

**Standardization and Modification
Of
Illinois Test of Psycholinguistic
Abilities on Egyptian Children**

Thesis

Submitted for the partial fulfillment of the Doctoral
Degree of Phoniatics

By

Azza AbdEl-Azziz Azzam

Supervised by

Dr. Mohsen Abd El- Hamid Gad Allah

Professor of community medicine

Dr.Safaa Refaat El-Sady

Professor of Phoniatics

Dr. Alia Mahmoud El-Shoubary

Professor of Phoniatics

Dr. Tarek Abd El-wahab

Assistant Professor of Psychology, Faculty of Art, South
Vally University, Sohag branch

Faculty of Medicine
Ain Shams University

2007

Acknowledgment

Thank "**God**" for enlightening my path and strengthening my will until I was able to produce my work.

I wish to express my sincere gratitude and indebtedness to **Prof. Dr. Mohsen Gad Alla**, head of community medicine, Faculty of medicine, Ain Shams University, for his valuable advice throughout this work.

I would also convey my appreciation to **Prof. Dr. Safaa Refaat El-Sady**, professor of Phoniatrics, Faculty of medicine, Ain Shams University, for her precious guidance, meticulous supervision, valuable instructions, and sisterly support.

I am also greatly indebted to **Prof. Dr. Alia Mahmoud El-Shoubary** professor of Phoniatrics, Faculty of medicine, Ain Shams University, for her helpful guidance, kind encouragement and valuable advice along the stages of this thesis.

Many thanks to **Prof. Dr. Mohammed Baraka**, Professor and Head of the unit of Phoniatrics, Faculty of medicine, Ain Shams University for his encouragement and valuable support.

Thanks also to the **members of the staff** in Phoniatrics Department, Faculty of medicine, Ain Shams University.

I also thank **Dr. Abd El-Mohssen Ebrahim Abdel-Halim**, Assistant prof. of Psychology, Faculty of Art, El-Menia University for his continuous guidance.

A special thank goes to my father **Prof. Dr. Abd El-Azziz Azzam** and my mother for giving me life in the first place, for unconditional support and encouragement to pursue my interests, for reminding me that research should always be useful to mankind, and serve moral purposes. Also many thanks to my sister **Eman Abd El-Azziz Azzam** the Interior Designer for her effort in drawing the pictures of this study.

Last but not least, I want to thank my husband **Assistant professor Dr. Kamal Hafez**, Faculty of Engineering South Valley University who sharing with his experience in computer science in the design of this work, also for listening to my complaints and frustrations and for believing in me.

Contents

	Page
Introduction -----	1
Aim of the work-----	7
Psychological testing	
Definition -----	8
Types of Psychological testing-----	9
Example of Psychological testing-----	13
Test standardization	
Norms-----	24
Reliability -----	25
Validity -----	27
Factors affecting test scores -----	
Illinois Test of Psycholinguistic Abilities	35
Past history -----	35
The model of the ITPA-----	42
Characteristics of the ITPA-----	44
Scoring of the ITPA-----	54
Some pattern of disabilities -----	47
Criticism against the ITPA -----	57
Advantages and uses -----	70
Selected research findings-----	75
Material and methods -----	86
Results -----	94
Discussion -----	109
Summary and conclusion -----	176
Limitation of the Arabic ITPA -----	191
References -----	194
Appendix -----	195
Arabic Summary	

List of Tables	Page
(Table 1): Distribution of the sample group	94
(Table 2): The distribution of the pilot study group	95
(Table3): a significant positive correlation between ITPA performance and chronological age	109
(Table, 4): Mean raw scores increase with age	117
(Table 5): values for multiple comparisons between Raw Scores means differences for consecutive age levels for each subtest and composite	120
(Table 6): sex distribution for each age group	122
(Table 6-1): The effect of test variable on the children responses	122
(Table7): The effect of the sibling order on the responces	122
(Table 7-1): The effect of the sibling order on the responces	123
(Table 8) : Father'slevel shows significant results	124
(Table 8): mother's level shows significant results	125
(Table 9): a significant positive correlation between ITPA performance & Binet MA	125
(Table10) : correlation between Stanford Binet MA and ITPA performance for the normative group by age level	126
(Table11): Test-retest correlation	127
(Table12), the developmental changes by age levels	129
(Table 13) Correlation between ITPA subtests	131
(Table 13-1): Correlation between Auditory Reception and the other subtests	132
(Table 13-2): The correlation between Visual Reception and the other subtests	
(Table 13-3): The correlation between Auditory Asociation and the other subtest	
(Table 13-4): The correlation between Visual Association and the ITPA subtests	

(Table 13-5): The correlation between Verbal Expression and the other subtests	133
(Table 13-6): The correlation between Manual Expression and the other subtests	134
(Table 13-7): The correlation between Grammatical Closure and the other subtests	135
(Table 13-8) The correlation between Visual Closure and the other subtests	136
(Table 13-9) The correlation between Auditory Memory and the other subtests	137
(Table 13-10) The correlation between Visual Memory and the other subtests	138
(Table 13-11), The correlation between Auditory Closure and the other subtests	139
(Table 13-12): The correlation between Sound Blending and the other subtests	140
(Table 14): Description of the sample of the learning disabled children:	141
(Table 15): Contrast between Norms and Learning Disabled group.	142
(Table,16) Mean <i>Psycholinguistic Ages by monthes</i> for Auditory Reception(AR), Visual Reception(VR), Auditory Association(AA), Visual Association(VA	143
(Table,16 cont.) mean Psycholinguistic Ages by monthes for Verbal Expression(VE),Manual expression(ME),Grammatical Closure(GC),Visual Closure(VC)	144
(Table,16 cont.) Mean Psycholinguistic Ages by monthes for AuditoryMemory(AM),VisualMemory(VM),Auditory Closure(AC), Sound Blending(SB).	155
(Table,17) Composite PLA	156
(Table 18) Mean Scaled Scores <i>for Auditory Reception(AR), Visual Reception(VR), Auditory Association(AA), Visual Association(VA</i>	157
(table,19) :Functions of the ITPA and the Common functions affected	158
	161

	166
--	-----

List of figures	
(Figure, 1) the model of the ITPA .	42
(Figure 2): profile of psycholinguistic ages for a child with an average abilities	59
(Figure 3) profile of psycholinguistic ages for a child with auditory vocal channel disability	61
(figure 4): profile of psycholinguistic ages for a child with visual motor disability.	63
(Figure 5): profile of psycholinguistic ages for a child with automatic level disability.	65
(Figure 6): profile of psycholinguistic ages for a child with an expressive disability.	67
(Figure 7): profile of psycholinguistic ages for a child with association disability.	69
(Figure 8-1): psycholinguistic ages derived from raw scores of auditory reception	150
(Figure 8-2): psycholinguistic ages derived from raw scores of visual reception	151
(Figure 8-3): psycholinguistic ages derived from raw scores of auditory association	151
(Figure 8-4): psycholinguistic ages derived from raw scores of visual association	152
(Figure 8-5): psycholinguistic ages derived from raw scores of verbal expression	152
(Figure 8-6): psycholinguistic ages derived from raw scores of manual expression	152

(Figure 8-7): psycholinguistic ages derived from raw scores of grammatical closure	153
(Figure 8-8): psycholinguistic ages derived from raw scores of visual closure	153
(Figure 8-9): psycholinguistic ages derived from raw scores of auditory sequential memory	153
(Figure 8-10): psycholinguistic ages derived from raw scores of visual sequential memory	154
(Figure 8-11): psycholinguistic ages derived from raw scores of auditory closure	154
(Figure 8-12): psycholinguistic ages derived from raw scores of sound blending	154
(Figure 9): Sample series of Scaled Score Curves for the Grammatical Closure subtest of the ITPA	160
(Figure 10): case A	169
(Figure 11): case B	174

List of graphs	
Correlation between chronological age and auditory reception	110
Correlation between chronological age and visual reception	111
Correlation between chronological age and auditory association	111
Correlation between chronological age and auditory association	112
Correlation between chronological age and verbal expression	112
Correlation between chronological age and manual expression	113
Correlation between chronological age and grammatical closure	113
Correlation between chronological age and visual closure	114
Correlation between chronological age and auditory sequential memory	114
Correlation between chronological age and visual sequential memory	115
Correlation between chronological age and auditory closure	115
Correlation between chronological age and sound blending	116

--	--

APPENDIX 1.

Table 1. *Psycholinguistic Age Norms For the 12th
ITPA Subtests*

Table 2. *Scaled scores Norms .*

Table 3. *Composite Psycholinguistic Age Norms For
the 12th ITPA Subtests*

Table 1. Psycholinguistic Age Norms For the 12th ITPA Subtests

Raw	ar	vr	aa	va	ve	me	Gc	vc	am	vm	ac	sb	raw
1	2-6	2-2	2-9	2-4	2-11	2-9			2-7		2-9		1
2	2-8	2-4	2-9	2-7	2-11	2-9			2-8		2-10	2-4	2
3	2-9	2-7	2-10	2-8	2-11	2-10	2-6	2-5	2-8		3-0	2-10	3
4	2-10	2-8	2-11	2-10	2-11	2-10	2-10	2-8	2-9	2-6	3-1	3-2	4
5	3-0	2-11	3-0	3-0	3-0	2-10	3-1	2-11	2-10	2-11	3-2	3-6	5
6	3-1	3-1	3-1	3-3	3-1	2-11	3-3	3-2	2-11	3-2	3-3	3-9	6
7	3-2	3-3	3-3	3-5	3-1	3-0	3-6	3-5	3-1	3-6	3-4	4-0	7
8	3-4	3-6	3-4	3-7	3-2	3-1	3-7	3-7	3-2	3-9	3-5	4-2	8
9	3-5	3-8	3-6	3-10	3-3	3-2	3-9	3-9	3-4	3-11	3-6	4-4	9
10	3-7	3-11	3-7	4-0	3-4	3-3	3-10	3-11	3-6	4-2	3-8	4-6	10
11	3-9	4-1	3-9	4-3	3-5	3-5	3-10	4-1	3-8	4-4	3-9	4-8	11
12	3-10	4-3	3-10	4-5	3-7	3-6	3-11	4-3	3-10	4-6	3-10	4-9	12
13	4-0	4-6	4-0	4-8	3-8	3-8	4-0	4-5	4-1	4-7	4-0	4-10	13
14	4-2	4-8	4-2	4-11	3-10	3-10	4-0	4-7	4-3	4-9	4-2	5-0	14
15	4-3	4-11	4-4	5-1	4-0	4-1	4-1	4-9	4-6	4-10	4-4	5-1	15
16	4-5	5-1	4-6	5-4	4-1	4-3	4-1	4-11	4-9	5-0	4-6	5-2	16
17	4-7	5-4	4-8	5-7	4-3	4-5	4-2	5-1	5-0	5-1	4-9	5-4	17
18	4-9	5-7	4-11	5-10	4-5	4-8	4-3	5-3	5-3	5-3	4-11	5-6	18
19	4-11	5-9	5-1	6-1	4-7	4-11	4-4	5-5	5-6	5-4	5-3	5-7	19
20	5-1	6-0	5-4	6-4	4-10	5-2	4-5	5-7	5-9	5-6	5-6	5-9	20
21	5-3	6-3	5-6	6-7	5-0	5-5	4-7	5-9	6-1	5-7	5-10	6-0	21
22	5-5	6-5	5-9	6-10	5-3	5-9	4-9	6-0	6-4	5-9	6-3	6-3	22
23	5-7	6-7	6-0	7-1	5-5	6-0	5-0	6-3	6-8	5-11	6-8	6-6	23
24	5-9	6-11	6-2	7-4	5-8	6-4	5-3	6-6	6-11	6-2	7-1	6-10	24
25	5-11	7-2	6-5	7-7	5-11	6-8	5-7	6-10	7-3	6-4	7-7	7-2	25
26	6-1	7-5	6-8	7-10	6-2	7-0	5-11	7-1	7-6	6-7	8-1	7-7	26
27	6-3	7-8	7-0	8-2	6-5	7-4	6-4	7-5	7-10	6-11	8-9	8-0	27
28	6-5	7-11	7-3	8-5	6-8	7-9	6-10	7-10	8-2	7-2	9-4	8-6	28
29	6-7	8-1	7-6	8-8	7-0	8-1	7-4	8-3	8-5	7-6	10-1	9-1	29
30	6-10	8-4	7-10	9-0	7-3	8-6	8-0	8-8	8-9	7-11		9-8	30
31	7-0	8-7	8-1	9-3	7-7	8-11	8-8	9-2	9-1	8-4		10-4	31
32	7-3	8-10	8-5	9-7	7-10	9-4	9-5	9-8	9-5	8-10			32
33	7-5	9-2	8-8	9-10	8-2	9-10	10-4	10-2	9-8	9-4			33
34	7-8	9-5	9-0	10-2	8-6	10-3	12-11		10-0	9-11			34
35	7-11	9-8	9-4		8-10				10-4	10-1			35
36	8-1	9-11	9-8		9-2								36
37	8-3	10-3	10-0		9-7								37
38	8-6		10-4		9-11								38
39	8-9				10-4								39
40	8-11												40
41	9-2												41
42	9-5												42
43	9-8												43
44	9-10												44
45	10-1												45
46													46
47													47

Table 2. Scaled scores Norms (cont.) 2 years 6 monthes

[illegible]

[illegible]

**Table 2. Scaled scores Norms (cont.) 42 month (3years and 6
months)**

[illegible]

Table 2. Scaled scores Norms (cont.) 48 month (4 years)

Raw	ar	vr	aa	va	ve	me	gc	vc	am	vm	ac	sb
0	26	29	26	29	23	24	24	27	26	27	27	28
1	27	30	27	30	24	25	25	28	27	28	28	29
2	28	31	28	31	25	26	26	29	28	29	29	30
3	29	32	29	32	26	27	27	30	29	30	30	31
4	30	33	30	33	27	28	28	31	30	31	31	32
5	31	34	31	34	28	29	29	32	31	32	32	33
6	32	35	32	35	29	30	30	33	32	33	33	34
7	33	36	33	36	30	31	31	34	33	34	34	35
8	34	37	34	37	31	32	32	35	34	35	35	36
9	35	38	35	38	32	33	33	36	35	36	36	37
10	36	39	36	39	33	34	34	37	36	37	37	38
11	37	40	37	40	34	35	35	38	37	38	38	39
12	38	41	38	41	35	36	36	39	38	39	39	40
13	39	42	39	42	36	37	37	40	39	40	40	41
14	40	43	40	43	37	38	38	41	40	41	41	42
15	41	44	41	44	38	39	39	42	41	42	42	43
16	42	45	42	45	39	40	40	43	42	43	43	44
17	43	46	43	46	40	41	41	44	43	44	44	45
18	44	47	44	47	41	42	42	45	44	45	45	46
19	45	48	45	48	42	43	43	46	45	46	46	47
20	46	49	46	49	43	44	44	47	46	47	47	48
21	47	50	47	50	44	45	45	48	47	48	48	49
22	48	51	48	51	45	46	46	49	48	49	49	50
23	49	52	49	52	46	47	47	50	49	50	50	51
24	50	53	50	53	47	48	48	51	50	51	51	52
25	51	54	51	54	48	49	49	52	51	52	52	53
26	52	55	52	55	49	50	50	53	52	53	53	54
27	53	56	53	56	50	51	51	54	53	54	54	55
28	54	57	54	57	51	52	52	55	54	55	55	56
29	55	58	55	58	52	53	53	56	55	56	56	57
30	56	59	56	59	53	54	54	57	56	57	57	58
31	57	60	57	60	54	55	55	58	57	58	58	59
32	58	61	58	61	55	56	56	59	58	59	59	60
33	59	62	59	62	56	57	57	60	59	60	60	61
34	60	63	60	63	57	58	58	61	60	61	61	62
35	61	64	61	64	58	59	59	62	61	62	62	63
36	62	65	62	65	59	60	60	63	62	63	63	64
37	63	66	63	66	60	61	61	64	63	64	64	65
38	64		64		61	62	62	65	64	65	65	66
39	65		65		62	63	63	66	65	66	66	
40	66		66		63	64	64		66			
41					64	65	65					
42					65	66	66					
43					66							
44												
45												
46												

Table 2. Scaled scores Norms 54 month (4years 6 monthes)

Raw	ar	vr	aa	va	ve	me	gc	vc	am	vm	ac	sb	Raw
0	23	26	23	26	19	21	20	24	24	24	23	25	0
1	24	27	24	27	20	22	21	25	25	25	24	26	1
2	25	28	25	28	21	23	22	26	26	26	25	27	2
3	26	29	26	29	22	24	23	27	27	27	26	28	3
4	27	30	27	30	23	25	24	28	28	28	27	29	4
5	28	31	28	31	24	26	25	29	29	29	28	30	5
6	29	32	29	32	25	27	26	30	30	30	29	31	6
7	30	33	30	33	26	28	27	31	31	31	30	32	7
8	31	34	31	34	27	29	28	32	32	32	31	33	8
9	32	35	32	35	28	30	29	33	33	33	32	34	9
10	33	36	33	36	29	31	30	34	34	34	33	35	10
11	34	37	34	37	30	32	31	35	35	35	34	36	11
12	35	38	35	38	31	33	32	36	36	36	35	37	12
13	36	39	36	39	32	34	33	37	37	37	36	38	13
14	37	40	37	40	33	35	34	38	38	38	37	39	14
15	38	41	38	41	34	36	35	39	39	39	38	40	15
16	39	42	39	42	35	37	36	40	40	40	39	41	16
17	40	43	40	43	36	38	37	41	41	41	40	42	17
18	41	44	41	44	37	39	38	42	42	42	41	43	18
19	42	45	42	45	38	40	39	43	43	43	42	44	19
20	43	46	43	46	39	41	40	44	44	44	43	45	20
21	44	47	44	47	40	42	41	45	45	45	44	46	21
22	45	48	45	48	41	43	42	46	46	46	45	47	22
23	46	49	46	49	42	44	43	47	47	47	46	48	23
24	47	50	47	50	43	45	44	48	48	48	47	49	24
25	48	51	48	51	44	46	45	49	49	49	48	50	25
26	49	52	49	52	45	47	46	50	50	50	49	51	26
27	50	53	50	53	46	48	47	51	51	51	50	52	27
28	51	54	51	54	47	49	48	52	52	52	51	53	28
29	52	55	52	55	48	50	49	53	53	53	52	54	29
30	53	56	53	56	49	51	50	54	54	54	53	55	30
31	54	57	54	57	50	52	51	55	55	55	54	56	31
32	55	58	55	58	51	53	52	56	56	56	55	57	32
33	56	59	56	59	52	54	53	57	57	57	56	58	33
34	57	60	57	60	53	55	54	58	58	58	57	59	34
35	58	61	58	61	54	56	55	59	59	59	58	60	35
36	59	62	59	62	55	57	56	60	60	60	59	61	36
37	60	63	60	63	56	58	57	61	61	61	60	62	37
38	61	64	61	64	57	59	58	62	62	62	61	63	38
39	62	65	62	65	58	60	59	63	63	63	62	64	39
40	63	66	63	66	59	61	60	64	64	64	63	65	40
41	64	67	64	67	60	62	61	65	65	65	64	66	41
42	65	68	65	68	61	63	62	66	66	66	65		42
43	66	69	66	69	62	64	63				66		43
44					63	65	64						44
45					64	66	65						45
46					65		66						46