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DEVELOPMENT AND STANDARDIZATION OF AN ICT INTELLIGENCE TEST



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ABSTRACT

Intelligence has been defined in many different ways including logic, abstract thought, understanding, self-awareness, communication, and learning, having emotional knowledge, retaining, planning, and problem solving. In this research paper an attempt has been made to construct and standardize the ICT Intelligence Test to measure ICT Intelligence of B.Ed. student teachers, as there is no suitable questionnaire available to measure the ICT Intelligence of B.Ed. student teachers.



KEYWORDS : *Development , Standardization , ICT Intelligence Test , communication, and learning.*

INTRODUCTION :

ICT in Education is the foundation upon which a country develops. It is a dynamic force in the life of every individual influencing his physical, mental, emotional, social and ethical developments. ICT is an essential tool for achieving sustainability and will help in enabling better and increased access to information to enrich the teaching learning process. Teaching is a process in which the teacher and students create an interactive environment. Since pupils are the nation builders of tomorrow and are the vital part of our community, such ICT Intelligence has to rightly start from here. That is why the researcher feels B.Ed. student teachers are the forthcoming teachers, if only they have enough ICT Intelligence, they can in turn inculcate to their students. Hence the investigator decides to choose B.Ed. student teachers as the sample for this study. In order to construct the test the investigator collected a variety of information regarding ICT from the experts and other sources, Based on that as many as 65 multiple choice questions were prepared.

METHODOLOGY

This test comprises of 60 items. The maximum mark for a question is 1 and the minimum mark is 0. Therefore one can get a maximum score of 60 and a minimum score of 0 on this test. After having constructed the ICT Intelligence test the investigator administered this test on a sample of 200 B.Ed. student teachers for pilot study in order to carry out the item analysis.

ITEM ANALYSIS

Item analysis is an important step in the standardization of any test. The two criterion groups with 54 scripts each in the upper (top 27%) and the lower (top 27%) were formed. Then the index of difficulty and the index of discrimination for all the 65 questions were computed.

By convention items with difficulty index higher than 10% or lower than 90% are retained. Similarly, items with index of discrimination above 0.30 are retained. In the present study, only items having index of difficulty in the range of 55% to 80% and index of discrimination ranging from 0.31 to 0.50 were selected. Accordingly 52 items were selected out of 60 items and this constituted the final form of the test. The details of item analysis are given in Table 1.

TABLE 1
ITEM ANALYSIS – INDICES OF ITEM DIFFICULTY & DISCRIMINATION IN PILOT STUDY

S. No	No. of Students (54) in the high group who responded correctly	No. of Students (54) in the low group who responded correctly	Index of item difficulty	Index of discrimination	Item selected
1	34	07	76	0.50	S
2	33	07	74	0.48	S
3	22	11	64	0.20	NS
4	25	05	55	0.37	S
5	33	10	80	0.43	S
6	27	05	59	0.41	S
7	30	19	91	0.20	NS
8	32	07	72	0.46	S
9	26	09	65	0.31	S
10	30	19	91	0.20	NS
11	28	09	69	0.35	S
12	32	05	68	0.50	S
13	21	12	60	0.16	NS
14	26	08	61	0.33	S
15	34	09	80	0.46	S
16	21	09	55	0.22	NS
17	29	05	63	0.44	S
18	28	05	61	0.43	S
19	35	08	80	0.50	S
20	31	05	66	0.48	S
21	22	11	64	0.20	NS
22	30	05	65	0.46	S
23	20	07	49	0.24	NS
24	33	09	78	0.44	S
25	29	06	64	0.43	S

26	21	09	55	0.22	NS
27	32	11	79	0.39	S
28	27	07	63	0.37	S
29	33	18	94	0.28	NS
30	30	11	78	0.35	S
31	23	10	62	0.24	NS
32	27	06	61	0.39	S
33	25	05	55	0.37	S
34	33	10	80	0.43	S
35	27	05	59	0.41	S
36	31	20	92	0.20	NS
37	32	07	72	0.46	S
38	26	09	65	0.31	S
39	30	19	91	0.20	NS
40	28	09	69	0.35	S
41	32	05	68	0.50	S
42	21	12	60	0.16	NS
43	30	11	78	0.35	S
44	28	06	63	0.41	S
45	31	11	77	0.37	S
46	21	08	53	0.24	NS
47	33	09	78	0.44	S
48	29	06	64	0.43	S
49	29	07	67	0.41	S
50	21	09	55	0.22	NS
51	27	07	63	0.37	S
52	28	06	63	0.41	S
53	31	11	77	0.37	S
54	31	16	86	0.28	NS
55	29	09	71	0.37	S
56	25	06	57	0.35	S
57	20	08	55	0.21	NS
58	27	09	67	0.33	S
59	33	06	72	0.50	S
60	21	09	55	0.22	NS

(S – Selected; N.S – Not Selected)

Reliability and Validity of the Test

Reliability refers to the consistency with which a test measures, whatever it measures. The concept of reliability suggests both stability and consistency of measurement. The investigator calculated the reliability analysis and it was given in the following table.

TABLE SHOWING THE RELIABILITY METHOD AND CO-EFFICIENT VALUES

METHOD OF RELIABILITY ANALYSIS	RELIABILITY CO-EFFICIENTS
Correlation between forms	0.674
Equal-length Spearman-Brown	0.635
Guttman Split-half	0.632
Unequal-length Spearman-Brown	0.679

Validity reveals the merits of our measurement. This attitude scale was given to the experts (20 members) in order to find out its content validity. The experts agreed that the items in the scale provided adequate coverage of the concept. This Test has construct validity.

Norms for the ICT Aptitude Test

The 'Z' score and the 'T' scores are given in Table 2.

TABLE 2
Z AND T SCORES OF THE SAMPLE ON THE ICT APTITUDE TEST

S. No	Raw Scores X	$Z = \frac{X - M}{\sigma}$	$T = 10 Z + 50$
1	59	0.4615	54.615
2	58	0.3887	53.887
3	57	0.3165	53.165
4	56	0.2443	52.443
5	55	0.1716	51.716
6	54	-0.0006	49.994
7	53	-0.0744	49.256
8	52	-0.1456	48.544
9	51	-0.2168	47.832
10	50	-0.2905	47.095
11	49	-0.3626	46.374
12	48	-0.4352	45.648
13	47	-0.5075	44.925
14	46	-0.5810	44.190
15	45	-0.6525	43.475
16	44	-0.7252	42.748
17	43	-0.7971	42.029
18	42	-0.8696	41.304
19	41	-0.9421	40.579
20	40	-1.0145	39.855
21	39	-1.0890	39.110
22	38	-1.1595	38.405
23	37	-1.2316	37.684
24	36	-1.3042	36.958
25	35	-1.3764	36.236
26	34	-1.4484	35.516
27	33	-1.5233	34.767
28	32	-1.5937	34.063
29	31	-1.6651	33.349
30	30	-1.7395	32.605
31	29	-1.8112	31.888
32	28	-1.8845	31.855

The percentile norms are presented in Table 3 below.

TABLE 3
PERCENTILE NORMS FOR THE ICT INTELLIGENCE TEST

Percentiles	IAT
10	32
20	36
30	40
40	42
50	45
60	49
70	53
80	56
90	59

The final version of the ICT Intelligence test has been prepared with the 42 valid items. The maximum possible score will be 42 and the minimum will be zero. Higher the score in the test, greater is the ICT Intelligence of the candidate.

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