Thai Lexical Decision Task

Background

Lexical decision tasks have a long history of research and clinical use in estimating the breadth of a person's vocabulary. The benefits of such tests include that they are fast, well-tolerated by interviewees, require no special equipment, and are objective scored. In fact, they are simple enough to be used in bedside cognitive testing (e.g., for clinical assessments), online data collection, or in group administration (e.g., for educational assessments).

There are many benefits to assessing a person's vocabulary. In itself, a vocabulary measure may be useful for language learning assessment (e.g., students learning Thai). However, vocabulary in native speakers of the language who have completed formal education, is also an excellent predictor of general intelligence, in fact, statistically, it is probably the best possible single indictor (Schipolowski et al, 2014, Jensen, 2001).

Measuring vocabulary allows the interviewer to estimate the interviewees crystalized ability. This can be very useful when contrasted with their fluid ability (e.g., as measured by working memory tests). Discrepancies between scores for crystalized and fluid abilities can be revealing. If crystalized ability is substantially lower than fluid ability this may indicate educational failure (Isen, 2010). This used to be known as P>V sign- indicating greater performance than verbal IQ.

The reverse pattern, when fluid ability is substantially lower than crystalized ability, often indicates acquired cognitive impairment, for example sequela of head injury or dementia (e.g., Pluck et al., 2012). This is because lexical decision task performance tends to 'hold' in the presence of psychiatric or neurological disorder, while fluid abilities do not. Thus, lexical decision tasks are highly effective estimators of premorbid cognitive ability (e.g., McFarlane et al., 2006).

As a measure of premorbid ability, lexical decision task scores can be used to match control and patient groups. For example, in many studies it is important to show that the patients and controls have similar educational backgrounds. If a patient group and control group have equivalent mean lexical decision task scores, but the patient group scores lower on some other task, the logical conclusion is that the patient group have an acquired impairment affecting performance of that task.

As described above, lexical decision tasks have many practical uses in research, and clinical and educational practice. The most widely used test in English is the Spot-the-Word test (Baddley et al., 1992, 1993). In that test, real words are presented paired with pseudowords (i.e., words that appear to be legitimate words in the language, but are not). For example, pairs of words, such as 'Sterile -Palth' are shown to participants and they must choose the real word from each pair, in this case Sterile would be the correct choice, as Palth is a pseudoword. Similar tests exist in other languages, such as the Spanish Lexicacal Decision Task (SpanLex; Pluck, 2020)

No such tests previously existed for use in Thai. This document provides details of the Thai Lexical Decision Task. This has the same format of the English Spot-the-Word Test. One advance made in the development of this task, as compared to the Spot-the-Word Test, is that all of the real words included are imageable. Imageability is an important factor in whether a word will 'hold' or not in the presence of neurological disease (Cuentos et al., 2017). This should that enhance the potential for the Thai Lexical Decision Task to act as estimator of premorbid ability in clinical cognitive assessments.

The Thai Lexical Decision Task was developed by Dr Graham Pluck at the Faculty of Psychology, Chulalongkorn University, Bangkok. The test is non-proprietary; it can be used by anybody for legitimate testing purposes without cost.

Materials

The materials needed to apply the Thai Lexical Decision Task are provided in a separate file that can be download from https://gpluck.co.uk/Tests/ That file contains three versions of the task:

I. The standard version (on pages 1-3). This is the task that can be placed in front of interviewees to collect data.
II. The large print version (on pages 4-8). This is the exact same word-pseudoword pairs as the standard version, but is printed in a larger font. This version should you be used if any interviewees are expected to have visual impairment, or aged over 50.
III. Scoring key (on pages 9-11). This is the exact same word-pseudoword pairs as the standard version; however, the items are numbered (1-43) this also shows the original item number in the validation student (which used 100 items). The correct answer for each word-pseudoword pair is highlighted.

Administration

The standard, traditional administration method is to have the test printed on A4 paper and placed in front of the interviewee. They are then told that in each pair there is one real word and one word which is not real. Their task is to circle the word in each pair that they think is the real word. This should be told that the test contains many rare Thai words and that they should expect to not recognise many of them. But they should make a guess for each pair. Some interviewees will need encouragement to guess at when they are unsure. After the interviewer has completed the task, the interviewer should verbally scan each page to check that a response has been indicated for every pair- it is not uncommon for people to skip items, or sometimes whole pages. If this happens the examiner must return the test pages to them and encourage them to correct the missing responses.

Alternatively, the test could be administered electronically, for example with responses going straight into a personal computer or handheld device, or online. It is also possible to administer the test to people who cannot read. In which case, the examiner would show the word pairs and also read them aloud. Note that that administration method has not been specifically validated, but could be used on an experimental basis.

To calculate a total score for the Thai Lexical Decision Task one point is given for each correct choice. The maximum possible score is therefore 43. The correct answers are indicated on the Scoring Key pages, which, of course, should not be shown to examinees. People, with very low reading ability in Thai may legitimately score around 22-25 correct, they may even score a little below chance level, that is not necessarily a problem. But if scores are very below chance, it is possible that the examinee misunderstood the instructions. Problems like that can be avoided by careful test administration, checking that interviewees understand the task.

Uses of the Raw Data

There are currently no normative data available for the Thai Lexical Decision Task. Normative data are mainly of use for clinical assessment of individuals. On the other hand, raw scores are often more useful in research studies. Raw scores can be used as variables in correlation or regression analyses for use as individual differences measures. They are also useful for group comparisons. For example, patient and control groups can be compared.

For the moment, the Thai Lexical Decision Task should be used mainly for research purposes. Any clinical use should be interpreted tentatively, and if possible, by comparison to some healthy control sample.

Validity and Reliability

The test is valid, scores correlate highly with other cognitive measures of lexicality in Thai. It also has good internal consistency and test-retest reliability. A paper is in preparation that describes these psychometric properties. These notes will be updated when that paper is published.

Notes V1
Dr Graham Pluck
19th October 2024, Bangkok, Thailand

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