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Assessment of Learning Achievement of Visually Impaired Children at Primary Level

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KEY WORDS

Assessment, Visually Impaired, Item Analysis, learning achievement, difficulty level, special education.

ABSTRACT

The paper dispenses and disseminates assessment of the learning achievement of visually impaired children at primary level in Punjab. This explorative study was devised primarily to assess the academic achievement of the visually impaired and to analyze items developed for visually impaired children in Punjab. Keeping in view the aforementioned objectives and issues, the empirical work was administered in two urban districts of Punjab's populated congested city Lahore and Okara. For the sake of research work, samples were assembled from the different groups of male and female visually impaired children in Punjab. In this research work, (N = 100) boys and girls participated as sample of the study. The research questionnaire was constructed on the basis of the conceived strategies and assessment methods. An achievement test in Braille and sighted system was developed in the subject of Social Studies. The test contained 38 questions which were in the form of MCQs and open ended. For item analysis, ITEMAN software was employed and for other data analysis SPSS was used. The results and findings retrieved from the study were analyzed and revealed through descriptive statistics. The most of the items had a moderate difficulty level. Overall all the achievement of male and female students was satisfactory; however, no char difference was found across the gender. Most of the test items were reliable and valid. The study may be beneficial for

psychometricians, teachers, parents of visually impaired children and other stakeholders specially in the sub-sector of special education.

Introduction

The teaching learning pedagogical strategies navigate the significance in developing standardized education mechanism, it ultimately, sustain the social and economic development of nation and country. For the sake of entire development of states' multipronged sectors, these aspects should not be overlooked and negated. Pakistan has promulgated numerous educational plans and policies since the coming into being. The prime objective of all the educational policies is to enhance quality of teaching learning and sustain education system in Pakistan. Thus, there is still place for improvement in these spheres (Rizvi, 2000) . Educational assessment system in Pakistan is still developing and accomplishment process. Assessment strategies promulgated in educational institutions don't gauge actual performance of the individuals who possess genuine competency in the areas in which they have acquired knowledge during teaching learning process. It looks that the entire system of education pirouettes the exams (Khan,2006).

The "assessment, is often used synonymously with the words appraisal and evaluation. Assessment activities are the essential mechanism used to retrieve information. Assessment systems are strategies and approaches to assemble data using a variety of tools of techniques. Assessment tools and strategies are used in a variety of ways to conduct comprehensive diagnostic activities. Assessment is, probably, the most essential element for pedagogical mechanism. This is the most vital variable on which the performance and learning achievement of visually impaired is banked on. It was observed that the mostly teachers, even higher education faculty, mingle the term assessment and with numerical measurement. The reasonably effect for this perhaps was that the mechanism of evaluating annually examined papers in our federal / provincial board of intermediate and secondary education is deemed as assessment. Assessment is collectively named as educational evaluation, which is elaborated to a myriad of strategies of determining the collective performance of individuals. Tests- or examinations are a part of assessment and marking is the procedure by which the performance of a student is gauged based on his or her answer scripts (Mo E, 2009, p.41).

It was mentioned in documents of ministry of education that Students learning achievement and performance shall be banked upon assessing ability and skill in a specific area which need a assigned competency set. There may be variety of techniques of assessment mechanism. A myriad of assessment instruments additional to conventional examinations should be analyzed to judge the appropriate balance between the accommodations of formative assessment practices linked with summative assessment strategies of standardized examinations (p.41).

Assessment is commonly conducted to ensure the entire mechanism's effectiveness and individuals' learning achievements. Additionally, it disseminates feedback for betterment of the existing system "commencing from improvement in the classroom to sustainment in educational systems" (M o E, 2009, P.41). In addition to that up to date assessment strategies are not being introduced to evaluate visually impaired students' and even compromising on traditionally conventional learning mechanisms produces substandard quality of education in the nation and country (Christie and Khushk, 2004).

Item analysis is pivotal part and parcel of educational assessment in education system in Pakistan. The Multiple Choice items have been used widely in students' assessment throughout the world. As the construction of such items is very difficult. Similarly, the job of the test developers does not end at the construction of the multiple – choice items. It is also the quality of the good test that it should be standardized. After constructing the test items, the test developers must eager to know about his test that items are really good or not. At the same, these items can be used for further testing by other people and himself also. There are some steps involved in the item analysis. By using item analysis, we can calculate these three analysis i. e. item difficulty, discrimination index and distractor power (Shaker, 2004).

Statement of the Problem

Across the world, a lot exploratory research has been conducted on learning achievement of the students. Some researchers have focused upon higher level achievement at university education. Rehmani, (2003) revealed in literature review and his finding that assessment strategies at secondary level have not investigated students' performance. Having dispensed assessment methods and learning achievement for visually impaired children, the current exploratory study would bidg the gap and investigate hidden and overlooked aspects in the area of visually impaired children's education.

Objective of the study

1- To analyze the test items developed for visually impaired children.
2- To find out academic achievement of the visually impaired children.
3- To investigate the gender differences in learning achievement at primary level.

Methodology

Methodology is the fundamental base of scientific procedure after the problem has been identified and the step is to put the research study in to practice. The research design was descriptive in nature of survey. It is commonly adopted for investigating a myriad of educational problems, assessment of attitude and perceptions. Population consisted of all 4th grade boys and girls enrolled in the institutions for visually impaired children in Punjab. One hundred (100) subjects were selected by using convenient sample sampling technique from district Lahore and Okara. Achievement test consisting of 35 MCQs and 3open ended questions was constructed by researcher himself. The instrument was developed for two categories of visually impaired children i.e. partially sighted and totally blind. The achievement test was administered to 100 male and female students enrolled in institutions of visually impaired Lahore and Okara. Subsequently, responses of the students were noted against each question. Then responses of respondents were tabulated in computer for the purpose of data analysis. Data were analyzed with the help of computer programs such as SPSS and ITEMAN. The ITEMAN was adopted to calibrate the item indices such as difficulty level, discrimination and distracter power of each test item.

Data analysis and results

Data retrieved regarding research objectives was assembled through instrument developed by the researcher. The data retrieved against each objective of the study is reflected as under. Table 1 reports the item indices difficulty level (P-value) and discrimination index (DI) under Classical Testing Theory.

Table 1

Item difficulty and Discrimination of each test item under CTT

Item no	P value	DI	item no	P value	DI
1	.54	.05	2	.69	.08
3	.86	.18	4	.71	.33
5	.19	.09	6	.85	.28
7	.41	.39	8	.24	.31
9	.50	.56	10	.09	.26
11	.61	.35	12	.94	.07
13	.63	.54	14	.43	.75
15	.69	.50	16	.60	.67
17	.50	.75	18	.49	.40
19	.57	.77	20	.40	.06
21	.28	.08	22	.62	.79
23	.46	.17	24	.36	..07
25	.55	.19	26	.28	.27
27	.12	.11	28	.49	.27
29	.85	.15	30	.66	.60
31	.52	.52	32	.53	.20
33	.46	.81	34	.75	.40
35	.84	.29	--	-	-

Table 2 shows the distractor power of each test item under Classical testing theory (CTT). * denotes the correct answer, Alt means the number of options and total shows the proportions of respondents who endorsed or selected that option.

Table 2

Distractor power of response options

S#	Alt	Total	S.No	Alt	Total	S.No	Alt	Total	S.No	Alt	Total
1	1	.03	2	1	.69*	3	1	.01	4	1	.08
	2	.41		2	.21		2	.07		2	.71*
	3	.54*		3	.04		3	.04		3	.08
	4	.00		4	.02		4	.86*		4	.05
	Other	.02		Other	.04		Other	.02		Other	.08
5	1	.19*	6	1	.03	7	1	.07	8	1	.24*
	2	.42		2	.85*		2	.38		2	.33
	3	.19		3	.10		3	.41*		3	.26
	4	.09		4	.01		4	.05		4	.06
	Other	.11		Other	.01		Other	.09		Other	.11
9	1	.15	10	1	.18	11	1	.22	12	1	.00
	2	.19		2	.33		2	.61*		2	.04
	3	.12		3	.31		3	.11		3	.94*
	4	.50*		4	.09*		4	.01		4	.00
	Other	.04		Other	.09		Other	.05		Other	.02
13	1	.63*	14	1	.43*	15	1	.08	16	1	.12
	2	.27		2	.28		2	.69*		2	.19
	3	.07		3	.19		3	.13		3	.60*
	4	.00		4	.09		4	.09		4	.06

S#	Alt	Total	S.No	Alt	Total	S.No	Alt	Total	S.No	Alt	Total
	Other	.03		Other	.01		Other	.01		Other	.03
17	1	.50*	18	1	.13	19	1	.57*	20	1	.22
	2	.18		2	.49*		2	.20		2	.40*
	3	.22		3	.19		3	.18		3	.20
	4	.05		4	.06		4	.02		4	.08
	Other	.05		Other	.13		Other	.03		Other	.10
21	1	.28*	22	1	.62*	23	1	.23	24	1	.30
	2	.20		2	.16		2	.46*		2	.24
	3	.38		3	.12		3	.14		3	.36*
	4	.05		4	.03		4	.12		4	.03
	Other	.09		Other	.07		Other	.05		Other	.07
25	1	.17	26	1	.28*	27	1	.16	28	1	.49*
	2	.55*		2	.31		2	.59		2	.32
	3	.16		3	.26		3	.09		3	.09
	4	.04		4	.07		4	.12*		4	.06
	Other	.08		Other	.08		Other	.04		Other	.04
29	1	.07	30	1	.07*	31	1	.52*	32	1	.20
	2	.05		2	.66		2	.28		2	.53*
	3	.85*		3	.17		3	.09		3	.04
	4	.00		4	.07		4	.05		4	.20
	Other	.03		Other	.03		Other	.06		Other	.03
33	1	.46*	34	1	.04	35	1	.02	-	-	
	2	.22		2	.18		2	.84*		-	
	3	.19		3	.75*		3	.07		-	
	4	.09		4	.01		4	.04		-	
	Other	.04		Other	.02		Other	.03		-	

Table 3 indicates provides the summary of descriptive statistics and results shows there is a no difference in learning achievement across gender.

Table 3

Learning Achievement of male and female visually impaired students

Statistics	**Male**	**Female**	**Overall**
Mean	22.38	22.38	22.63
Median	22.50	22.00	24.00
SD	5.85	5.42	5.61
Mode	18.00	30	19.00

Findings

Examinations are essential mechanism for assessment of visually impaired students. This measuring mechanism determine the performance and learning achievement of students. Analytically evaluation of results of examinations would also find out and explore problems and educational issues for the visually impaired children. Learning achievement examining modes for visually impaired children can be categorized in two classifications. The first may be introduced as traditional method and the second is described as up to date technological devices. The findings retrieved from achievement test for visually impaired children are reflected as below:-

1- Thirty (30 %) test items were high performing. 33 % test items were fair and 37 % test items were weak under CTT.
2- Sixty-six (66 %) items had weak options.
3- Mean score of students in the test was 23.63.
4- t- test value revealed that there was no significance difference in the performance of male and female visually impaired students.
5- Cronbach alpha reliability of the achievement test was .668.

Discussion

The present empirical study intends that it was appropriate to conduct written examinations in Braille and sighted modes for visually impaired students. The prime goal is to ensure that examinations are as close as adequate to sighted children. The second aim is to determine and analyze item analysis of achievement test developed and administered for visually impaired students.

Table No 1 reveals item difficulty and Discrimination of each test item under CTT. Haladyna (1997) elaborated the combine effects of difficulty and discrimination as under.

He categories items showing varied P-Values discrimination index into six segments.

a – An item having p- Value above 90 and discrimination any value would be desirable if instruction has been effective otherwise bad item number 12 falls in this group.

b -Items demonstrating P-Value between60 and 90, discrimination above 20 would be good items. These items determine good performance. Items No: (4,6,11,13,15,16,34, and 45) are concerned with this group.

c-Items ensuring P- Values between 60 and 90, discrimination below 20 would be non performing. These items must be revised. It may mirror answer and exhibit response due to poor stem or weak, pedagogical strategies so they should be redeemed. Items No: (2,3,20) hail from this segment and possessing cited afore characteristics.

d - Items showing P-Values below 60 and discrimination above 20 would be tough but students don't like the items. These items speak hard tests and good evaluator. On the whole these items are good in case of high standard probability. Items No: (7,8,9,10,14,17,18,19,26,28,31,32, and 33) fall in to this group.

e – Items depicting P. Value below 60 and discrimination below 20 would be immediately popped up and reviewed. Teaching learning process may not be good and students may not be cognizant. The whole items No: (5,20,21,24,25, and 27) are closely linked with its group.

f- Items hailing from key error and discrimination index should be undesired. They must be reviewed because they clearly indicate answer. There may be a myriad of reasons for these exposing answers e.g. items problem, options problem may not be coursed and pedagogical

methodology may not be effective. Item No : (1,2,and 3) are correlated with this group.

Table No 2 reflect the answer to the objective No 2 Identification of distractor power.

Gronlund has highlighted the following criteria for analyzing the power of distracters:

a- Point bi serial of key should be positive and of distracters would be negative.

b- There should be equal selection of distracters among low ability group. After analyzing the results, the researcher has elaborated that following items No 1 (4), 2(4),7 (2), 11(1),12(1,4), 13 (4), 23 and 26 (9) 27 (1,2), 31 (2,4), 34 (4) don't fulfill the above cited rules so they must be revised and / improved.

Table 3 meets the Objective No 3 gender differences in learning achievement of visually impaired students. The results of the study revealed that there was no significant difference in the achievement of boys and girls. ANOVA test was applied for this purpose. The significant level in terms of gender is .985 and F – value is .000 so the null hypothesis was rejected and alternative hypothesis was accepted.

The results of the study revealed that their performance was adequately acceptable. The mean value was computed as 23.63 by adopting SPSS.

Conclusion

The present research work intends an insight in to the assessment of learning achievement for visually impaired children. Adequately all of the respondents presented equally learning achievement assessed by the researcher without gender discrimination. It was also investigated that majority of test items were performing as well as discriminating. Majority options of test items were working. Distribution of students regarding their ability was normal. Achievement of students in the test was average. There was no significant difference in the performance of male and female students.

Recommendations

After data analyzing and drawing conclusion from the findings following recommendations may be dispensed to combat the problems:

1- Test items should be improved or discarded to enhance the quality of test.
2- Options of test items may be plausible.
3- Test items may be carefully constructed so that chance of guessing may be minimized.
4- Reliability of test would be increased.
5- Work of item analysis may be made to enhance the quality of test items.
6- Further research may be conducted on this issue on broader level.

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