

Standardization of Question Items to Test Tamil Case Markers – A Study

Kingston Pal Thamburaj

Sultan Idris Educational University, Malaysia
kingston@fbk.upsi.edu.my

Samikkanu Jabamoney s/o Isaac Samuel

Sultan Idris Educational University, Malaysia
samikkanu@fbk.upsi.edu.my

R. Shakunthala

National Testing Service, India
Central Institute of Indian Languages, India

Abstract

This research focuses on standardization of items for the purpose of testing knowledge with reference to language component 'case marker'. An analysis is made with reference to the questions covering language component 'case marker' in Tamil language. Study was undertaken at the secondary school and university in the district of Tanjung Malim, Perak, Malaysia. There are 24 question items (covering the said contents) included in the questionnaire. Analysis was made based on the information or data collected from 56 selected students of school and university. The aim of this research is to see the problems in studying case markers via language dimensions. In this study question items are analyzed on the basis of the difficulty index and discriminations index. The data is collected through the questionnaire prepared for this purpose. Through this method the raw data gathered will be analyzed using the descriptive statistic calculation and with the use of important formula from the certain module. The result of the questionnaire indicates that achievement was in moderate stage. The results of the university students are better than the secondary school students. It is visualized that the both the students are understanding dimensions form and function than the structure.

Keywords *standardization of items, Tamil language case marker, difficulty index, discriminations index*

INTRODUCTION

Traditional Tamil grammars recognize eight cases, labeled serially with numbers or by their characteristics. There are eight cases, viz., nominative, accusative, instrumental, dative, ablative, genitive, locative and vocative according to the native grammarians of Tamil (Tol. 546, 547; Nannuul 290). In these traditional analyses there is always a clear distinction made between postpositional morphemes and case endings. Thus, the usual treatment of Tamil (Aden 1942) there are seven cases the nominative (first case), accusative (second case), instrumental (third), dative (fourth), ablative (fifth), genitive (sixth), and locative (seventh). All the cases are marked except the nominative.

Case is a grammatical category whose value reflects the grammatical function performed by a noun or pronoun in a phrase, clause, or sentence. Case marker causes meaning change in a given sentence by differentiating the grammatical relationship between subject, object, and predicate. (Saranya, R., and Mubarak Ali, A., 2007). Tamil marks case by inflection of nouns. The case markers, which are added after nouns, may be bound or free and are called suffixes and post-positions respectively (E.Annamalai, 2014). In a given sentence case will indicate the semantic relationship between noun and verb. This relationship will tend to modify the basic meaning of the sentence. Among all cases, only the sixth case indicates relationship between noun and noun. It is found that, in modern Tamil usage of nine types of cases are seen to show the different functions of the case (Balakumar, 2014). Case marker is a

grammatical category of a noun, or similarly inflected word such as a pronoun, adjective, indicating its relationship to other words in a sentence. In the sentence construction, the role of case markers is very important. It indicates the relationship between the subject, object, and predicate (Shakunthala, R., 2015).

Dimensions are the associated properties or characteristics of the language component. In order to find out the problems of language learning, it becomes necessary to go into the depth and breadth of the language. For this purpose, the dimensions form, structure, function, etc., are identified (Shakunthala, R., 2015).

In this article it is confined only to case markers. Consequently, the problems in learning case markers are identified through testing of above said language dimensions.

Purpose

This study aims to analyze the problems in studying case makers via language dimensions through the assessment device / tool called 'questionnaire'. Item analysis was conducted to examine the degree to which each item is effective in terms of the level of difficulty, and the power of discrimination. The conclusion was derived based on the values of statistical measures like mean, mode, median (measures of central tendency), item facility, and item discrimination.

Significance of the study

Teachers, students as well as test developers will be benefited from this study. Initially, teachers can identify the understanding of the students in learning case makers via language dimensions. The teachers also know how much students have learnt from the materials assessed and check the discrepancies between their expectations and students' actual performance. Secondly, the students are able understand their level by knowing their strengths and weaknesses with respect to their language learning with reference to case markers. Thirdly, test developers can benefit from this study by understanding the weak points of the test items as a whole and seek to make revisions in the future.

RESEARCH QUESTIONS

Three research questions are proposed as follows:

1. How many easy and difficult items are there in three categories based on the item facility Indices?
2. Can items discriminate significantly between top scores and lower scores in accordance with item discrimination indices?
3. How many problematic items are there in this questionnaire?

METHOD

Formulation of questionnaires, details of target groups, field tryout, collection of data, their categorization, etc., have been focused by adopting 'experimental method'¹.

Participants: The subject includes 26 (19 female and 7 male), Tamil students who taken Tamil subject in exam from three secondary schools and 30 (28 female and 2 male) eighth semester university students who taken Tamil course as major subject. The total students who have attempted the task are 56.

Material: The concerned textbook and exercise books were used to prepare the questionnaire. The test was constructed by using the objective type questions. The questions were prepared on the each of the dimensions form, function, and structure. The details of item formats, item types, and number of items in each category are displayed in Table 1 below.

¹ Experimental method refers to a scientific experiment in order to see how well something works

This test is a paper-and-pencil test consisting of 24 test items. The types of task include question and answer.

Table 1 The dimensions, tasks, item number, and formats of the test.

| Dimensions | Total item number | Format |
|------------|-------------------|-----------------|
| Form | 7 | Multiple-choice |
| | 1 | Fill in |
| Function | 4 | Multiple-choice |
| | 4 | Fill in |
| Structure | 2 | Multiple-choice |
| | 6 | Fill in |

Total items: 24

Total score: 100

Data Collection and Analysis

A questionnaire was designed to illicit the opinion of test takers on the test. Twenty -six secondary school students and thirty university students are responded to the questions raised in the questionnaire and returned them back. Each question item included in the questionnaire has been verified for its relevance with the answer keys and awarded marks accordingly.

Descriptive statistic instruments used such as frequency distribution, mean, median, mode and range are described as follows.

To make it easier and to get the meaningful picture of the entire distribution of scores and also to understand how a particular score is related to all the other scores in the group they have organized in a frequency distribution as shown in Table 2. The scores are arranged in highest to lowest score i.e., as can be seen in the table for secondary students it is arranged from 75 to 0; and for university students it is 92 to 50.

Table 2 Frequency Distribution of the Scores for the Secondary and University Students w.r.t. the test on case markers

| Secondary students | | | University students | | |
|--------------------|-----------|-------|---------------------|-----------|-------|
| Mark (100 %) | Frequency | Total | Mark (100%) | Frequency | Total |
| 75 | 2 | 150 | 92 | 2 | 184 |
| 71 | 1 | 71 | 83 | 1 | 83 |
| 67 | 3 | 201 | 79 | 8 | 632 |
| 63 | 7 | 441 | 75 | 3 | 225 |
| 54 | 1 | 54 | 71 | 3 | 213 |
| 50 | 3 | 150 | 67 | 4 | 268 |
| 38 | 3 | 114 | 63 | 2 | 126 |
| 33 | 1 | 33 | 58 | 2 | 116 |
| 29 | 1 | 29 | 54 | 3 | 162 |
| 25 | 6 | 150 | 50 | 2 | 100 |
| 16 | 1 | 16 | | | |
| 0 | 2 | 0 | | | |
| Total | 26 | 1409 | Total | 30 | 2109 |

Mean: There are 26 secondary school students and 30 university students participating in this test. The total score of all secondary school students is 1409 as it can be seen in the Table 2 above. Mean 54.10 is gained from using total scores (1409) divided by total student number (N = 26). Then, the total score of all university students is 2109 as shown in Table 2. Mean 70.30 is gained from using total scores (2109) divided by total student number (N = 30).

Median: A second measure of central tendency is the term median. It's the numerical point in the distribution at which half of the obtained scores lie above and half below. The median for secondary school students is 44 $(50+38/2)$ and the median for university student is 69 $(71+67/2)$.

Mode: The third measure of central tendency is the term mode. Mode is the most frequently occurring score which is located as the peak of the curve. Sometimes, distributions have more than one mode. The mode for secondary school students is 63 and the mode for university students is 79.

Range: One simple way of measuring the spread of marks is based on the difference between the highest and lowest scores. The scores are arranged in the order from highest mark to lowest mark. The highest score for secondary students is 75 and the lowest 0. So, the range is 75 $(75-0)$. The highest score for university students is 92 and the lowest 50. So, the range is 42 $(92-50)$.

There are two assessment devices used in this study viz., item facility and item discrimination. The definitions of them are described as follows:

1. Item facility is an index which represents the proportion of students who got the item right and shows how easy or difficult an item was for test-takers.
2. Item discrimination indices distinguish between how top scores and low scores perform on each item.

Item analysis provides important information with regard to the quality of question items incorporated in the test administered to examinees. Teachers can revise, remove, and retain test items based on this analysis.

Item facility: Item facility (I.F) refers to an index of how easy an item is for the test takers. I.F is a number typically printed as a decimal, ranging from 0.0 to 1.0. It represents the proportion of people who got the item right from all test takers (Bailey, 1998).

I.F is calculated by the number of scorers who got the answer right divided by total number of test takers. This means for item 4 in form questions for secondary school students (total correct answers) is divided by 26 (total number of test takers).

If the facility value is higher than 0.85, the item is too easy. If the facility value is lower than 0.30, then the item is probably too difficult and should be redrafted. The criteria if I.F. (Bailey, 1998) are stated as follows:

- Criteria of I.F. Index: 0.85 and up - Items are too easy and need to make revisions.
- Below 0.30 - Items are too difficult and need to make revisions.
- 0.30 to 0.39 - Reasonably acceptable.
- 0.40 to 0.85 - very good items.

Item discrimination: Item discrimination (I.D.) shows how top scores and lower scores perform on each item. Item discrimination investigates whether an item with a low I.F. is actually difficult, or if there are any other factors, which cause the low percentage of correct responses for that item.

$$\text{I.D. is calculated by} = \frac{((\text{Top correct}) - (\text{Low correct}))}{\frac{1}{2} N (\text{half the number of Top plus Low scores})}$$

I.D. indices range from +1 to -1, with positive 1 showing a perfect discrimination between top and low scores, with minus 1 showing wrong discrimination, and I.D. indices zero show in discrimination. The lowest acceptable values are usually at 0.25 or 0.35 (Oller, 1979).

Three categories include form, function, and structure. The indices of item facility and item discrimination of three dimensions are displayed as in Table 3:

Table 3 Item facility and item discrimination of three dimensions

| Dimensions | Item No. | Secondary school students | | University students | |
|------------|----------|---------------------------|------|---------------------|--------|
| | | I.F. | I.D. | I.F. | I.D. |
| Form | 1 | 0.65 | 0.38 | 0.90 | -0.06* |
| | 2 | 0.69 | 0.38 | 0.93 | 0* |
| | 3 | 0.50 | 0.69 | 0.86 | 0.13* |

| | | | | | |
|-----------|---|-------|--------|-------------|--------|
| | 4 | 0.77 | 0* | <u>1.00</u> | 0* |
| | 5 | 0.70 | -0.13* | <u>0.90</u> | -0.06* |
| | 6 | 0.70 | 0.38 | 0.83 | -0.26* |
| | 7 | 0.70 | -0.07* | <u>0.90</u> | 0.06* |
| | 8 | 0.70 | 0.15* | <u>0.86</u> | 0.13* |
| Function | 1 | 0.65 | 0.38 | 0.70 | -0.06* |
| | 2 | 0.84 | 0.15* | <u>1.00</u> | 0* |
| | 3 | 0.42 | 0.53 | 0.76 | 0.06* |
| | 4 | 0.69 | 0.15* | <u>1.00</u> | 0* |
| | 5 | 0.34 | 0.23 | 0.43 | 0.2 |
| | 6 | 0.50 | 0.85 | 0.83 | 0.2 |
| | 7 | 0.69 | -0.15* | 0.76 | -0.2* |
| | 8 | 0.34 | -0.08* | 0.80 | -0.13* |
| Structure | 1 | 0.65 | -0.23* | 0.70 | 0.2 |
| | 2 | 0.61 | 0.46 | 0.66 | 0.5 |
| | 3 | 0* | 0* | 0.50 | 0.46 |
| | 4 | 0* | 0* | 0.53 | 0.26 |
| | 5 | 0* | 0* | 0.40 | 0.4 |
| | 6 | 0.53 | 0* | 0.76 | -0.2* |
| | 7 | 0.07* | 0.15* | 0.10* | 0.06* |
| | 8 | 0* | 0* | 0.06* | 0.13* |

I.F. = *(too difficult), ____ (too easy)

I.D. = * (no discrimination)

Table 3 shows that, there is no I.F. value more than 0.85 among the secondary school students but among the university student, there are 9 items higher than 0.85, which designates they are too easy. A total item within the standard range (0.30-0.85) indicates that they are acceptable ones. The I.F. value of 5 items among the secondary students is below 0.30 while the university students only got 2 items is below 0.30 which reveals they are too difficult. As for as item discrimination, there are 15 items among the secondary school students showing no discrimination while there are 19 items among the university students showing no discrimination. 5 items among the secondary school students showing acceptable discrimination and the other 4 items have good discrimination power. While, 2 items among the university students showing no discrimination and the other 3 items have good discrimination.

There are three levels of items: easy, moderate and difficult. The distribution of items in three categories in terms of level of difficulty is indicated in Table 4:

Table 4 The distribution of items in terms of level of difficulty w.r.t.dimensions

| Dimensions | Secondary school students | | | University students | | |
|---------------|---------------------------|----------|-----------|---------------------|----------|-----------|
| | Easy | Moderate | Difficult | Easy | Moderate | Difficult |
| Form (8) | 0 | 8 | 0 | 8 | 0 | 0 |
| Function (8) | 0 | 8 | 0 | 2 | 6 | 0 |
| Structure (8) | 0 | 4 | 4 | 0 | 6 | 2 |

Table 4 shows that structure items more difficult for the secondary school students compare with the university students. The form items easy for university students but moderate for secondary school students. The function items are moderate for these students.

Table 5 The distribution of the discriminating power of items in categories.

| I.D. Categories | Secondary school students | | | University students | | |
|-----------------|---------------------------|------------------------|----------------------|---------------------|------------------------|----------------------|
| | No (0.00-0.10) | Acceptable (0.20-0.35) | Good (0.40 or over) | No (0.00-0.10) | Acceptable (0.20-0.35) | Good (0.40 or over) |
| Form | 4 | 4 | 0 | 8 | 0 | 0 |
| Function | 4 | 1 | 3 | 6 | 2 | 0 |
| Structure | 7 | 0 | 1 | 3 | 0 | 5 |

Table 5 shows that, the structure items can't discriminate well for the secondary students but, the function items show powerful discrimination for these students. For university students, the structure items discriminate well for them but the form items can't discriminate very well.

Identifying Problematic Items

Problematic items are those which don't meet the following criteria and should be deleted and replaced. The criteria of normal items are stated as follows:

1. Item facility index between 0.15-0.85.
2. Item discrimination index is 0.20 or over.

Based on the criteria above, there are 15 items problematic items for secondary school student and 17 items problematic for university students in this test. They have no discrimination and tend to be too easy for students.

Table 6 Problematic Items under three Dimensions

| Category | Problematic items | Secondary school students | University students |
|-----------|-------------------|---------------------------|------------------------|
| | | Item no | Item no |
| Form | | 4, 5, 7, 8 | 1, 2, 3, 4, 5, 6, 7, 8 |
| Function | | 2, 4, 7, 8 | 1, 2, 3, 4, 7, 8 |
| Structure | | 1, 3, 4, 5, 6, 7, 8 | 6, 7, 8 |

Total items: 24

A total of items of 15 items are problematic items for secondary school students and 17 items are problematic items for university students. The problematic items are those which don't function adequately. They serve no purpose and should be revised or replaced in order to yield a better result.

RESULTS

Based on the above analysis, the secondary school students faced difficulty in understanding the case makers via language dimensions but the university students are moderate in understanding the case makers via language dimensions. The results show that, the secondary school students and the university students easily understood the form items but they little bit staggering to understand the function and structure items.

FINDINGS AND DISCUSSION

Based on item analysis, item discrimination, as well as the questionnaire collected, the following points were observed:

First the age of the secondary school students and university students didn't influence the change of the test achievement of the students. It is because the age is not a reason of inequality of the student achievement because every students different by their thinking levels and knowledge not by the age levels.

Since the secondary school students are hailed from rural and urban residential areas there is quite difference in the achievement (in this test) due to influence of residence area. It means the urban residence area students have got opportunity to use the internet service more than rural residence area students to improve their knowledge. But for the university students, difference of the residential area didn't influence the change of their achievement because they have been admitted to study in university based on the points in the exams and the knowledge.

Meanwhile, the difference in the sex also influence change in the secondary and university student's achievement. Here the amount of female students more than the amount of male students. It is understood that the female students always good in language components compare to male students. Due to this, it influences the change of the student's achievement in test.

Furthermore, the categories of the language dimensions also influence the change of the student's achievement in this test. As far as secondary and university students are concerned, the performance is well with reference to the question items under form dimension. It seems they understood these questions well. The secondary students find it difficult to answer the question under the function dimension than the university students. Both of them find it difficult to answer the questions under the structure dimension. They could not able to understand the questions that what they are intend to test.

SUGGESTIONS

The following suggestions are proposed. It is hoped that appropriate revisions are to made based on the findings of the study. Questionnaire should be precise and clear enough. A questionnaire is said to be valid if it measures accurately what it is intended to measure. If testing form of '*casemarker*' means it should be sure to test only the form dimension without mixing with other language dimensions.

CONCLUSION

This study reveals that the question items under the structure dimension are the most difficult ones. It discloses that the items under form dimension are very easy. The items under function dimension have better discriminating power to distinguish top scorers and low scorers. With this, we can conclude that the secondary and university students face difficulty in understanding the items under language dimensions. Item analysis reveals that the most difficult items are found in the dimension function and easier items are found in the dimension form and structure. This study suggests that the test should prepare on the basis of the language dimensions to improve the learning with reference to the case markers.

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