

Spanish Lexical Decision Task (SpanLex): Details and Instructions

These notes accompany the free-to-use Spanish Lexical Decision Task – SpanLex, available to download from www.gpluck.co.uk. It has established validity and reliability (Pluck, 2020). It is a Spanish language equivalent to a test widely used in English, the Spot-the-Word Test (Baddeley et al., 1993). Both tests use lexical decision to obtain a measure of an individual’s language knowledge. As language knowledge content is learnt and the task is simply to recognize words, the tests therefore measure crystallized knowledge, as opposed to fluid language ability which would be measured by tasks such as verbal fluency. The SpanLex can be considered as a measure of the breadth of semantic memory, or as a measure of the closely related concept of crystallized intelligence.

The SpanLex is a very simple test. The participant is shown three ‘words’. In each triplet only one of the words is a real word, which would be found for example in a Spanish dictionary. The other two in each triplet are not real Spanish words. They look like Spanish words in terms of their combinations of letters, but are not part of the Spanish language and do not exist in Spanish dictionaries. As an example, the first trial contains these three ‘words’:

hierro fabración lliure

Only *hierro* (meaning iron) is a real Spanish word. The other two look like they could be Spanish words, but are not. The participants task is to pick the real word from each triplet. They do this by circling the real word. There are 36 of these triplets in the SpanLex. One point is given for each word correctly identified. The experimenter simply counts the number of correctly identified real words to obtain the total score.

The test materials provided show these 36 triplets over three pages. These should be printed and put in front of the participant. The participant is given a pen or pencil and told to circle the word in each triplet that they think is a real Spanish word. The materials provided are in large print so that they can be read by people with poor eyesight, which is very common in older participants. The characters also are spaced out more than in normal text, which reduces the phenomena of ‘crowding’ which can prevent word recognition due to non-lexical visual processes and may for example be an issue in individuals with dementia or dyslexia (Crutch & Warrington, 2007). The test materials include a version that is used only by the experimenter for scoring performance. That version has the correct responses shown in bold. That version should not be given to research participants.

The real words used in the SpanLex are of graded difficulty. For people with only basic reading skills there should be some words which will be recognised. For well educated people the test should still contain some challenging items. This prevents ceiling or floor effects which would cause skewed data. Indeed, in the sample that the SpanLex was tested on, the data were shown to be approximately normally distributed (Shapiro-Wilk test). The guessing rate on the Spanish Lexical Decision Task is 12/36 and the maximum possible score is 36/36 and so the potential score range is about 24 points.

The SpanLex has good psychometric properties as shown in the initial study which included a sample of 63 participants (Pluck, 2020). The psychometric properties are summarized here:

- Internal consistency is ‘good’: Cronbach’s alpha = .846
- Test-retest reliability is ‘good’: $r = .890$
- Validity as a measure of intelligence is high, correlation with WAIS-IV IQ, $r = .715$
- Validity as a measure of crystallized or verbal intelligence, correlation with WAIS-IV Information subtest was the highest of all the WAIS-IV scales measured, $r = .771$
- Validity as a measure of crystallized or verbal intelligence was also shown by the association with years of education, $r = .630$ (crystallized intelligence is based on information acquired through education)
- Predictive validity of the test as a measure of intelligence was also demonstrated within a sample of 75 undergraduate students (Pluck, 2020), the correlation with GPA was $r = .318$

The SpanLex is therefore a valid and reliable measure that can be used with native Spanish speakers to estimate intelligence, verbal-crystallized ability, or simply as a test of reading.

Although currently no normative data has been published, the SpanLex could be used for investigation in psychology and related fields. For research use, group performance is more important than abnormality estimates of individual performance (which is what comparison to normed data gives). For example, different groups could be compared on the SpanLex. In the same way it could be used to match clinical and control groups on crystallized language ability. Or performance on lexical decision by of a group could be analysed with correlations. In some studies, in order to better identify cognitive processes and associations with other variables it is necessary to covary out very general cognitive skills, such as crystallized intelligence (see e.g. Gibson et al., 2018). The SpanLex would be appropriate for all of these research uses.

It is worth noting that for adults, there is practically no correlation between SpanLex performance and age ($r = .103$, not significant). This is what would be expected from a test of crystallized ability which is generally unaffected by the ageing process, unlike fluid abilities which decline over the adult lifespan (Park, 2000). And for that reason, norming by age is not necessary anyway.

For further information on this test you can contact me via my website www.gpluck.co.uk

If you use this test in any published research or in a thesis, please reference this:

Pluck, G. (2020). A lexical decision task to measure crystallized-verbal ability in Spanish. *Revista Latinoamericana de Psicología*, 52, 1-10. <https://doi.org/10.14349/rlp.2020.v52.1>

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