Inclusive Education Teaching Aptitude Test [IETAT]: Construction and Item Analysis

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Abstract

In India, inclusive education has started after the agreement on UNESCO Salamanca statement in 1994 and some studies conducted on it but none of the studies has focused on measuring aptitude for teaching in inclusive education. Recently, RCI implemented All India Online Aptitude Test [AIOAT] for admitting candidates in certificate and diploma level special education course. This AIOAT is meant only for the candidates who opt to be special education teachers. But, the general Teacher Education Institutes [TEIs] are neither conducting a pre-entry level test nor they measure aptitude of the candidates before admitting them into the special B.Ed. course. The aptitude tests constructed so far were developed for the general teaching aptitude and the researcher failedto found any research which focused on teaching aptitude for inclusive education. So an attempt has been made in this direction to construct a test that measure pre-service teachers' teaching aptitude towards inclusive education. The present paper focuses on the construction of test and selection of items based on item analysis.

KEYWORDS: Inclusive Education, Teaching Aptitude, Construction, Item Analysis

INTRODUCTION

Inclusive education [IE] is a recent concept and also an accepted approach in general education in developed as well as under developing countries including India. The concept of IE is based on the premise that all children should get equal opportunity to learn irrespective of their diverse learning needs. Therefore, IE cannot merely be determined by students' placement but it is based on creating an environment which support and include all children including children with special needs [CwSN].

For effective implementation of IE, teachers' role is very crucial. The success of IE is largely depends on the general school teachers' ability and willingness to make adaptations to accommodate individual differences (Forlin, Douglas & Hattie, 1996 and Forlin et. al., 2009). Attitude and awareness of the teachers regarding the IE also has a significant influence on the whole program and its effective implementation. But many studies have reported lack of awareness (Zaveri, 2011), inattention towards CwSN (Nayak, 2008) lack of training (Sharma, Moore &Sonawane, 2009) and negative attitude (Forlin et. al., 2009) affecting the progress of IE.

Indian school system is considered as one of the largest in the world and out oftotal 2.68 crore disabled populations, 17% are in the age group of 10-19 years (Census, 2011). Theemphasis should be made to prepare teachers for IE at pre-service level but the

general teacher education programmes neither fully equip the teachers to deal with CwSN nor to manage the children with mild and moderate disabilities in general classrooms (Kumar & Kumar, 2007).

Looking at the limitations of general teacher education programmes in preparing teachers for IE, selecting persons with aptitude towards teaching in IE can benefit in making the IE successful. Thus, an attempt has been made in this direction to construct Inclusive Education Teaching Aptitude Test [IETAT] which measures the pre-service teachers' teaching aptitude for IE.

CONSTRUCTION OF IETAT

Before constructing the test, teaching aptitude tests available in India and literatures on teaching in inclusive classrooms were reviewed. Based on the review, a list of factors related to teaching in IE was prepared. The prepared list was sent to experts for their judgment on the importance of factors for teaching in IE. Based on experts' judgment, five factors were selected. After selecting the factors, a total of 97 items were framed. For the content validity of the items,Lawshe (1975) method in which a rating is given to every item in test or assessment in terms of whether the knowledge or skills measured by each item is 'essential', 'useful, but not essential', or 'not necessary' to the performance of what is being measured. The more experts rate the item as essential, the higher the content validity of item. Content Validity Ratio [CVR] was calculated for each item by using the following formula given by Lawshe (1975).

$$CVR = \frac{n_e - \frac{n}{2}}{\frac{N}{2}}$$

Where, n_e = No. of experts rating an item as 'essential'
N = Total no. of experts providing ratings.

Table 1
Distribution of Items as per CVR

CVR	Items	Total
1	48, 61, 70, 83	04
.50 – .99	2, 4, 6, 11, 12, 13, 20, 21, 26, 30, 31, 32, 33, 34, 37, 42, 43, 44, 45, 46, 47, 49, 51, 53, 55, 60, 62, 66, 71, 74, 77, 79, 81, 82, 85, 87, 89, 92, 96, 97	40
.25 - .49	1, 3, 5, 7, 8, 10, 17, 18, 22, 24, 25, 27, 29, 36, 52, 54, 64, 73, 75, 76, 79, 80, 84, 86, 90	25
.01 - .24	NIL	00
0 and less than that	9, 14, 15, 16, 19, 23, 28, 35, 38, 39, 40, 41, 50, 56, 57, 58, 59, 63, 65, 67, 68, 69, 72, 88, 91, 93, 94, 95	28
Total		**70**

The items having CVR .25 and more than that were retained and items with CRV 0 and less than it were removed. One item on Universal Design of Learning was added as per the suggestion by the experts. Thus a total of 70 items with high content validity were

retained for pilot testing. All 70 items were distributed in the five sections given in the following table 2.

Table 2
Section wise Items included in the Pilot Form of IETAT

Section		No. of Items
I	Knowledge about Inclusive Education	15
II	Perceived Ability to Identify Disabilities	14
III	Attitude towards Teaching CwSN	13
IV	Perceived Ability to Adapt Inclusive Teaching Methods	15
V	Skills to Manage Inclusive Classroom	14
Total		**70**

The pilot form of IETAT was administered on 38 pre-service teachers for its pilot testing in January, 2017.

ANALYSIS OF ITEMS

Item analysis is very important for selecting or rejecting the test items based on the difficulty and discrimination values so that the best items are covered under the test. For item analysis, all 38 answer sheets were arranged in descending order i.e. answer sheet with highest mark at top and lowest mark at bottom.

Difficulty Value

Difficulty value indicates the percentage of respondents correctly answered the item. The items with high percentage are considered easier. Items with difficulty value .90 or more are considered as easy items and items with less than .20 difficulty value are considered as very difficult items. The items with moderate difficulty value i.e. .50 are generally preferred for testing as they maximize the discrimination between high and low scorers. The following formula was used for calculating difficulty value for each item.

$$D = \frac{U-L}{2}$$

Where,
D = Difficulty value of the item
U = Percentage of respondents scoring the item correctly in the upper 27% after being corrected for guessing work
L = Percentage of respondents scoring the item correctly in the lower 27% after being corrected for guessing work

After calculating the difficulty values, the items were grouped as per the guidelines of Henning (1987) given in the following table 3.

Table 3
Henning's Guidelines for Difficulty Level of Items

Difficulty Level	Description
≤ .33	High Difficult
.34 to .66	Moderate Difficult
≥ .67	Low Difficulty/Easy

Table 4
Distribution of Test Items as per Henning's Guidelines for Difficulty

Difficulty Level	Items	Total
≤ .33	4, 8, 9, 13, 14, 15, 17, 21, 24, 26, 35, 36, 37, 46, 47, 48, 50, 51, 52, 55, 56, 57, 59, 60, 64, 65, 66, 67, 68, 70	30
.34 to .66	3, 6, 11, 16, 18, 19, 20, 22, 23, 25, 27, 28, 29, 31, 33, 34, 38, 39, 41, 43, 45, 49, 53, 62, 69	25
≥ .67	1, 2, 5, 7, 10, 12, 30, 32, 40, 42, 44, 54, 58, 61, 67	15
Total		**70**

Table 4 shows that out of 70 items, 15 were easy, 25 were moderate and 30 items were difficult items.

Discrimination Power

It is the extent to which success and failure of an item indicates the possession of trait being measured (Marshall & Hales, 1972). The bi-serial correlation is usually regarded as the standard procedure in items analysis (Garrett, 1966) as an index of discriminating power appear to be most numerous. The items were categorized as per the guidelines of Ebel (1979) given in the following table 5.

Table 5
Ebel's Guidelines for Discrimination Power of Items

Discriminating Power	Description
.40 and above	Quite satisfactory
.30 to .39	Little or no revision is required
.20 to .29	Needs revision
≤ .19	Item should be eliminated or completely revised

Table 6
Distribution of Test Items based on the Discriminating Power

Discriminating power	Items	Total	Remark
.40 and above	2, 3, 4, 10, 12, 14, 15, 17, 23, 25, 26, 27, 29, 32, 33, 34, 40, 43, 47, 49, 53, 55, 57, 61, 62, 64	28	Very good items
.30 to .39	5, 30, 32, 38, 44, 45, 48, 58, 63	9	Reasonably good items
.20 to .29	6, 11, 18, 20, 24, 35, 36, 37, 56, 66, 68, 69, 70	13	Need improvement
≤ .19	1, 7, 8, 9, 13, 19, 21, 22, 28, 39, 41, 42, 46, 50, 51, 52, 54, 59, 60, 65	20	Very poor items
Total		**70**	

Table 6 shows that out of 70 items, 20 items were very poor items that need to be completely eliminated.

CONCLUSION

The IETAT was constructed for the pre-service teachers and tried out on 38 pre-service teachers. Items with CVR .25 and more than that were retained for including the items with high content validity. Easy items with difficulty values more than .67 and discriminating value less than .20 were removed from the test. Thus the final version of the test consisted of 50 good items with high content validity and good discriminating power. The constructed test will be helpful to teacher educators, stack holders and policy makers involved in the field of inclusive education and teacher education.

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