



## Comparison of Psycholinguistic Abilities among Children with Different Intelligence Level: Above Average, Average and Below Average

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### ABSTRACT

Language is such a central feature of being a human; it has intellectual connections and overlaps with many other disciplines in the humanities, social sciences and natural sciences. It is generally recognized that a positive relationship exists between language ability and mental ability, present study also focuses on intelligence level and psycholinguistic abilities. The aim is to find out whether children with different intelligence level have any differences in their psycholinguistic abilities or not. Present study was carried out on 75 students from 6 to 11 years from 1st to 5th class of Amity International School, Gurugram. The sample was collected through purposive sampling. Two tests were used: Draw-A-Person Intellectual Test-IQ (DAP-IQ) and Illinois Test of Psycholinguistic Abilities (ITPA-3). The results were found as follows: 1. On spoken language abilities, there is a significant difference among above average, average and below average group on the Spoken Analogies, Spoken Vocabulary and Sound Deletion dimensions. 2. On written language abilities, there is a significant difference among all three groups on Sentence Sequencing and Written Vocabulary dimensions. 3. On specific language abilities, there is a significant difference among all three groups on Semantic, Grammar and Comprehension. 4. It is also found that on all language abilities (spoken, written and specific) above average group is performing better than average and below average group moreover on all the dimensions of language abilities.

### KEYWORDS

language, psycholinguistic, intelligence.

Language sets people apart from all other creatures. Every known human society has had a language and though some non-humans may be able to communicate with one another in fairly complex ways. Language, like culture, is notable for its unity and diversity. There are many languages and many cultures, all different but all fundamentally the same, because there is one human nature and fundamental property of this human nature is the way in which it allows such diversity in both language and culture.

Language, a system of conventional spoken, manual, or written symbols by means of which human beings, as members of a social group and participants in its culture express themselves. The functions of language include communication, expression of identity, play, imaginative expression, and emotional release. Henry Sweet, an English phonetician and language scholar stated: "Language is the expression of ideas by means of speech-sounds combined into words. Words are combined into sentences, this combination answering to that of ideas into thoughts." The American linguists Bloch and Trager (1942) formulated the following definition: "A language is a system of arbitrary vocal symbols by means of which a social group cooperates". According to Jakobson (1937), language can be understood as interplay of sound and meaning.

Each human language is a complex of knowledge and abilities enabling speakers of the language to communicate with each other, to express ideas, hypotheses, emotions, desires, and all other things that need expressing. Linguistics is the study of these knowledge systems in all their aspects: how is such a knowledge system structured, how is it acquired, how is it used in the production and comprehension of messages, how does it change over time? What properties do all human languages have in common? How do languages differ, and to what extent are the differences systematic, i.e. can we find patterns in the differences? How do children acquire such complete knowledge of a language in such a short time?

Linguistics is the scientific (Crystal, 1990) study of language (Halliday, 2006). There are broadly three aspects to the study, which include language form, language meaning, and language in context (Martinet, 1960). Linguistic skills measure the

capacity of individuals to understand and express themselves, both in written and oral form.

The term psycholinguistics suggests that this is a field which depends on the theories and intellectual interchange of both psychology and linguistics. The history of psycholinguistics is dated from the 1950s (Griffin and Ferreira in Traxler and Gernsbacher, 2006). Experts of this subject examined the relationship between language and psychology. Meanwhile, the particular important work of psycholinguistics, at that time, was Broca's (1861) and Wernicke's (1874) aphasias.

There are many definitions of psycholinguistics. Scovel (1998) defines psycholinguistics as the use of language and speech as a window to the nature and structure of the human mind. Aitchison (2011) adds that this subject links psychology and linguistics which enables learners to find out structures and processes which underlie a human's ability to speak and understand language. In other words, learning this subject enables learners to know the nature and structure of mind which is related to language and speech.

Psycholinguistics is interdisciplinary in nature and is studied by people in a variety of fields, such as psychology, cognitive science and linguistics. It also explores the relationship between human mind and language or thought and language (Field, 2003). Unlike sociolinguistics which treats language users as representative of society, psycholinguistics treats language users as individuals whose linguistic performance is determined by the strength and limitation of the brain. The study of psycholinguistics is also about language behavior which explains how in reality people learn and use language. Unlike linguistics which only sees language as the structural components of language, psycholinguistics sees language as a process which involves the comprehension, production, and acquisition of language.

According to English & English (1958) and Nicolosi, Harryman & Kresheck (1989), there are several subdivisions within psycholinguistics that are based on the components that make up

human language.

Phonetics and phonology are concerned with the study of speech sounds. Speech is the universal material of human language, and the conditions of speaking and hearing have, shaped and determined its development. The study of the anatomy, physiology, neurology and acoustics of speaking is called phonetics. Phonetics covers much of the ground, loosely referred to in language study as pronunciation.

### Morphology

is the study of word structures, especially the relationships between related words (such as dog and dogs) and the formation of words based on rules (such as plural formation). In linguistics, morphology refers to the mental system involved in word formation or to the branch of linguistics that deals with words, their internal structure and how they are formed.

### Syntax

is the study of the patterns which dictate how words are combined together to form sentences. It refers to the branch of grammar dealing with the ways in which words, with or without appropriate inflections, are arranged to show connections of meaning within the sentence. Syntax deals with how sentences are constructed and users of human languages employ a striking variety of possible arrangements of the elements in sentences.

### Semantics

deals with the meaning of words and sentences. Where syntax is concerned with the formal structure of sentences, semantics deals with the actual meaning of sentences. Semantics is a sub discipline of linguistics which focuses on the study of meaning. Semantics tries to understand what meaning is as an element of language and how it is constructed by language as well as interpreted, obscured and negotiated by speakers and listeners of language.

### Pragmatics

is concerned with the role of context in the interpretation of meaning. Pragmatics studies how people comprehend and produce a communicative act or speech act in a concrete speech situation which is usually a conversation. It distinguishes two intents or meanings in each utterance or communicative act of verbal communication. One is the informative intent or the sentence meaning, and the other the communicative intent or speaker meaning (Leech, 1983; Sperber & Wilson, 1986). The ability to comprehend and produce a communicative act is referred to as pragmatic competence (Kasper & Kellerman, 1997).

Psycholinguistics covers the cognitive processes that make it possible to generate a grammatical and meaningful sentence out of vocabulary and grammatical structures, as well as the processes that make it possible to understand utterances, words, text, etc. Developmental psycholinguistics studies infants' and children's ability to learn language with experimental and quantitative methods.

Language development is a process starting early in human life. Infants start without language, yet by 4 months of age, babies can discriminate speech sounds and engage in babbling. Some research has shown that the earliest learning begins in utero when the fetus starts to recognize the sounds and speech patterns of its mother's voice (Kenninson, 2013). Language development is thought to proceed by ordinary processes of learning in which children acquire the forms, meanings and uses of words and utterances from the linguistic input. The method in which children develop language skills is universal however; the major debate is how the rules of syntax are acquired.

There are two major approaches to syntactic development, an empiricist account by which children learn all syntactic rules from the linguistic input, and a [nativist](#) approach by which

some principles of syntax are innate and are transmitted through the human genome.

The [Nativist theory](#), proposed by Noam Chomsky (1965), argues that language is a unique human accomplishment. He says that all children have an innate Language Acquisition Device (LAD) (Santrock, 2007). Theoretically, the LAD is an area of the brain that has a set of universal syntactic rules for all languages (as cited by Shaffer et al., 2002). This device provides children with the ability to construct novel sentences using learned vocabulary. Nativists assume that it is impossible for children to learn linguistic information solely from their environment because children possess this LAD and are able to learn language despite incomplete information from their environment. This view has dominated linguistic theory for over fifty years and remains highly influential.

The [Empiricist theory](#) suggests, contra Chomsky, that there is enough information in the linguistic input children receive and therefore, there is no need to assume an innate language acquisition device exists. Rather than a LAD which evolved specifically for language, empiricists believe that general brain processes are sufficient enough for language acquisition. During this process, it is necessary for the child to be actively engaged with their environment. In order for a child to learn language, the parent or caregiver adopts a particular way of appropriately communicating with the child; this is known as child-directed speech (CDS). CDS is used so that children are given the necessary linguistic information needed for their language. Empiricism is a general approach and sometimes goes along with the interactionist approach.

Other researchers embrace an [Interactionist perspective](#), consisting of social-interactionist theories of language development. In such approaches, children learn language in the interactive and communicative context, learning language forms for meaningful moves of communication. These theories focus mainly on the caregiver's attitudes and attentiveness to their children in order to promote productive language habits (Poll, 2011).

Other relevant theories about language development include Piaget's theory of cognitive development, which considers the development of language as a continuation of general cognitive development (Clibbens, 1993) and Vygotsky's social theories that attribute the development of language to an individual's social interactions and growth (Schneider & Watkins 1996). The Learning perspective argues that children imitate what they see and hear, and that children learn from punishment and reinforcement. (Shaffer, Wood & Willoughby, 2002).

There are many factors which play a vital role in the development of language in children. The first factor includes the biological preconditions which states that the ability to speak and understand human language requires speech production skills and multisensory integration of sensory processing abilities, as proposed by linguist Chomsky. The second factor is the environment a child develops in, has influences on language development. It provides language input for the child to process. Many linguistics think that the child directed speech plays a major role as it may aid in capturing the infants' attention and maintaining communication (Mani & Plunkett, 2010).

While most children throughout the world develop language at similar rates and without difficulty, cultural differences have been shown to influence development. For e.g. Owens (2012) conducted study on language development comparing the interactions of mothers in the U.S. with their infants with mothers in Japan. Mothers in U.S. use more questions, more grammatically correct utterances and are more information oriented with their 3-month-olds. While, mothers in Japan use more physical contact with their infants, and more emotion-oriented, nonsense, and environmental sounds, as well as baby talk, with their infants.

In view of above study, it can be seen that language devel-

opment is affected by biological and environmental factors; as well as cultural differences and socioeconomic status also play significant role in language development. The present study focuses on intelligence level (according to con view, linguistic abilities grow with the increasing human intelligence). Therefore it can be said that intelligence also play some role in development of linguistic abilities (although there is hardly any literature available of the relationship between both the two). Thus, in present study, researcher is trying to find out whether children having different intelligence level have any difference in their psycholinguistic abilities or not. For this reason, the present study has following Objectives:

To compare all three groups (above average, average and below average) on various dimensions of Spoken Language Abilities.

To identify which group among above average, average and below average is performing better on various dimensions of Spoken Language Abilities.

To compare all three groups (above average, average and below average) on various dimensions of Written Language Abilities.

To identify which group among above average, average and below average is performing better on various dimensions of Written Language Abilities.

To compare all three groups (above average, average and below average) on various dimensions of Specific Language Abilities.

To identify which group among above average, average and below average is performing better on various dimensions of Specific Language Abilities.

On the basis of above objectives, following Hypothesis can be formulated:

There will be significant difference among all three groups on various dimensions of Spoken Language Abilities.

Above average will perform better in comparison to other group on various dimensions of Spoken Language Abilities.

There will be significant difference among all three groups on various dimensions of Written Language Abilities.

Above average will perform better in comparison to other group on various dimensions of Written Language Abilities.

There will be significant difference among all three groups on various dimensions of Specific Language Abilities.

Above average will perform better in comparison to other group on various dimensions of Specific Language Abilities.

**METHODOLOGY**

**Sample:**

In the present study, sample comprised of 75 students consisting of both boys and girls. The age range of the sample was 6 to 11 years from 1<sup>st</sup> to 5<sup>th</sup> class of Amity International School, Sector 43, Gurugram, Haryana. The sample was collected through purposive sampling.

**Tools of study:**

In the present research paper, following tools has been used:

For the assessment of intelligence level of students; Draw-A-Person Intellectual Ability Test (DAP-IQ) was used.

For the assessment of psycholinguistic abilities; Illinois Test of Psycholinguistic Abilities-3 (ITPA-3) was used.

D.A.P. (IQ): The D.A.P I.Q Ability Test for Children, Adolescents, and Adults was developed by Reynolds and Hickman (2004), provides a common set of criteria to estimate intellectual ability from a human figure drawing of children through adults (4 to 89 years). It provides an objective scoring system that is applied to standardized method for obtaining a drawing of a human figure from which an IQ estimate is derived. The drawing is evaluated on 23 features. The scores for each feature range from 0-4 points, with a total of 49 points possible. The drawing is not evaluated on its aesthetic or how neatly it is drawn. The time required to administer and score an individual approximately takes 8-15 minutes. The reliability coefficients of DAP: IQ is .95 by Cronbach alpha method and .91 by test re-test method.

ITPA-3 developed by Hammill, Mather and Roberts (2001), is an effective measure of children’s spoken and written language. It is an individually administered, norm-referenced test of spoken and written linguistic abilities, intended for administration to children 5 year to 12–11. Administration time is approximately 45 to 60 minutes. The test was constructed for following purpose:

Early identification of weaknesses in linguistic processes

Determination of strengths and weaknesses

Documentation of progress

**Research**

The Global Composites includes three language Subtest (General, Spoken and Written); while General Language Composite is formed by combining the subtest of Spoken and Written Language. All subtests are some aspect of language including oral language, writing, reading, and spelling. The specific Composites include eight subtests. The structure of ITPA-3 is following:

ITPA-3 Composites Global	ITPA-3 Subtest Standard Scores											
	SA	SV	MC	SS	SD	FS	SSq	WV	SD	SoD	SiS	SoS
General Language	---	---	---	---	---	---	---	---	---	---	---	---
Spoken Language	---	---	---	---	---	---	---	---	---	---	---	---
Written Language	---	---	---	---	---	---	---	---	---	---	---	---
<b>Specific</b>												
Semantics	---	---										
Grammar			---	---								
Phonology					---	---						
Comprehension							---	---				
Word Identification									---	---		
Spelling											---	---
Sight-Symbol Processing									---	---		
Sound-Symbol Processing											---	---

**General Language**

– The general language composite is formed by combining the standard scores of all 12 subtests on the ITPA 3. Thus for most children, it is the best single estimate of linguistic ability because it reflects status on the widest array of spoken and written language abilities.

Spoken Language – This composite is formed by combining the standard scores of the six subtests that measure aspects of oral language (semantically, grammatical, and phonological aspects).

Written Language– This composite is formed by combining standard scores of the six subtests that measure different aspects of written language (semantic, graph phonemic and orthographic aspects).

**Specific Composites:**

Semantics- The results of the two subtests that measure the understanding and use of purposeful speech are used to create this composite.

Grammar– The two subtests in this composite measure grammar used in speech. One measures morphology and the other syntax.

**Phonology-** The two subtests that make up this composite measure competency with speech sounds, including phonemic awareness.

**Comprehension-** The two subtests that measure the ability to comprehend written messages (i.e. to read) and to express thoughts in graphic form (i.e. to write) make up this composite.

**Word-identification-** The results of the two decoding subtests, sight decoding and sound decoding are combined to form this composite.

**Spelling-** The results of the two subtests that measure spelling, sight spelling and sound spelling form this composite.

**Sight-symbol processing-** The two subtests in this composite measure the pronunciation and spelling of irregular words.

**Sound-symbol processing-** The two subtests in this composite measure the pronunciation and the spelling of pseudowords (phonically regular nonwords).

**Reliability:** by Internal consistency is .79 - .99 across 8 age levels; by test-retest is .86 - .99; and by interrater is .95 - .99.

**Procedure:**

For the present study, the researcher went to Amity International School, Sector 43, Gurugram. Official permission was taken from the principal of the school, then rapport was developed with the counsellor of the school and further discussion was done. The researcher used D.A.P (IQ) for the assessment of IQ (group administered) ranging from classes 1<sup>st</sup> to 5<sup>th</sup> (6- 12 years). The subjects were instructed in a group as:

“I want you to draw a picture of yourself. Be sure to draw your whole body, not just your head and draw how you look from the front, not from the side. Do not draw a cartoon or stick figure. Draw the best picture of yourself that you can. Take your time and work carefully. Go ahead”.

Proper scrutiny was conducted on 200 students and then 75 were selected to be divided into the three categories (keeping in mind the fact that all categories should have all age range based on their IQ, obtained from scores of DAP-IQ:

Below average (ranging from 70-89)

Average (ranging from 90-109)

Above average (ranging from 110-129)

After categorizing the students, ITPA-3 was conducted individually on the selected students. The instructions for subtests were given as per the ITPA-3 booklet.

**Scoring:**

Subtest raw scores can be converted into percentile ranks, (age equivalents and grade equivalents) and standard scores using tables in the back of the manual. Subtest standard scores are added to produce various composite scores. Global composites include the general language composite (sum of all 12 sub-tests), the spoken language composite and the written language composite. Specific composites (semantic, grammar, phonology, comprehension, word identification, spelling, sight-symbol processing and sound-symbol processing) can be determined based on the combinations of two sub-tests. After the assessor adds the appropriate sub-tests standard scores, the sum are then converted into composite quotients using tables in the back of the manual. These quotients also can be transformed into percentile ranks.

**Statistical Analysis:**

In the present study, ANOVA has been applied to find out comparison among all groups: above average, average and below average on various dimensions of language abilities as

there are more than two groups.

**Results:**

In the present study, following results have been found:

Table 1 Showing Comparison on Spoken Language Abilities among Above Average, Average and Below Average Group

Variables	Groups	Sum of Squares	Df	Mean Square	F	Sig.
SA	Between Groups	100.750	2	50.375	5.529	.006
	Within Groups	655.997	72	9.111		
	Total	756.747	74			
SV	Between Groups	193.253	2	96.626	8.769	.000
	Within Groups	793.334	72	11.019		
	Total	986.587	74			
MC	Between Groups	78.453	2	39.227	2.816	.066
	Within Groups	1002.827	72	13.928		
	Total	1081.280	74			
SS	Between Groups	26.699	2	13.350	.788	.459
	Within Groups	1219.487	72	16.937		
	Total	1246.187	74			
SD	Between Groups	116.573	2	58.287	4.406	.016
	Within Groups	952.573	72	13.230		
	Total	1069.147	74			
RS	Between Groups	32.093	2	16.047	1.193	.309
	Within Groups	968.573	72	13.452		
	Total	1000.667	74			

From table 1, it is clear that there is significant difference among all three groups (Above average, Average and Below average) on Spoke analogies SA (f=5.529, p=.006), Spoken Vocabulary SV (f=8.769, p=.000) and Sound Deletion SD (f=4.406, p=.016), while there is no significant difference on Morphological Closure MC (f=2.816, p=.066), Syntactic Sentences SS (f=.788, p=.459) and Rhyming Sequences RS (f=1.193, p=.309).

Table 2 Showing Performance on Spoken Language Abilities among Above Average, Average and Below Average Groups

Variables	Groups	N	Mean	Std. Deviation
SA	Below average	25	8.2000	2.58199
	average	24	10.4583	2.94853
	Above average	25	10.8077	3.44115
	Total	75	9.8267	3.19786
SV	Below average	25	7.3600	3.01220
	average	24	9.7083	3.36838
	Above average	26	11.2308	3.54748
	Total	75	9.4533	3.65134
MC	Below average	25	8.5200	3.93827
	average	24	9.3750	3.42386
	Above average	26	10.9615	3.79980
	Total	75	9.6400	3.82255
SS	Below average	25	11.0000	2.69258
	average	24	11.3333	4.75181
	Above average	26	12.5846	4.58761
	Total	75	11.5867	4.10370
SD	Below average	25	7.5200	3.84187
	average	24	8.5833	3.62259
	Above average	26	10.5000	3.44384
	Total	75	8.8933	3.80104
RS	Below average	25	10.9167	2.80060
	average	24	11.5200	3.99909
	Above average	26	12.5000	4.06202
	Total	75	11.6667	3.67730

Table 2 shows that in all dimensions of Spoken Language Abilities, above average group is performing better as compared to other two groups, i.e. average and below average (as mean of above average group in all dimensions is greater than other two groups); although there was no significant difference on MC, SS and RS.

**Table 3 Showing Comparison on Written Language Abilities among Above Average, Average and Below Average Groups**

Variables	Groups	Sum of Squares	df	Mean Square	F	Sig.
SSQ	Between Groups	150.993	2	75.296	4.747	.012
	Within Groups	1142.127	72	15.863		
	Total	1292.720	74			
WV	Between Groups	166.873	2	83.436	4.951	.010
	Within Groups	1213.314	72	16.852		
	Total	1380.187	74			
SiD	Between Groups	73.036	2	36.518	1.852	.164
	Within Groups	1419.944	72	19.720		
	Total	1492.980	74			
SoD	Between Groups	14.839	2	7.420	.635	.533
	Within Groups	840.947	72	11.680		
	Total	855.787	74			
SiS	Between Groups	53.627	2	26.814	1.285	.293
	Within Groups	1562.319	72	21.566		
	Total	1615.947	74			
SoS	Between Groups	9.912	2	4.956	.331	.719
	Within Groups	1081.035	72	15.014		
	Total	1090.947	74			

From table 3, it is clear that there is significant difference among all three groups (Above average, Average and Below average) on Sentence Sequencing SSQ ( $f=4.747$ ,  $p=.012$ ) and Written Vocabulary WV ( $f=4.951$ ,  $p=.010$ ), while there is no significant difference on other dimensions of Written Language Abilities, i.e., Sight Decoding SiD, Sound Decoding SoD, Sight Spelling SiS and Sound Spelling SoS.

**Table 4 Showing Performance on Written Language Abilities among Above Average, Average and Below Average Groups**

Variables	Groups	N	Mean	Std. Deviation
SSq	Below average	25	8.1200	4.01373
	Average	24	8.8333	4.42981
	Above average	26	11.3846	3.48800
	Total	75	9.4800	4.17962
WV	Below average	25	7.4800	4.10406
	Average	24	10.5417	3.28341
	Above average	26	10.7308	4.73757
	Total	75	9.5867	4.31870
SiD	Below average	25	8.7200	4.67725
	Average	24	10.2917	4.35869
	Above average	26	11.0769	4.27947
	Total	75	10.0400	4.49155
SoD	Below average	25	10.0400	3.48186
	Average	24	10.6667	2.94392
	Above average	26	11.1154	3.74515
	Total	75	10.6133	3.40069
SiS	Below average	25	9.8800	4.54899
	Average	24	11.0833	4.69891
	Above average	26	11.9231	4.46249
	Total	75	10.9733	4.58545
SoS	Below average	25	10.5200	3.59537
	Average	24	11.4167	3.14735
	Above average	26	11.0385	4.66031
	Total	75	10.9867	3.83967

Table 4 shows that in all dimensions of Written Language Abilities, above average group is performing better (except SoS) as compared to other two groups, i.e. average and below average (as mean of above average group is greater than other two groups); although there was no significant difference on SiD, SoD, SiS and SoS.

Table 5 Showing Comparison on Specific Language Abilities among Above Average, Average and Below Average Groups-From table 5, it is clear that there is significant difference among all three groups (Above average, Average and Below average) on some dimensions of Specific Language Abilities, i.e., semantics ( $f=7.863$ ,  $p=.001$ ), grammar ( $f=2.594$ ,  $p=.008$ ) and comprehension ( $f=4.203$ ,  $p=.001$ ), while there is no significant difference on other dimensions, i.e., phonology, word identification, spelling, sight symbol processing and sound symbol processing.

Variables	Groups	Sum of Squares	df	Mean Square	F	Sig.
Semantics	Between Groups	5056.902	2	2528.451	7.863	.001
	Within Groups	29152.778	72	403.649		
	Total	34209.680	74			
Grammar	Between Groups	1507.698	2	753.849	2.594	.008
	Within Groups	26476.071	72	367.736		
	Total	28383.769	74			
Phonology	Between Groups	2105.181	2	1052.590	1.863	.163
	Within Groups	40559.139	72	563.321		
	Total	42774.320	74			
comprehension	Between Groups	5024.909	2	2512.454	4.203	.001
	Within Groups	42894.878	72	595.763		
	Total	47989.787	74			
Word identification	Between Groups	1119.989	2	559.994	.992	.376
	Within Groups	40502.600	72	562.758		
	Total	41792.587	74			
spelling	Between Groups	1548.003	2	774.001	.700	.500
	Within Groups	53003.114	72	736.154		
	Total	54551.117	74			
Sight symbol	Between Groups	2075.802	2	1037.901	1.705	.189
	Within Groups	43021.719	72	597.525		
	Total	45097.520	74			
Sound symbol	Between Groups	530.622	2	265.311	.548	.582
	Within Groups	25034.459	72	347.714		
	Total	25565.080	74			

**Table 6 Showing Performance on Specific Language Abilities among Above Average, Average and Below Average Groups**

Variables	Groups	N	Mean	Std. Deviation
Semantics	Below average	25	86.5200	15.57273
	Average	24	100.75	17.91829
	Above average	26	105.81	19.94797
	Total	75	97.7600	19.52465
Grammar	Below average	25	97.8000	17.00735
	Average	24	100.88	22.38849
	Above average	26	109.58	17.89564
	Total	75	102.87	19.58511
Phonology	Below average	25	96.0400	18.54157
	Average	24	96.9167	25.41639
	Above average	26	107.58	26.50309
	Total	75	100.32	24.04228
comprehension	Below average	25	85.5600	23.38996
	Average	24	98.1667	20.03186
	Above average	26	105.15	28.63940
	Total	75	96.3867	25.43401
Word identification	Below average	25	96.1600	23.80420
	Average	24	102.88	20.62357
	Above average	26	105.23	26.29115
	Total	75	101.45	23.76193
Spelling	Below average	25	99.0400	21.56479
	Average	24	108.00	21.33582
	Above average	26	105.38	35.92890
	Total	75	104.11	27.25038
Sight symbol processing	Below average	25	96.0000	26.47168
	Average	24	103.92	24.77712
	Above average	26	108.65	22.70144
	Total	75	102.92	24.90455
Sound symbol processing	Below average	25	100.96	19.25591
	Average	24	106.50	16.49506
	Above average	26	106.69	28.17626
	Total	75	104.72	21.91356

Table 6 shows that in all dimensions of Specific Language Abilities, above average group is performing better (except Spelling and sound symbol processing) as compared to other two groups, i.e. average and below average (as mean of above average group is greater than other two groups); although there was no significant difference on phonology, word identification, spelling, sight symbol processing and sound symbol processing.

**Discussion: From the above results, hypothesis can be an-**

**swered as follows:**

1. Significant difference has been found among all three groups on some dimensions of spoken language abilities, i.e., spoken analogies SA, spoken vocabulary SV and sound deletion SD while no significant difference has been found on morphological closure MC, syntactic sentence SS and rhyming sequence RS (table-1).
2. Above average group is performing better on all dimensions of spoken language abilities as compared to average and below average (table-2).
3. Significant difference has been found among all three groups on some dimensions of written language abilities, i.e., sentence sequencing SSq and Written vocabulary WV while no significant difference has been found on sight decoding SiD, sound decoding SoD, sight spelling SiS and sound spelling SoS (table-3).
4. Above average group is performing better on all dimensions (except sound spelling SoS) of written language abilities as compared to average and below average (table-4).
5. Significant difference has been found among all three groups on some dimensions of specific language abilities, i.e., semantics, grammar and comprehension while no significant difference has been found on phonology, word identification, spelling, sight symbol processing and sound symbol processing (table-5).
6. Above average group is performing better on all dimensions (except Spelling and sound symbol processing) of specific language abilities as compared to other two groups (table-6).

It is generally recognized that a positive relationship exists between language ability and mental ability as measured by a standard intelligence test. The relationship has been suspect, however, since the understanding and use of words play so large a role in many of the intelligence tests. The question has been raised of whether a child earns a high score on a verbal intelligence test because he has good command of language, or whether he has good command of language because of his verbal intelligence (Jersild 1968). This has been termed the "overlap" of linguistic ability and general intelligence (Watts 1948). Dixon (1967) observed that children who can talk over the steps and operations as they carry them out have a better chance of succeeding "even when their companion says nothing".

Studies of intellectual growth reveal the influence of language on thought processes and concept development and appears to imply the effect of such influence on the results of standardized evaluative measures of intelligence. Freyberg (1966) studied six to nine year old children and reported that concept development is more closely linked to the growth of general intellectual ability than to chronological age (CA) or general maturational level.

Dawe (1942) studied the effect of an educational program upon language development and related mental functions of preschool and kindergarten children in an orphan home. The educational program emphasized four types of training in the understanding and use of language symbols: (1) training in the understanding of words and concepts; (2) looking at and discussing pictures; (3) listening to poems and stories; (4) going on short excursions. It was found that the experimental group gained significantly in IQ and made changes in the direction of improvement in language ability as measured by mean sentence length and sentence complexity, as well as increasing use of verbal expression and more frequent analytical remarks.

The effect of language on cognitive growth and evaluation has been noted by Hunt (1964) in the intellectual inferiority apparent among so many children of parents' low educational and socioeconomic status, regardless of race. He describes the children who are apt to have various linguistic liabilities as having perceptual deficiencies in the sense that they recognize fewer objects and situations and have fewer interests than do

most middle-class children. It can also be seen that mothers from higher social classes who are better educated also tend to be more verbal, and have more time to spend engaging with their infants in language.

Senn (1969) and Frost (1967) emphasized the growth of language power in the concept of educating the "whole child." According to Sontag, (1958) and Kagan (1958), children showing an ascending trend in intelligence rated somewhat higher than others in traits such as independence, aggressiveness, initiative and competitiveness. These traits are similar to those noted for children of verbal competency in the studies of language and behavior (Rosenthal, 1956; Scheidel, Cowell, and Shepherd 1958).

Bangs (1942) explains the relationship between language development and intelligence, reading skill, visual perception, and auditory discrimination. Operationally, intelligence may be defined as the capacity to solve problems through the integration and interdependence of two systems, language and learning. Children with deficits in one or more (but not all) avenues of learning are described as having specific learning disabilities. Children with deficits in language and all avenues of learning demonstrate general intellectual retardation. Theoretically, the child with no deficits in language or learning had adequate learning potential.

There are some literature work that shows the vice-versa relationship between language development and intellectual growth. In the 1950's McCarthy notes that the variations in intellectual differences that are observed from one individual to the next have been largely effected by language development. Gardner (1985a) stated that "during the later preschool years and in subsequent development throughout childhood, over-all language development is the best single index of intelligence available to psychologists."

Empiricists hold the view that it is intelligence which enables a child to process and construct all kinds of ideas, be they for language, mathematics or playing games. From the results we can see that there is a significant difference in some dimensions of spoken, written and specific language abilities and above average groups were performing better on some dimensions of spoken, written and specific language abilities. Therefore, it can be expected, that intelligence as represented by a derived IQ rating will have a determining effect on certain features of children's spoken and written language production.

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