than, that of typical 11 year olds. It is not unreasonable, therefore, to believe that her ability at age 5 may have matched the linguistic literacy of a 12 year old, something Ravid and Tolchinsky thought was hardly the case.

Some advanced syntactic development reflects an early development of higher thinking skills. For example, the development of the different types of questions a child asks seems to follow the cognitive progression from lower thinking skills to higher thinking skills. This means
that the first types of questions a child is able to ask and answer are simple yes/no questions. These are followed by what and where questions, with how, why, and when questions developing last, these being the types of questions associated with higher level thinking skills. Typically, a child begins to ask yes/no questions at 18 months, often by simply raising the voice at the end of an utterance (i.e. “My cookie?”). It is not generally till a child is 4 or 5 that she asks and answers simple who, what, where, and why questions. Hoh’s subject, however, was asking simple why questions like “Why I no swim?” at 2 years and 2 months old (p. 181). At age 4, when most children are asking simple why questions, Hoh’s subject was asking questions like “How did the first person come about?” “What is life about?” and “How did the first person talk?”

Hoh (2005) believes that the ability to ask such questions allows verbally gifted children to gain more world knowledge, which provides them with benefits beyond the language domain (p. 181). Perhaps one of the benefits of an advanced verbal ability is an advanced social competence. Hoh noted this advanced social competence in her subject, who was able to effectively strike up conversations with adults in diverse settings (p. 182). While effective social competence involves more than verbal ability, for instance, planning, monitoring, and outcome-checking skills (p. 182), it certainly involves an adequate level of language ability. Not only do verbally gifted children tend to speak earlier than non-gifted children, their advanced phonological development allows them to be more readily understood by adults, and because they are more easily understood, they are able to have more verbal interaction with adults than their non-verbally gifted age mates. In turn, this verbal interaction provides these verbally gifted children the opportunity to further advance their verbal abilities.

In spite of the difficulties in defining verbal giftedness, it should be clear that it is a distinct type of advanced ability, one that should give these children an academic advantage over non-verbally gifted children in school. Unfortunately, in many instances, the opposite is true. Verbally gifted children are at a disadvantage in school. For one thing, verbally gifted children are “easy to respond to” (Gross, 2004). This means that if a teacher feels that a verbally gifted child needs advanced work, he or she can simply have the child read ahead in a book or may even assign a more advanced book for the child to read. A mathematically gifted child, however, offers a more difficult problem. The teacher cannot simply assign more and more difficult problems or tell the student to work ahead. A mathematically gifted child gives the teacher more to worry about and is therefore more likely than the verbally gifted child to be grade skipped or given advanced instruction in math.

Need for Gifted Programming

Whether a child is mathematically or verbally gifted, the fact remains that gifted children differ from non-gifted children in the way they think, both quantitatively and qualitatively. This difference in ways of thinking means that gifted children have different educational needs than non-gifted children and those needs cannot be met through classes and curricula designed for their non-gifted peers. It is critical, therefore, to identify gifted children and provide them with appropriate academic experiences. Doing so will help them develop their innate abilities. Failure to do so, as Glass (2004) notes, will “stifle their opportunity and negate their potential both personally and as contributors to society” (p. 29).

Several obstacles must be overcome, particularly in the elementary school years, in order to provide appropriate educational experiences for gifted children. One obstacle is the lack of focus on identifying gifted children. The first years of schooling focus on making sure all students are
functioning on the same basic level of achievement (Dean, 1998). The No Child Left Behind Act is an example of this kind of focus. All children in third grade must be reading at the third grade level. Legal mandates to bring children to such basic levels of achievement leave little time, money, or energy for educators to worry about what to do with a child who is in the third grade and reading at a seventh grade level. They simply have no incentive to do so.

Even when teachers may be willing to find and support gifted children, they may miss some of them. These children do not always willingly and cheerfully conform to regular classroom routines, displaying instead a disinterest in activities. This disinterest may result from a lack of challenge (Gallagher, 1976), and this lack of challenge is a problem because gifted children tend to be intrinsically motivated, which means that they are motivated to learn for the sake of learning, not for extrinsic rewards such as grades (Redding, 1989, pp. 277-278).

Another reason gifted children do not receive appropriate academic experiences, even though the classroom teacher is willing to help, is that teachers at higher grades often complain that they will not have anything to teach if children are taught content and skills in previous classrooms (Feldhusen & Baska, 1989). That means that if a third grade child has already mastered third grade reading skills, math skills, or both, the third grade teacher may be reluctant to offer any special instruction because the fourth grade teacher might complain that he or she will have nothing left to teach that child. This is true even if the third grade child has already mastered material well beyond the fourth grade level. The cycle will repeat in fourth grade with the fourth grade teacher unwilling to teach a gifted child skills beyond the fourth grade level, even though the child came to fourth grade working at a fifth grade level or above.

This writer encountered this problem when her son was in the third grade. Neither the classroom teacher nor the principal was willing to provide any kind of differentiated instruction even though the child’s general reading ability had been measured at the seventh grade level and his reading comprehension had been measured at the twelfth grade plus level. The psychologist who tested the writer’s son remarked that the child was capable of reading virtually anything put in front of him, yet the principal insisted that the child needed to “practice” his third grade reading skills. The principal insisted on this even after admitting that the child had already mastered third grade reading skills. He commented that if the teacher were to teach the boy fourth grade reading skills, the fourth grade teacher would have nothing to teach him. The fact that the child had already mastered fourth grade reading skills as well was not even considered.

Regardless of the reason, the lack of appropriate enrichment experiences can have serious detrimental effects on gifted children. Glass (2004) believes that without such experiences, these children may “fall short of their potential, or worse, lose interest in school altogether (p. 28).

**Appropriate Programming for Gifted Children**

Because gifted children have different academic needs, instruction for them should be differentiated. That is, it should be based on the recognition that individual differences among students exist and should make use of strategies to accommodate those differences (Dean, 1998, p. 22). This principle is understood and taken seriously when the children concerned are those unable keep up with the regular school curriculum without the help of special support services, but Dean (1998) suggests that schools must also consider the needs of gifted children, who require more than the regular school curriculum provides (p.19).

According to Van Tassel-Baska (2003), gifted learners need advancement, depth, complexity, challenge and creativity, and any curriculum designed for them should accommodate those needs (p. 1). A gifted curriculum should include “more elaborate, complex,
and in-depth study of major ideas, problems and themes within and across systems of thought” (Van Tassel-Baska, 1989, p. 185). Unlike the curricula for non-gifted students, curricula for gifted students should concentrate on higher-level thinking skills (p. 187), which according to Bloom’s Taxonomy, include analysis, synthesis, and evaluation. The amount of time that should be spent on these skills as well as the lower-level skills, such as knowledge and understanding, in both the gifted and the non-gifted classroom are represented by the pyramids below.

Non-gifted students need to spend much more time with the lower levels than do gifted students. Because gifted children are able to process information quickly, to understand and remember it, they can move more quickly through the thinking skill levels and because they need more depth and complexity in their studies, they need to spend more time with the higher-level skills than with the lower-level skills. To give gifted students the opportunity to work with higher-level thinking skills, the basics of any gifted program should include elements of critical thinking, creative thinking, problem solving, research, and decision making (Van Tassel-Baska, 1989, p. 181).

The benefits of special programming for gifted students should be both clear and obvious. As Tuttle, Becker, and Sousa (1988) point out, these children quite often have mastered the skills and concepts that form the basis of instruction in the regular classroom, and therefore, have little incentive to go through the motions of learning what they may already know. Consequently, they may not complete required work, which can result in their receiving average or even low grades. These poor grades can affect their academic future, but even worse, their learning can be slowed down or held back (p. 12).

The lack of appropriately challenging schoolwork may not only slow down or hold back a gifted child’s learning, it can also cause him or her to develop sloppy or poor study habits (Tuttle, Becker, & Sousa, 1988, p. 12). In addition to causing a child to get low marks on homework, these poor study habits make it difficult for the gifted child to excel when he or she finally meets an academic challenge. Quite often we hear of gifted students who have gotten through elementary, middle, and high school by doing homework at the last minute and waiting to write papers until the night before they are due. In spite of this apparent procrastination, these students get A’s and B’s on their work. However, when same students go to college and use the same strategies, they are mystified when the strategies do not work. Time and again we hear of highly gifted students flunking or dropping out of college. They do not know how to plan their
time nor do they know how to study. Children with less ability bypass them easily because they have developed a strong work ethic and good study habits.

Need for Specialized Programming for Verbally Gifted Children

Redding (1989) maintains that it is the learning style and temperament of verbally gifted children that puts them at a disadvantage in school because these qualities are negatively related to academic success (p. 276-277). According to Redding, the learning style of verbally gifted children is a holistic one; they are highly motivated to seek meaning and will try to understand the big picture, concentrating on details later (p. 181). They prefer to understand concepts and their implications, neglecting, as a result, to memorize information or pay attention to what might be on a test. This global learning style is directly at odds with the school environment, which requires children to memorize details first, saving any discussion of the significance of those details until some point in the future.

Requiring these verbally gifted children to focus on concrete details rather than abstract concepts can cause them to lose their motivation to learn. As noted earlier, many gifted children are intrinsically motivated; the prospect of getting an A or any other external reward does not motivate them. Instead, they excel when they find the work to be relevant to their lives, interesting, and challenging. It is the challenge that motivates them and it is meeting the challenge they find rewarding, and memorizing details disconnected to any meaning is neither challenging nor rewarding. Intrinsically motivated children tend to choose more difficult tasks (Redding, 1989, p. 286) and will sacrifice external rewards, like grades, for opportunities to pursue intrinsically appealing, independent learning activities (p.276). At times, these children will set higher standards or stricter requirements on work they are given in order to make it more challenging. They will do this even though they run the risk of making mistakes or doing the assignment incorrectly because it is inherently more rewarding to them than getting a good mark through no effort.

Several researchers (Redding, 1989; Dean, 1998; Glass, 2004; Alvino, 1985) note that lack of challenge can lead to lack of motivation, and Seeley (1989) found that underachieving gifted students were at risk for dropping out of school. In addition, Redding asserts that insufficient challenge, along with characteristics of impulsivity and anxiety can lead to underachievement among the verbally gifted (p. 277). According to Redding (1989), verbally gifted underachievers tend to be high-strung, anxious, and impulsive (p. 280). Their impulsivity prevents them from paying attention to detail, a requirement for academic excellence, because they lack the patience for it. This lack of patience stems from the gifted child’s preference for novelty, a preference that can be seen in children as early as infancy. These children are unable to continue working on a tedious task, and tasks that are too easy for them are tedious. In general, children find tasks easy when they are already familiar with the concepts and familiar tasks quickly lose their intrinsic appeal (p. 281). This response to the familiar should not be surprising since gifted children show a preference for novelty even in infancy (Steiner & Carr, 2003).

While some gifted children may be able to complete easy, unchallenging work, the increased anxiety of verbally gifted children makes it even more difficult to complete work that provides no intrinsic motivation. In fact, the anxiety these children feel when compelled to complete such work is great enough to cause them to avoid the work altogether. Unfortunately, many, if not most, teachers interpret this avoidance of homework to mean that the child is incapable of completing the assignments, either because he or she does not understand the material or is too lazy and disorganized to do it.
Redding (1989), however, believes that these children, if given appropriately challenging and interesting tasks, will be able to achieve (p. 279). McGinn, Viernstein, and Hogan (1980) found that the verbally gifted “crave intellectual stimulation and respond quickly when they get it (p. 498). Although they are referring to adolescents, we should expect the same response from younger children as well. Teachers can begin helping gifted underachievers pay attention to those concrete, detailed – and as gifted children see them, unpleasant – tasks by allowing them to pursue intrinsically satisfying interests that can hold their attention (Redding, 1989, p. 285). If teachers provide their verbally gifted students with tasks that hold their attention, they can help the students learn how to persist with a task from conception to completion, a feat often quite difficult for gifted children, but necessary for success.

Dean (1998) agrees that children recognized as having exceptional verbal ability are not being appropriately challenged (p. 2). However, he also believes that part of the reason these children are not challenged is that schools often fail to recognize them. Children with “notable performance” in music, math, or sports are more often recognized and are more likely to find support for their abilities both in and out of the school environment (p. 1), yet when schools miss the verbally gifted and fail to provide them with challenges that will allow them to develop, they “fail the pupils, the parents, and the community as a whole” (p. viii). Schools that pride themselves on providing services for students who lag behind their age mates in literacy skills pay little attention to those who surpass their age mates in those skills (Dean, 1998, p. 2). Dean believes that when schools focus on the needs of verbally gifted children and do all they can to help these students reach their potential, they will be helping the rest of the students reach their potential as well (p. viii).

Lehr (1986), like Dean, believes that failing to provide appropriate challenges for verbally gifted children can affect more than the children themselves; he asserts that developing and enhancing the verbal talent of gifted children is essential to society. This assertion is justifiable since it is through our verbal skills that we communicate with others. Biersdorf (1979) adds that as part of a larger communication process, all language usage – reading, writing, and language learning – are related to the verbally gifted child’s experience as a “communicator and language user and thinker…” (p. 20). Reading, writing and language learning, according to Biersdorf, are relevant and engaging at many levels, and both of these qualities are significant for verbally gifted children because academic task motivation seems to increase for many of them as the relevance of the task increases (Redding, 1989).

Current Language Arts Curriculum

According to Gallagher (1985), verbally gifted children enjoy language arts (p. 205). Beuscher (1979), on the other hand, says that it is not surprising to find bright students dreading language arts. Although gifted programs are often criticized for being oriented to verbally gifted children and for overemphasizing language arts (Feldhusen & Van Tassel-Baska, 1989), little evidence exists on specific effective strategies for challenging verbally gifted children, with the exception of data in literary analysis and expository writing (Van Tassel-Baska, Johnson, Hughes, & Boyce, 1996). For example, Van Tassel-Baska (2003, p. 1) says that teaching in the language arts has emphasized reading skills and low-level questions, which don’t challenge the gifted, rather than active learning and inquiry, which do. She adds that they need to apply high level thinking skills to critical reading, expository writing, oral communication, linguistic and vocabulary development, and foreign language.
Although Van Tassel-Baska includes linguistic development in her list of language arts areas needing to make use of high level thinking skills, formal language study often receives little or no attention (Thompson, 1994). Like Van Tassel-Baska, Thompson (1994) stresses the importance of a strong language study element in a sound language arts program, and this language study element must “allow students to understand the English language from a variety of perspectives” (as cited in Thompson, 1994, p. 2).

This situation is rarely found in gifted language arts programs. Lehr (1983) describes various programs available to verbally gifted children and few of them offer much in the way of language study. The Johns Hopkins program is one that does offer something, but the stress on the study of language itself is still lacking. Their program for verbally gifted children consists of seven courses: two in writing, two in German, two in Latin, and one in etymologies. Once again, the focus is on writing and foreign language. Only one of the seven courses, etymologies, deals exclusively with English language learning and it undoubtedly focuses on Latin and Greek roots, prefixes and suffixes.

Emphasis on writing and foreign language study is not surprising since these are two of the typical areas suggested as ways to enrich the language learning of verbally gifted children. Tangherlini and Durden (1993) provide a summary of strategies and programs available for nurturing verbal talent, which they say attempts to connect “current understandings of language and literacy acquisition, developmental psychology, classical works in psycholinguistics, and the human condition” (p. 428). Although they do add that their summary should not be considered exhaustive, it makes no mention of the study of language itself, except foreign language study, focusing instead on the other aspects of language arts teaching: oral expression, reading, and creative writing.

Passow (1996) also neglects to mention grammar study or any higher level linguistic analysis in a list of areas that can lead to the nurturing of verbal ability. His list includes creative writing, acting, and foreign language acquisition. What he adds, though, is that free exploration of these areas is what helps nurture specific abilities. Buescher (1979), like Passow, believes that it is important to allow gifted children opportunities to freely explore verbal domains. Buescher does, however, go beyond the usual creative writing and foreign language. He states that children need to play with language and that such playful learning, which essentially consists of the free investigation of both verbal and non-verbal language symbols, leads to better learning and higher interest than the typical language arts programs generate. Unlike language arts, science not only allows, but encourages, the investigation of its subject matter and this difference in the opportunity to explore the subject, according to Buescher, is what causes gifted students to dread language arts, but love science.

Rather than allowing students to investigate language, most language arts programs emphasize prescriptive grammar. Even when a language arts curriculum includes a linguistic element, such as the one developed by Van Tassel-Baska (1996), the focus is on linguistic competency, the ability to use appropriate grammar, rather than a true investigation of language. Andrews (1997) believes this emphasis is excessive, “premature and entirely out of balance with most learners’ needs and sense of what’s really important” (p. 21). With the verbally gifted child’s need for relevance in his or her studies, it is hardly surprising that so many of them fail to excel in the area of their greatest cognitive strength.

The holistic learning style of verbally gifted children must also contribute to their dislike of language arts. As Van Tassel-Baska (1989) notes, grammar is generally presented in small sections, making it difficult for these children to see the whole linguistic picture (p. 179). Not
only is grammar presented in small sections, but grammar instruction is also dragged out unnecessarily for twelve years. Basically the same lessons are repeated year after year (Andrews, 1997), undoubtedly because English teachers see language teaching as recursive rather than linear (Dean, 1998, p. 4). Students learn the basic parts of speech in the first year and they learn them again the next year. Little depth is added to the lessons. This repetition and lack of depth is especially unpleasant for verbally gifted children, who learn more quickly than their age mates. This ability to learn quickly means that a gifted child can “master all the principals of English grammar and syntax in less than four weeks of instruction in any given year” (Van Tassel-Baska, 1989, p. 179), and even though these children are also apt to retain the information from one year to the next, they must, like the other students, “learn” it over and over and over.

Andrews (1997) points out that language teaching has focused on grammar for the last one hundred years in spite of the fact that this approach has failed to make an appreciable difference in students’ ability to read, write or speak (p. 3). Worse, Andrews claims that grammar texts have changed little in the last one hundred years even though our concepts of language have changed. This claim is born out by the following definitions found in a grammar textbook published in 1866 (first printing in 1851): “An Interrogative Sentence is a sentence so arranged as to ask a question” and “An Imperative Sentence is a sentence used to command, exhort or entreat” (Clark, pp. 47-48). However, we know that a sentence such as “Would you please pass the salt?” -- while certainly arranged to ask a question -- is used to entreat. What other discipline uses textbooks that do not reflect the changes that have taken place in knowledge for 150 years? If geography were taught as though nothing had changed in the last hundred years, we would be using, according to Andrews, “maps with the warning, ‘Here there be beasties’ emblazoned on the outer reaches of the oceans” (p. 20).

Feldhusen and Van Tassel-Baska (1989) say that verbally gifted children need enriched and accelerated learning experiences in language arts (p. 213), but such experiences will not likely be provided through the study of outdated language instruction. Dean (1998) asserts that verbally gifted children have a deeper interest in language usage, beyond simple grammar, than their non-gifted peers and take pleasure in expressing their insights as well as “the patterns, rhythms and delights” they discover long before their classmates discover them (p. 10). Consequently, Dean believes they should be allowed to focus on style and syntax from the moment they start school. Tangherlini and Durden (1993) also believe that verbally gifted children should be able to do more than memorize the traditional parts of speech. They maintain that these children can benefit from experiences that strengthen the development of abstract systems of thought and that the specific forms and techniques of various disciplines could be used to provide these experiences (p. 430). Forms used could include literary and rhetorical modes as well as linguistic devices, while techniques would include scientific method of enquiry as well as research and data gathering methodologies.

The scientific method of enquiry is not generally associated with a language arts curriculum. As Gallagher (1985) notes, language arts more closely resembles a skill-development area, like mathematics than it does a content field, like chemistry (p. 205). This view of language arts explains why grammar is taught primarily as a way to improve a student’s achievement in other areas, as Andrews (1997) maintains it is. However, adding a linguistic component to the language arts curriculum that allows students the opportunity to study language in depth can provide them with the intellectual stimulation they crave in an area that interests them. The in-depth study of language would also allow these students to learn methods of scientific enquiry. Perhaps then verbally gifted children would no longer prefer science over language arts.
Need for Language Learning in Programming for the Verbally Gifted

Thompson (1996) tells us that little has been written about formal language study for young students (p. 150), even though one can find support for it as far back as 1961 when Ward (cited in Van Tassel-Baska, 1987) argued that "the nature of language, its structures and functions, its integral relationship to thought and behavior should be part of the education of the intellectually superior child and youth" (p. 159). In spite of that early support, Thompson (1996) says that formal language study rarely gets mentioned even in the context of language arts curriculum for gifted children (p. 150). In his paper "The state of the art issues in language study for high ability learners: Thinking about language with gifted children" (1994), he eloquently justifies the study of language. It is, he says, both a medium for and a manifestation of the mind (p. 2). For Thompson, to be ignorant of language is to be ignorant of "the very medium we inhabit." It is through language that “we may know ourselves, and…the selves of others, both living and dead” (p. 2).

Thompson also believes that “grammar serves meaning,” by which he means that grammatical rules can be modified to accommodate the needs of a particular piece of communication (p. 3). Understanding the rules of grammar enables students to break them when necessary to create an effective speech or piece of writing. For example, students learn that fragments are grammatical errors, yet a well-placed fragment can be rhetorically effective. To be a successful writer, though, one needs to understand what a fragment is and know how to avoid them. In other words, fragments should be conscious and intentional. By using and bending the rules of grammar, students are able to apply divergence, aesthetics, intuition and emotion (Thompson, p. 3). As Thompson puts it, grammar is "an exceptional tool for making logical, structural, and aesthetic decisions in writing and speaking one's own ideas" (p. 3). Gallagher (1985) has a similar view of grammar. He believes that students can apply their mastery of language arts skills in their own “creative products” (p. 211). What, however, will such an emphasis do for verbally gifted children like David, mentioned earlier in this chapter, who love to read, but hate to write? What good is such a "tool" for these children when they are neither interested nor especially talented in writing?

Grammar instruction, however, has benefits beyond that of helping students become more creative. It is, according to Thompson (1994), a “way of thinking about language…[a]… superb form of higher-order thinking” (p. 2) and he considers it as rigorous a method as logic, mathematics, and creative problem solving (p. 3). Gallagher (1985) agrees, arguing that mastery of grammatical skills will help students understand “the complexities of other subject areas” (p. 211). Dean (1998), too, believes that when gifted children are able to develop their linguistics skills, they will also develop their learning and thinking abilities, which will benefit them beyond their language learning (p. ix). In other words, it will benefit them in their other courses.

McCaig (1993) suggests another benefit. He found evidence to suggest that children whose abilities are nurtured tend to do better than those children whose abilities are left alone; and they do better, not just in their area of strength, but in all areas. This finding suggests that when the linguistic abilities of verbally gifted children are nurtured, their abilities will improve not only in the language domain, but also in areas in which they may be weak, mathematics, for example.

In any case, whether the teaching of grammar is justified in terms of benefits to creativity or to higher-level thinking, both views confirm what Andrews (1997) says: “…language is seldom studied in its own right” [p. 5, original emphasis], and as Widdowson (1989) notes, "The study and teaching of language is about a lot more than [grammar]...." (p. 136). Van Tassel-Baska, a strong proponent of formal language study for all gifted children, especially for the verbally
gifted, seems to agree. She believes that formal language study should include not only an emphasis on grammar, but on vocabulary development, etymology, semantics, linguistics, and the history of language (Van Tassel-Baska, 2003, p. 2). Unfortunately, few schools include much beyond grammar study in their gifted curriculum. One notable exception is the Indiana Academy of Math, Science, and Humanities, which offers its students a full course in linguistics. It is also the only school for the gifted that includes a focus on the humanities rather than limiting itself to math and science.

Winner (2000) believes that schools should increase their offerings of advanced coursework (p. 163) and a linguistics course would make an ideal addition for verbally gifted children. Verbally gifted children appreciate and process language at more advanced levels just as mathematically gifted children appreciate and process math at more advanced levels than their non-gifted age mates (Gross, 2004). They need a challenging English curriculum and Glass (2004) maintains that if a school fails to provide one, it can contribute to problems (p. 28). These problems, as Redding (1987) notes, can include loss of motivation and underachievement.

Winner (2000) also believes that the additional opportunities for advanced coursework should be offered not just in the upper grades, but in the elementary grades as well (p. 163). Even young verbally gifted children should have the opportunity to study language. Like all gifted children, the verbally gifted children have a “rage to master” their domain of high ability (Winner, 2000, p. 162-163) and for the verbally gifted, this domain is language. Ravid and Tolchinski (2002) believe that even young verbally gifted children can see language as a separate domain to analyze and explore and can differentiate between the parts of it, paying attention to some while disregarding others (p. 431).

Passow (1996) tells us that to nurture potential in a specific domain, opportunities should be provided for students to experience the methodologies and processes used by practitioners in that domain (p. 31). These methodologies and processes include modes of problem definition, problem solving, and ways to exercise creativity, innovation, and originality. Opportunities for such experience need not be delayed until high school or even junior high school. Tangherlini and Durden (1993) believe that verbally gifted children as young as 11 [11-14] can manage advanced curricular material and can benefit from experiences with forms and methods of various disciplines (p. 430). Although we do not know which specific learning experiences will nurture a particular giftedness, we do know that the lack of certain kinds of experiences can either slow down the realization of talent or stop it altogether (Passow, 1996, p. 31).
CHAPTER THREE – Methodology

Research Design

Previous research on teaching linguistics to children used linguists as teachers (Goodluck, 1991) or had specific goals, such as teaching scientific principles (O’Neil, 1969; Honda, 1994; Honda, Maya, & O’Neil, 1993). The purpose of the present study, however, was to determine the feasibility of teaching linguistics to verbally gifted children. In most cases, such instruction would take place within a school environment and would be taught by regular classroom teachers, some of whom may be trained to work with gifted children, but few, if any, trained in linguistics. In order for linguistics instruction to be feasible for elementary school children, these teachers would need to be able to understand the material and present it to the children. In addition, the children would also need to find the material challenging, but manageable, and they would need to enjoy it.

A case study approach was determined to be the best approach for this study. Case studies, according to Yin (2003) are appropriate when “a how or why question is being asked about a contemporary set of events, over which the investigator has little or no control” (p. 9). The questions considered for this study were “how would a teacher untrained in linguistics manage to teach the subject matter?” and “how would verbally gifted elementary students respond to such instruction?” The study investigated, not a past classroom lesson or methodology, but a current approach to language arts instruction, specifically an attempt to teach linguistics to fourth, fifth, and sixth graders. The control the researcher had over the events would be limited to the choice of subject matter, some lesson objectives, and information on linguistics provided to the teacher to work with.

The specific type of case study used for this study was the exploratory case study since as Yin (2003) notes, these studies are useful in situations where “the intervention being evaluated has no clear, single set of outcomes” (p.15). No clear or specific outcomes were expected from the current research, although the researcher did expect that verbally gifted children would be both challenged by and engaged in the study of linguistics and that such study would not be beyond their abilities. The ethnographic technique of direct observation was deemed best since it would allow the researcher to focus on the interaction between the teacher and students, and between all the participants and the linguistic material. This approach would allow the researcher to observe the teacher, her approach to teaching, her ability to work with and teach linguistics as well as the students’ responses to the various lessons.

Children for the study would be recruited through a Saturday enrichment program, called “Discover the Challenge,” sponsored by a local gifted organization. This program would be offering classes for gifted children in grades four through six, which created an opportunity to offer a linguistics course specifically for gifted children. The classes in the program would meet for two hours every Saturday morning for eight consecutive weeks. Every course in the program was to open with an introductory class, during which children would be introduced to the teacher, to one another and to the course material, and end with a “presentation” class, when children would have a chance to share what they had learned with their parents.

Each of the remaining six classes would be devoted to one aspect of linguistics: phonology, morphology, syntax, semantics, historical linguistics, and sociolinguistics. This structure was based on the fact that the enrichment classes were meant to expose children to subject matter they had not yet encountered or to provide depth to familiar subjects, more than they would get in school. Elementary school children study grammar in school, but a study of linguistics would
provide them with a more in-depth look at language study. However, because few, if any, elementary school children are familiar with linguistics, delving deeply into linguistic study would not be appropriate, useful, or successful. Both the Goodluck (1991) and the Fabb (1985) studies had little success because the material presented to the students was too complex for them. In the analysis of her study, Goodluck noted that her lack of success resulted from her original belief that it was possible to teach fifth graders a “watered down” version of undergraduate college linguistics class material.

By devoting one Saturday session to each of the fields of linguistic study, the Junior Linguists course would provide the children with a basic overview of linguistics and help them see how linguists view language and invite the children to learn to think like linguists. For example, in the first class, the students would begin by attempting to define language. Their first task would be to discuss their answers to the question “What is language?” They would then be asked questions like “Do animals have language?” “Where did language come from?” And “How would the world be different if we had no language?” The following class sessions would help the children see how linguists attempt to answer those and other questions about language.

The specifics of the class lessons would be left up to the teacher. The reasoning behind this plan was twofold: first, a teacher with experience teaching gifted fourth through sixth graders would know if material being presented was too complex for them. Although gifted children are cognitively advanced, they are not college undergraduates. Material would need to be adapted for their learning styles and levels, and an experienced should know what kind of material would be challenging and how best to present that material. Second, few, if any, elementary school teachers have any linguistics background, but for teaching linguistics to elementary school children to be feasible, a teacher would need to be able to understand it sufficiently to present it to the children. By leaving the specifics of the class lessons to the teacher, the researcher would see whether the teacher could work on her own, and if not, how much help and guidance would be needed. If the material is too difficult for either the students or the teacher, then providing linguistics instruction for verbally gifted elementary school, regardless of how useful it might be, would not be feasible.

Teacher Recruitment and Preparation

Several teachers of gifted children were contacted and told about the Discover the Challenge program. If interested, they were to submit an informal proposal for a class to be offered in the program. One of the teachers who applied expressed an interest in creating a language arts class. She was contacted by the researcher and briefed on the goal of the research project. This teacher had approximately fifteen years experience teaching gifted children and was currently teaching gifted fourth and fifth graders. She stated that she enjoyed grammar and would therefore like to participate in the research.

A meeting was arranged with this teacher to discuss her knowledge and background in more detail. The discussion revealed that the teacher seemed to think that grammar and linguistics were basically the same. Her experience with gifted children, enjoyment of grammar, and lack of knowledge of linguistics made her an ideal teacher for the project. It was determined that the researcher and teacher would collaborate on lesson plans for the course. Initially, the researcher would provide the teacher with some lesson objectives as well as basic information on the units of linguistic study from which the teacher would attempt to construct lessons and exercises for the students. At any point, the teacher could get help with the lesson planning from the researcher. This collaboration would allow the researcher to determine how much a teacher
could do independently, but would also ensure that lessons be constructed with fourth through sixth grade students in mind.

Junior Linguists: Course Recruitment, Eligibility Requirements and Characteristics of the Students

Course Recruitment

The linguistics course offered in the program would be called “Junior Linguists.” Three other courses were also offered in the program: “Science Sleuths,” “Multiple Math,” and “Space Engineers.” The Science Sleuths course covered forensic science, scientific methods of crime solving, such as fingerprints, footprints, and even blood spatter. It was taught by an employee of the forensics division of a local sheriff’s department. Multiple Math, taught by the teacher of gifted children, allowed students to explore math using the various intelligence domains proposed by Howard Gardner. The Space Engineers course, taught by various members of the local Challenge Learning Center, included instruction on space missions and building and programming model landrovers with Lego Mindstorms. The courses were meant to appeal to gifted children with varying interests.

Some children might be interested in more than one course, but only children with a specific interest in the study of language would be interested in taking the Junior Linguists course. The course description read as follows:

"Colorless green ideas sleep furiously." Huh? How can a sentence be grammatically correct and still make no sense? Explore this question and more in this class all about language. You will learn where words come from and how they change over the years. (Did you know “nice” once meant “foolish”?) You will also learn how we use language to create our identities and establish and maintain relationships with others. Learn why we might think a groo is a huge animal, while we’d expect a gree to be a teeny one. (There’s a hint there!) If you enjoy playing with words and language, you will really enjoy this class! You’ll have a good, pun time.

Brochures about the Discover the Challenge program were created and distributed to every elementary school in the county where the classes would be held. These brochures described the courses offered, short biographies of the teachers, and the eligibility requirements for children wishing to participate. Parents could register their children by filling out the registration form on the brochure and sending it in, by printing an Internet online version of the registration form, or by registering using the Internet registration process. In addition to the registration form, parents were required to submit a document proving that their child was eligible for the program.

Eligibility Requirements and Characteristics of the Students

In order to participate, students had to submit one of four documents: a copy of a standardized achievement test; a copy of an IQ test, a letter from the school indicating that the child had been identified for the gifted program; or a letter from a parent or teacher describing the child’s abilities and behaviors that indicated that the child was gifted.

The achievement test had to show that the child had scored in the 90th percentile in at least one area: math, language, etc. If a child wanted to take the Junior Linguistics course, the 90th percentile had to be in the language area. One reason the Goodluck (1991) study was a problem was that it assumed fifth grade gifted children would be interested in and be able to understand college-level linguistic instruction. The present study sought to avoid this problem by providing
a minimum of lecture, focusing more on learning activities. Another potential problem with the Goodluck study was that the course was open to all gifted children, not just verbally gifted children. By requiring a high percentile score in the language area, the researcher hoped to limit the course to verbally gifted children. With IQ scores, a minimum overall IQ score of 125 was required, but a lower score would be considered if the child obtained a high score in the language domain. Letters from teachers and parents were screened to determine if the child had the ability to do well in the class of his or her choice. Letters about children who wanted to take the Junior Linguists course would be screened for evidence of interest and ability in language, reading above grade level, for example. Letters stating that a child had been accepted into a school’s gifted program were the most difficult to assess since they did not always specify the criteria used to admit the child to the program.

Eight children applied for the Junior Linguists course and all were accepted. One, however, failed to show up for any of the classes. He has not been included here. The seven who attended class submitted the following proofs:

<table>
<thead>
<tr>
<th>Student</th>
<th>Proof of Eligibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Katie</td>
<td>Letter from school stating she had been identified as gifted in the area of language arts. No additional materials were submitted.</td>
</tr>
<tr>
<td>Parin</td>
<td>Achievement test on which she scored 565 on the language portion (700 was highest possible score, 110 the lowest).</td>
</tr>
<tr>
<td>Liana</td>
<td>Letter from school stating she had been identified as gifted in the areas of language arts and math. No additional materials were submitted.</td>
</tr>
<tr>
<td>Mary</td>
<td>Letter from teacher. Her reported IQ was lower than the required IQ score, but the teacher recommended her saying that she would score higher if given the chance to retake it. The teacher’s letter described Mary’s gifted characteristics, primarily an “ability to make self to self, self to text, and text to world connections.”</td>
</tr>
<tr>
<td>Zachary</td>
<td>Slosson IQ test – Total score of 131. Letter from principal stating that Zach had a large vocabulary and a strong intrinsic motivation to read.</td>
</tr>
<tr>
<td>Jason</td>
<td>Letter from school stating he had been selected for the full-time gifted class. No additional materials were submitted.</td>
</tr>
<tr>
<td>Priscilla</td>
<td>Letter from the school stating she was eligible for enrichment classes.</td>
</tr>
</tbody>
</table>

Katie, Parin, and Liana all submitted material that indicated they had exceptional abilities in the language arts area. The letter from Mary’s teacher noted that although her test scores were lower than the required scores, her facility with making textual connections indicated an advanced language ability. Liana and Mary also later stated that they had wanted to take the class because they had both had the teacher before in school and liked her. The teacher also later stated that neither Liana nor Mary were “truly gifted,” but of average ability.

Material submitted for Zach indicated that his IQ score was in the gifted range, although no score was provided for the language component. The letter provided by the principal, however,
pointed to Zach’s large vocabulary and motivation to read, two indications of verbal giftedness. In addition, according to Zach’s father, Zach had always been interested in grammar and the different ways people use grammar. For example, he had already been learning what he could about various dialects and was aware of Cockney rhyming slang. Few adults have ever heard of that slang; it is especially unusual for a fourth grader not only to have heard of it, but also to know what it is.

Both Jason and Priscilla’s proof of eligibility indicated their schools had identified them as gifted, but not specifically verbally gifted. However, Jason’s mother reported that Jason had been interested in language for several years. He had been asking her questions she could not answer about the origin of language, questions such as “Who spoke the first language?” “How did language start?” “How many different languages are spoken in the world?” Priscilla’s mother reported that Priscilla enjoyed all language arts activities, and Priscilla later returned to the program to take classes in creating writing and acting.

Observation Protocol and Data Collection

The class would be held in a small room set up with round tables rather than individual desks for students. The researcher would sit at a back table and observe, taking notes on what the teacher did and how the students responded. The teacher for the course and the researcher agreed that the researcher would intervene only if and when the teacher had difficulty presenting the material to the students. If the researcher felt the students’ understanding of the material would be negatively affected by the teacher’s lesson, then the researcher could jump in with a clarification. For example, in a lesson on phonology the teacher might misidentify symbols of the phonetic alphabet. At that point, the researcher might interject, being careful not to undermine the teacher.

Although this kind of interjection could be seen as interference which could compromise the results of the study, it would actually provide additional data. It would allow the researcher to ensure that the material presented was accurate and to determine whether the accuracy of the information affected the students’ ability to understand it. For example, if the teacher’s explanation was an oversimplification of the material and the researcher interjected with more complex information, the researcher could note whether the students reacted more or less favorably to the material.

Other methods of collecting data would be to note what students did for their final course projects. It was assumed that students would choose for their project course material that they found particularly interesting. For example, if a student found the exploration of the question “What is language?” to be especially interesting, that student might attempt to create a project based on that issue. An analysis of the projects could also reveal the level of a student’s understanding of the issue. For example, if a student chose a project on morphology, but did not adequately or accurately represent principles of morphology covered in class, the researcher might conclude that the student was not able to comprehend the material or that the teacher had not adequately covered it.

No tests would be given on the material so no quantitative date would be collected. Additional qualitative data would be gathered through a simple questionnaire given to students at the end of the course. Students would be asked whether the material was too hard or too easy and whether they enjoyed working with it.
CHAPTER FOUR – Discussion

Results

Overall Course Plan

The linguistics for kids course would meet for two hours on each of eight Saturdays. The first class would be devoted to an introduction of the teacher, the students, and the subject – linguistics. During the next six classes, students would explore different branches of linguistics: phonology, morphology, semantics, syntax, historical linguistics, and sociolinguistics. On the first day, students were told that they were expected to work on a project related to one of the topics. They were free to choose any topic they found interesting. On the last day of the course, students would present and discuss their projects for the benefit of their parents, who were invited to attend that day. The students’ projects would also be displayed around the room so that parents and the other students could take a closer look.

A couple of months before the class met for the first time, the researcher presented the teacher for the course (referred to here as MA) with basic information she would need about the different branches of linguistics. She could use the information to create lessons for the children as she saw fit. She was encouraged to help the children explore the topics – even if she herself was unfamiliar with them. In other words, she could explore along with the children. She was not expected to know all the answers.

One week before the Saturday program began, the researcher contacted MA to go over the lesson plans she had created for the course. At this point, MA stated that she had been busy and had not prepared any lessons. She added that since she had taught grammar to gifted children before, she did not see a problem in proceeding with the lessons, even without any plans. To ensure that the students covered the material planned for the first day, the researcher created a general plan (Appendix 1) as well as some materials to give to the students and emailed it to MA three days before class.

Day One – What is Language?

MA began the class by introducing herself and the topic of the course. She then passed out a handout (Appendix 2) explaining what linguistics is and told the students that the class would be looking at language the way linguists do. Next had the children play some games that the researcher had recommended. First, each student was given a piece of paper with a number from one to seven on it. The students were then asked to line themselves up in numerical order without doing any talking, gesturing, or revealing their number. After some effort and a little frustration, the students were able to line themselves up. Second, students played a game of charades. Each student was given a slip of paper with a word or a sentence on it. The words represented feelings like sad, happy, surprised, and confused. The sentences represented more complex ideas like “I don’t understand why you are here.” Those students who had single words to act out had no trouble getting others to guess what they were trying to convey. Those students with the sentences were unsuccessful in getting the others to guess what was on their slip of paper. They did not try very hard, though, because they realized immediately that conveying such a complex idea through gestures alone would be difficult. When they revealed their sentences to the other students, everyone laughed and made comments like “What?” expressing their understanding of the impossibility of communicating complex ideas through gestures.
Once the game playing was done, MA asked the students what life would be like without words. The answers they gave included “boring,” “hard,” “miserable,” “dumb,” “dull,” and “quiet.” This would have been a good opportunity for MA to ask the students why they answered as they did and to relate their answers to the games that were played at the beginning of the class. However, she seemed to have trouble sorting out what the students said or relating the comments to the games.

At this point, MA asked students what language is and whether animals have language. All the students responded that language is communication and communication is language. They had more interesting things to say about whether animals have language. They agreed that animals communicate and provided these examples of the ways communication took place with animals: dog’s bark, bees dance, birds chirp. Because animals communicate, students concluded that they must, therefore, have language. MA then handed out a sheet to students outlining the characteristics that most linguists believe languages possess (Appendix 3). They discussed these characteristics, but some of the students still thought that it was possible that animals were capable of “deep” thoughts. One of the students even said that “animals are very smart, smarter than we think they are and could be discussing parties and past events, but we just don’t know it.”

MA allowed students the freedom to say whatever they believed about language. The atmosphere that she created made the students feel comfortable. That kind of atmosphere is helpful in any classroom since it allows students to freely explore a topic. Unfortunately, the students were given no guidance to help them understand why they might or might not be correct. MA did not wrap up the lesson. That is, she did not help students understand how linguists define language or whether animals have language – even though she had been provided with this information. Students were left thinking it was possible that animals could very well be discussing past events and parties.

For homework, students were asked to think about how many sounds the English language has. They were given a handout that illustrated how sounds are made and introduced them to the concepts of “phonemic inventory” and “minimal pairs” (see Appendix 4). This would be discussed in the next class. They were not required to do any research, just to think about it. Students were also asked to visit the Web site koko.org, a site about Koko, the gorilla that uses sign language.

**Day Two – Phonology**

Because the material for the first day had not been fully covered, some time would have to be spent continuing the discussion about language and linguistics and then discuss phonology. MA began by telling students that they would spend the class talking more about language and start a discussion on phonology. She then asked students about “phone” and “phonology.” She was able to get them to see the connection between “phone” in “telephone” and “phon(e)” in “phonology.”

MA then talked to the students about Koko, the signing gorilla. Only one student, Jake, had visited the Koko website. He was also the only one who had missed the previous class. His mother, however, had gotten the materials and homework for him. Jake was also the only student who thought animals could communicate without language. He commented that communication is instinctive, but it doesn’t necessarily include thoughts. Another student replied that we can’t prove that animals can’t “talk.” We just don’t know their language. At this point, the researcher commented that linguists do not all agree on exactly how to define language.
The students continued talking about language and were discovering that language changes over time. Jake commented that “some ‘idiot’ couldn’t pronounce ‘break fast,’ so it became ‘breakfast’.” He added that humans have a voice box, but animals don’t. The students then began to talk about the sounds in English. MA asked how many sounds English had. Sam thought there were 26 letters and 44 phonemes. Lucy thought there were 34 sounds. Jake thought each letter had two sounds so there must be 52 sounds. Talking about sounds led to some comments about rhyming, at which point, Sam brought up Cockney rhyming slang and provided a couple of examples for the students.

MA asked the students to make a sound, any sound. Then she asked them to make the sound of a drum. Penny said, “snare,” and MA had to point out that “snare” was the name of a drum rather than the sound a drum makes, but she was able to get the students to see that sounds of a language have to have some “meaning.” Not all sounds we can make are part of the English language.

Students then stopped for a scheduled 15-minute break. When they returned, they wanted to play the game Mad Gab. Mad Gab is a game that takes a phrase and breaks the sounds differently to create different words. Players must figure out where the breaks belong to determine the real phrase. For example, a game card might have the words "Thigh Sing Gone Thick Ache" on it. Much of the fun of the game comes from players trying to different breaks and emphasis to discover the real phrase. In this example, the phrase is “the icing on the cake.”

The idea had been to introduce students to the sounds of language and how they are put together in order to create words. Playing Mad Gab would then provide a fun way to introduce the concept of suprasegmentals. However, although MA was able to create a comfortable atmosphere and guide students in some discussion of language, she did not seem attempt to help students draw any conclusions. At the end of the second class, students still did not seem to understand how linguists define language, whether animals have language, or even that linguistics is the scientific study of language. Every idea was treated as equally valid. What seemed to be most important was that the students have fun. If the course continued at this pace, the students would not learn about the scientific study of language. It was also not clear whether there would be enough time to cover the remaining topics in the five classes that were left.

After the students left, the researcher talked with MA about how to get caught up. We determined that we would blend the remaining information on phonology with the lessons for the next class on morphology. While the researcher had provided MA with a general plan for the first day, she had hoped that MA would be able to create one for the second day based on the materials she had provided for MA prior to the start of the program. However, MA did not have one prepared and was not covering all the material that needed to be covered. To get caught up and moving forward, the researcher decided to create a specific lesson plan with specific goals and objectives. MA would get the detailed lesson plan in an email a few days before class met again in case she had any questions.

Day Three – Language, Linguistics, and Phonology Again

The third class would be the first time that MA worked with a detailed lesson plan provided by the researcher. Before the students came in, MA asked to speak with the researcher. She wanted to talk about the researcher’s “approach and said that she does not like working with a “script.” She said that she was very busy and did not have time for it. The researcher replied that she understood how busy MA was and thought a detailed lesson plan with goals and objectives would help save MA preparation time.
In spite of MA not wanting to work with a “script,” she followed the plans for the class (Appendix 5). She talked about what language is, providing helpful examples and asking questions that engaged the students and got them thinking. When talking about the creativity of language (the potential to create an unlimited number of phrases and sentences never before heard), she asked students to come up with phrases to describe a new toothpaste they invented. The students responded with ideas like “brush and bright.” MA was able to take the researcher’s lesson plan and adapt it to the class, coming up with her own examples and questions.

Before moving on to a discussion of phonology, MA talked with the students about linguistics – what it is and what linguists do. She noted that linguistics is the scientific study of language, to which one student replied, “I hate science.” MA responded by saying that “the study of language is hard if you don’t know it, just like science.”

MA then turned the discussion to phonemes. She had the students form sounds, altering the shapes of the lips, the position of their tongues and so on. This exercise generated some laughter, but also some interest. The researcher interjected at this point to get students to understand the difference between voiced and unvoiced phonemes. She asked the students to place their hands on their throats and then make a “b” sound and then a “p” sound, then a “d” sound and then a “t” sound. The expression on the faces of some of the students was one that accompanies a feeling of surprise or amazement.

MA then handed out an English phonemic chart (Appendix 6), which the students were asked to fill in. In the previous class, students had discussed the number of sounds they thought were in English and gave a variety of answers. For homework, they had been asked to come up with a word to illustrate each sound of the English language. They could work together with other students see if they could figure out the sounds. Before they could finish filling in the chart, however, it was time for a break.

When the break was over, MA handed out a chart of the English Phonemic Alphabet (Appendix 7). The chart provided information on how the sounds are formed (where in mouth, where the tongue is, whether voiced or unvoiced, etc.). It included the phonetic symbol and a word the illustrated each sound. MA asked the students to make the different sounds and pay attention to where what they were doing with their mouths, their lips and their tongues. Some students also remembered the tip about voiced and unvoiced sounds and placed their hands on their throats to note whether they could feel vibrations.

To get the students thinking more about sound and meaning, MA gave students a handout on language sounds (Appendix 8). It asked students to consider which words in a made-up list referred to something big and which referred to something small. Each of the words contained either [i], [I], or [u]. Interestingly, the students first tried to think of what the words meant. Once they got past that, almost all the students thought the words with [u] referred to something large. MA let the students know that these sounds in more than one language often refer to something large, while the [i] and [I] refer to something small.

Finally, MA told the students to think about the game Mad Gab they had played during the previous class. She asked them what they had to do to guess the correct phrases. One student said that she had to divide the letters up differently, so MA asked if it was the letters or the sounds that had to be moved. The students all agreed that it was the sounds that had to be moved. Then MA asked what it meant to move the sounds. “When you move a letter, you attach it to other letters. How do you move a sound?” The students seemed to understand, but had difficulty articulating the answer. They gave answers like “You just say it with the other sounds.” At this point, the researcher asked, “Do you mean you pause in different places?” The students either
nodded in agreement or shouted out “yes!” The researcher then let them know that sounds that are grouped together are called “morphemes,” and they would learn about those in the next class.

To reinforce the learning of English phonemes, the researcher had created a “Phonetic Scrabble” game. It makes use of a regular Scrabble board, but instead of letters on the tiles, there were phonetic symbols (see Appendix 9). Students did not have to have memorized the sounds that are represented by the symbols; a word, with the letter representing the sound underlined, appeared on each tile. Other than this difference in tiles, the game is the same. Players have to create words using the tiles that they have, as well as any tiles that are available on the board in words already played. The children seemed to enjoy this game. They were laughing quite a bit and frequently challenged one another on the words, attempting to sound out the word using the phonemes on the tiles. When it was time for class to be over, some of the children did not want to stop playing and were eager to show their parents the game when the parents arrived to pick them up.

**Day Four – Phonology and Morphology**

Starting with what the class had covered during the third class period, the researcher created another lesson plan for MA to use during the fourth class period and sent it to her in an email three days before class was to meet (see Appendix 10). The fourth class would continue with lessons on phonology and then cover morphology.

While waiting for all the students to arrive, MA talked about palindromes, providing a couple of examples, like *pop*. Then she asked the students to think of some on their own, which they eagerly did until it was time for class to begin. MA later told the researcher that she thought playing with palindromes would be a good warm-up since one of the topics for the day included “words.” This suggests that MA not only looked at the lesson plans she was given, but also gave them some thought and came up with her own idea on how to get students started for class.

Once class started, MA reminded the children that sounds are the smallest building blocks of a language. To illustrate the concept of meaningful sounds of a language, MA had the students write words on the board that would make a minimal pair with words she listed on the board. She first wrote some examples of minimal pairs on the board: *cat / cap* and *mat / rat*. After explaining that the change in one sound changed the word to a different word, MA asked students to take turns coming to the board to make a sound change. The students seemed to focus more on letters than on sounds, in spite of the playing they did in the previous class with the phonetic alphabet. For example, one child wrote *eat* as a change from *sat*, changing the *s* to an *e*. Eventually, one child wrote *kit* as a change from *cat*, recognizing that the two initial letters might be different, but the sound they represented was the same.

MA then had them play a “minimal pairs game,” but this time they would speak the words rather than write them on the board. She started by writing a word, like *hall*, on the board and then students took turns creating a minimal pair with the last word given. The game worked better than writing words on the board since students paid attention to the sounds without being distracted by seeing the letters on the board. When the game concluded, MA talked more about minimal pairs, explaining it in terms of enunciation. She then began talking to the students about the made-up words of Dr. Seuss, providing some examples such as Yertle the Turtle. However, she did not tie her discussion of Dr. Seuss in to minimal pairs.

MA next wrote the following on the board: *ɪk ən tʊt*. She was not an completely familiar with the phonetic alphabet or which symbols to use for which sounds, but she wanted to get the children started playing with the phonetic alphabet and she let the students know that she
was learning just as they were. She and the children then took turns writing words and phrases on
the board using the phonetic alphabet for everyone else to guess. They seemed to be enjoying
themselves as they tried to remember the sounds and then blend them together in order to guess
the word or phrase. They were able to recognize incorrect symbols and were quite competitive in
getting the correct answers.

After the break, MA reviewed much of what they had covered during the first half of the
class and reminded them that sounds blend together to make words. One of the students noted
that words have meaning. MA then began talking about words rather than morphemes. For
example, as she talked about prefixes, roots, and suffixes, she said that some “words,” like mouse
can stand alone. After some discussion of roots and affixes, MA gave the students a “morpheme”
game to play (see Appendix 11a, 11b). The game is a card game that plays something like
“Rummy.” Players start with cards that have roots, prefixes, or suffixes on them. They have to
combine cards to create words. At first the students were trying to make “real” words and were
also concerned about spelling. For example, one student wanted to make the word “created” with
the root “create” and the suffix “-ed.” But other students at her table told her that she could not
have “createed” because that wasn’t a word. The researcher reminded them about sounds not
being the same as spelling and then explained that they could consider the “-ed” as a morpheme
that has the meaning “past tense.”

It is impossible to include every root in the English language in a card game. It’s not even
possible to include too many of them or it would require a number of cards that would end up
being unmanageable. Therefore, the students had a limited number of roots and affixes to work
with, so creating “real” words would be difficult. Students quickly stopped trying to create only
“real” words and began combining morphemes to create words which they would then define for
the other players. The students then began making up additional rules for the game as they went
along. For example, they decided that a word would be acceptable if the player who created it
gave a definition of the word that made sense to them. “Viewtion” would not be accepted
because the player who created it could not come up with a definition that satisfied the other
players.

Before the students left for the day, MA gave them a morpheme homework sheet (Appendix
12) that had sets of morphemes for them to work with. These included roots and suffixes that
they would use to create words that matched a given definition. They then had to put the right
word in sentences each of which contained a blank spot for one of the words. The sets came
from “Word Roots” software by Critical Thinking Books & Software.

Day Five – Morphology and Syntax

When the researcher entered the classroom, MA was already there. She had come early to
hang a poster on the wall of “Lingua Corporis” for the students, which illustrated different signs
of body language. As the students came in, MA got them started with a warm-up activity. She
asked them to draw a picture of sayings with double meanings and provided “No fly zone” as an
example. The students seemed to enjoy the activity, drawing pictures and sharing them with the
others to see if they could guess the sayings. Once all the students arrived, MA followed the
lesson plans the researcher had prepared for the class (Appendix 13).

MA then asked the students to get out the morpheme homework they had been given the
previous week in class. All but one student had completed the homework, and the one who did
not have it done had been absent during the previous class. MA had the students share their
answers by putting the words they created by combining morphemes on the board. Only one
student had trouble combining the morphemes – the student who had been absent. In spite of missing the lesson, however, this student was willing to put his “guesses” on the board. Students continued with the morpheme activity until it was time to go on a break.

After the break, MA began a lesson on syntax. She reminded students that sounds make morphemes, morphemes make words, and then words make sentences. She then wrote the words “boy went” on the board and asked the students to add words and phrases to make it longer. Students took turns writing in words and phrases to go from the two words MA provided to a much longer sentence as illustrated below:

The boy went
The boy went to school.
The boy went to school at 8:00 in the morning.
The boy went to school at 8:00 in the morning with his books.
The boy went to school at 8:00 in the morning with his red books.
The boy went to school at 8:00 in the morning with his heavy red books.
The boy went to school at 8:00 in the morning with his heavy red math books.
The boy went to school at 8:00 in the morning on Tuesday with his heavy red math books.
The boy went to school at 8:00 in the morning on Tuesday behind the bus with his heavy red math books.
The boy went to school at 8:00 in the morning on Tuesday behind the bus with his heavy red math books, and said, “I hate school.”
The dark-haired boy went to school at 8:00 in the morning on Tuesday behind the bus with his heavy red math books, and said, “I hate school.”

MA then talked to the children about the importance of word order in English. She wrote the following sentence on the board and asked the students to explain what they thought it meant: “The dentist used tongs to pull out the man’s teeth which were like pliers.” The students laughed and agreed that the sentence made it seem as though the man’s teeth were like pliers. After distributing a handout about syntax (Appendix 14), MA talked with the students about meaning in addition to syntax. She went over the handout with them and spent time with them on Chomsky’s sentence “Colorless green ideas sleep furiously,” asking students to consider first whether the sentence was grammatically correct and then whether it made sense. Students had no trouble recognizing that it was grammatically correct. They also didn’t think it made any sense, and did not seem to have a problem recognizing why. For example, one student said that “something can’t be green and colorless at the same time because green is a color!” Another student suggested that “someone might be able to sleep furiously if they moved around a lot in their sleep,” but another student pointed out that “furiously means you’re mad and how do you sleep mad?”

The rest of the class period was spent doing a sentence activity. Each table of students was given a pile of slips of paper on which were words of different parts of speech (see Appendix 15). They were to take turns adding words together to create sentences, which might or might not make sense. Since some combinations were no more logical than Chomsky’s, the students came up with some funny sentences. They seemed to have more fun creating nonsensical sentences than sentences that made sense.

Before the students left, MA asked the students if they had started working on their course project yet. On the first day of the course, the students had been given a sheet that gave them
some ideas for a project they could work on (Appendix 16). Most of the students said they had. MA said that she would like them to share their ideas at the beginning of the next class.

After the students left, MA told the researcher she had something to say. She said that she had been wrong about what the students could do and what they would enjoy about the course. She added that she now believed the researcher had been right and that the students seemed to be enjoying the class and the language study very much.

Day Six – Syntax and Historical Linguistics

Once again MA had come up with a warm-up activity for the students as they waited for the rest of the students to arrive. This time she had them create “name pyramids.” Each student would write the first letter of their first name at the center top of a sheet of paper. They then had to create a pyramid by writing words under it that started with the same letter. The words had to describe them and be longer than the word above it. Once the students had arrived MA asked them about the projects they were working on. Several of the students were creating language games, two of which were based on the phonetic alphabet. One student was working on a project about whether animals have language.

MA then talked to the students a bit about the kinds of errors that spell and grammar checkers will not catch. These “errors” included nonsense sentences like Chomsky’s sentence that they had looked at the previous week. She noted that while such sentences do no make sense, they are grammatically correct. At this point, MA began working with the lesson plan for the day that the researcher had provided (Appendix 17).

The plan for the first hour was to work with some nonsense sentences (Appendix 18). Students were asked to try to figure out why those sentences did not make sense. The students knew that the sentences were not “right,” but rather than explain why they weren’t right, they focused on possible metaphorical meanings or changed words in order to “correct” the sentences. For example, one student explained “young toast” as a metaphor for “new toast” or “fresh toast.” The students recognized that the sentences had something wrong with them, but they were unable to explain what the problems were. MA seemed to have as much trouble explaining the problems as the students had. She could not offer any suggestions for the problems. Before going on break, the researcher explained a couple of the problems. For example, in the sentence “The young toast taught the sad paper,” she noted that toast is not capable of teaching. Toast does not have that quality. Paper cannot be sad because it does not have the quality feeling emotions.

After the break, MA handed out a sheet on some theories that linguists have suggested to explain how language began (Appendix 19). She had the students take turns reading the theories out loud and the students seem to find them quite amusing. MA then distributed a handout on the history of language (Appendix 20), which explained that languages are alive, that they change over time. When a language is no longer spoken, it is extinct, - dead language. MA then handed out a copy of the Indo-European Language Tree, taken from Daniel Short’s Web site (http://www.danshort.com/ie/iecentum.htm). The discussion over language families was quite lively as students looked to see which languages were related to other languages and which languages developed from which languages. They discovered that English is a Germanic language. MA then handed out a Word Match sheet (Appendix 21), which asked the students to match English words with their German cognates. They had no trouble matching the words.

After the students left, MA and the researcher discussed some ideas for the next class session, which would be the last one in which students would be learning about language. The
researcher would incorporate some of the ideas into the lesson plans for the seventh day of the course.

**Day Seven – Historical Linguistics and Sociolinguistics**

The students enjoyed learning about the history of language so much in the previous class session that the lesson plans for this last session (Appendix 22) were primarily about how languages in general change and how English specifically changed over time. MA had created a timeline starting at 55 BC and ending with “After 1600.” The years for other significant events in the development of English were marked on the timeline, which stretched across half of one wall in the classroom. MA handed out notecards to the students on which she had printed a number from 1 to 13, along with the date and a brief description of one of thirteen major events in English language history. Next, MA asked the students to read their cards in order and then tape their card to the correct place on the timeline on the wall.

After the timeline on the wall was complete, MA handed out copies of the timeline and a sheet with more complete descriptions of the major events (Appendix 23). The students seemed to enjoy learning about these different events and the ways they influenced the English language. It was interesting to note that based on their comments about the Great Vowel Shift, students seemed to think that except for those changes in vowel sounds, English today does not sound that much different from earlier forms of English. They thought that the changes involved different words and some different word endings. (One student said that people in Shakespeare’s time said things like “We goeth home.”) The researcher had provided MA with some sound files to play for the children. One was a reading of the Old English poem “Deor” and another was a reading of the Prologue to the Canterbury Tales in Middle English. Before playing the readings, MA handed out copies of these works. The students were surprised by the look of Old English, some saying that it did not look anything at all like English. One student proclaimed that “it doesn’t even have the same letters!”

When MA played the sound files, the children were surprised at how different old English sounds from Modern English. Their eyes widened and they exchanged glances with one another. Some of them laughed and some made comments like “No way that’s English!” After listening to the sound file of Middle English, the students made comments suggesting that it still sounded “weird,” but not as “weird” as Old English. One student said that at least it was possible to recognize some of the words.

MA then played more sound files, all readings of Shakespeare’s Sonnet 18, but in different dialects. These dialects included Shakespearean, Dublin, Sussex, Lowland Scottish, County Kerry, Yorkshire, and Cockney. Students had a copy of the sonnet so that they could read along as they listened to the different readings (Appendix 24). The handout included a short explanation of how linguists know the way words were pronounced when we have no recordings of them. Since one of the students had been interested in Cockney rhyming slang, the researcher thought the class might enjoy learning more about it. MA handed on an exercise sheet that described Cockney rhyming slang and explained how it is created (Appendix 25). The students had trouble understanding the slang terms. They were looking for logical semantic connections rather than just recognizing that it is based on rhyming.

MA then led the class discussion back to the Timeline of English and to the influence of English in the world. Students knew that many people around the world speak English and that many English words are borrowed by other languages. They discussed language change and the influence of English until it was time for their break.
After the break, MA gave the students a handout on “Where Words Come From” (Appendix 26). It listed just a few of the languages from which English has borrowed words, followed by a list of words that were borrowed. Students were asked to guess which language each of the words came from. After about five minutes, they were given the answers. They seemed to enjoy learning where the words came from.

Once the students completed the exercise on borrowed words, MA began talking about another way English adds new words – coining. She first distributed a handout that explained different types of coined words and then gave them a sheet to fill out (Appendix 27). After discussing the different ways words are created (acronyms, clipping, etc.), MA asked the students to try to figure out the meanings of the coined words in the list. These words included “mathlete” and “frienemy.” The students had fun with the exercise, but they seemed to be more interested in coming up with “clever” answers to get a laugh from the other students than they were in figuring out a logical meaning for the newly coined words. For example, one student said that “frienemy” meant a “fried enemy.” Some of the students also made up words of their own, most of which were acronyms, but one student came up with “musipencil,” which she said was a pencil that played music as you wrote with it.

The class went on to discuss the ways words can change meaning over time. After handing out a sheet that provided some brief explanations (Appendix 28), MA had the students take turns reading the explanations and then talking about what they mean when they used the word “wicked.” The last task the students were given involved social uses of language. The original idea for the course had been to spend an entire class on sociolinguistics, but due to problems during the first two days, there was very little time left for any discussion. MA gave the students a handout on social uses of language (Appendix 29), which briefly explained that different groups of people might use language in different ways; men and women don’t always use the same kind of language, nor do adults and teenagers. Students talked about the different ways they might express the same idea if they were talking to different people – close friends, parents, teacher, etc. They also talked about words that they might use that their parents don’t use. Unfortunately, there was an insufficient amount of time left to allow them to explore these ideas fully.

Day Eight – Presentation of Final Projects

The last session of the course focused on the projects that the students had created. Parents were invited to attend and see what the other children had done. Desks were set up so that each student could display their project. Each student had an opportunity to show the other students and the parents what they had created, what it was about, and, if necessary, how it worked.

Three of the students created games involved the phonetic alphabet. Katie had altered the game “Upwards” to use phonetic tiles in much the same way that the Scrabble game they played had been altered. Liana created a game in which slips of paper which had a phonetic symbol on them were placed into a bag. Players would take turns picking slips of paper out of the bag until they could make a word. The one with the word that had the most sounds won the round. Zach created a board “spelling” game. Players would roll the die to move forward. Depending on the square they landed on, they would pick from one of two decks of cards: “easy words” or “hard words.” They then had to “spell” correctly, using the phonetic alphabet. Answers were provided on an answer sheet. If they answered correctly, they moved forward another space. If they answered incorrectly, they moved back one space.
Two students created games involving morphemes. Mary created a rather elaborate board game with game play that had players rolling a die and moving a token around the board. They picked up roots, prefixes, and suffixes along the way. The object of the game was to create as many words as possible. Parin created a game that was similar to the one played during the class that focused on morphemes. She had slips of paper with roots, suffixes, and prefixes. Players had to put them together to create words.

The other two students created poster reports on language. Jason’s report illustrated the ways dogs communicate and the ways dog communication differed from human language. Priscilla’s report was about what language is. This student also prepared handouts to distribute on sign language and Morse code. She had the other students try to spell out “hi,” “mom,” and a few other words in Morse code.

After the presentations, students and parents had a chance to take a closer look at the projects. A number of the students spend time playing the different games that their classmates had created. Before the students left, they completed a course evaluation sheet.

Analysis
To determine whether it is feasible to teach linguistics to young children, four issues need to be considered: the ability of teachers untrained in linguistics to teach it, the ability of young verbally gifted children to comprehend it, and teachers’ views of what it means to be gifted and the way the gifted should be taught. Therefore, this exploratory case study sought to answer the following questions:
4. Will a teacher untrained in linguistics be able to teach linguistics to his or her students?
5. Will verbally gifted children be able to understand, appreciate, and enjoy learning about language beyond the concepts of traditional grammar?
6. How can linguistics be presented to elementary school age children?

Will a teacher untrained in linguistics be able to teach linguistics to his or her students?

The teacher in this study seemed to resist learning about linguistics and teaching it to the students. She had told the researcher that she enjoyed grammar study and enjoyed teaching grammar to gifted children, but that did not prove to be an indication that she was interested in linguistics. She did not read the explanations the researcher had provided to help her understand the basic principles involved in the various branches of linguistics, which she was supposed to use to create lessons. For the first two class sessions, MA talked with the students about language and even some phonology. However, the students were not gaining an understanding of what language is or how linguists study it.

When the researcher presented MA with a detailed lesson plan for the third class session, MA not only told the researcher she did not like working with a script, she also appeared resentful. She said that researcher was attempting to gear the class to just one child, although she would not say which one. At least two students at this point had shown an intense interest in language study and had come to the class with some understanding of language beyond simple grammar: Jake and Zach. MA also said that she did not believe children would enjoy learning about linguistics, although she thought they would have fun playing with language. Her idea for the class had been to just let the students talk about language and then play some games. She seemed to believe that if students had to be led to any conclusions, the classes would no longer
be fun. If the students wanted to think animals had language, it would not matter, as long as they were exploring language and enjoying themselves.

However, after the researcher provided a detailed lesson plan for the third class session, MA began to show more interest in working with the students to learn some of the basic concepts of linguistics, in most cases developing her own examples to use in class. MA was no longer required to use the materials that the researcher had supplied months before the program began; instead she was working with the same explanations that the researcher created for the students. For the remaining class sessions, MA was able to guide student discussions, using the materials the researcher provided for the students.

**Will verbally gifted children be able to understand, appreciate, and enjoy learning about language beyond the concepts of traditional grammar?**

Looking at the first two class sessions of the course, the conclusion would be that elementary age students might not be interested in studying language the way linguists do. In the first class, students did enjoy talking about language and sharing their thoughts about language and animal communication, but they seemed to care more about that sharing and not so much about understanding. In the second class session, MA covered some of the same material again on language and linguistics and then started to talk to the students about phonology. However, after the break, the students were not interested in any more discussion. They wanted instead to play a game, so they spent the entire second hour of the session playing Mad Gab.

However, after the third session, students began to show more interest in the material. They often lost track of the time and did not ask about when it was time for a break or if they were going to play a game. In fact, in some sessions, they continued to discuss some of the concepts during their break, as they ate their snacks. The student projects and their presentations of them also suggested that the students enjoyed learning about linguistics.

The evaluations of the course also indicate that the children not only enjoyed the class, but learned about language as well. Every student either agreed or strongly agreed that they had a better understanding of what language is and learned things they didn’t know about language. None of the students found the material too hard or too confusing. All the students agreed or strongly agreed that the class made them think more about language, and all but two strongly agreed that the class made them want to learn more about language. One of those neither agreed nor disagreed and the other had failed to circle any answer. Some of the students also wrote some comments on their evaluation sheets: “I ♥’ed this class,” “It was awesome,” “This class was really fun,” “I learned alot and its a fun class,” and “It was fun.”

**How can linguistics be presented to elementary school age children?**

The present study sought to avoid the problems Goodluck (1991) and Fabb (1985) had with their studies on teaching linguistics to elementary age children. Rather than provide explanations of linguistic concepts through lecture, lessons in this study used a more hands-on approach. Students were first provided with some thought-provoking questions and allowed to explore answers to those questions. For example, in the first session, students were asked what language is and whether animals have language. At the start of the lessons on phonology, students were asked how many sounds were in the English language. After some discussion, students played a game, giving them an opportunity to apply the concepts they were learning. In addition, the sessions did not present the information at too complex a level for elementary age children.
Because students were introduced to several different concepts in linguistics, little time was available to cover any of the concepts in depth. Therefore, it was not possible to determine whether students would be able to approach language scientifically, creating their own rules for language by studying it as a linguist would, for example. However, since the children in the present study did not find the material presented too difficult or confusing, further lessons on a topic could build on what they learned.

Conclusion

A teacher with no background or training in linguistics should be able to teach young children some basic linguistics concepts, if they believe it is possible to do so. However, the teachers cannot be expected to read about linguistics in order to prepare lessons. Materials should be provided that are as fun for the teacher as they are for the children.

Although there were only seven students in this study, the researcher concludes that young, verbally gifted children can find the study of language both fun and interesting. The students in this study did not get bored by the material or find it too difficult and the class generated more interest in the study of language.

This study suggests that providing elementary age students with a combination of hands-on activities and thought-provoking questions is an effective way to introduce them to the study of linguistics. Once they have had an opportunity to think about a linguistic concept and work with it, they would be ready to explore it in more depth.

Gifted children should be given the opportunity to explore their area of strength and this study suggests that it is possible for them to be given that opportunity. However, additional studies that include a larger number of children and that allow them to study linguistics in more depth should be done.
CHAPTER FIVE – Teaching Linguistics to Verbally Gifted Children

Suggestions

This exploratory case study supports the findings of Fabb (1985) and Goodluck (1991) in that children enjoyed learning about language. However, the present study sought to avoid the lecture approach of Fabb and Goodluck studies, presenting the information, not through lectures, but through short presentations, followed by discussions and games. The presentations and discussions allowed the students to learn the material, and the games helped the students apply what they learned through those presentations and discussions. There was no suggestion that the students found the information too difficult. In fact, they seemed to get bored quickly when they were not being challenged. The difficulty in teaching linguistics to verbally gifted children lies in the fact that teachers without a background in linguistics may not be able to teach it.

If a teacher is interested in the subject, he or she might read about the topic and create lesson plans for children. However, even if a teacher is interested, time constraints could prevent him or her from spending the necessary time to learn the material well enough to present it to the children. What about those teachers who are not interested? They will be less inclined to learn linguistics concepts well enough to teach them. If verbally gifted children are to be given the opportunity to nurture their interest in language, it must be possible for them to learn it with minimal instruction and that instruction should be as easy and fun for the teachers to work with as it is for the children.

Some subjects, like math, that some children struggle with are presented in fiction books that children enjoy reading. For example, children can learn about some math concepts through books like Sir Cumference and The First Round Table or The Number Devil. But there are no such books about language. When we see books about language, they are textbooks or workbooks. Fun fiction books about linguistics could allow children to learn about the concepts. These books could be read by all children, but could be used in gifted programs as part of a gifted language arts curriculum. Since the information would be presented in a simple way through a story, teachers would not be required to study the information before teaching it. In fact, they would be learning it along with the children. Such books could also be used for enrichment at home or for homeschooling. Both teachers and parents could use these language books as a way to nurture the strengths of verbally gifted children.

Each book would introduce children to one branch in the field of linguistics: phonology, morphology, syntax, semantics, historical linguistics, and sociolinguistics. To reinforce what is learned in the books and to promote critical thinking on the concepts introduced, a workbook would be available for each book. The workbooks would include summaries, quizzes, puzzles, games, and thought-provoking questions that are designed to get children to think beyond the information presented in the books. The first book in such a series of books would be about language – what it is and whether animals have it. Students in the present study expressed an interest in the topic and two of the seven children created final projects about animal communication. The first book in this series is offered in this chapter.

[The book, titled Anna and the Translator Tree: Adventures in Lingualand, is about a little girl who wakes up one day no longer able to talk with her family. She is, however, able to talk with her dog Chompsky, and together they go on an adventure searching for a solution to Anna’s]
problem. They hope to find a way for Anna to talk again with her family. Chomsky leads Anna through a magic tree which transforms the world into one where Anna is able to speak with animals. As they search for a solution to Anna’s problem, Anna learns about how animals communicate and how animal communication differs from human communication. The book will be available separately sometime in the future.
Appendix 1 – Lesson Plan for Day One

Junior Linguists – Day One -- Introduction

Introduction of Instructor and Students

Overview of the Course

*Only humans have language.*
For that reason alone, language is worth studying. By studying language, we can find out about ourselves, what it is that makes us human and what all humans have in common.

*What is language?*
It is a system of vocal signs human beings use to communicate.

  - System – patterns of sounds and speech (grammar)
  - Vocal – sounds
  - Signs – sounds are signs that represent meaning
  - Communicate – sharing thoughts with others

We will look at all parts of this definition in this course. We will also look at how language changes over time.

*Note:* Some students might bring up sign language as language without sounds, but it isn’t. It is a gesture system that represents language and allows people to communicate without sound.

*How did language begin?*
No one really knows, but linguists have proposed different theories.

- Mama theory – easiest sounds became attached to most significant objects
- Ta-Ta theory – body movement came before language and language began as an unconscious imitation of those movements (i.e. like sticking out your tongue when you concentrate on performing some action.)
- Pooh-Pooh theory – began with emotive cries like “ow!” or “ooo”
- Bow Wow theory – imitation of sounds
- Ding-Dong theory – “mysterious” sound symbolism (small, sharp, high things tend to have words with high front vowels in many languages, while big, round, low things tend to have round back vowels – teeny tiny moon)
- Yo-He-Ho theory – grunts and groans (rhythmic chants) emitted during group actions eventually becoming associated with those actions.
- Sing-Song theory – language came from play, laughter, cooing, courtship, and other emotional mutterings. Our first words were actually long and musical, rather than the short grunts many assume we started with.
- Hey You theory (contact theory) – language began as sounds to signal both identity (here I am!) and belonging (I’m with you!). We may also cry out in fear, anger, or hurt (help me!).
Hocus Pocus theory – language may have had some roots in a sort of magical or religious aspect of our ancestors' lives. We may have begun by calling out to game animals with magical sounds, which became their names.

Eureka theory – language was consciously invented. Some ancestor thought of assigning arbitrary sounds to mean certain things.

You can tell from the names of the theories that most linguists really don’t take the theories too seriously. We just don’t know how language began, but it’s fun to think about possible reasons.

Here’s what we know about language in humans:
1. Around 50,000 years ago, the human brain became “lateralized.” That means each half of the brain came to specialize in different activities, with the left being responsible for language ability in most people.
2. Larynx drops in humans allowing for creation of speech sounds (Having a low larynx, or voice box, allows humans to make a wide range of sounds.)
3. Humans have capacity to imitate sounds

Put all these together and you get the ability to create and use vocal language!

What can we do without language? How does language add to what we can do?

Class exercise 1:

a. Each student gets a number on a piece of paper.
b. Their task is to put themselves in a line in numerical order without talking, showing their number to anyone or using any hand gestures to indicate their number. In other words, they can’t in any way indicate to someone else what their specific number is.

Class exercise 2:

a. Some students get a piece of paper with an emotion written on it, for example, sad, happy, surprised, confused, etc. Other students get a piece of paper with more complex ideas, such as that represented by the statement, “I don’t understand why you are here.”
b. The task is for students to have the class guess at what they are trying to convey.

Students should be able to recognize that simple tasks and expression of simple emotions are fairly easy to accomplish, but as they get more complicated, it becomes more difficult without resorting to language.

Homework: How many sounds are in the English language?
WHAT IS LINGUISTICS?

Linguistics is the scientific study of language. One of the questions it tries to answer is "What is language?"

Linguists are interested in describing and explaining language. They are not really interested in the grammar rules you learn in a textbook, rules like "Don't use ain't." However, they can be interested in learning where the rules came from (historical linguistics) or how the rules affect people's behavior (part of sociolinguistics). For example, if someone doesn't use the rules, some people may think that person is stupid or uneducated. That person may not be able to get a good job.

Linguists want to know the common elements of all language. That means they want to know what all languages have in common. One common element of human language is that they are made up of sounds and some linguists study the sounds of languages (phonology). The sounds of a language are put together to create words or "parts" of words that have meaning (morphology). For example, in English the -ed we put at the end of verbs is not a word by itself but it has a meaning. It will tell us that the verb is in the past tense. All languages also have rules for putting words together in a sentence (syntax).

Linguistics is a social science. That means it belongs with other sciences that study human beings and their behavior. Other social sciences are psychology, which studies individual human behavior, and sociology, which studies humans as they behave in groups.

Linguistics is also a cognitive science. That means it is interested in learning how the human brain works. Linguists believe that if they understand how language works, they can understand how the brain works. One connection between the mind and language involves the way words represent meaning in our minds. Linguists are interested in that representation and how we use it to put sentences together (semantics).

Many people believe that a linguist is someone who speaks many different languages. However, linguists are not required to know many languages and linguists are not interpreters.

In this class we are going to think about language the way linguists do.
WHAT IS LANGUAGE?

Most linguists agree that human language has certain characteristics.

Creativity/Productivity
- There is no limit to the number of phrases or sentences that can be produced. They may have never been heard before but they will still have meaning.
- New sounds and meanings can be added. That means a language can add new words as well as new sounds to make words.

Arbitrariness
- The form of a language is not necessarily connected to meaning. For example, there is no reason book means “book.” The word for book in French is libre. In Arabic it is kitab.

Displacement
- We can talk about things that are removed (displaced) in time and space. That means we can talk about things that are in the past or will be in the future. We can also talk about people and things that are far away from us.

Rule Governed
- Language has rules for:
  - The way sounds are put together to make words
  - The way words are put together to make sentences (For example, The dog bit the man is not the same as The man bit the dog.)

Traditional Transmission
- The potential for language is biological. That means that we are born with the ability to use language.
- Language itself is learned. It is passed on from one generation to the next.

Do Animals Have Language?
Phonology

Phonology is the study of sounds in a language. Humans can make a large number of sounds, but no language uses all of those sounds. We make sounds by changing the shape of our mouth. We can raise and lower our jaws. We can move our tongue forward and backwards and up and down. We can place our tongue behind and between our teeth, and we can close or round our lips.

How We Make Sounds

This is a picture of some of the parts of what is called the "vocal tract." We use these parts to make the sounds that make up language. Some of the are made when air passes through the vocal chords. The vocal chords vibrate to make different sounds. We can stretch the vocal chords to make high pitched or low pitched sounds.

The sounds that a language uses is called a "phonemic inventory." Phonemes are the individual meaningful sounds in a language. An inventory is an itemized list of things. A phonemic inventory, then, is an itemized list of meaningful sounds that a language uses to create words. Meaningful sounds are the ones that can change the meaning of a word. For example, *cat* refers to a cute little animal. If we change only one sound in that word, we could end up with *cot*, which is something we sleep on, or we could have *cap*, which is something we put on our heads.

The words that are alike except for one sound are called "minimal pairs." Linguists use minimal pairs to help them figure out the phonemic inventory of a language. Here are some more minimal pairs in English:

<table>
<thead>
<tr>
<th>cat</th>
<th>rat</th>
<th>hot</th>
<th>cot</th>
<th>yet</th>
<th>bet</th>
<th>note</th>
<th>coat</th>
</tr>
</thead>
<tbody>
<tr>
<td>kit</td>
<td>wit</td>
<td>fry</td>
<td>fly</td>
<td>hope</td>
<td>heap</td>
<td>reap</td>
<td>deep</td>
</tr>
<tr>
<td>bull</td>
<td>bill</td>
<td>sick</td>
<td>tick</td>
<td>sing</td>
<td>sin</td>
<td>dear</td>
<td>mirror</td>
</tr>
</tbody>
</table>

How many sounds are in the English Phonemic Inventory?
Appendix 5 – Lesson Plans for Class Three

Class Three – Lesson Plans

Objectives:
1. To help students understand that the study of language is a science.
2. To demonstrate that like most sciences, language is rule-governed and those rules consist of more than grammar rules.
3. To show that language, like chemistry, physics, and even math, is made up of units that are combined through specific rules to create larger units.
4. To demonstrate that the smallest unit of language is meaningful sounds (phonemes).
5. To demonstrate that phonemes combine to create morphemes, which are the smallest units of meaning in a language.

Brief Review of Course to Date:

10 minutes – What is Language? (Students can be asked to get out their handout titled “What is Language?”)
Language has the following characteristics:

- **Creativity/Productivity**
  - There is no limit to the number of sentences or phrases that can be made. New, never-before-heard sentences can be made all the time.

- **Arbitrariness**
  - Words in a language are not necessarily connected to meaning.

- **Displacement**
  - We can talk about people and things we can’t see. That means we can talk about these things and people in the past as well as people and things many miles away from us.

- **Rule Governed**
  - Language has rules for sounds, words, and sentences. It also has rules for how we use language.

- **Traditional Transmission**
  - We are born with the ability to use language, but language itself is learned.
10 minutes: What is Linguistics? (Students can be asked to get out their handout titled “What is Linguistics?”)

Linguistics is the scientific study of language. Linguists ask the same kind of questions about language that other scientists ask about their area of study:

- What is it?
- What is it made of?
- Where does it come from?
- How does it work?

Write these on the board

Linguists try to answer the question “What is Language?”

Is there a difference between communication and language?

Do animals have language?

Animals do not have the same thought capacity as humans. We know that from studying their brains.

However, Koko the gorilla has made linguists question earlier definitions of language.

Linguistics also try to understand what language is made of. They look at the building blocks of language. The smallest building blocks are the sounds. The study of sounds in a language is called phonology.

Phonology Begin by asking students how many sounds English has – how many words did they come up with? (This should take only a couple of minutes.)

15-20 minutes: Ask students to look at first handout about sounds. Point out how we make sounds.

Students can make sounds using different parts of their mouths. This picks up where last class left off.

Make “uh” sound and hold it.
- Round and unround lips.
- Open and close jaw.
- Open jaw and round lips.
- Move back of tongue up and forward (from ah to ee sound).
- Making ee sound, round lips.
- Close lips.

Let students know that these are just some of the sounds we can make. We can also use our tongues and teeth and we can change the way we let air out of our mouths.
We can stop the air and then let it out. We do this when we make a *k* sound. We stop the air by pressing the back of our tongue against the back of our throat.

We can let the air out with some friction. We do this when make a *sh* sound. Our tongue is near the roof of our mouths and we let air out through our clenched teeth.

We can also make our vocal chords vibrate. For example, we make two different sounds when we stop air with our two lips and then let it out. In one case we use our vocal chords and in the other we don’t. This is the difference between a *b* and a *p*. Have students hold their hands over their throats and make a *p* sound. (This should not be *puh*. That is, the vowel at the end should be left off. Then have them make a *b* sound. They should feel their throats vibrate with a *b*, but not with the *p*. All vowels are made with the vocal chords vibrating.

*15 minutes: Handout chart for English phonemic*

Students can work in their groups to fill in their charts.

For their homework they were supposed to write a list of words with the sounds of English. They can use that list to help them fill in the chart. They will have to think about how they make the sounds they make to create words.

**BREAK – till 10 or 10:05, depending on when the break started, which itself depends on how far students got with their charts**

*15 minutes: Figuring out the number of sounds in English*

Ask students to count the number of sounds on their charts. (There are 24.) Ask them how many letters in the alphabet we have. See if anyone sees a problem. (They haven’t considered vowels yet.)

Explain that linguists use a special alphabet of symbols called the phonetic alphabet. Each symbol represents only one sound. And each sound has only one symbol.

Hand out the English phonemic chart with the phonetic symbols.

Hand out the vowel phoneme chart.

Ask students to count sounds there. (There are 11.) Ask students how many sounds there are altogether (33).
Diphthongs

Tell students that some linguists sometimes count diphthongs as separate sounds, but they are actually two sounds.

\[
\begin{align*}
\text{OI} & \quad \text{boy} \\
\text{aI} & \quad \text{bite} \\
\text{aU} & \quad \text{cow}
\end{align*}
\]

Write on board:

Ask students to write these symbols somewhere on their vowel charts. These are the symbols for the diphthongs.

International Phonetic Alphabet

Tell students that linguists use symbols for the sounds in all languages, not just English. There is a symbol for every sound used in all the world’s languages.

Hand out the international phonetic alphabet chart. If they are interested in hearing any of the sounds, we will give them a website they can visit where they can click on the symbols of the chart and hear the sounds they represent.

10-15 minutes: Using the Phonetic Alphabet

Ask students to try to write their name using the phonetic alphabet. They can write them on the board once they think they’ve figured it out.

10 minutes: More about sounds

Handout final sheet “More About Sounds.”

Ask students to guess which words in the chart at the top of the page relate to large things and which relate to small things.

Explain that although most sounds by themselves have no meaning, the \(i\) sounds seem to make us think of small things while the \(oo\) sounds make us think of large things. This is true in many languages, even though the words in the languages are different!

Till end of class:

Ask students to recall the game Mad Gab and ask what they had to do to guess the correct phrase. Hopefully, they can understand that to make words, sounds have to have breaks, pauses, to indicate where one word ends and the other begins.

We use all the sounds in English to create “morphemes,” which are groups of letters with meaning. We’ll learn more about those next class. For now, think of these groups of sounds as words.

Play phonetic game till end of class.
Appendix 6 – English Phonemic Inventory

**English Phonemic Inventory**

Can you figure out all the English consonant sounds? Only the squares without an X are English sounds. Write a word that uses the sound and underline the sound. The first two are done for you.

<table>
<thead>
<tr>
<th>How the Sounds are Made</th>
<th>Where the Sounds Are Made</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Two lips</td>
</tr>
<tr>
<td>Vocal Chords</td>
<td></td>
</tr>
<tr>
<td>Air is stopped</td>
<td>no</td>
</tr>
<tr>
<td></td>
<td>yes</td>
</tr>
<tr>
<td>Air is released with some friction</td>
<td>no</td>
</tr>
<tr>
<td></td>
<td>yes</td>
</tr>
<tr>
<td>Air is stopped and then released</td>
<td>no</td>
</tr>
<tr>
<td></td>
<td>yes</td>
</tr>
<tr>
<td>Air goes out the nose</td>
<td>yes</td>
</tr>
<tr>
<td>Air goes past the sides of the tongue</td>
<td>yes</td>
</tr>
<tr>
<td>Tongue &quot;slides&quot; from one position to another</td>
<td>yes</td>
</tr>
</tbody>
</table>
Appendix 7 – English Phonemic Alphabet

English Phonemic Alphabet

In English, letter can represent more than one sound and one sound can be represented by one letter. For example, the letter *c* can represent one sound as in the word *cat* and another sound as in the word *center*. For that reason, linguists use a system that has one symbol to represent each different sound. It is called a phonetic alphabet. This chart shows the phonetic symbols for English consonants.

<table>
<thead>
<tr>
<th>How the Sounds are Made</th>
<th>Where the Sounds Are Made</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Two lips</td>
</tr>
<tr>
<td>Vocal Chords</td>
<td></td>
</tr>
<tr>
<td>Air is stopped</td>
<td>no</td>
</tr>
<tr>
<td></td>
<td>yes</td>
</tr>
<tr>
<td>Air is released with some friction</td>
<td>no</td>
</tr>
<tr>
<td></td>
<td>yes</td>
</tr>
<tr>
<td>Air is stopped and then released</td>
<td>no</td>
</tr>
<tr>
<td></td>
<td>yes</td>
</tr>
<tr>
<td>Air goes out the nose</td>
<td>yes</td>
</tr>
<tr>
<td>Air goes past the sides of the tongue</td>
<td>yes</td>
</tr>
<tr>
<td>Tongue “slides” from one position to another</td>
<td>yes</td>
</tr>
</tbody>
</table>
English Vowels

All vowel sounds are made with the vocal chords vibrating. They become different sounds as we move our tongue up and down and forward and backward, open and close our jaw and round our lips. Try making different sounds by changing the shape of your mouth. Make the sound “uh” and then make your lips round, but keep making the “uh” sound. Does rounding your lips make it a different sound? Keep making the “uh” sound and move your tongue back and forth and up and down. Open and close your jaw too.

<table>
<thead>
<tr>
<th>Jaw position</th>
<th>Tongue in Front of Mouth</th>
<th>Tongue in Center of Mouth</th>
<th>Tongue in Back of Mouth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jaw closed</td>
<td>i beet</td>
<td>I bit</td>
<td>U book</td>
</tr>
<tr>
<td>Jaw partially open</td>
<td>e say</td>
<td>E set</td>
<td>o up</td>
</tr>
<tr>
<td>Jaw open</td>
<td>æ can</td>
<td></td>
<td>a hot</td>
</tr>
<tr>
<td></td>
<td>Tongue “flexed”</td>
<td>Tongue relaxed</td>
<td>Tongue “flexed”</td>
</tr>
</tbody>
</table>

Here is what your vocal tract looks like when you say some of these vowels:
Appendix 8 – More About Language Sounds

More About Language Sounds

Sounds by themselves don’t have meaning. Or do they? The words in the list below are all made up. Can you tell which ones are large or describe large things and which are small? Circle the words you think refer to large things.

fruka  geetle  biddel  rooget  
shrid  zeen  wookla  neewen

Words are put together with sounds, but are sounds alone enough? We have to pause between sounds or we can’t distinguish one word from another. The game Mad Gab uses this idea by taking recognizable phrases and breaking the sounds up differently. One phrase they include is Up He Such Ease. Can you tell what the real phrase is? You have to combine the sounds differently!

There’s more to stringing sounds together than pauses too! To guess what Up He Such Ease really says, you would also have to change which sounds you stressed. For example, the first sounds in A pup are stressed differently than the first sounds in Up his.

Whether you make your voice go up or down can also change meaning, although the sounds are the same. For example, what’s the difference between What’s that thing in the road ahead? And What’s that thing in the road? A head?

If you are interested in the sounds of languages, here are some web sites you can visit:

http://hctv.humnet.ucla.edu/departments/linguistics/VowelsandConsonants/vowels/chapter13/chapter13.html
This site has sounds from many different languages. These are sounds like clicks not used in English to make words.

http://hctv.humnet.ucla.edu/departments/linguistics/VowelsandConsonants/index.html
The main page of the site above.

http://web.uvic.ca/ling/resources/ipa/ipa-lab.htm
This site has a chart of the international phonetic alphabet. You can click on the symbols in the chart to hear the sounds. (Look toward the bottom of the page where it says *NEW* to get to the chart.)
# Appendix 9 – Phonetic Scrabble Game

## Phonetic Scrabble

**Tile Distribution**

<table>
<thead>
<tr>
<th>Consonants</th>
<th>Vowels</th>
</tr>
</thead>
<tbody>
<tr>
<td>b bird 2</td>
<td>i beet 3</td>
</tr>
<tr>
<td>p pit 2</td>
<td>I bit 3</td>
</tr>
<tr>
<td>d dip 4</td>
<td>e say 4</td>
</tr>
<tr>
<td>t top 3</td>
<td>e set 3</td>
</tr>
<tr>
<td>g gap 3</td>
<td>æ can 4</td>
</tr>
<tr>
<td>k kid 3</td>
<td>ø up 4</td>
</tr>
<tr>
<td>v van 2</td>
<td>a hot 4</td>
</tr>
<tr>
<td>f fun 2</td>
<td>o fall 3</td>
</tr>
<tr>
<td>z zip 4</td>
<td>o so 3</td>
</tr>
<tr>
<td>s sad 4</td>
<td>u moon 3</td>
</tr>
<tr>
<td>ź azure 1</td>
<td>u book 3</td>
</tr>
<tr>
<td>Š shy 2</td>
<td>ai kite 3</td>
</tr>
<tr>
<td>ŏ that 2</td>
<td>öi boy 2</td>
</tr>
<tr>
<td>Ŏ thin 2</td>
<td>au cow 2</td>
</tr>
<tr>
<td>ź jär 2</td>
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</tbody>
</table>

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Appendix 10 – Lesson Plans for Class Four

Class 4 – Phonology and Morphology
(Sounds and Words)

First Hour: Sounds

We did get through quite a bit with sounds last time, so we can build on that. There are a couple of relatively easy things we can do.

1. Remind kids that sounds are the smallest building blocks of a language.
2. Play a “minimal pair” game.
   a. Start out with one three “letter” word like *cat*. I put “letter” in quotation marks because we’re really focusing on the sounds represented by the letters.
   b. The first child substitutes only one sound in the word to come up with a new word. For example, if we start with *cat*, the next word could be *cap* or *cut* or *pat*.
   c. The next child then substitutes one sound in the new word. For example, the first word is *cat*. The first child changes one sound to make the word *cut*. The second child can say *putt*. He or she cannot say *put* because that changes more than one sound. One LETTER is changed, but the U sound in *put* is not the same U sound as in *cut*. They have to listen and not think so much about spelling.
   d. When a child makes a mistake or can’t come up with a three-sound word, he or she is out. Then we start with a new three-sound word. We keep going until there is a winner.

This will teach them about “minimal pairs.” Linguists look at combinations like this to determine which sounds are distinctive ones in a language, the ones it uses to build words.* Two words that are alike except for one sound are called “minimal pairs.”

3. Kids can look at last handout and figure out which words refer to big or round things and which refer to little or sharp things.

4. Play with the phonetic alphabet. We can try to figure out words and we can try to write words using the phonetic alphabet. It will be for “fun,” so if they make a mistake, it’s not a big deal. They can work in teams and even put words on the board for the other team to guess.
*(A language may have more sounds, but they aren’t “distinctive.” For example, in the American south, a person can say something close to “fahn” for fine. But substituting the southern pronunciation of “i” for the northern doesn’t change the word. This is one reason not everyone agrees on the number of sounds in English.)*

Second Hour:  Words

**Points to cover:**

1. Sounds are used to build morphemes.

2. Morphemes are the smallest units of meaning.

3. Some morphemes can be used by themselves (i.e. mother)

4. Some morphemes have to be attached to other morphemes (i.e. –hood)

5. Some morphemes come at the beginning of a word and some come at the end. (Prefixes and suffixes.)

6. Morphemes that carry the main meaning of a word are called “roots” (i.e. *motherhood*).

7. Morphemes can be pieced together to build words, but not all morphemes can go together (i.e. *motherhood*, but not *cousinhood*).

8. If you know the meaning of a morpheme, you can recognize it in different words (i.e. *geo* = earth in *geography, geology, geode*).

**Game:**

Children can play a new card game in which they will have to create words using different morphemes. It will be like Go Fish or Rummy. The cards will have various morphemes (roots, prefixes and suffixes) that the children will have to collect in order to make words. They can play this game until the class is over.

If they don’t like this game, they can play any game we have in reserve.
Appendix 11a – Morpheme Card Game

Rules for Morpheme Card Game

Setup

One player deals out five cards to each player.

The rest of the cards are placed face down in center of the playing area. This is the stock pile.

One card is placed face up next to the stock pile. This is the discard pile.

The player to the left of the dealer begins the play.

Play

A player has three choices for his or her turn:

1. Laying down a word made from the cards in a player’s hand:
   
   A player may put together from two to four cards to create a word. For each card laid down, the player should pick up a card from the stock pile. So if a player lays down 1 card, he should pick up 1 card. If a player lays down 2 cards, he should pick up 2 cards, and so on. Cards must be laid face up so players can see the words created.

2. Picking up a card from the stock pile.
   
   If a player does not like all the cards in his hand, he may lay down one card from his hand and place it on the discard pile. The player may then pick up one card from the stock pile.

3. Picking up a card from the discard pile.
   
   If a player sees a card in the discard pile he wants, he may pick up that card and then discard one card from his hand.

If there are no more cards in either the discard pile or the stock pile, a player may ask another player if he would like to trade cards. Players do not reveal to one another which cards they are trading. The game is over when one player has gotten rid of all his cards or when no player is able to create any more words.

Scoring

Two-card words are worth 5 points.

Three-card words are worth 10 points.

Four-card words are worth 15 points

Players deduct one point for each card left in their hands at the end of the game.
**Available Morphemes**

<table>
<thead>
<tr>
<th>Prefixes:</th>
<th># of cards</th>
<th>Suffixes:</th>
<th># of cards</th>
</tr>
</thead>
<tbody>
<tr>
<td>mis- (wrong)</td>
<td>2</td>
<td>-(e)s (noun plural)</td>
<td>2</td>
</tr>
<tr>
<td>pre- (before)</td>
<td>2</td>
<td>-s (3rd person present tense verb)</td>
<td>2</td>
</tr>
<tr>
<td>re- (again)</td>
<td>2</td>
<td>-ed (past tense)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-ing (present participle)</td>
<td>2</td>
</tr>
<tr>
<td>Roots:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>act</td>
<td>3</td>
<td>-able (makes a noun)</td>
<td>2</td>
</tr>
<tr>
<td>create</td>
<td>3</td>
<td>-ment (makes a noun)</td>
<td>2</td>
</tr>
<tr>
<td>fit</td>
<td>3</td>
<td>-or/-er (makes a noun)</td>
<td>2</td>
</tr>
<tr>
<td>govern</td>
<td>2</td>
<td>-ous (makes an adjective)</td>
<td>1</td>
</tr>
<tr>
<td>joy/joice</td>
<td>2</td>
<td>-(t)ion (makes a noun)</td>
<td>2</td>
</tr>
<tr>
<td>judge</td>
<td>3</td>
<td>-ful (makes an adjective)</td>
<td>2</td>
</tr>
<tr>
<td>treat</td>
<td>3</td>
<td>-ive (makes an adjective)</td>
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<tr>
<td>use</td>
<td>3</td>
<td></td>
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<tr>
<td>view/vise/vis</td>
<td>3</td>
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* Each student received a sheet with the available morphemes in the card game so they knew what they had to work with.
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<tr>
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<td><code>pre-</code></td>
<td><code>re-</code></td>
</tr>
<tr>
<td><em>(before)</em></td>
<td><em>(before)</em></td>
<td><em>(again)</em></td>
</tr>
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<td>Prefix</td>
<td>Prefix</td>
<td>Prefix</td>
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<tr>
<td><code>re-</code></td>
<td><code>mis-</code></td>
<td><code>mis-</code></td>
</tr>
<tr>
<td><em>(again)</em></td>
<td><em>(wrong)</em></td>
<td><em>(wrong)</em></td>
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<td>Prefix</td>
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<td>Prefix</td>
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<td><code>joy/ joyice</code></td>
<td><code>joy/ joyice</code></td>
<td><code>-ous</code></td>
</tr>
<tr>
<td><em>(makes an adj.)</em></td>
<td><em>(makes an adj.)</em></td>
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<td>Suffix</td>
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<td>Suffix</td>
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<td>-ment</td>
<td>-(t)ion</td>
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<tr>
<td>(makes a noun)</td>
<td>(makes a noun)</td>
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<td>-(t)ion</td>
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<td>-(e)s</td>
<td>-(e)s</td>
<td>-ing</td>
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<tr>
<td>(noun plural)</td>
<td>(noun plural)</td>
<td>(present participle)</td>
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<td>-ed</td>
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<td>-ing</td>
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<td>(past tense)</td>
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<td>-s</td>
<td>-s</td>
<td>-or/-er</td>
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<td>(3rd person verb)</td>
<td>(3rd person verb)</td>
<td>(makes a noun)</td>
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<td><strong>view</strong>/vise/vis</td>
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<td>Root</td>
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<td><strong>fit</strong></td>
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<td><strong>-ive</strong> (makes an adj.)</td>
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</table>
Set One:

**Roots:**

- Geo = earth
- Bio = life
- Graph = write, written
- Mono = one
- Neo = new

**Suffixes:**

- -ology = study of, science
- -y = state, quality, act
- -er/-or = one who, that which

**Part 1:** Can you put the right roots and suffixes together to create a word with the definitions given?

1. Definition: Written story of someone's life  
   root + root =
2. Definition: Detailed scholarly article or book on a single subject  
   root + root =
3. Definition: New system or method of writing  
   root + root + -suffix =
4. Definition: One who writes about the earth's features  
   root + root + -suffix =
5. Definition: Study of handwriting  
   root + -suffix =

**Part 2:** See if you can fill in the blanks in the sentences with one of the words you came up with in Part 1.

1. I recently read a fascinating ________________ of Albert Einstein and his achievements.
2. The detectives used ________________ to determine that the letter had been written by the subject.
3. The medical journal contained a ________________ covering the use of intravenous anesthesia back to 1872.
4. The ________________ wrote a series of articles on the features of the earth.
5. The Arabic ________________ gradually replaced Roman numerals.
Appendix 12 – Morpheme Homework

Hard Words Aren’t Really Hard!
(When you know all the parts)

Set Two:

**Roots:**
- **Graph** = write, written
- **Gen** = birth, produce, race
- **Centr** = center
- **Therm** = heat
- **Geo** = earth

**Suffixes:**
- **-ology** = study of, science
- **-y** = state, quality, act
- **-ous** = having the quality of
- **-al/-ic** = like, related to
- **-er/-or** = one who, that which

**Part 1:** Can you put the right roots and suffixes together to create a word with the definitions given?

1. Definition: Having the quality of growing on or in the ground
   - root + root + -suffix =

2. Definition: Related to the earth’s center; earth-centered
   - root + root + -suffix =

3. Definition: Study of the earth’s structure
   - root + -suffix =

4. Definition: Related to the hot earth’s interior
   - root + root + -suffix =

5. Definition: Description of the earth’s features
   - root + root + -suffix =

**Part 2:** See if you can fill in the blanks in the sentences with one of the words you came up with in Part 1.

1. Volcanoes and glaciers are part of the ________________ of the earth.
2. Early Greek astronomers developed a ________________ model of the solar system.
3. Geysers are a source of ________________ energy.
4. Most plants that are ________________ have root systems.
5. Weather, rivers, lakes, oceans, and mountains are all part of the study of ________________.
Hard Words Aren’t Really Hard!
(When you know all the parts)

Set Three:

Roots:                  Suffixes:
Gen/geno = birth, produce, race -cide = kill
Psycho = mind, spirit -ic/al = like, related to
Patho = feeling, disease -ous = having the quality of
Bio = life -esis = action, process

Part 1: Can you put the right roots and suffixes together to create a word with the definitions given?

1. Definition: Like something originating in the mind
   root + root + -suffix =

2. Definition: Process of beginning or being born
   root + -suffix =

3. Definition: Like something produced by the action of living organisms
   root + root + -suffix =

4. Definition: Killing of a race
   root + -suffix =

5. Definition: Related to causing disease
   root + root + -suffix =

Part 2: See if you can fill in the blanks in the sentences with one of the words you came up with in Part 1.

1. Food poisoning is often the result of ___________________ bacteria.

2. The coral reefs off Australia are examples of ___________________ reef formation.

3. The theory had its ___________________ several years earlier in a small laboratory.

4. When hatred and war exist, there is always the danger of ___________________.

5. His ___________________ seizures were directly related to his increasing stress.
Hard Words Aren’t Really Hard!
(When you know all the parts)

Set Four:

Roots:  
Metr = measure  
opt/opto/ops = eye,vision  
Syn = with, together  
Gen = birth, produce, race  
Bio = life  

Suffixes:  
-y = state, quality  
-ic/al = like, related to

Part 1: Can you put the right roots and suffixes together to create a word with the definitions given?

1. Definition: Testing of eyes to measure vision  
   root + root + -suffix =

2. Definition: Resulting from living things  
   root + root + -suffix =

3. Definition: Removal and examination of tissue from a living body  
   root + root + -suffix =

4. Definition: Related to numerical analysis of biological observation and phenomena  
   root + root + -suffix =

Part 2: See if you can fill in the blanks in the sentences with one of the words you came up with in Part 1.

1. The medical student decided to pursue a career in ___________________.
2. The results of the _____________________ showed that there were no cancer cells.
3. He completed _____________________ research in the behavior of gypsy moths.
4. _____________________ sediments found along the coast include skeletons and shells.

All sets taken from “Word Roots” software by Critical Thinking Books & Software, PO Box 448, Pacific Grove, CA 93950. Phone 800.458.4849.  
World Wide Web: www.criticalthinking.com
Appendix 12 – Morpheme Homework

Answers to “Hard” Word Sets

Set 1, Part 1:
1. Written story of someone’s life = biography
2. Detailed scholarly article or book on a single subject = monograph
3. New system or method of writing = neography
4. One who writes about the earth’s features = geographer
5. Study of handwriting = graphology

Set 1, Part 2:
1. I recently read a fascinating __biography__ of Albert Einstein and his achievements.
2. The detectives used __graphology__ to determine that the letter had been written by the subject.
3. The medical journal contained a __monograph__ covering the use of intravenous anesthesia back to 1872.
4. The __geographer__ wrote a series of articles on the features of the earth
5. The Arabic __neography__ gradually replaced Roman numerals.

Set 2, Part 1:
1. Having the quality of growing on or in the ground = geogenous
2. Related to the earth’s center; earth-centered = geocentric
3. Study of the earth’s structure = geology
4. Related to the hot earth’s interior = geothermal
5. Description of the earth’s features = geography

Set 2, Part 2:
1. Volcanoes and glaciers are part of the __geology__ of the earth.
2. Early Greek astronomers developed a __geocentric__ model of the solar system.
3. Geysers are a source of __geothermal__ energy.
4. Most plants that are __geogenous__ have root systems.
5. Weather, rivers, lakes, oceans, and mountains are all part of the study of __geography__. 
Appendix 12 – Morpheme Homework

Set 3, Part 1:

1. Like something originating in the mind = psychogenic
2. Process of beginning or being born = genesis
3. Like something produced by the action of living organisms =
4. Killing of a race = genocide
5. Related to causing disease = pathogenic

Set 3, Part 2:

1. Food poisoning is often the result of __pathogenic__ bacteria.
2. The coral reefs off Australia are examples of __biogenic__ reef formation.
3. The theory had its __genesis__ several years earlier in a small laboratory.
4. When hatred and war exist, there is always the danger of __genocide__.
5. His __psychogenic__ seizures were directly related to his increasing stress.

______________________________________________________________

Set 4, Part 1:

1. Testing of eyes to measure vision = optometry
2. Resulting from living things = biogenic
3. Removal and examination of tissue from a living body = biopsy
4. Related to numerical analysis of biological observation and phenomena = biometric

Set 4, Part 1:

1. The medical student decided to pursue a career in __optometry__.
2. The results of the __biopsy__ showed that there were no cancer cells.
3. He completed __biometric__ research in the behavior of gypsy moths.
4. __Biogenetic__ sediments found along the coast include skeletons and shells.

Note: Students were not given the answers to take home with them.
First Hour: Morphology

Start with students’ homework.

We can let the children share their answers with each other to see if they came up with the same words. They might have fun with that.

They can put some of their words on the board if they like.

If there is time before the break, you can see if any of the children have thought of something to do for a project to share with parents on the last day.

Second Hour: Syntax

_points to cover:_

9. Morphemes are used to make words.
10. Words are used to make sentences.
11. Words are put together in a very specific order.
12. This order is called syntax.
13. Even if we put words together in the right order, the sentences may not make sense.
14. Sentences may not make sense because the words have qualities that won’t work with the qualities of other words. *(This is what the handout and the activity is about.)*
15. Even though we can have an unlimited number of sentences, there is a limited number of ways words can be combined.

**Handout:**

Go over the handout with the children and then see if they can figure out what’s wrong with the sentence *Colorless green ideas sleep furiously.*

**Activity:**

Children can use the word slips to make sentences of sense and nonsense.
Putting Words Together – Syntax

We put sounds together to make morphemes. Morphemes make words. Words make phrases and sentences. The way we put words together to make phrases and sentences is called syntax.

Syntax is the ordering of words in a phrase or sentence.

We can’t put words together in any order.

Make a sentence with these words:

blue, the, is, sky

Only one way will make a grammatical sentence.

So the order of words in a sentence is important.

But some words can’t go together no matter how we order them.

Make a sentence with these words:

street, the, ate, dog, the

We know what words mean, but we also know that the things words refer to have qualities that are separate from their meanings.

Street is not a food and can’t be eaten.
Street is also not a living thing and can’t eat anything.
A dog is a living thing and eats, but it can’t eat a street.

Here is a perfectly grammatical sentence:

Colorless green ideas sleep furiously.

Can you figure out why it doesn’t make sense?
## Appendix 15 – Sentence Game

<table>
<thead>
<tr>
<th>the</th>
<th>well</th>
<th>toast</th>
<th>outside</th>
</tr>
</thead>
<tbody>
<tr>
<td>the</td>
<td>very</td>
<td>slowly</td>
<td>played</td>
</tr>
<tr>
<td>boy</td>
<td>good</td>
<td>found</td>
<td>freedom</td>
</tr>
<tr>
<td>his</td>
<td>paper</td>
<td>piano</td>
<td>teacher</td>
</tr>
<tr>
<td>saw</td>
<td>some</td>
<td>brick</td>
<td>sometimes</td>
</tr>
<tr>
<td>dog</td>
<td>looks</td>
<td>house</td>
<td>friendship</td>
</tr>
<tr>
<td>dry</td>
<td>slept</td>
<td>brown</td>
<td>sometimes</td>
</tr>
<tr>
<td>old</td>
<td>the</td>
<td>happy</td>
<td>friendship</td>
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<tr>
<td>big</td>
<td>the</td>
<td>taught</td>
<td>teacher</td>
</tr>
<tr>
<td>has</td>
<td>dog</td>
<td>young</td>
<td>wrinkled</td>
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<td>hit</td>
<td>ate</td>
<td>toast</td>
<td>freedom</td>
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<td>ate</td>
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<td>a</td>
<td>slept</td>
<td>wrinkled</td>
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<tr>
<td>sad</td>
<td>my</td>
<td>piano</td>
<td>outside</td>
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<tr>
<td>saw</td>
<td>big</td>
<td>been</td>
<td>house</td>
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<td>hit</td>
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<td>been</td>
<td>taught</td>
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<tr>
<td>dry</td>
<td>his</td>
<td>looks</td>
<td>paper</td>
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<tr>
<td>old</td>
<td>is</td>
<td>good</td>
<td>happy</td>
</tr>
<tr>
<td>my</td>
<td>the</td>
<td>brick</td>
<td>eaten</td>
</tr>
<tr>
<td>very</td>
<td>had</td>
<td>found</td>
<td></td>
</tr>
<tr>
<td>sad</td>
<td>had</td>
<td>some</td>
<td></td>
</tr>
</tbody>
</table>
Course Project for Junior Linguists Class

You have been learning linguists do and how linguists think. You are asked to complete a term project that will be due on the last day of the class and that you can share with your classmates and your parents.

Here are some suggested projects:

1. **Do animals have language?**
   You can create a poster that illustrates your answer to this question. You can look at the characteristics of languages and apply them to animal communication. *Remember that scientists use facts! They don't just think what is possible!*

2. **Create a language game.**
   We’ve played some language games in class. Can you come up with a language game of your own? Perhaps it could be a game about English sounds! Or English morphemes. It could even be something with sentences or definitions. You can use any aspect of language as the basis for a language game.

3. **Figure out how English puts consonant sounds together.**
   You learned all the sounds that exist in English. The way English (and other languages) put their sounds together is called “sound distribution.” Part of this distribution determines which consonant sounds can appear together and where in a word they can appear. For example, English words do not have a combination of “mw” in words. The sound at the end of the word *sing* (N) cannot appear at the beginning of a word. Can you figure out which sounds can’t go together or can’t appear in certain places in a word? You can make a poster to show what you find out.

4. **Investigate Morphemes.**
   Choose several morphemes (like *geo* or *cardio*) and find as many words as you can that are made with those morphemes. Create a poster or some other method of sharing what you discover.

You don’t have to do one of these projects. If you are interested in something about language, create a project to share with us!
Class Six Plan

First Hour:

Review grammatical “nonsense sentences”

Remind students that words are more than their dictionary definitions. Words have qualities that don’t allow them to be put together with other words.

EX: The cat ate the street.

We know what a street is and without adding anything to a definition, we know that it’s not something that can be eaten.

Students get a sheet with a number of nonsense sentences. Their job is to figure out why the sentences make no sense. What are the qualities of the words that don’t allow them to go together? Here’s another example that will be on the sheet.

The happy street wrote a kind apple.

Handout the “How Did Language Begin?” sheet. Kids can read the different “theories” on how language might have started.

Second Hour:

Handout “It’s Alive!” sheet. Two important points to this:
- Languages are ever-changing.
- Linguists compare and contrast languages to see how they are related and how languages are different from one another.

Handout Word Match Sheet - Let kids match the words.

Distribute other exercise. If there is no time, they can take it home and complete it.

Handout card stock paper and colored pencils/crayons to let students make their name plaques.
Appendix 18 – Nonsense Sentences

What’s Wrong With These Sentences?

*Colorless green ideas sleep furiously.*

This sentence is grammatically correct, but it doesn’t make any sense. That is because the words carry more meanings than just their dictionary definitions.

- If something is green, it must have color and therefore cannot be colorLESS.
- Ideas are *abstracts*. They are not physical things that can be seen or touched. Something that is not physical can’t have a color.
- Ideas are not alive. Only living things can sleep.
- *Furious* refers to an emotion. One cannot sleep with any emotion, so sleeping can’t be done furiously.

See if you can figure out what’s wrong with these sentences:

1. The young toast taught the sad paper.

2. The old wrinkled boy ate some paper toast.

3. The happy street wrote a kind apple.

4. A brick dog slowly found the sad piano.
How did language begin?

No one really knows, but linguists have a few theories.

(They don’t really take them seriously!)

- Pooh-Pooh theory - began with exclamations of emotional expression like “ow!” or “ooo."

- Hey You theory - began as sounds to signal both identity (Here I am!) and belonging (I’m with you!). We may also cry out in fear, anger, or hurt (help me!).

- Bow Wow theory - began as imitation of sounds. The name of a thing was an imitation of the sound it made (dog=arf).

- Ding-Dong theory - began with in-born understanding of the relationship between sounds and what they symbolize. For example, small, sharp, high things tend to have words with high front vowels in many languages, while big, round, low things tend to have round back vowels - teeny, tiny, huge, moon.

- Yo-He-Ho theory - grunts and groans made during group actions which eventually became associated with those actions. (Old sailors pulling up the anchor rope chanting “yo he ho!”)

- Sing-Song theory - language came from play, laughter, cooing, and other emotional mutterings. Our first words were actually long and musical, rather than short grunts.
It’s Alive!
The history of language

Languages are living things; they change over time.

- Words are added
- Words are forgotten and no longer used
- Word meanings change
- Sounds change
- Grammar rules change

All living languages change. Languages that do not change are dead languages, like Latin. They are no longer used by any group of people to communicate.

The English we speak in America today is not like the American English spoken by George Washington or Abraham Lincoln. The farther back in time we go, the less the English spoken resembles modern English. If we could hear someone speak Old English, the English spoken about 900 to 1500 years ago, we’d hear something that sounds more like German than English!

Languages have different dialects. People in Indiana sound different from people in Alabama. In Indiana we speak a northern dialect. In Alabama, people speak a southern dialect. Sometimes dialects are so different, they sound like different languages. Each dialect can change and they might become so different that they turn into different languages!

For example, imagine that Latin had two different dialects. They both changed so much that one turned into French and one turned into Spanish. The original “parent” language (Latin) disappeared. French and Spanish are related. They both did come from Latin.

Linguists study modern languages and trace their histories through the writings in the languages. If you wanted to trace the history of English, you would start with modern writing and then look at earlier writings to see what things changed.

By seeing what changed over time, linguists can tell which languages belong to the same language family. They can even begin to reconstruct what language was like 5000 years ago!
Appendix 21 – Word Match

Word Match

Over time, many languages have changed, branching out to form new languages. For example, at one time there was no French language, no Spanish language. Instead, there was Latin. But Latin evolved, branching out to become several different languages, among them French and Spanish. French and Spanish, since they both evolved from Latin, are related languages, sometimes called sister languages.

Languages that are related, that come from a common “ancestor” language, have many words that came from the same common word. These words look alike and mean the same thing. These words are called cognates.

Here are some English and German cognates. (English and German have a common “ancestor.”) Can you match the words?

| Apfel    | earth |
| trinken  | needle|
| Garten   | old   |
| Wasser   | book  |
| alt      | blue  |
| Erde     | apple |
| braun    | garden|
| Raum     | water |
| blau     | brown |
| Buch     | to thank |
| Sommer   | to drink |
| danken   | summer |
| Nadel    | room  |
Class Seven Plan

First Hour:

History of English

The purpose of this class is to introduce students to the source of the English language and the changes it underwent to get to where it is today.

We can start with the Time Line on the wall.

We can then listen to the various English dialects that exist today. (Handout *Sonnet* by Shakespeare. Most of the dialect speakers are reading this poem.)

Hand out “Fun With Cockney” sheet.

If there is time, hand out “Where Do Words Come From?” Kids can guess at the language of origin of the words. It’s just for fun. (There is an answer key when they’re done.)

Second Hour:

Focus on where words come from.

Handout “Coining Words” sheet. The kids can try to define the words. Perhaps they can work in their groups and then compare answers.

Handout “Types of Coined Words”
Handout “Shifty Word Meanings”

If there is time, we can work on sociolinguistics.
Appendix 23 – English Language Time Line

English Language Time Line *

1. Julius Caesar invades island now known as England
2. Romans have left England. Celts are attacked by Picts and Scots
3. Angles, Saxons, Frisians, and Jutes arrive to help the Celts fight the Picts and the Scots after Celts ask them for help.
4. St. Augustine arrives and converts England to Christianity
5. Vikings begin raiding England
6. King Alfred of England defeats the Danes
7. Norman Conquest of England at the Battle of Hastings
8. Renaissance begins around this time
9. Black Plague
10. Great Vowel Shift
11. Invention of the printing press
12. William Shakespeare’s Lifetime
13. English spreads throughout the world
1400-50
1450
1564-1616
After 1600

* Timeline with only the dates marked was taped to the wall of the classroom. Cards with the dates and descriptions were given to the students to be taped on the timeline.
The maps and descriptions of events were handed out after students worked with timeline on the wall.
Maps for Two of the Most Influential Events in the Development of the English Language

| Invasion of the Angles, Saxons and Jutes | Norman Invasion - Battle of Hastings, 1066 |
Events in the Development of the English Language

(See Time Line)

1. **55 B.C.** Julius Caesar invades island known today as England. People who been living there were called the Celts. They spoke a Celtic language. During the Roman occupation, some Latin words entered the Celtic language. Some of these words are table, kettle, pillow, mile, street, kitchen, chalk, butter, onion, cheese, and wine.

2. **410 A.D.** Roman empire began to fall apart in 395 so the Roman emperor began to withdraw troops from Britain. The troops were completely gone by 410, leaving the Celts unprotected. Picts from the north and Scots from the west began to attack.

3. **449 A.D.** The Angles, Saxons, and Jutes arrive to help the Celts fight the Picts and Scots. These groups of warriors were members of Germanic tribes from what is now the European continent. The Celts had invited these warriors to help them fight the Picts and Scots. After they beat them the warrior refused to leave. Many of the Celts fled to Wales, Cornwall, Ireland, Scotland, and Brittany in France. The name "England" comes from "Engla land," which means land of the Angles. The English language comes from the language of these Anglo-Saxon warriors. Welsh, spoken in Wales, Celtic languages. Cornish was spoken in Cornwall, but is now a dead language. Irish Gaelic and Scottish Gaelic are also Celtic languages.

4. **597 A.D.** St. Augustine arrives in England and begins to convert the people to Christianity. Literacy was promoted with the building of churches, schools, and monasteries. More Latin words were borrowed at this time. Many of the words were religious, like mass, priest, vicar, abbot, alms, disciple, and nun. Many other words were not religious. Some of these words are candle, port, tower, cap, radish, and school.

5. **787 A.D.** The Vikings begin a series of raids on England in the north. They eventually control most of the east half of England. Many Scandinavian words were borrowed at this time. Some of these borrowed words are ill, skirt, flat, rake, and guess.
6. **878 A.D.** Alfred the Great, the king of England, defeated the Danes. Alfred had united the different little kingdoms of England into one kingdom. He had English taught in schools to help unite all the people. After the Danes were defeated, they still lived in England. They had a large influence on the English language. We got our third person plural pronouns from the Scandinavians - *them, they, their, theirs*. The Old English form of *them* was *hem*. When you say, "Take 'em," you are actually using the Old English form of *them*.

7. **1066 A.D.** William the Conqueror from Normandy defeats King Harold at the Battle of Hastings. It is the second most influential event in the history of English. Many, many French words came into the English language at this time. A large number of these words relate to law and government - *prince, princess, law, government, crime, court, country, attorney, castle, and prison*. Others are related to the military - *army, captain, corporal, soldier*. Some other words borrowed from the French at this time are *fool, fruit, mirror, male, literature, letter, remember, sacrifice, secret, sentence, search*, and *single*. English also borrowed many prefixes and suffixes at this time: *-ment, -tion, -ity, dis-, and pre-* are just a few. French words were used to refer to animals as food, while Old English words continued to be used for the animals themselves.

<table>
<thead>
<tr>
<th>Old English</th>
<th>cow</th>
<th>pig</th>
<th>sheep</th>
<th>calf</th>
</tr>
</thead>
<tbody>
<tr>
<td>French</td>
<td>beef</td>
<td>pork</td>
<td>mutton</td>
<td>veal</td>
</tr>
</tbody>
</table>

8. **1300 A.D.** The English Renaissance began around this time. *Renaissance* means "rebirth." The word is used for this time period because there was a rebirth of learning. Greek and Latin became very important at this time and many scientific words were borrowed at this time. Some of these words are *thermometer, pneumonia, skeleton, virus*, and *species*.

9. **1347-1351 A.D.** The Black Death killed 40% of the English population. After the Norman Conquest, French had become the language of learning. Paris, France, was the cultural center of the world. However, many of the people who taught in the universities in England died from the Black Death. They were replaced by people who spoke English. As a result, the teaching was done more in English than in French. This made English more important than French in England.
10. **1400-1450 A.D.** The long vowel sounds in English all shifted in a regular order. The tongue moved forward for each sound. The sounds that were most forward became diphthongs. No one knows why or how this happened. This is the beginning of Modern English.

<table>
<thead>
<tr>
<th>Middle English</th>
<th>Modern English</th>
</tr>
</thead>
<tbody>
<tr>
<td>ee (beet)</td>
<td>ay (kite)</td>
</tr>
<tr>
<td>ey (hate)</td>
<td>ee (beet)</td>
</tr>
<tr>
<td>ah (cat)</td>
<td>ey (hate)</td>
</tr>
<tr>
<td>oo (food)</td>
<td>ow (house)</td>
</tr>
<tr>
<td>oh (home)</td>
<td>oo (food)</td>
</tr>
<tr>
<td>aw (awesome)</td>
<td>oh (home)</td>
</tr>
</tbody>
</table>

11. **1450 A.D.** The printing press was invented. Printing began to standardize spelling. The sounds of English were changing, but the spelling of words stayed the same. Before the printing press, monks in monasteries would write out books using letters to spell words phonetically as they said them. The words in a book written by a northern monk would be spelled differently from the words in a book written by a southern monk. That’s why we spell *knight* with letters we don’t pronounce. The letters were once pronounced.

12. **1564-1616 A.D.** William Shakespeare is known for his plays and poetry. He also made up many new words. These are just a very few of them: *dawn, laughable, worthless, eyeball, hint, lonely, moonbeam, gloomy, elbow, luggage, and puking*.

13. **After 1600 A.D.** English has been spreading around the world. It continues to be influenced by other languages. We all know the word *tsunami* now. It is a Japanese word. The English term for a tsunami had been *tidal wave*. English also influences other languages all over the world. Few people in the world don't know *coke* or *jeans*. 
SONNET 18 by William Shakespeare

Shall I compare thee to a summer’s day?
Thou art more lovely and more temperate:
Rough winds do shake the darling buds of May.
And summer’s lease hath all too short a date:
Sometimes too hot the eye of heaven shines
And often is his gold complexion dimm’d;
And every fair from fair sometimes declines.
By chance or nature’s changing course untrimm’d:
But thy eternal Summer shall not fade
Nor lose possession of that fair thou owest;
Nor shall Death brag thou wanderest in his shade.
When in eternal lines to time thou growest:
So long as men can breathe, or eyes can see.
So long lives this, and this gives life to thee.

How do linguists know the way people pronounced words long ago when there were no recordings?

One thing they did was to look at poetry to see what words were supposed to rhyme. Look at these two lines:

I sat, staring at the machine
And wondered how it could be so clean.

*Machine* and *clean* had to have the same sound even though they were spelled differently. (Poetry always used to rhyme.)

When they looked at enough rhymed words, they began to see a pattern.
Cockney is a dialect in London. As far as we know, it is the only dialect that creates slang by rhyming words.

What would you think if someone said, “I have some bees and honey in my Lucy”?

It means “I have a pocket full of money.”

How does it mean that?

In the Cockney dialect, a word is rhymed with a phrase and then either the phrase or one of the words from the phrase is used instead of the “real” word.

Bees and honey = money
Lucy Locket = pocket

How about this one – I got a new kitten. Would you like a butcher’s?

It means “I got a new kitten. Would you like a look?”

Butcher’s hook = look

Here are some others:

- Why not get ‘im on the dog? (Dog and bone = phone)
- I need a pair of winter turtles. (Turtle dove = glove)
- He wore his new whistle to church. (Whistle and flute = suit)

Americans have adopted at least one of these rhyme terms. When you say you “gave someone the raspberries,” you’re actually using Cockney slang. Can you figure out what it is?

Raspberry tart =

Interested in more Cockney slang? Visit www.kids.net.au/encyclopedia-wiki/co/Cockney_rhyming_slang
Where Do Words Come From?

English has well over 450,000 words. That is more than any other language. The language with the next highest number of words is German, and it has less than 200,000 words. New words are added to the language all the time. Where do they come from? Many words are borrowed from other languages. English has borrowed words from over 100 different languages!

Here just a few of the languages English borrowed words from.

<table>
<thead>
<tr>
<th>Language</th>
<th>Origin</th>
<th>Language</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arabic</td>
<td>spoken in the Middle East</td>
<td>Italian</td>
<td>spoken in Italy</td>
</tr>
<tr>
<td>Dutch</td>
<td>spoken in the Netherlands</td>
<td>Norse</td>
<td>an extinct language of the</td>
</tr>
<tr>
<td></td>
<td>and Belgium in Europe</td>
<td></td>
<td>Vikings</td>
</tr>
<tr>
<td>Egyptian</td>
<td>an extinct language in</td>
<td>Sanskrit</td>
<td>an ancient language from</td>
</tr>
<tr>
<td></td>
<td>ancient Egypt</td>
<td></td>
<td>northern India</td>
</tr>
<tr>
<td>Gaelic</td>
<td>spoken in Scotland</td>
<td>Welsh</td>
<td>spoken in Wales</td>
</tr>
</tbody>
</table>

Can guess which of these languages the words below came from?

- alarm
- anger
- ballot
- brat
- candy
- cartoon
- coffee
- cotton
- cookie
- crowd
- desk
- dirt
- grumble
- gum
- knife
- odd
- orange
- penguin
- paper
- pet
- pickle
- sheriff
- stove
- sugar

If you enjoy learning the sources of English words, you might enjoy these websites:

- http://www.wordorigins.org/homepage.htm
### Answers to “Where Do Words Come From?”

<table>
<thead>
<tr>
<th>Word</th>
<th>Origin</th>
<th>Word</th>
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Appendix 27 - Coined Words

Types of Coined Words

**Compound words** - These are words made up of whole words or morphemes. *Doghouse* is a compound word. *Telephone* and *television* are also a type of compound words.

**Blended words** - These are words that are made by combining one part of a word with another part of another word. *Smog* is a blended word made by combining *smoke* and *fog*. *Motel* is another blended word (motor plus hotel). Do you know how we got brunch? Here is a new blended word -- *slanguist*. Can you tell what this word means?

**Clipped words** - These words are are created when the beginning or end of a word is cut, or “clipped.” *Gym* is a word that is clipped from *gymnasium*. *Exam* was clipped from *examination* and *phone* was clipped from telephone. A new clipped word is *blog*. This was clipped from *weblog*, a type of journal that is published on the World Wide Web. *Weblog* is itself a new compound word. Do you what word led to the clipped form *celeb*?

**Backformation** - Usually in English, we add suffixes to words to create new words. But when words are made from backformation, the opposite happens. A new word is created when we remove a suffix. For example, we could create a new verb by removing the suffix from backformation. Our new word would be *backform*. Then we could say we just backformed a word. The word *burgle*, which means “to rob,” was created this way from the word *burglar*. Sometimes backformation happens when people just think there is a suffix. The word *pea* was created when people started dropping the last part of the word *pease* because it sounded like a plural. They thought there was one pea and several peas. They were wrong. It was one pease.

**Acronyms** - These are words made from the initials of words. NASA is an acronym that stands for “National Aeronautics and Space Administration.” Did you know *radar* was originally an acronym? It stood for “radio detecting and ranging.” CD-ROM is also an acronym. It means “compact disk – read only memory.”

**Transfer of Names** - These are words that come from the name of a person or place. When we call someone a *scrooge*, we are using a word that comes from the very stingy Charles Dickens’ character, Ebenezer Scrooge from *A Christmas Carol*. Did you know *sandwich* also came from a name? The Earl of Sandwich often played cards for hours at a time, not even stopping to eat. He had his servants bring him meat and cheese served on bread between two slices of bread.
Coining Words

Many words are borrowed from other languages. However, other words are “coined.” That means that someone made the word up. Shakespeare made up around 2000 words. Many of these words are still used in English today. Sometimes the words seem to come from nowhere, like byte, a computer term. Other times, new words are made from existing morphemes (word parts). For example, the word telephone did not exist before Alexander Graham Bell discovered a way to transmit sounds through a wire from one location to another. The word telephone was made up of the two morphemes tele (distance) and phone (sound).

Here are some modern coined terms. See if you can tell what they mean.

askable parent
blamestorming
deskfast
eatertainment
frankenfood
Falloween
frienemy
informavore
mathlete
yestertech

How many of these words will we still be using in 20 years? We’ll have to wait and see!
Answers to Coined Words

askable parent  A parent who is willing to answer their child's questions and who encourages their child to ask questions

blamestorming  A discussion (which may be at the group, community, or society level) in which members attempt to assign blame for a particular misdeed.

deskfast  Breakfast eaten at a desk

eatertainment  A restaurant that also offers entertainment such as wall-mounted memorabilia, video displays, or live music.

frankenfood  Food derived from genetically modified (GM) plants and animals.

Falloween  An extended celebration or observance of Halloween, often beginning several weeks before the day; the retail season that extends from the beginning of fall through Halloween and Thanksgiving in the U.S.

frienemy  A friend who acts like an enemy; a fair-weather or untrustworthy friend.

informavore  A person who consumes information.

mathlete  A person who competes in a mathematics competition.

yestertech  Older technologies that had fewer bells and whistles, and so weren't as complex, as the technologies of today.

From http://www.wordspy.com
Shifty Words Meanings

Did you know that the meanings of words shift all the time? Isn’t that wicked? Word meanings can shift in a number of ways. Here are some of them.

*Worsening Meaning* - Some words start out with a good meaning but later develop a bad one. *Stink*, for example, once meant the same thing as *odor* or *smell*. Of course, *smell* is starting to take on a bad meaning too!

*Improving Meaning* - Some words start out with a bad meaning or a plain meaning and then develop a bad one. One example of this is the word *knight*. That word first meant the same as *servant*.

*Specializing Meaning* - Some words start out meaning something general and then become more specific. For example, *girl* once meant any young person, but now is used only for young females. *Starve* once meant “to die,” but now it means to die of hunger.

*Generalizing Meaning* - Some words start out meaning something specific and then become more general. Our word *thing* comes from a Norse word used for a kind of court or legal assembly. It then was used for any matters that people would take to the court. Then it was used for any serious matters, even outside the assembly. Now it refers to anything at all!

Why do words shift meaning? They may shift because of what we associate with the word. We can see how association worked to change the meaning of the word *thing*.

Words also shift meaning because of our feelings. For example, the word *janitor* is a little negative. It is negative because many people do not think highly of the job of a janitor. However, the word originally meant “doorkeeper.” It came from Roman mythology. Janus was the doorkeeper of heaven.

The word *nice* started out meaning “foolish” and “ignorant.” It then shifted to mean “willful.” Today it means “pleasant.” But maybe it is changing again. Have you ever used it to mean the opposite of “pleasant”? What about *great*? Have you ever used that word to mean less than “very good”?

What about the word *wicked*? Is it ever used today to mean something besides “bad” or “evil”?
1. Men and women use language differently. Adult and children use language differently. Teenagers sometimes seem to have a language of their own, but teenage boys and teenage girls speak differently.

See if you can tell who would be most likely to say the sentences below. Choose from the following:

- Adult male
- Adult female
- Teenage boy
- Teenage girl

That dress is like so yesterday!
Nice coat.
The sunset is just beautiful this evening.
Hey! Cool shirt!

2. People also use language differently in different situations and when talking to different people. Explore your language use!

You want the door to a room closed. How would you ask the following people to close it?

- Your brother or sister
- Your mother
- Your father
- Your best friend
- Your favorite aunt
- Your next door neighbor

You are having lunch and don’t like what is served. Someone asks you how you like your meal. How would you answer if the speaker was your best friend? What if the speaker was one of the following people?

- Your mother
- Your minister/priest/rabbi
- Your teacher
- Your principal
- Your grandparent
- Your next door neighbor

3. People use language to show that they belong to a group. Each generation of kids comes up with new slang words that separate them from their parents’ generation. About 80 years ago, young people used “the bee’s knees” to describe something really special. About 50 years ago, the term was “neat.” “Cool” arrived shortly after that (and is still used). About 30 years ago, kids used “boss.”

Can you think of any words you use that your parents don’t use?
References


Lohman, D.F., & Korb, K. (2004). Gifted today but not tomorrow? Longitudinal changes in ITBS and CogAT scores during elementary school. Paper presented at the annual meeting of the National Association for Gifted Children, Salt Lake City, November, 2004. [check the way to format this entry]


