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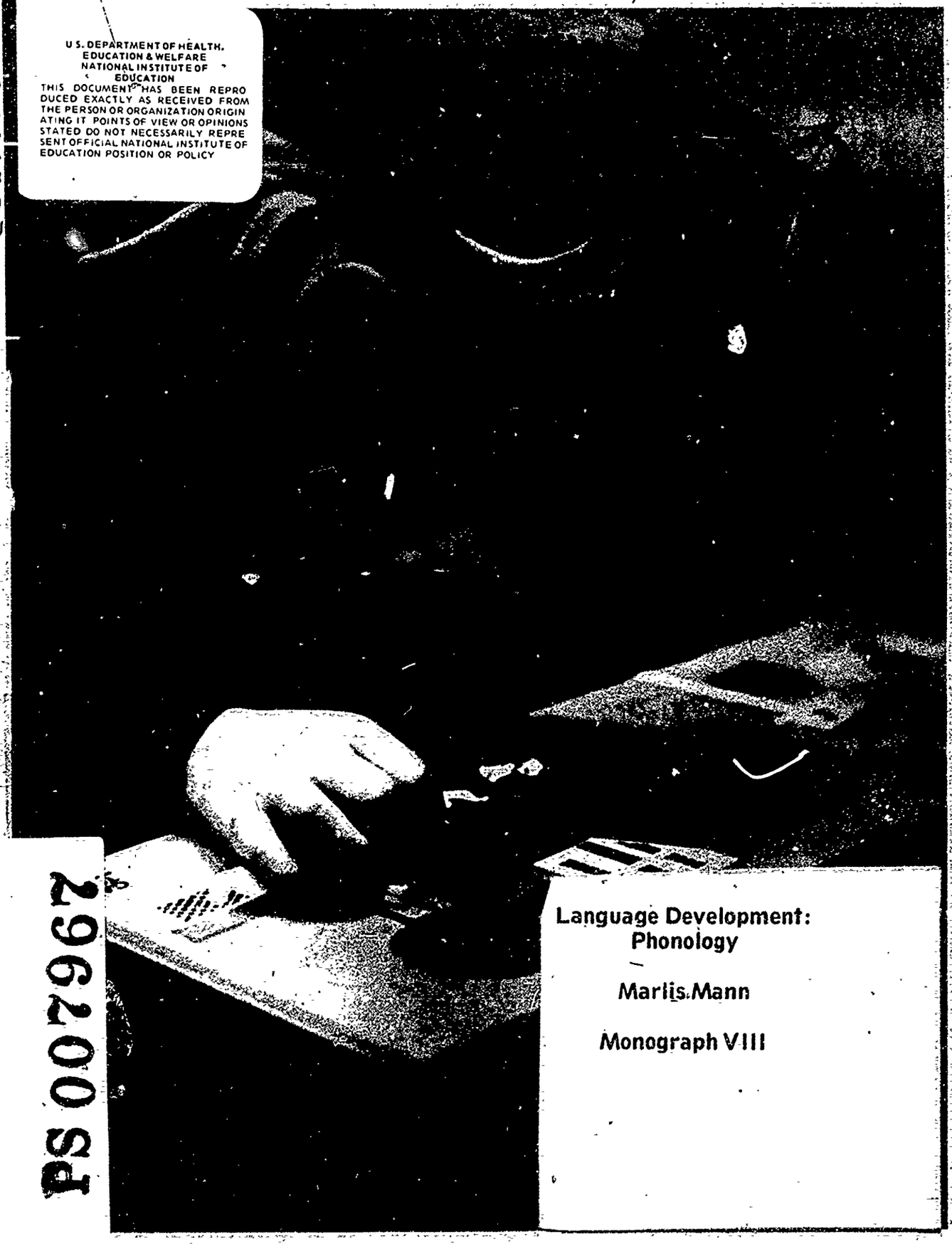
ABSTRACT

This module is designed to prepare teachers to facilitate the phonological aspects of language development. Section 1 provides detailed basic background information on phonology, including: (1) definition of three aspects of the phonological system (classification, intonation, and stress) with an ontogeny for each; (2) brief discussions of phonology developmental outcomes, the relevance of phonology to reading readiness and visual perception, the physiology of speech, types of developmental discrepancies in children's speech, and sociological aspects of phonology; and (3) presentation of methods for measuring phonetic development. Section 2 provides teaching strategies related to the stated learner outcomes for classification and intonation. In the last section, the competencies needed by teachers to facilitate phonology development are listed along with definitions of terms, selected readings and appropriate films. (ED)



Language Development: Phonology

Marlis Mann

Monograph VIII

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PHONOLOGY ONTOGENY

The most striking feature of the research literature on infant vocalizing is the lack of advancement in the field. The basic drawback is the reliance on transcriptions obtained by observations in naturalistic settings. It is quite difficult to transcribe infant speech sounds and to fit the sounds into any classificatory system.

The use of meaninfgul words marks the onset of an active phonological system replacing unsystematic phonetic preferences. This is the beginning of true language.

Jakobson (1968) opened a new era in child language research when he proposed that children develop speech in sound categories instead of individual sounds. The speed and time of sound acquisition varies enormously between different children but the sequency in categories and the relative chronology are always and everywhere the same, at least in a broad sense. Jakobson was one of the originators of the phonemic method in the Linguistic Circle of Prague and applied it to children's language. Even though his postulates needed correction in details, the application of structural views to child language was nothing less than revolutionary.

The fundamental change in the approach was really quite simple. Instead of trying to find the sequence in which children learn sounds, which has proved futile, the attention must be focused on the sequence in the acquisition of sound categories. To establish the categories, a knowledge of phonetics was of course necessary, and many eager students lacked it.

Leopold is convinced that Jakobson's phonemic analysis of sound learning is the way out of the difficulties presented by the puzzling individual differences between children. However, it is not yet in final shape. Velten (1943) in a study of slow sound learners has used and modified the analysis, which proved to be too rigid. Linguistic study of children's language learning will have to build henceforth on Jakobson's model.

Jakobson's hypothesis, then, is that the development of the sound system can be described in terms of successive contracts between features that are maximally different and which permeate the whole system. Thus, the first distinction is between a vowel and consonants are more different than any other part of the system. Jakobson (1968) suggests that the principle of maximum contrast can account for what is preserved and what is not. This principle accounts for what is preserved and what is not. This principle accounts for the fact that infants earliest utterances are usually "papa" and "mama". These utterances are composed of repetitions of the maximally contrasting C (consonant) and V (vowel) sounds.

The child, therefore, develops a phonema system by proceeding step by step from the greatest phomenic distinction to smaller and smaller differentiations. Jakobson (1941) found this process to be identical in other linguistic communities including American Indian, Japanese, Germanic, Romance, Slavic, and Finno-Ugrian.

Burling (1958) in the study of his son Stephen's language development in learning English and Garo simultaneously found that in the earliest stage of language, the child's development closely correlated to Jakobson's hypothesis. The child developed three stop positions, three widely spaced vowels, and two nasals. Leopold (1953-54) found that in vowels the child learns to distinguish passively and actively between low vowels from high vowels, mid vowels, and eventually between the breakdown of these three major levels to more refined subdivisions. Distinction of front and back vowels is made sooner than the threefold distinction between front, back, and central vowels.

The prelinguistic sounds of deaf and hearing children are indistinguishable in the first three months, but there is a gradual decrease in the range of sounds, uttered by the deaf after the age of 6 months (Lenneberg, 1966) with each child specializing idiosyncratically. Thus, the hearing of a variety of speech sounds may increase the range of sounds used by the child, but we do not know if the hearing of a particular range of sounds influences the particular range used by the child. There is very limited and very poor research in this area. Linguistic studies in the infant field have focused on providing a description of the language of a particular child at different levels of development. The units of analysis have been phonemes, morphemes, words, and sentences. The procedures for data collection usually begin with phonetic transcription of the infant's vocal behavior by a trained observer. The most extensive studies of this type are those of Gregoire (1939), Leopold (1939), Chen (1952), Velten (1943), and Lewis (1938).

Austerlitz (1956) found in a study of Gilyak nursery words that stops and nasals were primary during the emerging language process--there was an obvious preference for velars (k/g,r) and palatals (c,n). The labial sphere seems to be concentrated on the nasal m. The first axis among the consonants is: velar (k/g/,r) and other (c,n,m). Fricatives are rare, and lenis fricatives are especially exceptional. He felt his findings reflected the structure of the language as a whole not only synchronically, but also historically, but also historically, and could be considered as an epitome of the processes governing the language.

Recent research indicates that to talk about the child's acquisition and development of speech, that is, his perception and production of speech sound sequences apart from his acquisition and development of the grammar of his language is a serious mistake.

All of his hypotheses about what a sentence is and what a word is are presumably derived from his knowledge of the syntactic and semantic structure of the language, and not from the speech-sound sequences themselves. There exists a dependence of speech-sound perception and production on underlying syntactic structures (Chomsky and Halle, 1968).

Class of Sounds

It has been hypothesized by (Jakobson, Fant, and Halle 1963) that each speech-sound in the language is made up of a particular bundle of features. These features are based on the articulatory and acoustic characteristics of speech-sounds and these characteristics presumably come from a pool of universal features which compose all the speech-sounds in all of the languages of the world.

The features a sound can have include nasal, stident, obstruant, consonantal, continuant, voiced, anterior, and coronal.

The three generalizations about speech in language development are as follows: 1) the infant does not produce phonated sounds at birth (Murai 1960), 2) although the ages at which children exhibit these gross changes in language behavior can vary widely, the same sequence of development is observed in all children (Lenneberg 1966), 3) the use of all the basic rules in the syntactic component fo the grammar occurs before the use of all the rules for speech-sound production (Powers 1957, and Menyuk 1969.) Most accounts of articulatory development represent upper age limits rather than average performance. The first large investigation in this area was carried out by Wellman et al in 1931. This study established age norms at which 75% or more of the children articulated a sound correctly. Poole, in 1934, listed ages at which 100% of the children studied correctly articulated specific consonant sounds. Templin (1957) assigned age levels to specified sounds when three-fourths of the children at that age articulated the sound correctly in all three positions of the word.

These group standards are a source of misunderstanding in considerations of development of articulation because they describe upper age limits rather than average performance. The definition used by Templin is only one way of measuring progress in articulation. There are three early developmental landmarks before final mastery of a sound is reached: "1) age of first appearance of the sound form, 2) age of earliest correct articulation in words, and 3) age of customary production.... when one says that a child has acquired a sound, the definition most easily conveyed is that the child is producing the sound correctly more often than he is misarticulating or omitting it.

An examination of Templin's findings emphasize the arbitrary nature of the age norms listed. If the definition is changed slightly, the age may be drastically changed. Another difficulty in this field is that the ages at which specific sounds are produced varies greatly among individual children.

Sander, 1972, devised a method of translating previous findings to include in the age summaries of consonant development both an average age of customary production and a measure reflecting the traditional upper age limits for sound acquisition. Each sound was assigned to the earliest age at which it is articulated correctly in at least two positions by 51% or more of the subjects in a study. To standardize the range, each sound was therefore placed at an age level where the combined test average at the various word positions exceeds 50% correct production.

Following is a chart containing a solid bar which begins at the age level where combined test averages in the various word position is more than 50% correct production. The bar ends where combined test averages reach 90% correct production. The length of the bar roughly indicates the extent of variability for each consonant sound.

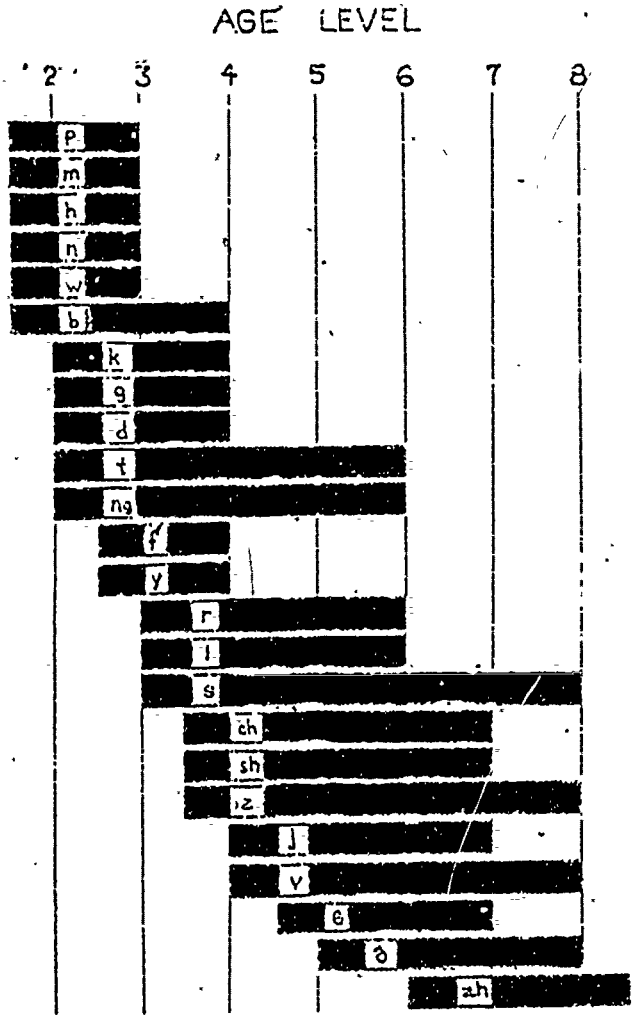


Figure 1. Average age estimates and upper age limits of customary consonant production. The solid bar corresponding to each sound starts at the median age of customary articulation; it stops at an age level at which 90% of all children are customarily producing the sound. (From Templin, 1957; Wellman et al., 1931.)

Use of this figure "avoids the pitfalls of attaching a single acquisition age to each consonant. Unlike previous summaries, it depicts at its starting points median or average performance, however it also preserves in graphic form the complementary view that normality in articulatory development encompasses an impressively broad age range (Sander, 1972).

The following is a traditional list of sounds which includes the blends ranked in order of their development in children. It must be remembered that each child does not develop sounds necessarily in this order. It simply means that most children have mastered these sounds by the time they are of the age indicated. The list is a compilation of several lists including Hejna, Eisenson, and Van Riper.

It should also be pointed out that the production of some of these sounds is easier to see. For example, (m), (p), (b), (t). Therefore, they may be easier to teach than (h), (j), (r).

3 years

P	(p)	pin	apple	map
B	(b)	boy	baby	tub
M	(m)	mother	hammer	broom
H	(h)	house	doll-house	---
W	(w)	window	sandwich	---

4 1/2 years

T	(t)	table	potato	hat
D	(d)	dog	ladder	bed
N	(n)	nail	penny	lion
K	(k)	cat	bucket	truck
G	(g)	gun	wagon	egg
NG	(ŋ)	---	finger	king
Y	(j)	yellow	onion	---
F	(f)	foot	elephant	knife

5 1/2 years

SH	(š)	shoe	dishes	brush
CH	(č)	chair	highchair	church
L	(l)	lamb	balloon	ball
R	(r)	rabbit	carrot	chair

7 years

TH	(ð)	the table	feather	bathe
TH	(θ)	thumb	birthday	teeth
J	(ǰ)	jam	soldier	bridge
S	(s)	sun	pencil	bus
Z	(z)	zebra	scissors	peas
HW	(M)	wheel	pinwheel	---

The blends are usually developed later than the isolated consonant sounds. Below is a list of common blends:

6 years

CR	(kr)	cracker
DR	(dr)	drum
CL	(kl)	clock
GL	(gl)	glass
BL	(bl)	block
PL	(pl)	play
FL	(fl)	flower
Q	(kw)	queen

7 years

TR	(tr)	train
ST	(st)	star
SL	(sl)	slide
SW	(sw)	swing
SP	(sp)	spoon
PR	(pr)	prayer
GR	(gr)	green
BR	(br)	bread
SK	(sk)	skate
X	(ks)	axe
SN	(sn)	snow

Phonomes in the English Language

The continuim of articulation between vowel-like and consonant-like sounds.

Consonant-like Sounds

Noncontinuant

Stops - A noncontinuant which involves a complete stoppage of the breathstream and an interval of silence during their production. Examples include initial sounds in pin, bin, time, cane, gain.

(p) pin	(t) tin	(k) coal
(b) bin	(d) din	(g) goal

Continuants

Fricatives - Sounds that are produced with enough constriction of the speech organs at some point in the mough passage to cause a noticeable friction noise as the air squeezes through. The initial sounds of fine, vine, thigh, seal, and ship, as well as the medial sound written with an s in pleasure, are fricature sounds.

(c)	church	(h)	house
(j)	judge	(s)	seal
(f)	fine	(z)	zeal
(v)	vine	(š)	shoe
(g)	think	(ž)	azure
(h)	this		

Resonants

Laterals - The sound (l) in life, well, and milk is classified as a lateral sound. Lateral sounds are made by blocking the mouth passage with the tongue along a median line, leaving an opening along one or both sides for the breathstream to pass through.

(e) life

Nasals - During the sound emission the nasal passage is kept open for the air to issue through the nose. Nasals are normally voiced sounds, like the initial sounds in mad, no and the final sound in ring, except that in words like smoke and snow

they may be partially "devoiced" because of the preceding voiceless consonant.

(m) man (ŋ) sing
(n) now

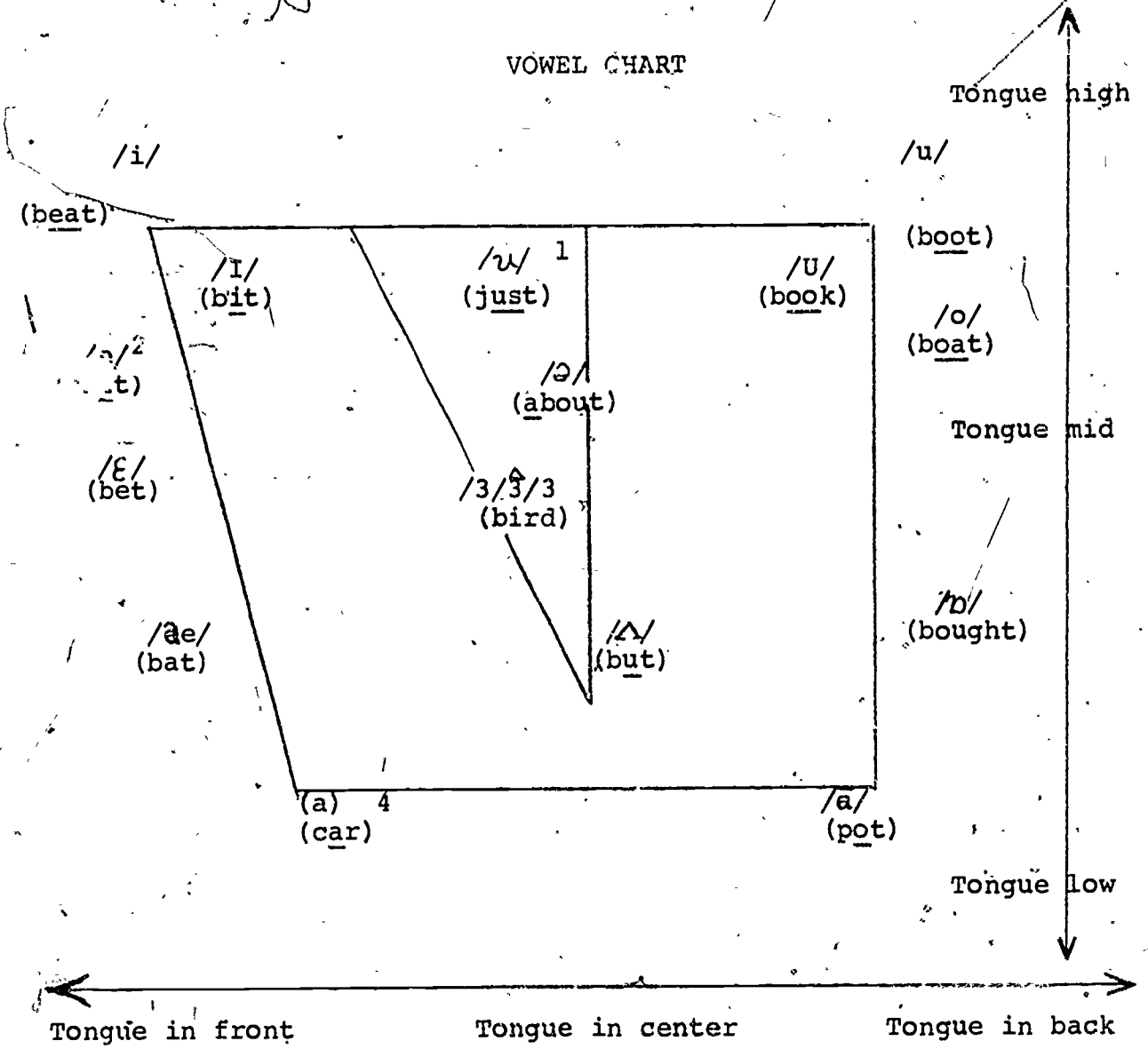
Semivowels or Glides - These sounds are characterized by a moving, rather than a stationary, tongue position as they move to and from the place where [illegible] sound is articulated. The sounds represented by written y, w, and r as in yes, well, and red are generally regarded as glides. Also the final sounds in say and how which are usually represented by the symbols (j) and (w).

(w) water
(r) red
(j) yes

Vowels - When producing these sounds the continuous airstream is unobstructed. Below are the cardinal vowels as they relate to American English.

(i)	beat	(u)	book
(e)	bait	(ʌ)	but
(E)	bet	(u)	boot
(æ)	bat	(o)	boat
(a)	car	(ɔ)	bought
(I)	bit	(ɑ)	pot
(ɪ)	just		
(ə)	about		
(ɝ) (ɚ)	bird		

VOWEL CHART



Taken from:

Gaeng, A. Introduction to the Principles of Language
New York: Harper & Row, 1971

The Utility of Forty-five Phonic Generalizations

Generalization	No. of Words Conforming	No. of Exceptions	Per Cent of Utility
1. When there are two vowels side by side, the long sound of the first one is heard and the second is usually silent.	309 (bead)	377 (chief)	45
2. When a vowel is the middle of a one syllable word, the vowel is short.	408	219	62
middle letter	191 (dress)	84 (scold)	69
one of the middle two letters in a word of four letters.	191 (rest)	135 (told)	59
3. If the only vowel letter is at the end of a word, the letter usually stands for a long sound.	23 (he)	8 (to)	74
4. When there are two vowels, one of which is final e, the first vowel is long and the a is silent.	180 (bone)	108 (done)	63
5. The r gives the preceding vowel a sound that is neither long nor short.	181 (horn)	134 (wire)	78
6. The first vowel is usually long and the second silent in the digraphs ai, ea, oe, and oi.	179	92	66
ai	13 (nail)	24 (said)	64
ea	101 (bead)	51 (head)	66
oe	81 (boat)	1 (cupboard)	97
oi	1 (suit)	16 (build)	6

Generalization	No. of Words Conforming	No. of Exceptions	Per Cent of Utility
7. In the phonogram is, the i is silent and the e has a long sound.	8 (field)	39 (friend)	17
8. Words having double e usually have the long e sound.	85 (seem)	2 (been)	98
9. When words end with silent e, the preceding a or i is long.	164 (cake)	108 (have)	60
10. In ay the y is silent and gives a its long sound.	36 (play)	10 (Murray)	78
11. When the letter i is followed by the letters gh, the i usually stands for its long sound and the gh is silent.	22 (high)	9 (neighbor)	71
12. When a follows w in a word, it usually has the sound a as in was.	15 (watch)	32 (swam)	32
13. When e is followed by w, the vowel sound is the same as represented by oo.	9 (blew)	17 (sew)	35
14. The two letters ow make the long o sound.	50 (own)	35 (down)	39
15. W is sometimes a vowel and follows the vowel digraph rule.	50 (crow)	75 (threw)	40
16. When y is the final letter in a word, it usually has a vowel sound.	169 (dry)	32 (tray)	84

Generalization	No. of Words Conforming	No. of Exceptions	Per Cent of Utility
17. When y is used as a vowel in words, it sometimes has the sound of long i.	29 (fly)	170 (funny)	15
18. The letter a has the same sound (o) when followed by l, w, and u.	61 (all)	65 (canal)	48
19. When a is followed by r and final e, we expect to head the sound heard in care.	9 (dare)	1 (are)	90
20. When c and h are next to each other, they make only one sound.	103 (peach)	0	100
21. Ch is usually pronounced as it is in kitchen, catch, and chair, not like sh.	99 (catch)	5 (machine)	95
22. When c is followed by e or i, the sound of s is likely to be heard.	66 (cent)	3 (ocean)	96
23. When the letter o is followed by o or a the sound of k is likely to be heard.	143 (camp)	0	100
24. The letter g often has a sound similar to that of j in jump when it precedes the letter i or e.	49 (engine)	28 (give)	64
25. When ght is seen in a word, gh is silent.	30 (fight)	0	100

Generalization	No. of Words Conforming	No. of Exceptions	Per Cent of Utility
26. When a word begins kn, the k is silent.	10 (knife)	0	100
27. When a word begins with wr, the w is silent.	8 (write)	0	100
28. When two of the same consonants are side by side only one is heard.	334 (carry)	3 (suggest)	99
29. When a word ends in ck, it has the same last sound as in look.	46 (brick)	0	100
30. In most two syllable words, the first syllable is accented.	828 (famous)	143 (polite)	85
31. If a, in, re, ex, de, or be is the first syllable in a word, it is usually unaccented.	86 (belong)	13 (insect)	87
32. In most two syllable words that end in a consonant followed by y, the first syllable is accented and the last is unaccented.	101 (baby)	4 (supply)	96
33. One vowel letter in an accented syllable has its short sound.	547 (city)	356 (lady)	61
34. When y or ey is seen in the last syllable that is not accented, the long sound of e is heard.	0	157 (baby)	0
35. When ture is the final syllable in a word, it is unaccented.	4 (picture)	0	100

Generalization	No. of Words Conforming	No. of Exceptions	Per Cent of Utility
36. When tion is the final syllable in a word, it is unaccented.	5 (station)	0	100
37. In many two and three syllable words, the final e lengthens the vowel in the last syllable.	52 (invite)	62 (gasoline)	46
38. If the first vowel sound in a word is followed by two consonants, the first syllable usually ends with the first of the two consonants.	404 (bullet)	159 (singer)	72
39. If the first vowel in a word is followed by a single consonant, that consonant usually begins the second syllable.	190 (over)	237 (oven)	44
40. If the last syllable of a word ends in le, the consonant preceding the le usually begins the last syllable.	62 (tumble)	2 (buckle)	97
41. When the first vowel element in a word is followed by th, ch, or sh, these symbols are not broken when the word is divided into syllables and may go with either the first or second syllable.	30 (dishes)	0	100
42. In a word of more than one syllable, the letter v usually goes with the preceding vowel to form a syllable.	53 (cover)	20 (clover)	73

Generalization	No. of Words Conforming	No. of Exceptions	Per Cent of Utility
43. When a word has only one vowel letter, the vowel sound is likely to be short.	433 (hid)	322 (kind)	57
44. When there is one e in a word that ends in a consonant, the e usually has a short sound.	85 (leg)	27 (blew)	76
45. When the last syllable is the sound r, it is unaccented.	188 (butter)	9 (appear)	95

Reprint from: The Reading Teacher; January 16, (4)

Consonant Sounds

b...buh, as sound b, in boy

c...sometimes has a sound similar to k as c in cat

d...duh, as sound d, in doll

f...fuh, as sound f, in fall

g...guh, as sound of g, in go. Sometimes has a sound similar to j, as the g in gentle.

h...huh, as sound h, in hot

j...juh, as sound j, in jam

k...kuh, as sound k, in kind

l...luh, as sound l, in lake

p...puh, as sound p, in puzzle

q...kwuh, as sound q, in quick

r...ruh, as sound r, in rush

s...suh, as sound s, in sun

t...tuh, as sound t, in touch

v...vuh, as sound v, in vase

w...wuh, as sound w, in wind.

y...yuh, as sound y, in yes See the vowel study to learn about y sometimes sounding like a vowel.

x...it is not important for beginners to study x because in our language it may have 6 different sounds, usually used in more difficult words.

m...muh, as sound m, in mother

n...nuh, as sound n, in nut

z...zuh, as sound z, in zebra

Phonology: Development of a Class of Sounds

Age in months	Stage	Appropriate Equipment	Alternate
0	Vowels: i, I, u, v Consonants: h, k		Reinforce vocalization
1	Consonants appear related to state of comfort or discomfort.		
2	Consonants: --, h, k, g Cooing: Glottal-velar consonant primarily Cattell, babbles or coos		
3	Vocalization meager: "mews-mews" Small throaty noises, primarily vowel-like. Vowels: e, i, --		
4	Frequency in this order: h, -, g, k, c, d Development to this point excludes environmental factor.		
5	Sounds more varied: some vowels dropped and new vowels added; overall articulation more distinct; consonants: k, g, t, d, p, b, h, -, f, v.		
6	Baby develops sounds by initating himself--not adults; at end of 6 months can produce most of vowels and half of consonants; vowel sounds produced more than consonants. Babbling begins (self-initiated sound play).		

Phonology: Development of a Class of Sounds

Age in months	Stage	Appropriate Equipment	Alternate
9	Imitates sounds (Cattell)		
10	One or two "words" in vocabulary (no semantic content). Echolalia continues. Uses more consonants: h,d,b,m, and g.		
11	Speaking vocabulary is one word other than "ma-ma" or "da-da" to designate an object or situation. Imitates syllables and words.		
12	Child practices phonemes of language of his community--the repetition of heard sounds (lalling). Chance sounds which seem to have meaning are reinforced by social responses to them. Repeats words under stress of repetition and imitation. Infant attends and discriminates speech of persons in environment. Begins to imitate speech of others and continues imitating his own.		
12-13	Can often say "bye-bye". Tries to get attention by squealing, making noises. Echolalia continues. If some of his actions laughed at, is likely to repeat. Speaking vocabulary is two		

Phonology: Development of a Class of Sounds

Age in months	Stage	Appropriate Equipment	Alternate
12-13 Continued	words other than "ma-ma" or "da-da" to designate definite object or situation.		
14	Three words other than "ma-ma" or "da-da". Tries to sing.		
15	Uses expressive jargon. Indicates wants by vocalizing and pointing. Speaks 4 to 7 words clearly.		
16	Five words other than "ma-ma" or "da-da". Consonants: h, d, b, m, g, w, t, n.		
18	May be a period of decreased babbling or complete silence before transition to meaningful word usage (some babble into linguistic stage).		
21	Fluent jargon to peak. Vocalization increases in variety. Talking is in form of play. Inflections are conversational in nature. Begins to hum and sing. Abandoning baby talk. "Thank you" instead of "ta-ta", etc. Consonants: h, d, b, w, m, n, g, t, s.		
22	Consonants: D, b, h, m, t, s, k, w, g, p.		

Phonology: Development of a Class of Sounds

Age in months	Stage	Appropriate Equipment	Alternate
24	Speech process may temporarily slow at onset of walking. Consonant productions nearly equal vowel sounds. Consonants used primarily in initial and medial positions. Consonants: d, h, n, b, m, t, s, w, k, p. Increase accuracy of articulation. Average child usually has four front upper and lower teeth. Dental and postdental sounds learned: o, t, d, n. Greater muscle control of tongue and lips. Discovers words are useful. Child usually acquires 10-20 words which can use meaningful including nouns, verbs and some adjectives and adverbs. Period of jargon where child strings various sounds together or develops words that may have meaning for him but no one else. Imitates words used by adults perfectly even to intonation and inflection without knowledge of meaning.		
30	Repeats syllables--two words.		
36	Four to seven year old children have difficulties with phonology in adding plural suffix 's' to words ending in 's' such as "class".		

Age in months	Stage	Appropriate Equipment	Alternate
36 Continued	Greater growth in vocabulary within a shorter period of time than in any other period of life. 57% of sounds are produced correctly. l, s, r, and z are most often mispronounced; has acquired lip sounds of p, b, and m. Able to use all vowel sounds and 2/3 of consonarts. Lauds are last sounds to be developed. Fairly intelligible speech. Substitution, ommission, and distortion of many phonemes inconsistent, varying with position in word and context. Final consonants appear more regularly than at 30 months. Speech melody develops rapidly although easy repetitions are present. Voice usually well controlled.		
42	Phonemic gains. All English vowels and following consonants are used: /m/, /-m-/, /-m/, /-m/,; /n-/, /-n-/, /-n/, /-n-/; /t-/; /k-/; /p-/, /-p-/; /b-/, /-b-/; /f-/, /-f-/; /h-/; /w-/, /-w-/. Articulation still characterized by omission of many medial		

Age in months	Stage	Appropriate Equipment	Alternate
42 Continued	consonantal phonemes and syllables; Does not remember unstressed bits. Speech melody. Blocking on initial syllables frequently interrupts rhythm. Rates of speech increased. Many responses in loud voice or yell.		
48	77% of sounds are produced correctly; Speech may be infantile but usually understood even by those outside the family; Developed dentals and gutturals - t, d, n, k, g, and ng; Can repeat a sentence of 6 syllables. Knows a few simple rhymes; sings phrases of songs. Speech forthright, not likely to carry on long conversations. Plurals are usually learned by age 3 but there are large i individual differences. Phonemic Development. 98% of speech intelligible. Articulatory omissions and substitutions sharply reduced. Speech melody (prosody). Vocal pitch controlled. Uses some adult patterns of rhythm.		

Age in months	Stages	Appropriate Equipment	Alternate
48 Continued	Repetition reduced, thus improving rhythm. Some blocking and associated overt mannerisms may continue.		
54	Phonemic Gains. Appearance or stabilization of phonemes: /s-/, /-s-/; /f-/, /-f-/, /-f/; /tr-/; /kr-/; /-tf-/, /-tf/. Phonemes /l/, /r/, /s/, /e/ not stabilized in any position. Reverse order of sounds within word occasionally: reflects lack of memory for bits. Speech melody. Frequently disturbs basic melody by beginning sentence with (m) or ( ). Voice well modulated and usually keeps on intonational and rhythmic patterns of mother.		
60	Phonemic Gains. Articulation generally intelligible but phonemes /f/, /v/, /l/, and /s/ are not stabilized in all positions or in all contexts. The labidentals, f and v; Repeats sentence of 10 syllables. Talks without infantile articulation.		
66	Intelligibility of speech: 89% - 100%.		
70	88% of sounds are produced correctly; Improvement shown in mastery of		

Phonology: Class of Sounds

Age in months	Stage	Appropriate Equipment	Alternate
70/ Continued	consonants and consonant blends. Consistency in inaccuracy of production of same sounds becomes greater as child gets older.		
72	Sounds made by complicated tongue and lip movements, l, r, ah, and ch.		
72-84	Phonemic proficiency established in /l-/, /-l/, (-l-); /-t-/; /-r/, /-r-/; (θ -/; /j-/. Sentence melody imitative of adults in environment. Child experiments with rhythmic patterns. Facial expression accompanying speech changes with rhythm; More varied patterns of expression.		
84	Other complicated lip and tongue sounds, s, z, sh; blends st, sl, p.		
84-96	Ponemic proficiency established in /-z-/; /-st/; /-lz/; /-tr/; /-kt/. Speech melody subtle rhythms and intonational contours present. Facial & hand gestures underscore speech rhythms.		

Intonation

The second aspect of the sound system is intonation or pitch. A common example of differences in intonation is the difference between a question " the time is now?" and the statement "the time is now." Pitch varies in the sexes in that young children and women tend to have a treble pitch to their voices whereas men have bass voices which are usually an octave apart. The importance in speech and vocal music expression is the contrast within a person's sound system and not his general sound level. One can usually determine whether a person on the other end of a telephone is a man, woman, or child by his general pitch level. It is the contrast within that level that enables us to determine meaning. It also becomes a part of a person's total self in the way others view him, e.g., he's a monotone is somethimes connotated with he is boring to listen to versus she has a musical voice is that the individual uses a large amount of contrast in pitch and therefore her voice takes on pleasing characteristics to the ear.

Phonology: Intonation

Age in months	Stage	Appropriate Equipment	Appropriate Strategies
12	Begins to imitate speech of others and continue imitating his own.		
12-13	Squealing making noises.		
14	Three words other than "ma-ma" or "da-da". Tries to sing.		
15	Uses expressive jargon. Indicates wants by vocalizing and pointing. Speaks 4 to 7 words clearly.		
21	Begins to hum and sing. Inflections are conversational nature.		
24	Jargon may have disappeared sing-song which often made jargon musical. Imitates words used by adults perfectly even intonation and inflection without knowledge of meaning.		

Phonology: Intonation, cont'd.

Age in months	Stage	Appropriate Equipment	Appropriate Strategies
36	Speech melody develops rapidly although easy repetitions are present. Voice usually well controlled.		
42	Speech melody. Blocking on initial syllables frequently interrupts rhythm. Rate of speech increased. Many responses in loud voice or yell.		See song strategy
48	Sings phrases of songs; knows of few simple rhymes. Speech melody (prosody). Vocal pitch controlled. Uses some adult patterns of rhythm. Repetition reduced, thus improving rhythm.		
54	Speech melody. Frequently disturbs basic melody by beginning sentence with (m) or ( ). Voice well modulated and usually keeps on intonational and rhythmic patterns of mother.		
72-84	Child experiments with rhythmic patterns. Facial expression accompanying speech changes with rhythm. More varied patterns of expression.		
84-96	Speech melody subtle rhythms and intonational contours present. Facial and hand gestures underscore.		

Stress of Sounds

Stress is the third major aspect of the English phonological system. It means that some syllables or words are emphasized more than others. In some of our words certain syllables are accented or stressed. Also, there are some cases when nouns and verbs are distinguished by a change of stress as in export. Also, we can vary the stress in a sentence to produce different meanings. The words that receive stress tend to be nouns, verbs, adjectives, and adverbs.

An additional element of the phonological system that linguists refer to as paralanguage has to do with the meaning associated with voice quality. For example the whisper may convey the idea of secrecy whereas a loud shrill voice could be associated with excitement or anger.

Phonology: Stress of Sounds

Age in months	Stage	Appropriate Equipment	Alternative
1-5	The average child's speech development can be predicted with a fair degree of accuracy, without too much concern for differences in environment up to this point.		
6	Coos to music. Vocalizes to mirror image.		
7	Crows and squeals. Babbling shows inflections Similar to adult speech. Shouts for attention.		
8	Vocalizes recognition. Vocalizes in interjectionnal manner.		

PHONOLOGY DEVELOPMENTAL OUTCOMES

1. To be able to make sounds like those made by an adult model.

2. To develop clear articulation and the ability to express 44 identified phonemes in standard American English (see diagram on following pages).

3. To learn the sounds of the letters of the alphabet.

4. To learn the position of sounds--beginning, middle, and ending.

5. To be able to produce the range of sounds--high-low, loud-soft.

RELATED LEARNER OUTCOMES

1. To learn the names of letters of the alphabet.

2. To be able to associate graphic symbols of language with their letter names and sounds.

3. To identify the correct order of letters of the alphabet.

Phonology is the sound syscem of a language. In many ways it is the most concrete aspect of language, yet its developmental sequence is poorly understood.

Class of Sounds

Phonology of the English language has three aspects. The first of these if the 44 phonemes. These phonemes represent that class of sounds that make up the English language. It is the phoneme element of language which decides which sounds are the same and which are different. Phonemes include vowels, dipthongs and consonants. These are the smallest units of speech that serve to distinguish one utterance from another in a language or dialect. The phoneme then is the smallest indiversible phonetic unit affecting meaning and thus characteristic of humas speech as distinguished from other sounds. Its introduction as a unit of analysis of language has benefited developmental phychologists as well as linguistics (Vygotsky, 1967). It has enabled psychologists to conduct crosscultural research that demonstrates the innate capacity for language as well as mental sequence in language acquisition of children of different languages.

The 44 phonemes are really families of sounds called allophones. This means there are several sounds that are used in a specific context. Dale (1972) gives the example of the three (k)'s: the unaspirated (k) in skit, which always comes after s; the front aspirated (k) in key, which comes before front vowels; and the back aspirated (k) in caw, which comes before back vowels. These different context of (k) are considered to be allophones of (k). An allophone then is a variant of a phoneme in a specific context.

Intonation

The second aspect of the sound system is in tonation or pitch. A common example in differences in tonation is the difference between a question "the time is now?" and "the time is now." Pitch varies in the sexes in that young children and women tend to have a treble pitch to their voices whereas men have bass voices which are usually an octave apart. The importance in speech and music vocal expression is the contrast within a person's sound system and not his general sound level. One can usually determine whether a person on the other end of a telephone is a man, woman, or child by his general pitch level. It is the contrast within that level that enables us to determine meaning. It also becomes a part of a persons total self in the way others view him, e.g., he's a monotone is sometimes connotated with he is boring to listen to versus she has a musical voice is that the individual uses a large amount of contrast in pitch and therefore her voice takes on pleasing characteristics to the ear.

Intonation (speech and singing) is only one aspect of expression in music. Music is also found in rhythms, body movement, and playing of instruments.

Music readiness deals with rhythm and melody. The two component parts of music which man is endowed with at birth. It is concerned with the building of a strong and rich background (actual experience) in rhythmic articulation through movement, through singing and playing of instruments in an ensemble from the first day of school.

If young children are provided with a rich musical background, they will develop an appreciation for the pattern and variation produced by rhythm, melody, and instruments, which is the very essence of music. Whether they turn out to prefer classical or jazz music is really immaterial and certainly beyond the teacher's powers to control.

There are 3 aspects to the music for the preschool child. Small children apply very different standards to music they will listen to and the music they make. The only common factor is a pronounced and simple rhythm. Once children reach the age of seven, they are ready for the limited formality of a percussion band as a group activity and piano lessons individually. Before that age, musical experience depends largely on what is provided for by adults.

Music in early childhood is concerned with music to listen to (appreciation), music to make (rhythm instruments and singing), and music to use (movement).

In phonology the area of music focused upon is music to recite through speech and singing.

Whether they have musical talent or not, little children like to sing. The baby engages in this form of self-expression when he introduces fhythm into his babbling. It gives him great pleasure, and he laughs heartily at himself. Children give a bodily response to music while they are still in the crib. Later, they spontaneously walk, hop, and clap to the accompaniment of music. By the age of four or five years, most children can sing simple melodies, can beat good rhythm, and can recognize simple tunes. (Jersild, 1960). When a child does not know all the words of a song he will supply his own.

There is nothing more constant in the life of the young child than sound and movement, consequently music is more integrated in life in the early years (Nelson, 1955). Dramatic differences in singing ability are evident in the 2 to 6 year old child. These differences are due to two factors in child development. The quantitative (the amount of musicality which is inherited); and the stage of maturation in music (the speed of maturing which differs in individuals).

The chant is one of the most universal expressions of singing in early childhood. Children's early chants vary from the unfettred and rhythmically free, like a plainsong to a more rhythmic ritual chant where the voice clings to one note which weaves a limited melodic pattern.

Phonology outcomes relating to music are as follows:

Distinguish between singing and the speaking voice,
Match tones,
Imitate simple tonal and rhythmic patterns,
Sing simple--meaningful songs, and
Sing expressively to demonstrate how the music makes one feel.

Since music in the young children is more often "caught" than "taught" music should be available for the child at any moment in the preschool environment. The room begins to get noisy, especially at rest-time, try using some music as the child enjoys hearing something different. Also, for a teacher, it is wise for he/she to become a "Pied Piper" by involving their class to participate by using drums, tom-toms, cymbles, dinner gagg, harp, psaltery, and triangle. For teachers not having access to these items, try using cups, metal pots or pans to produce rhythm. The record player should always be available to the child to select favorite records. This promotes much singing. Rhythmic dancing can contribute to a child's experience for here the child establishes movements for good motor skill development. For instant success with the use of folk songs such as Michael Row the Boat Ashore, If I Had a Hammer, He's Got the Whole World in His Hand, Rock-A-My-Soul, Deep and Wide, This Old Man and others of this nature. Children also readily pick up songs like The Giant Purple People Eater and television/radio advertizements.

Stress of Sounds

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An additional element of the phonological system that linguists refer to as paralanguage has to do with the meaning associated with voice quality. For example the whisper may convey the idea of secrecy whereas a loud shrill voice could be associated with excitement or anger.

RELEVANCY OF RELATED PHONOLOGY OUTCOMES

There are several skills that develop later in childhood that require as their base the phonology developmental outcomes. These are skills that are more directly related to reading readiness and visual perception. More specifically they include: recognizing the names of the letters of the alphabet; phonetic analysis which is the ability to associate the sound with the letter symbol; and identification of the correct order of letters of the alphabet.

There word-attack skills are important as they enable the child to decode a word by sounds and recognize it as one he has heard used before. If he at least tries to pronounce the word he will be showing his knowledge of phonics. Certainly a functional knowledge of phonics contributes to achievement in the reading process and is often the difference between good and poor readers.

Phonetic Analysis

The ability to associate sounds with letter symbols gives the child a vital clue to word identification and approximate pronunciation. After he has acquired a small stock of sight words, his ability to learn and use these sound-letter associations depends upon his skill in recognizing similarities and differences in letter sounds as well as in visual symbols and in making the correct associations between the two.

A knowledge of letter sound association is used to unlock unfamiliar words. Research studies indicate that phonic instruction is particularly valuable to 7 year olds, a group which includes most of our second graders. The learning facilitator is aware, however, that she may have a few children for whom this is not true. Some children seem to have a built in phonic sense and are able to pronounce using phonic clues in conjunction with contextual and structural phonic clues to identify unfamiliar words. These differences should be recognized so that those children who do not respond to phonetic instruction and tend to use other word attack skills be discontinued in instruction that does not match their learning style.

By the end of second grade those children with a phonic sense should have the ability to associate specific sounds with most initial and consonants, many consonant blends which include st, sl, sp, sm, sn, br, fr, gr, pr, tr, bl, cl, fl, and the diagraphs of ch, wh, th, and sh. They should also know short and long vowel sounds.

Recognizing the Letters of the Alphabet by Name

The child needs to know the names of letters of the alphabet for several skills. In phonology it is important as the child need to know the letter names in order to follow the teacher's instruction in the

sounds the letters represent. However, except for the long vowel sound which is the same as the vowel name, knowing the name of a letter will not, by itself, help a child to know what sound the letter represents, i.e., a in at, fate, far, all; c in city, cut, etc.

Alphabetizing becomes important as the child is able to identify beginning sounds of words and seeks a source to find its exact spelling. This skill becomes necessary usually about age 6 and 7 when the child is writing language experience stories. Many things in our environment are ordered in alphabetical order such as dictionaries, phone books, directories, ads in newspapers, etc.

PHYSIOLOGICAL ASPECTS OF PHONOLOGY

Speech is the oral expression of language, beginning with the birth cry and continuing through many stages of development before it becomes a useful communication tool. Man has no anatomical or physiological structure used solely for the purpose of speech. In order to speak, we use parts of our bodies intended to serve more basic functions. The lungs, designed to maintain life by providing the body with oxygen, also provide the air necessary for speech. The glottis, originally intended as a passage which can supply the body with food is also used for phonation. The teeth and tongue, used initially for chewing food and forcing it down the gullet, are also the articulators of speech sounds.

Spectographic studies of sound during the first few months of infancy indicate that vocal behavior is very unstable. The speech organs are employed in breathing, eating, crying or gurgling.

The initial crying phase centers around the child's need to develop the necessary organs for speech. Once this phase has begun, the infant's crying takes on new dimensions. Pain, hunger, heat, cold, light, soiled diapers, all serve as stimuli to the child and will bring about the disclosure of discomfort through squalling. Some mothers contend that they can tell the difference in their child's howling after the first month. While there is no available data on this subject, it cannot be entirely discounted. Squalling is beneficial to the child's sound system as it allows him to strengthen and develop his vocal cords.

The cortex is immature and the speech-like sounds which do occur show extreme fluctuations and defy analysis by the ordinary phonetic classifications applicable to speech under more stable cortical control (Lynip, 1951; Lenneberg, 1966). However, during this time the American child may pronounce velar aspirants, voiceless nasals, or retroflex sibilants. During the early stages, a (velar)/r is quite common.

Physiology of Speech

To remember the complexity of that skill called speech will aid in understanding why the retarded child has trouble. If one of the body parts used in speech is defective in a child, it not only affects his physical well-being; but may affect his speech. The cleft palate is an obvious example, but there are often times structural anomalies in the retarded child that may hinder.

These are the body parts that produce speech:

1. Lungs
2. Ribs and muscles surrounding lungs
3. Muscles of the abdomen
4. Diaphragm
5. Vocal folds, surrounding cartilage, muscles
6. Trachea
7. Sinus cavities and all other cavities which provide resonance

Articulation;

1. Lips
2. Tongue, front, middle and back
3. Velum
4. Hard Palate
5. Soft Palate
6. Teeth
7. Upper and lower jaws and muscles
   (Remember that muscle coordination is of prime importance and that it follows the sequence of gross to fine movement.)

Hearing;

1. Outer ear
2. Ear drum
3. Middle ear--ossicles, eustachian tube
4. Inner ear--8th cranial nerve to brain; semicircular canals for balance.

Implications to the classroom teacher:

Each child should be anotomically sound ideally. It is partially your responsibility to maintain physical well-being, such as trips to the nurse for colds, ear aches, tooth aches, and also health instruction. You can correlate units on health or discussions during opening exercises to put across the ideas that care of the body, mouth and ears are important.

Physical education that centers around muscle control, coordination and activities using singing or speaking along with music or large muscle activity are excellent.

DEVELOPMENTAL DISCREPANCIES IN PHONOLOGY

Following are types of developmental discrepancies in children's speech.

Functional articulation

Seventy to eighty per cent of speech disorders are of this type:

1. A sound is habitually omitted. Example: saying "sool" for "school".

2. One sound substituted for another. Example: "tat" for "cat", "wook" for "look".

3. A sound is added or inserted. Example: "stee" for "see".

4. A sound may be distorted, such as breath emitted at sides of the tongue for sibilant sounds (later s, sh, ch).

Stuttering

When a young child is learning to put his thoughts into words, he hesitates and often repeats. This is a normal phase in the development of speech; it is not stuttering. If, however, this hesitation and repetition continues and the rhythm of his speech is interrupted by blocks or hesitations of sounds (as in ca-a-a-at) he should be referred to the speech therapist for examination. This referral is made through the principal of the school.

Delayed Speech

Although most children are using simple sentences by the age of three, the speech of some is slow in developing. A child may enter kindergarten or first grade with speech that is either absent, infantile, or markedly immature for his age.

Organic Speech Disorders

Some defentive articulation or voice problems are caused mainly by structural defects of the speech mechanism or by brain damage. Following are some types of organic disorders.

1. Cleft palate or lip--an opening in the roof of the mouth or split of the lip.

2. Tongue-tie--the mucous membrane under the tongue restricts movement of the tongue out or up.

3. Stoppage of nose or throat, such as enlarged tonsils or adenoids.

4. Malocclusion of teeth--irregular spacing, faulty alignment of jaw.

5. Cerebral palsy--manifestations of damage to motor areas of brain.

6. Hearing deficiencies.

SOCIOLOGICAL ASPECTS OF PHONOLOGY

Speech is a learned process--we are not born with either the desire or the need to speak. At birth, an infant is capable of making any given sound that can be produced. He has no cultural, hereditary, or geographical background on which to base his choice of sounds. Only through environmental factors will the child's vocal system be channeled, structured, and conditioned. We learn to speak only because those around us use this method of communication; if we had been born to a culture where sounds or vocal noises were sufficient for communication, we would not have developed verbal language. Jakobson (1941) identifies the factors in the speech situation to be the sender, the receiver, the topic of reference, the code, and the message. All are involved in every communication, but focus on one or another may dominate. Jakobson's classification system of speech functions keeps a full set of relevant dimensions in mind and can subsume Piaget's familiar but more limited distinction between "egocentric" and "socialized" speech. Like all types of learned behavior, speech development depends upon the maturation of the individual.

Maturation determines when behavior can be learned, for maturation establishes certain periods of life when the organism has established a so called readiness to learn a given activity. During the last 2 or 3 decades our level of aspiration for speech development and other areas of learned behavior has gone up. When contrasted with children of the 1940's and '50's children today must learn to communicate very early and in a much more complex level, often because of an emphasis placed upon the need for effective speech as a social tool.

Most of the English sound system, the 44 phonemes, is learned during the first three years. However, children in kindergarten or in the first grade often have a sound or two which they cannot yet produce correctly, although they do recognize the difference. Tischler (1967) in a study of 17 children from contrasted social situations noted that there was a gradual increase in the frequency of vocalization in the early months of life. During this period the acquisition of increasing control over volume, pitch, and articulatory position and type occurs. It reaches its peak at 8 or 10 months of age, then declines. Between the eighth and the twelfth month, almost all conceivable sounds occur, including some not in the adult language.

The development of a child is considered normal or abnormal depending upon his chronological age and the maturation level of the particular language function being evaluated. The significance of delayed speech in language development, therefore, changes with time.

Speech does not develop as an isolated skill, but is dependent on the development of sensory abilities of seeing and hearing, and cognitive functions.

There are wide variations in development--it is probably safe to say that no child will develop motor skills, mental abilities, emotional stability, social competence, or speech and language at times suggested as "average" in all of these areas of abilities.

A chronological sequence of infant speech structural patterns enables one to observe the phenomena of transformation of phonetic variants into phonemes, the treatment of loan-words, the appearance of hypernomalisms, and the survival of forms which have remained exempt from change (Velten, 1943).

By approximately age seven the child's rate of phonetic errors is similar to adults. If errors are in excess, the child is in need of speech therapy.

When a baby starts to babble, for example, he acquires front vowels and back consonants first, and back vowels and front consonants last. But when he learns to speak, the reverse is true. In speech, vowels come in from back to front, starting with /a/, and consonants from the front to back, starting with /p/. The baby completes his vocabulary of phonemes by filling in the space between the two.

When the child is about a year old, he begins learning his language. There is no overt evidence of his learning the grammar during this initial period since most of the first utterances are one language: (a) phonology or the sound system and (b) words or vacabulary items. Phonology and vocabulary items are learned largely independent of each other. The child does not learn individual sounds. Instead, he learns phonological contrasts, beginning with that between consonant and vowel. The consonant is usually a stop and usually a front consonant such as /p/. The vowel is usually a low vowel such as /a/. Next, he may contrast front and back consonants, such as labial versus dental, to give him the two consonants (/p/ and /f/) and two dentals (/t/ and /s/). Next he may learn to contrast voiced and voiceless consonants, yeilding four voiced consonants (/b/, /y/, /d/, /z/) that contrast with their voiceless counterparts (/p/, /f/, /t/, /s/). The same process is to be observed with the vowels. With a relatively small number of contrasts, the child is able to learn the larger number of sounds in his language. By three and a half or four years of age, the normal child has learned all or almost all of the phonological system. Though he still makes occasional mistakes, these represent mistakes within his own linguistic

system, not things that he has not yet learned. By seven or eight, mistakes are about as common as in adult speech. If they are more frequent, the child is in need of speech therapy (Miller, 19).

Since the child is learning contrasts not sounds belonging to individual vocabulary items, a newly learned contrast will be applied to all vocabulary items, both old and new, for which that contrast is appropriate. The child learns features that cannot be directly initated. The child imitates and practices many of his own contrasts that he does not imitate from an adult. Imitation is important but the basic learning process in the phonological system is the contrast. The child's phonological system is not a static system. Today's substitution rules are not tomorrow's rules, and yesterday's rules are still to be found in some words today.

By the fourth year, the child's phonological system closely approximates the model. The remaining deviations are usually corrected by the time the child enters school.

Occasionally, earlier substitution patterns persist, and the child is usually described as having problesm with speech. Applegate (1961) describes the rules of substitution for such a child.

A landmark in modern research was Velton's (1943) application of Jakobson's (194) theory of phonetic development. This theory proposed that changes in each child's linguistic system followed an orderly sequency of increasing differentiation of significant features; thus it related language development to perceptual development and provided a theoretical framework which made comparison of children in different linguistic environments.

Thus, despite the limited amount of research with small samples, there are some generalizations that can be cautiously made. One is that the vowel-consonant contrast, is one of the earliest, if not the earliest, contrast for all the children, secondly a stop-continuant contrast is quite early for all children. The continuant is either a fricative, e.g., (/f/), or a nasal, e.e., (/m/). Third, when two consonants, differing in place of articulation but identical in manner of articulation exist, the contrast is labial versus dental, e.g., /p/ vs. /t/, /m/, vs. /n/. Contrasts in place of articulation precede voicing contrasts. Affricated (ch,j) and liquids (l,r) do not appear in the early systems. In the vowels, a contrast between low and high, e.g., /a/ and /i/, precedes front versus back, e.g., /i/ and /u/. Consonant clusters such as /st/ and /tr/ are late. In regard to contrasts at different positions within the word, certain tendencies are observed. Children normally acquire initial consonants before final or middle consonants, as consonant contrasts often apply to initial position before other positions. On the basis of evidence from research on convergent versus divergent habits, this order is what we would expect. Templin's report (1953) or articulation problems in children three years and older supports these positional generalizations as well as generalizations about order of appearance of contrasts.

The following are norms compiled by Mildred Templin by means of a screening test of articulation. These norms are for 90% of the population.

Age	Consonant	Double Blends	Triple Blends	Vowels	Diphthongs
3	65.0	44.0	30.9	93.3	94.0
3.5	72.9	58.7	49.1	95.0	98.0
4	80.8	69.3	60.6	95.8	98.0
4.5	83.3	70.8	61.7	95.8	98.0
5	84.7	76.5	69.1	96.7	100.0
6	93.1	87.0	82.9	99.2	100.0
7	97.8	96.0	94.9	100.0	100.0
8	100.0	100.0	100.0	100.0	100.0

90% of population

75% correct in all subjects

CA — SOUND ELEMENTS

3 Vowels: e i e a o u oo oo c a ur

Dipthongs: u a i ou oi

Consonants: m-, -m-, -m, m-, -m, -ng-, -ng, p-, -p-, -p, t-, -t, k-, -k-, b-, -b-, d-, -d-, g-, -g-, f-, -f-, -f, h-, -h-, w-, -w-.

Double blends: -ngk

3-5 Consonants: -s-, -z-, y-, -y-

Double blends: -rk, -ks, -mp, -pt, -rm, -mr, -nr, -pr-, -kr, -br, -dr, -gr, -sm

4 Consonants: -k, -b, -d, -g, s-, sh-, -sh, -v-, j-, r-, -r-, l-, -l-

Double blends: dr-, gl-, sk-, sm-, sn-, sp-, st-, -lp, -rt, -ft, -lt, -fr

Triple blends: -mpt, -mps

4.5	Consonants: -s, -sh-, ch-, -ch-, -ch
	Double blends: gr-, fr-, -lf
5	Consonants: -j-
	Double blends: fl-, -rp, -lb, -rd, -rf, -rn, -shr
	Triple blends: str-, -mbr
6	Consonants: -t-, th-, -th-, -th, v-, -v-, -l
	Double blends: -lk, -rb, -rg, -rth, -nt, -nd, -thr, -pl, -kl, -bl, -gl, -fl, -sl
	Triple blends: skw-, -str, -rst, -ngkl, -nggl, -rj, -ntth, -rch
7	Consonants: th, -th, z-, -z, -zh-, -zh, -j
	Double blends: thr-, shr-, sl-, sw-, -lz, -zm, -lth, -sh, st
	Triple blends: skr-, spl-, spr-, -skr, -kst, -jd
8	Double blends: -kt, -tr, -sp

Templin (1953)

The Standard American Phonetic Alphabet

VOWELS

Symbol	Spelling	Spoken Form	
i	bee	bi	
I	pity	'pItI	
e	rate	ret	
	yet	j t	
ae	sang	saen	
a	bath	ba0	---------(as heard in the East, (between ae (sang) (and (ah)
	ah		
	far	f r	

Symbol	Spelling	Spoken Form
	watch	w t between (ah) and (jaw)
	jaw	d3
	george	g rd3
o	go	go
U	full	fUl
u	tooth	tuO
3	further	'f3 accented syllable) only, r's sounded)
3	further	'fe accented syllable) only, r's silent)
	further	'f unaccented syllable) only, r's sounded)
	further	'f3 unaccented syllable) only, r's silent)
	custom above	'k st m 'b v unaccented syllable
	custom above	'k st m 'b v accented syllable

DIPHTHONGS

Symbol	Spelling	Spoken Form
aI	while	hwaIl
aU	how	haU
I	toy	tI
ju	using	'juzi
	fuse	fjuz
Iu	fuse	fIuz

CONSONANTS

Symbol	Spelling	Spoken Form
w	watch	w t
hw	while	whaIl
j	yet	j t
r	rate	ret
	very	'v rI
	far	f r
	gorge	g rd3

A Pronouncing Dictionary of American English, Kenyon & Knott, 1953

CONSONANTS

Symbol	Spelling	Spoken Form
p	pity	'pItI
b	bee	bi
t	tooth	tuO
	dish	dI
k	custom	'k st m
g	go	go
f	full	fUl
v	vision	'vI3 n
O	tooth	tuO
	further	'f3
s	sang	sae
z	using	'juzI
	dish	dI
	vision	'vI3 n
h	how	haU
	watch	w t
	chest	t st
d3	jaw	d3
	edge	d3
m	custom	'k st m
n	vision	'vI3 n
	sang	sae
	angry	'ae grI
l	full	fUl
	cradle	'kred
	apple	

CHART OF CONSONANT SPEECH SOUND DEVELOPMENT

	Sound	B	M	E	Sound	B	M	E	
	p	pie	apple	cup	f	face	befo e	off	AGE 5 1/2
	b	boy	table	tub	v	vine	river	five	
AGE 3 1/2	m	milk	hammer	home	th	that	father	with	
	w	wet	away		sh	shoe	ocean	fish	AGE 6 1/2
	h	hand	behave		ch	chin	teacher	match	
	d	dog	radio	bed	j	joke	pigeon	orange	
	t	tie	butter	cat	l	lip	held	ball	
	n	nose	funny	gun	s	soup	inside	ice	
AGE 4 1/2	ng		finger	ring	z	zipper	easy	ears	AGE 7 1/2
	g	green	tiger	egg	r	red	carry	car	
	k	key	nickel	book	th	thumb	bathtub	teeth	
	y	yes	onion						

Poole (1934)

III To learn the sounds of the letters of the alphabet (consonants)

CHECKLIST		FALL	MIDYEAR	SPRING
Consonant Letters Variations and blends omitted				
Bd	/b/			
Dd	/d/			
Gg	/g/			
Pp	/p/			
Tt	/t/			
Cc	/k/			
Qq	/kw/			
Hh	/h/			
Vv	/V/			
Ss	/s/			
Ff	/f/			
Zz	/z/			
Mm	/m/			
Nn	/n/			
Jj	/j/			
Ll	/l/			
Rr	/r/			
Yy	/y/			
Ww	/w/			
Zz	/z/			
Tt	/t/			

Comments: Note additional phoneme-grapheme correspondences child is able to perceive

Vowels		FALL	MIDYEAR	SPRING
	i.e.			
/ey/	(bait)			
/ir/	(beet)			
/ay/	(bite)			
/ow/	(boat)			
/uw/	(moon)			
/aw/	(cow)			
/ Y/	(boy)			
/a /	(cat)			
/e/	(pet)			
/i/	(pin)			
/a/	(hot)			
/ /	(nut)			
/u/	(put)			
/ /	(saw)			
/ r/	(fur)			
/ar/	(car)			
/ r/	(corn)			
/yuw/	(use)			
/y n/	(million)			

IV To learn the position of sounds (consonant) beginning, middle, end.

Consonants		FALL	MIDYEAR	SPRING
Bb	/b/			
Dd	/d/			
Gg	/g/			
Pp	/p/			
Tt	/t/			
Cc	/k/			
Kk	/k/			
Qq	/kw/			
Hh	/h/			
Vv	/v/			
Ss	/s/			
Ff	/f/			
Zz	/z/			
Mm	/m/			
Nn	/n/			
Jj	/j/			
Ll	/l/			
Rr	/r/			
Yy	/y/			
Ww	/w/			
Zz	/z/			

I. To learn the names of the letters of the alphabet.

Checklist F M S		Comment	Checklist F M S		Comment
☐☐☐	A		☐☐☐	N	
☐☐☐	B		☐☐☐	O	
☐☐☐	C		☐☐☐	P	
☐☐☐	D		☐☐☐	Q	
☐☐☐	E		☐☐☐	R	
☐☐☐	F		☐☐☐	S	
☐☐☐	G		☐☐☐	T	
☐☐☐	H		☐☐☐	U	
☐☐☐	I		☐☐☐	V	
☐☐☐	J		☐☐☐	W	
☐☐☐	K		☐☐☐	X	
☐☐☐	L		☐☐☐	Y	
☐☐☐	M		☐☐☐	Z	

II. To be able to associate graphic symbols of language with their letter names and sounds.

Checklist F M S		Name	Sound	Checklist F M S		Name	Sound
					Nn		
	Bb				Oo		
	Cc				Pp		
	Dd				Rr		
	Ee				Ss		
	Ff				Tt		
	Gg				Uu		
	Hh				Vv		
	Ii				Ww		
	Jj				Xx		
	Kk				Yy		
	Ll				Zz		
	Mm						

*Match consonants letters to sounds but vowels probably confusing for younger child.

III. To identify the correct order of letters of the alphabet.

F	M	S		F	M	S	
			Aa				Oo
			Bb				Pp
			Cc				Qq
			Dd				Rr
			Ee				Ss
			Ff				Tt
			Gg				Uu
			Hh				Vv
			Ii				Ww
			Jj				Xx
			Kk				Yy
			Ll				Zz
			Mm				
			Nn				

Conditions to Develop the Class of Sound.

I. To be able to imitate sounds made by an adult.

1. Directive:

Content: Imitate sound--close teeth tight; put tongue on top of teeth, smile, breathe through the s sound. Like a snake, pictures that begin with s sound.

2. Non-Directive:

Instructional strategy: Sing--"Swimming, Swimming" using appropriate motions, including skating, skipping, sitting.

To develop clear articulation and the ability to express the 44 phonemes in standard American English.

1. Nondirective:

Instructional strategy: Read: Snow White and the 7 Dwarfs. Assign each child a dwarf character and let him act his particular attribute as his character's name is mentioned in the story, i.e., Sneezy.

Content: Snow White and the 7 Dwarfs.

2. Directive:

Strategy: Introduction of "b" sound--use Baby Bear to help introduce "b" sound; use mirror and hand to see and feel how made; find a few things in room that begin with "b"; draw picture of Baby Bear.

To learn the sounds of the letters of the alphabet.

1. Directive:

Instructional strategy: Introduce the sound "puh" with a rhyme. Question children on words in the rhyme that have the same sound...example: pease, porridge, pot. Explain that this sound is the "puh" sound and that it is formed by putting the lips together. Suggest that they place their hands in front of their mouths, say the "puh" sound and feel the air that is emissed when this sound is made. Introduce the name of the sound with a phoneme box which will be filled with various items and/or pictures with the "puh" sound in them. The children will fell the letter p, and will repeat the name of the symbol.

Content: Rhyme: Pease Porridge Hot--a Mother Goose Nursery Rhyme

Pease porridge hot
Pease porridge cold
Pease porridge in the pot
Nine days old.

Some like it hot
Some like it cold
Some like it in the pot
None days old.

Directions:
Pat knees on word pease;
Clap hands on word porridge;
Clap partners hands on word pot.

2. Nondirective:

Instructional strategy: Read stories, rhymes, etc. to the children daily which emphasize the letter "p" and the "puh" sound. For example: Read a story, and the children will re-enact the action of the story. Introduce a song which emphasizes the sound "puh". Questions will be asked on the story, song, etc., that require answers which utilize the sound.

Content: Books: Pistachio by Blair Lent
Three Pigs by William Stobbs
Please Pass the Grass by Leone Adelson
Pancakes, Pancakes by Eric Carle

Song: "Pop Goes the Weasel"
All around the mulberry bush
The monkey chased the weasel
The monkey said twas all in fun
Pop! goes the weasel.

1. Nondirective:

Step I - To produce the correct sound in words.

Step II - a. Learner characteristics.
b. Situational variables.
c. Instructional strategy. The learning facilitator will cook food which emphasizes the new sound and will use equipment which also have the new sound in their names. Children will be allowed to help measure and make other preparations. They will also be questioned on the smell of food before, during, and after preparation. Questions will require answers which utilize the new sound. The learning facilitator will introduce a game which emphasizes the sound.

d. Content: Cooking equipment: popcorn kernels popcorn popper, oil, butter, salt, paper plates, napkins.
Game: Popcorn
Pretend that you are little kernels of popcorn. I'm going to say a little rhyme for you about popping corn, and you do the actions that go with it. All of you stand up now:
"I'm a piece of popcorn.
Put me in a pan. (Children step forward
Shake me and shake me and squat)
As fast as you can (They shake themselves)
And I'll POP!

2. Directive:

Our Sound Bag has a surprise for us. It's something that lives on a farm; it has a big nose; it's not a cow; it says oink, oink when it's hungry or happy. What is it? Yes, it's a pig. Mr. Pig's name begins with a p. Mr. Frog says p by putting his lips together. Let's hear all of you say P. Now let's have the girls do it, now the boys.

Some of you may have names that begin with p. Let's see. Who thinks his name begins with a p? (Have the children indicate whose names begin with p. If they can't get started, suggest some--like Patty, Paul, Pery, Peter, Priscilla, Pamela, Patricia, Peggy, Pearl, Polly.) Can any of you hear the p sound in your last names?

Some of you know colors that have the p sound in them. What are they? (Purple, pink).

We have many things in this room with the p sound--things we see and use every day. Who knows some of them? (Paper, pictures, pencil, paint, pan, paste).

Learner Outcome: To learn the sound of the letter S and produce this sound.

Instructional strategies: We make something that smells good and is good to eat; chicken vegetable soup. The children each bring in a vegetable or some salt, pepper or other spice. I bring the chicken. On the day that we cook the soup we write the recipe and pick out all the s words and s's. While the soup cooks we watch the filmstrip of Marcia Brown's tale of Stone Soup, and discover that the soldiers in it used many of the same ingredients we did to make our soup. We listen to the soup boiling. It seems to say s-s-s-s. We practice making the s sound when Sam the rabbit raises his paw, and we stop when Sam brings his paw down. We sound like a big pot of boiling soup! We end the day with our soupy snack.

Content: All materials used have been mentioned in the Instructional Strategies. Bring a supply of soup ingredients, a large pot, and a wooden spoon for stirring and a hotplate.

Activity: The "B" Barn

Learner Outcome: The student will be able to produce the "b" sound and give five words which begin with it.

Conditions:

Learner Characteristics:

Situational Variables:

Strategy: Directive

Procedure: Instruct the student in the sound of "b" by pairing it with words which begin with "b": "b" as in bear; "b" as in ball; "b" as in boy; "b" as in bottle; "b" as in barn, etc. Have the student make a game of trying to think of words which begin with the "b" sound.

Draw an outline of a barn. With the student, look through a magazine and have him cut out pictures which begin with the "b" sound. Have him paste them on the barn.

Content: Magazines, paper, scissors, and paste.

To learn the position of sounds (consonant) beginning, middle, ending.

1. Directive:

Instructional strategy: Introduce the concept "end" using color cubes. Demonstrate the concept and ask "Which color cube is at the end?" Game - Slide down the Snake. Each child has an "S" marker placed on the snake's head. In turn they pick a card, identify the picture, and determine if it ends in the s sound. If the word ends in the s sound, the child does not move. First one to the tail wins.

Content: Color cubes; "snake" board; s markers; picture cards of items ending in the s sound and those not ending in s sound.

2. Nondirective:

Instructional strategy: Introduce the concept of first, middle and last by presenting three items and talking about which position is which. Let children mix the items up and ask each other

which is first, middle, or last. Pictures will be presented which require children to determine where the new sound is located in the specific word. Learning facilitator will set up a SUPERMARKER and the children will be asked to buy items which only have the new sound in them. Position of new sound will be stressed in this activity also.

Content: Pictures all having the "puh" sound in their name. (Pictures will be labeled in order to give the children visual clues in locating the sound)

Items for the Supermarket: "P" items as well as other items which do not have the "puh" sound in their names.

Position of Sound

1. Developmental Outcome:

To be able to express the sound of the phoneme "P" in isolation and at the beginning of a word. To begin to recognize this sound at the beginning of words.

2. Conditions:

Learner characteristics:

Situational Variables:

Strategy-Directive:

Hold up a bag of items, and tell the children that everything in the bag begins with a "puh" sound. Tell them that they can take turns and everyone will get two turns in this game. Tell them that they must close their eyes for their turn, take something out of the bag, and tell us what it is. Then say "Yes, that is a pencil, does it start with a "puh" sound?" Each child gets time to identify the item that he/she has drawn, is reinforced or corrected and then the next child tries. Each child gets two turns. I will mark down whether the item is correctly identified and if the child responds correctly to my question of whether the item begins with a "puh" sound.

A paper bag will contain a: pan (pot); peper, pen, pin, pipe paper, pencil, and a penny.

3. Evaluation:

1. Learner Outcome:

To learn the position of sounds--beginning, middle, and end. Specifically, to learn the sound of the initial consonant, b.

2. Conditions:

Learner characteristics:

Situational variables:

Strategy-Developmental:

Make the "b" sound and talk about it. Give examples of the way it sounds when it stands as the initial letter in a word: boy, bacon, box, burn, broken.

Give the child a magazine and help him look for pictures of objects whose names begin with the "b" sound. Let him cut the pictures out and paste them on a sheet of paper. (Show him an example before beginning of a paper with several "b" pictures on it.

When finished, stimulate talk about his pictures and about the "b" sound. Note, however, that talk about the pictures he is choosing and the names of the objects should be continuous throughout the exercise.

What happens if he chooses a picture that isn't a "b" sound, do you correct him?

Content: Magazines with pictures, paper, paste, scissors.

3. Evaluation:

1. Outcome:

To learn the position of sounds--beginning, middle, and end.

2. Conditions:

Learner characteristics:

Situational variables:

Strategy:

Developmental:

Procedure:

The children are trying to locate the position of the hard c sound in words. On a bulletin board is a long caterpillar. The children take the set of picture cards with pictures on them of c words. If the picture has a hard c at the beginning, the child hangs the picture at the head of the caterpillar. (Ex. cat) They follow the same procedure with words that have c in the middle or end and hang the picture on the middle or end of the caterpillar. This exercise is self-checking. All cards with c at the beginning have on the back of the card, oooooo for the middle c, and O for the ending c sound.

Content: A bulletin board that children can reach, large colorful caterpillar, cards with pictures on them that have a hard c at the beginning, middle or end, hooks for hanging the pictures.

1. Developmental Outcome:

To learn the position of sounds in a word.

Learner characteristics:

Situational variables:

Strategy: Developmental

Content: The teacher gives this particular lesson before recess, for example. She asks all the children whose names start with the sound of ... to get their coats. While those children are getting their coats, the rest of the children can think of other words that start with the particular sound. If a child gives a word that does not have the particular sound, the teacher makes no correction but remarks that they are looking for words that start with ...

This continues with each starting sound for the names of each of the children involved.

The same procedure is followed for working with middle and final sounds.

2. Evaluation:

1. Developmental Outcome:

The learner will be able to isolate (in the initial position) and articulate the "p" sound.

2. Conditions:

Learner characteristics:

Situational variables:

Strategy:

Directive, will involve much imitation and repetition of sound, and much reinforcement for verbalization.

Procedure:

I will initiate a discussion of the "p" sound, and have the children imitate the sound. Then I will introduce words that begin with the "p" sound (pillow, penny, pocket, potato, pumpkin, pickle, etc.) and have them say the words, emphasizing the initial sound. I will ask them if they can think of any words that begin with a "p" sound.

After this introduction I will introduce the Mystery Box and have each child select an item from the box, say it's name, and I will then ask, "Does ___ begin with the "p" sound?" After his/her response the child will repeat the word again emphasizing the initial sound.

After each child has had two turns with the Mystery Box I will put it aside and then present the children with positive and negative instances of the initial "p" sound and see if they can "catch" me at trying to "trick" them. (To assess whether they do in fact have the idea of the "p" sound).

Material: Mystery Box containing a penny, pencil, potato, pipe, peanut, and a pin.

3. Evaluation:

Suggestions for Producting the Initial Consonant Sounds

p Sound

This rhyme may be played as a game. Children will choose partners. Clap hands on knees on the "pease." Clap hands together on the word "porridge" and clap partner's hands on the word "hot." Repeat the same order with the second verse.

Pease porridge hot,
Pease porridge cold,
Pease porridge in the pot,
Nine days old.

Some like it hot,
Some like it cold,
Some like it in the pot,
Nine days old.

---Mother Goose

Song: "Polly, Put the Kettle On, The New Golden Song Book, P. 30.

Dramatization: "The Three Little Pigs"

b Sound

Game: Pretend to be a peddler selling balloons. The peddler goes around the room calling, "Balloons for sale! Balloons for sale! Red balloons, green balloons, yellow balloons!"

Song: "My Red Balloon," Twenty Little Songs, P. 17

Rhythmic Jingle: Bumpity, bumpity, bumpity bo,
Around and around the room we go.
Bumpity, bumpity, bumpity bin,
Down the middle and back again.

r Sound

Show picture chart with pictures of a rabbit, a rooster, etc.

Singing game: "Rig-a-Jig-Jig," The New Golden Song Book, P. 74

Poem: Rain on the green grass,
And rain on the tree,
And rain on the house top,
But not upon me!

Game: Riddle, Dee Ree.

Children are in a circle formation. One child is chosen from the group to hide his eyes. Another child is chosen to place an object in the center of the circle. The group says the following jingle:

Riddle, dee ree, riddle dee ree,
Open your eyes and what do you see?

i Sound

Song: "Jingle Bells," The New Golden Song Book, P. 60

Rhymes: "Jack be Nimble," Mother Goose
"To Market, To Market," Mother Goose
"Jack and Jill," Mother Goose

Finger play: Two Little Dicky Birds. (See P. 87)

wh Sound

Questions: How does the wind go? (Whoo-ooo)
What color is the snow? (white)
How can you call a dog? (whistle)
How do you blow out a candle?

Dramatization: "The Little Red Hem and the Grain of Wheat"

Song: "The North Winds," American Singer, Book One, P. 38

d Sound

Rhymes: Hey, diddle, diddle,
The cat and the fiddle,
The cow jumped over the moon.
The little dog laughed to see such sport,
And the dish ran away with the spoon.

---Mother Goose

Humpty Dumpty sat on a wall,
Humpty Dumpty got a great fall,
All the King's horses and all the King's men
Couldn't put Humpty Dumpty together again.

---Mother Goose

Finger Play: Old Dan has two ears.
Old Dan has two eyes.
Old Dan has one mouth
With many, many teeth.

Old Dan has four feet,
Old Dan has four hoofs,
Old Dan has one tail,
With many, many hairs.

Old Dan can walk, walk, walk,
Old Dan can trot, trot, trot,
Old Dan can run, run, run,
Many many miles.

t Sound

Poem: The Big Clock

Slowly ticks the big clock,
Tick-tock, tick-tock!
But cuckoo clock ticks double quick;
Tick-atock-a, tick-a-tock-a,
Tick, tick, tick.

(Say first two lines slowly, then the last two lines much faster.)

Songs: "The Singing Farmer," Singing Fun, P.40
"Indians," Singing Fun, P. 13

n Sound

Questions: What is a bird's house called? (nest)
What do you smell with? (nose)
What is white and soft and falls without a sound? (snow)

a Sound

Story to dramatize: "The Three Billy Goats Gruff"

Game: "Farmer Brown and the Turkeys" (See section on Games, P. 165)

Rhyme: Old Mother Goose
Is picking her geese,
Picking her geese,
Picking her geese.
Old Mother Goose
Is picking her geese
And throwing the feathers away.

---Old Folk Rhyme

k Sound

Picture Chart: Pictures of kite, kitten, carrot, candy, cookies, cake, etc. Have the children say the words pictured on the chart.

Rhythm: Let five children pretend they are ponies in a barn while the other children say the following jingle:

Kickity, kickity, kickity karn,
Five little ponies in a barn.
All saddled, all bridled, all ready to go.
Kickity, kickity, kickity ko.

(As the jingle is repeated the ponies will gallop around the room)

Dramatize "The Three Little Kittens," The New Golden Song Book, P. 32

ng Sound

Pretend that you are a big bell. Go "Ding-dong! Ding-dong!" Pretend that you are a smaller bell. Go "Ding-ding-ding." Pretend that you are a little tiny bell. How would you go? (Maybe you might sound like this, "Ting-a-ling, ting-a-ling."

Show pictures of children walking, running, skipping, marching, skating, jumping, sliding. Let the children choose the movement which they wish to make.

Song: "Christmas Bells," Twenty Little Songs, P. 29

f Sound

Fishing Game: Cut out large fish from colored paper and fasten a pin in the head of each fish. Tie a string on a magnet and try to 'catch' a fish by holding the magnet directly over the pin. When the pin attaches itself to the magnet, call out, "I caught a fish."

Skipping Game: Children sit in a circle while one child skips around saying, "Fiddle-dee-dee, fiddle-dee-dee. I'll touch you and you touch me." The child being touched jumps up and skips after the child who is "it".

Story: "The Big, Big, Turnip," by Anita Hewett, Whittlesey Publishers

Singing Game: The Farmer in the Dell

The farmer in the dell,
The farmer in the dell,
Heigho! the derry oh,
The farmer in the dell.

The farmer takes a wife,
The farmer takes a wife,
Heigho! the derry oh,
The farmer takes a wife.

Rhythm: Skipping is fun
Skipping is fun
Skipping is fun for everyone.

Marching is fun, etc.
Dancing is fun, etc.
Skating is fun, etc.

v Sound

Dramatic play: Choose several children to be airplanes. Give the following instructions: "Pretend that you are an airplane taking off. As you fly off into the sky make this noise with your teeth and lips, "v-v-v-v-v-v-v-v-v-v."

Game: Hiding the Valentine

The children sit in a circle and one child leaves the room. Another child gives the valentine to one in the circle. The child outside the room returns and asks, "John, do you have the valentine?" The child asked says, "Yes, I have the valentine." Or, "No, I do not have the valentine." After two guesses the child says, "Who has the valentine?" The one who has it leaves the room and the game continues.

th Sound (voiced)

Finger Plays: This little cow eats grass,
This little cow eats hay,
This little cow drinks water,
This little cow runs away,
This little cow does nothing
But just lie down all day. ---Mother Goose

This little pig went to market,
This little pig stayed at home,
This little pig had nice roast beef,
This little pig had none,
This little pig went wee, wee, wee,
All the way home. ---Mother Goose

Game: Simon says, "Thumbs up",
Simon says, "Thumbs down",
Thumbs up, thumbs down,
Thumbs wiggle, waggle."

th Sound (voiceless)

Game: Thimble Three

The child who is "it" skips around the room with a thimble on his finger. When the word "touch" is said, the child with the thimble touches another child on the shoulder with the thimble and then runs around the circle back to his place. Say the following chant as the child skips:

Thimble, thimble, thimble three,
The one I touch runs after me.

sh Sound

Game: Have You Seen My Sheep?

Make a circle. Choose one child for the shepherd, who goes around the circle and stops before a child and asks the question, "have you seen my sheep?" The child asks, "Is he black or white?" If the shepherd says, "black", the child chases him. If the shepherd says, "white", the shepherd and child exchange places.

l Sound

Singing Games: "Looby Loo", The New Golden Song Book, P. 46
"Did You Ever See a Lassie?", The New Golden Song Book, P. 42.

Poem: The Little Brown Rabbit

The little brown rabbit went
Loppity-lop, loppity-lop,
Into the garden without any stop,
Loppity-lop, loppity-lop.

st Sound

Game: Still Water

A circle is formed and one child stands in the middle. The child chooses another child by saying, "Still water, James." The child named exchanges places with the child in the middle and the game continues.

Singing Game: "Sally Goes Around the Moon", Singing Games for Children, P. 2.

Conditions to Develop Intonation (Singing)

To be able to produce the range of sounds--high-low, loud-soft.

Suggestions for experiencing sound range:

Loud and Soft

Instructional strategy:

Have child sit on floor. Ask: "Who can make a loud noise? (clapping, stomping feet). Then ask, "Who can make a soft noise?" (whispering). Play recording of loud and soft noises and have children identify what object makes which noise. Ask the children to make their voices loud when your voice is loud, soft when your voice is soft. Sing a call-response song. Vary the pattern of loud-soft, do not just alternate the two. If you build up to three or four soft versions before you do a loud one, you will create a sense of anticipation in the children. Stop and ask them what they felt like while waiting for the loud sound. Explain that composets do the same thing. Play examples from a variety of recordings to demonstrate.

Content:

Recordings. Paper megaphones for each child.

High and Low

Recognizing high and low sounds and responding to the difference. Have the children sit on the floor adn listen while you play first a middle C and follow it with a C an octave higher. Repeat this twice. Have the children imitate the sounds as they are played. Play recordings of songs which have a variety of high and low notes. Have children sing along. Show a picture of someone playing the flute. Play a record of someone playing the flute. Do the same for a tuba. Have the children imitate these sounds and tell which is high and which is low. Using inexpensive goblets, fill several with different amounts of water. Strike each goblet with a spoon and listen to the different sounds.

Content:

Goblets, colored water, spoon.

1. Learner Outcome:

   To improve the child's ability to produce the range of sounds --loud and soft (phonological).

2. Conditions:

   Learner characteristics:

   Situational variables:

Instructional strategy:

Developmental process: This lesson introduction--through music--to awareness of and production of loud-soft sounds, leading later to carry over into reading and speaking.

- o Children select song they all know.
- o Object selected to hide in room.
- o One child leaves room while another hides the object.
- o Children discuss (with teacher guidance) way to give clue, singing clue, to whereabouts of hidden object without telling in words where it is. Decision: loud when hunter close to it, soft when not close.
- o Child enters door, group begins song in average range and varies it according to hunter's position in room.
- o Discuss results and see if they can relate them to anything in reading and oral speaking in their own classes.

Content: A very familiar song selected by group. A small object to hide.

3. Evaluation:

Related Outcomes

To learn the names of the letters of the alphabet.

1. Learner Outcome:

   To recognize and identify the sound of s.

2. Learner Characteristics:

3. Situational variables:

   Instructional strategy: Directive

   Game: Going on an SSSSSS hunt. Place chairs s in musical chairs. Each child holds an item that begins with the s sound. The child who is "it" walks around the others who are seated in chairs saying "I'm going on an sssss hunt" until he calls the first item that begins with s. The child holding that item gets up and follows "it" around the chairs. Repeat until each child is following "it". "It" then saysS STOP and all race to find seats. The person left standing is either "it" or is out. Continue the game substituting items that do not begin with the s sound for a few children.

   Content: Items that begin with s sound in Step #3; several items that do not begin with s as in step #3; chairs.

1. Learner Outcome:

   To recognize and identify the name of the s sound, the letter s, and its written symbol.

2. Learner Characteristics:

3. Situational Variables:

   Instructional strategy: Developmental

   Take the items in the shopping bag and compose a shopping list. Each child will take an item and identify it. Facilitator will write words in a list. Point out to children the similarities in each word. Show them a sandpaper s. Let each trace it and say "Start at the top, slide down and stop."

4. Other suggestions for names of the letters of the alphabet.

   Make a B Book with each child. The child supplies his own pictures.

   Create connecto-dot pictures of objects that have the "B" sound in their names.

Phonetic Analysis - Recognizing Letter by its Name

Phonics skills which are usually acquired by 6 and 7 year old children include recognition of letters of the alphabet by name and association of specific sounds with initial and final consonants, consonant blends and digraphs. More specifically these are:

- long and short vowels
- consonant digraphing--ck, ch, wh, th, sh
- vowel digraph--ai, ea, ee, oa, oo, ow, ay
- blends--sc, sk, we; st, spr, spl, sl, sp, sm, sn, br, fr, pr, tr, bl, cl, and fl

Through instruction in phonics children learn go:

1. Combine beginning consonant sounds with vowel sounds. Become aware of the different sounds of the ending d and ed when added to known words, as in helped and started.

2. Substitute one phonic element for another; the substitution of initial and final consonants, as in hand-sand and sat-sad; the substitution of initial consonant blends, as in play, clay; and the substitution of final consonant blends for single final consonants, as in road-roast.

3. Become aware of the effecy of silent e on the preceding vowel in a one syllable word, as in cut-cute.

4. Notice that the first vowel is usually long when two vowels come together in a word, as met-meat.

5. Teacher's methods of teaching phonics vary. Many teachers follow the pattern of instruction suggested in the teacher's manual of the reading series they are using. Others use the materials and approach of specific phonic systems unrelated to a reading series.

The following procedure is for teaching the initial sound B, b. The same patterns can be used for teaching all beginning sounds.

1. Say a few familiar words that begin with b (do not include blends). Select a word in the children's listening (balloon), speaking (bicycle), or sight-reading (baby) vocabulary.

2. Help children to discover that all these words begin with the same letter and sound as baby.

3. Present a chart, showing pcitures of familiar objects, places, or things whose names begin with b (no identifying names on the chart). Ask the children to name the pictures, beginning with the one at the top and going from left to right. The teacher accepts a name that does not begin with b, but asks the child to try another name that does begin with b.

4. Write the b words on a chart.

5. Provide additional practice.

   a. Show picture; give an incomplete sentence, omitting the b words. Ask the children to supply the missing word, e.g., Jimmy is playing...(picture of ball). If child gives seemingly non-sense word, check meaning with him.

   b. Elicit other words from the children. Write the letter b on board and add the words as the children say them.

6. Review lists of words just given by reading them aloud as children follow. Some children read the words independently.

7. Summarize what has been learned. Children understand that the first letter of a word helps them recognize a new word. Use a review list of words; say the name of the first letter with which the words begin; use the words in a sentence.

8. Blend the new sound with other vowels or letter combinations. The teacher writes a known sight word such as sat on the chalkboard. She asks the children to read the word. She explains that she is going to take the first letter off sat and write the letter b in its place to make a new word. She erases the s from sat and substitutes b, making the new word bat. The children are asked to read this word. Similarly b is substituted for the initial consonant in other known sight words such as toy (boy), way (bay), tall (ball), tell (bell).

This pattern may be used to teach other initial consonants and, when the children are ready, final consonants and combinations of consonants. Combinations such as bl, dr, pr, are called blends, for obvious reasons; combinations such as ch, sh, th, are called digraphs--a two letter combination having a sound unlike that of either letter by itself. The teacher may follow the same pattern with digraphs and with such blends as seem to offer problems. As children read charts, signs, and books, they have many opportunities to find new examples and apply their knowledge of letter sounds.

To be able to associate graphic symbols of language with their letter names and sounds.

The Sandpaper Letters, the basic language exercises in the Montessori class, are designed to respond to the child's desire for language and for tactile experience. The letters lay the foundation for writing and reading. Montessori writes:

> I saw that in the Sandpaper alphabet I had found the looked for guide for the fingers which touched the letter. This was furnished in such a way that no longer the sight alone, but the touch, lent itself directly to teaching the movement of writing with exactness of control... We have, in addition to this, begun the teaching of reading, at the same time that we have been teaching writing. When we present a letter to the child and enunciate its sound, he fixes the image of this letter by means of the visual sense and also by means of the muscular-tactile sense. He associates the sound with its relative sign; that is, he relates the sound to the graphic symbol. But when he sees and recognizes he reads; and when he traces, he writes. Thus his mind receives as one, two acts, which later on, as he develops will separate coming to constitute the diverse processes of reading and writing. (Montessori 1964)

Montessori's concepts of a sensory approach to education grew out of a study of the works of Jean-Marc-Gaspard Itard and Edouard Seguin and her own experiences working with young children. Itard is best known for his treatment of the Wild Boy of Aveyron. After much work with the boy, Itard concluded, "that the improvement in touch and sight and the newly acquired pleasures of taste, by multiplying the sensations and ideas of our savage, contributed very largely to the development of his intellectual faculties. (Malson 1972). Itard attempted to teach Victor reading and wricing. He remarks, "I reached the point where he could recognize metal letters by touch alone, even such similar ones as B and R, I and J, C and G... Within a few months, my pupil could read and write quite passably (Malson 1972). Seguin was a pupil of Itard. He also worked with "defective" children. It is from her critical review of Seguin's approach to writing, that Montessori developed one of her most fundamental principles, not only for teaching writing, but for all facets of education--isolation of difficulty. She notes, "Another problem for investigation would be to consider the nature of writing itself, analyzing its various components and seeking to separate these into independent exercises which could be employed at different ages and thus be distributed according to the natural powers of the child (Montessori 1967). When writing is analyses in this way, it breaks down into (1) reproduction of shape and (2) handling of the writing instrument. The Sandpaper Letters are directed towards teaching the reproduction of shape. By involving a sensory approach: the visual, tactile and muscular sensations, "the image of the graphic sign is fixed in a much shorter space of time than when it was, according to ordinary methods." (Montessori 1967). By involving the auditory and verbal faculities, the foundations are set for reading.

Read (1971) in describing the development of phonology in the pre-school child notes that if left to his devices, the pre-school child will develop writing before reading (the usual sequence in a Montessori class) and that at no stage does the child appear to be confused between the sound of letters and the names of letters. A study by Pryzwansky (1972) investigated the effects of various perceptual meter training programs and manuscript training on kindergarteners test score in reading readiness. He found that neither approach had any measurable effect on the test scores but he did make reference to a study now in progress by J. P. Williams that tended to confirm reproduction training (tracing) as more beneficial to young children.

Activity: "I'm Going on a Picnic" ABC game.

1. Learner Outcome

   a. To develop auditory memory.

   b. To increase awareness of alphabetical order.

   c. To develop articulation.

   d. To practice articulating initial vowels and consonants.

2. Conditions

   a. Learner characteristics

   b. Situational variables

   c. Strategy: directive the first time

   d. Procedure:

      (1) The instructor must explain the rules of the game and then monitor the game the first time. After that the children will take over and catch mistakes.

      (2) The instructor (or a child) says: "I'm going on a picnic and I'm taking an apple (starts with A) The next child says "I'm going on a picnic and I'm taking a banana (starts with B) and so on until the children have gone through the alphabet.

      (3) If the children are advanced--the rules may be altered so that each child must repeat what the child before him has said, i.e., I'm going on a picnic and I'm taking an apple, a banana, and a cat.

(4) If a child makes a mistake, he misses his turn and the next child picks up.

c. Content: None

3. Evaluation

To identify the correct order of letters of the alphabet

Directive suggestions:

Display model of letters in order. Discuss: Ask which letter comes first and the next two that follow. Hand out letters A, E, in jumbled order. Have child place them in order.

Non-directive suggestions:
The alphabet song, fingerplays, emphasing order of alphabet.

Finger-Plays to Improve Speech

1. I am the Snake or Teaketter sound.
I am made with the tongue.
I am made with breath.
Put your teech together.
Now blow or hiss.
Be sure to hide your tongue behind your teeth.

Green Snake s, sh, sl

A shiny green snake is sleeping.
When suddenly he awakes,
"s - s - s -"
Is the soft little sound he makes.

The shiny green snake is crawling
Over the leaves on the ground.
"s - s - s -"
Is his soft little hissing sound.

My Family s, th, m, b

Mother sits and knits so ...
This way, that way.
Mother sits and knits so ...
So . . . so . . . so.

Father drives the car so...
This way, that way.
Father drives the car so...
so . . . so . . . so.

Brother mows the lawn so ...
This way, that way.
Brother mows the lawn so ...
so . . . so . . . so.

Sister rocks her doll so ...
This way, that way.
Sister rocks her doll so...
So . . . so . . . so.

Baby takes nap so ...
This way, that way.
Baby takes nap so . . .

See-Saw s, g

See-saw, see-saw,
Up and down we go.
See-saw, see-saw,
High and then down low.
See-saw, See-saw,
Fun as you can see.

See-saw, see-saw,
Play the game with me.
See-saw, see-saw.
See-saw-see.
Let the children imitate a see-saw by extending their arms and backing up and down in rhythm to the poem.

Eency Weency Spider s, w, r

Eency weency spider
    Went up to the water spout.
Down came the rain and
    Washed the spider out.
Out came the sun and
    Dried up all the rain.
And eency weency spider
    Went up the spout again.

This jingle may be dramatized with hand action, crawling up the spout, rain dashing down, a forming a round circle for the sun, and the spider crawling up the spout.

Six Little Mice s, p, m, th

Six little mice sat down to spin
Pussy passed by and she looked in.
"What are you doing, my little men?"
"Making coats for gentlemen."
"May I come in and bite on your threads?"
"No, no, Miss Pussy, you'll bite off our heads."
"Oh, no I won't. I will help you spin."
"That may be true, but you can't come in."

What They Say l, s, ch, g, p

Class: Little white cat, little white cat,
    What do you say?
Solo 1: I say, "Mew, mew, pitty-pat-pat."
Class: Little gray mouse, little gray mouse,
    What do you say?
Solo 2: I say, "Squeak, squeak, all through the house."
Class: Little green frog, little green frog.
Solo 3: I say, "Glug, glug, sitting on a log."
Class: Little brown squirrel, little brown squirrel.
    What do you say?
Solo 4: I say, "Chatter-chee, with my tail in a curl."
Class: Little black pig, little black pig.
    What do you say?
Solo 5: I say, "Oink, oink, as I wallow and dig."

Let the children imitate the ducks walking through the rain.

Five Little Squirrels s, th

Five little squirrels up in a tree,
This one said, "What do I see?"
This one said, "I smell a gun!"
This one said, "Oh let's run!"
This one said, "I'm not afraid."
This one said, "Let's hide in the shade."
Bang! went the gun,
And they ran, everyone..

2. I am the Bee sound.
    I am made with the tongue.
    I am made with breath.
    Put your teeth together.
    Now blow and use your voice.
    Hide your tongue behind your teeth.
    My twin is "s".

Song of the Bee s, b, z

This is the song of the bee,
Buzz, buzz, buzz.
A jolly good fellow is he,
Buzz, buzz, buzz.

In days that are sunny
He's making his honey
Buzz, buzz, buzz.

In days that are cloudy
He's making his wax.
Buzz, buzz, buzz.

Splish, Splosh, Splatter s, d

Teacher: Raindrops falling all around,
Making puddles on the ground
All: Splish, splosh, splash;
Splish, splosh, splatter.
Teacher: Five white ducks, with joyful quacks,
Leave behind them muddy tracks.
All: Splish, splosh, splash;
Splish, splosh, splatter.
Teacher: Across the barnyard, through the rain.
Around the pond and back again.
All: Splish, splosh, splash;
Splish, splosh, splatter.
Teacher: For it doesn't matter at all you know,
If a duck gets wet from head to toe.
All: Splish, splosh, splash;
Splish, splosh, splatter.

Buzzy z, s

Buzzy is a little fly,
Very, very gay.
He begins his busy work
At the break of day.
Buzzy bites my toes,
"zzzzz.."
Buzzy teases Grandmama
"...z...z..."
Buzzing on her nose.
"zzzzzzzzz..."

3. I am the Goose sound.
I am made with the teeth.
I am made with the tongue.
I am made with breath.
Put the tip of your tongue between your teeth and blow.
My twin is "th" (buzzed).

4. I am the Fire Engine or Airplane sound.
I am also made with voice.
I am made like my twin but I buzz.
Listen: th-th-th.
My twin is "th" (whispered).

Ten Little Fingers (voiced th, j, s)

I have ten little fingers,
They all belong to me
I can make them do things.
Would you like to see?
I can open them wide,
Shut them tight,
Put them together,
Put them out of sight,
Jump them high,
Jump them low,
Fold them quietly,
And sit just so.

Finger Play f

Fee, fie, foe, fum;
See the brownie run.
Fee, fie, foe, fum;
Four fingers having fun.
Fee, fie, foe, fum;
My brownie is a little Thumb.

Have the children close their fists and make a finger pop up each time "fee, fie, foe, fum" is said. The thumb wiggles each time the "Brownie" is mentioned.

I Went to the Farm f, d, m, b

I went to the farm, and I saw a duck.
The duck said, "Quack, quack."
I went to the farm, and I saw a cat.
The cat said, "Meow, meow",
The duck said, "Quack, quack."
I went to the farm, and I saw a lamb.
The lamb said, "Baa, baa",
The cat said, "Meow, meow",
The duck said, "Quack, quack."

Other farm animals and the sounds they make may be substituted or added. Pictures should be used to help children remember the animals in their order.

8. I am the Fly or Airplane sound.
I am made with lower lip.
I am made with the upper teeth.
Scratch your lower lip lightly against your upper teeth.
Now use your voice.
My twin is "f".

9. I am the Still or Huch sound.
I am made with the lips.
I am made with the tongue.
I am made with the breath.
Push your lips forward, lift your tongue a little, then blow.

Hush Hush — sh

Hush, hush!
Shut your eyes, baby dear.
Hush, hush!
That's the sandman I hear.

Flies — sh

Shoo, flies, shoo!
Please shut that door.
Shoo, flies, shoo!

13. I am the Woodpecker or Typewriter sound.
I am made with the tongue.
Tap your tongue back of your upper teech.
Now use your voice on this sound.
My twin is "t".

Tick, Tock — t, kl

Tick, tock, tick, tock,
Merrily sings the clock.
It's time for work,
It's time for play,
And so it sings
Through all the day.
Tick, tock, tick, tock.
Merrily sings the clock.

Valentine — v, r

I sent a valentine to my friend;
In it I wrote this little note;
Roses are red
Violets are blue
May I come to visit
For I miss you?

10. I am the Hair Clipper or Cleaner sound.
I am made like the "sh" sound, except that the vocal cords vibrate.

Skating — sh, sw

Let us go skating over the ice,
All: Swish, swish, swish.
The air is crisp and the weather is nice.
All: Swish, swish, swish.
My skates are bright and shiny and new.
All: Swish, swish, swish.
I have a warm scarf and some wooly socks, too.
All: Swish, swish, swish.
Let us go skating over the ice.
All: Swish, swish, swish.
And what if I do fall once or twice?
All: Swish, swish, swish.

14. I am the Watch sound
I am made with the tongue.
I am made with breath.
Tap your tongue back of your upper teech.

Mr. Clock — t, kl

One day I said to Mr. Clock,
"All you say is 'Tock, tick, tock.'"
He said to me with a little click,
"Listen now for 'Tick, tock, tick.'"

15. I am the Coughing or Crow sound.
I am made with the tongue.
I am made with the soft palate.
I am made with breath.
Tap the back of your tongue
against your soft palate.
Now send your breath out.

16. I am the Frog or Gurgling sound.
I am made with the tongue.
I am made with the soft palate.
Tap the back of yoru tongue
against your soft palate.
My twin is "k".

Black Crow k

An old black crow once said to me:

All: "Caw, caw, caw,"
As he sat in an apple tree.
All: "Caw, caw, caw."
1st Child: "I see some children having fun,
2nd Child: "I see an airplane in the sky,
3rd Child: "I see a lovely yellow sun,
4th Child: "I see an engine going by."
An old black crow sat in the tree.
All: "Caw, caw, caw,"
And those were things that he told me.
All: "Caw, caw, caw."

17. I am the Squeaky Mouse sound.
I am made with the lips.
I am made with the soft palate.
I am made with voice.
Sometimes I sound like "ee".

Kittens k, b, m

The white kitty said, "I smell a mouse."
The gray kitty said, "Let's hunt through the house."
The brown kitty said, "Let's play we're asleep."

The black kitty said, "Let's go creep, creep."
The striped kitty said, "Meow, meow."
"I saw him run into his hole just now."

Getting-Up Time k, s, m

"Bow-wow," said the pup,
"It is time to get up."
"Coo-coo," said the dove,
From the roof high above.
"Moo-moo," said the cow,
"I am getting up now."
"Caw, caw," called the crow.
"What makes you so slow?"

Finger Play kr

Creeping, creeping, creeping,
Comes the kitty cat.
But the Bunny with his great long ears,
Jumps like that!

m Sound

Singing Game: -Tune for game in the New Golden Song Book, p. 39.

The Muffin Man

Oh, do you know the Muffin Man,
The Muffin Man, the Muffin Man?
Oh, do you know the Muffin Man
That lives in Drury Lane?

Oh, yea we've seen the Muffin Man,
The Muffin Man, the Muffin Man.
Oh, yes we've seen the Muffin Man
That lives in Drury Lane.

Directions: Children may make two lines across the room. One side skips across to the other side while they sing the first verse. On the second verse, they take hold of the child's hand who is facing them and skip around the room and back to their original places.

w Sound

Finger Play: "Johnny Works with One Hammer," Finger Plays, p. 20.

Johnny works with one hammer, (fist)
One hammer, one hammer.
Johnny works with one hammer,
Then he works with two.

Johnny works with two hammers, (two fists)
Two hammers, two hammers.
Johnny works with two hammers,
Then he works with three.

Johnny works with three hammers, (two fists and
Three hammers, three hammers, one foot)
Johnny works with three hammers,
then he works with four.

Johnny works with four hammers.
Four hammers, four hammers.
Johnny works with four hammers,
Then he works with five.

Skipping rhythm to the following jingle:

Hoppity, hoppity, hoppity, hop,
Let's go down to the candy shop.
Hoppity, hoppity, hoppity, hay,
Let's go back the very same way.

Suggested Activities for Speech Improvement

The kindergarten teacher should help children to be aware of the importance of their tongues, teeth, and lips in speaking. The following jingles and poems are helpful in exercising these speech organs.

Teddy Bear, Teddy Bear, turn around, (tongue)
Teddy Bear, Teddy Bear, touch thr ground.
Teddy Bear, Teddy Bear, tap your toes,
Teddy Bear, Teddy Bear, pinch your nose.

Tippy, tippy, tip-toe (tongue)
Here we go.
Tippy, tippy, tip-toe
To and fro.
Tippy, tippy, tip-toe
Through the house,
Tippy, tippy, tip-toe
Quiet as a mouse.

[1]The Department of Special Education. It Isn't Just Baby Talk. Tulsa Public Schools. pp. 5-6.

[2]Ibid. p. 9.

STEP III

COMPETENCIES NEEDED TO FACILITATE PHONOLOGY DEVELOPMENT

COMPETENCIES NEEDED TO FACILITATE PHONOLOGY DEVELOPMENT

Cognitive Competencies for Trainees

1. To be able to define each of the below, give an example of a learning condition for each, and an informal assessment.

Imitation of sounds made by adult models.

Articulation and expression of 44 identified phonemes.

Learning sounds of alphabet letters.

Learning position of sounds--beginning, middle, ending.

Production of the range of sounds--high-low, soft-loud.

Naming letters of the alphabet.

Association of graphic symbol with letter name and sound.

Identification of correct order of alphabet letters.

2. To be able to define the following terms:

phoneme	fricatures
phonemic transcription	laterals
phonemic transcription	nasals
phonology	intonation or pitch
paralanguage	allophone
vowel	dipthong
consonant	contrast
stops	stress

3. To be able to cite noteable research findings and important variables relating to phonology development from the works of the following:

Jakobson	Austerlitz
Mowrer	Velton
Lenenberg	Templin
Burling	Menyuk

4. To be able to discuss the importance and usage of the following tests:

No-Howe Speech Test for English, Consonant Sounds
Goldman-Fristoe Test of Articulation
Developmental Articulation Test
Poole Consonant Test

Skill Competencies

1. To effectively provide a learning environment to emphasize:

   Imitation of Sounds
   Articulation and Expression of Phonemes
   Production of Sounds of Alphabet Letters
   Position of Sounds
   Production of Range of Sounds (Singing)
   Naming Alphabet Letters
   Association of Graphic Symbol with Letter Name and Sound
   Identification of Graphic Symbol with Letter Name and Sound

2. To effectively assess a child's phonology development in the following areas:

   Imitation of Sounds
   Articulation and Expression of Phonemes
   Production of Sounds of Alphabet Letters
   Position of Sounds
   Production of Range of Sounds
   Naming Alphabet Letters
   Association of Graphic Symbol with Letter Name and Sound
   Identification of Correct Order of Alphabet Letters.

3. To be able to play an accompaniment instrument for childrens' singing.

Definition of Terms

1. Phoneme - A class of sounds treated as equivalent by a language. Two sounds fall in different phonemes if there exists a minimal pair of morphemes which differ only in having the two sounds. They fall in the same phoneme if they do not contrast in this way. There are two basic ways in which sounds are combined into a phoneme. In the first, there are several sounds, but each is used in a specific context. We have seen that there are at least 3 k's: the unaspirated (k) in ski, the front aspirated (k) in key, and the back aspirated (k) in caw. These distinct "versions" of (k) are the allophones of (k). The first is always used after (s), the second before front vowels, and the third before back vowels. The other process of combination is free variation. Any of several possible versions of the phonemes can occur, with no change in meaning. If you pronounce the word "key" ten times, there will be 10 different positions of the tongue on the palate in pronouncing the (k) and 10 different tongue positions for the vowel. These variations are simply ignored; the 10 versions are in free variation.

2. Phonetic Transcription - An accurate recording of the exact pronunciation of an utterance. It is written with square brackets. For example, a phonetic transcription of coat might be (k^h O^w t).

3. Phonemic Transcription - Indicates the phoneme to which each sound belongs, and is written with diagonal slashes. Phonemic transcription for coat is /kot/. Phonemic transcriptions indicate how the words are to be pronounced only if the general rules of English are known; all initial voiceless stops are aspirated, and all back vowels except /a/ are rounded.

4 Velars - Sounds articulated against the hard palate.

5. Stop - When flow of air in pronouncing a consonant is closed off as in (t).

6. Fricative - When flow of air in pronouncing consonant is partially blocked, and it becomes very turbulent and produces a hissing sound, as in (s).

7. Voiced Consonants - Consonants pronounced with vocal cord vibrations. Voiced and voiceless consonants occur in pairs, one is voiceless, one voiced, example: (p) and (b), (s) and (z) vowels are almost always voiced.

8. Nasalized Consonants - Consonants produced by letting air through the nasal cavity when pronouncing the sounds. (n), (m), ( ) - final sound of walking.

9. Phonology - Sound system of a language.

10. Paralanguage - Meaning associated with voice quality as in whispering.

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Films on Phonology

Imitation

Part I: General
Part II: Vocal
The development of gestural and vocal initation, prepared by Uzgiris and McV. Hunt.
35 minutes
Purchase: $142.50
Source: Motion Pictures Production Center
University of Illinois
501 South Wright Street
Champaign, Ill. 61820
Rental: $8-15
Source: University Visual Aid Service
704 South Sixth Street
Champaign, Ill. 61820

Speech Disorders: Stuttering

Film shows stages, characteristics and problems (emotional as well as speech) of the child who stutters. Examples of situations which are likely to be conducive to easy speech for the stutterer and those which may be very difficult are given. Some therapy sessions included.

28 minutes/black and white
Purchase:
Rental: $6.75
Source: Audio-Visual Center
Indiana University, Bloomington, Ind. 47401

Vowels and Their Sounds

Journal Films
909 W. Diversy Parkway
Chicago, Ill. 60614

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