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Reading speed in the International Reading Speed Texts by native Portuguese readers

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PURPOSE

To measure reading speed in the International Reading Speed Texts (IReST), adapted to Portuguese-Brazilian, of native Portuguese readers. We wanted to answer three questions:

- Is there a difference in reading speed amongst texts of the Portuguese version of the IReST test when read by Portuguese readers?
- Is there a difference between Portuguese and Brazilian readers in the Brazilian-Portuguese version of the IReST test?
- Is there a systematic number of errors in some of the texts that form the Portuguese version of the IReST test when read by Portuguese readers?

METHODS

Thirteen subjects in the age range of 18 to 42 years were recruited for the purpose of this study. All participants had balanced binocular vision at near assessed with the Thorington test (exophoria was between 0 and 8 base-in prism dioptres), monocular best corrected acuity was 0.00 logMAR in both eyes.



All participants stated that they had no signs or symptoms of dyslexia or any other disorder that could interfere with reading performance. The IReST test was administered in a quiet room, time was controlled by stopwatch and texts were presented in random order.

We compared reading performance amongst texts, in **words-per-minute (wpm)** and **characters-per-minute (cpm)**, and the number of errors amongst texts for Portuguese readers. Results were compared using UNIANOVA.

RESULTS

Summary of the main results in words-per-minute and characters-per-minute for both groups, Portuguese and Brazilian (from reference 1 and 2).

Text	RS-PT wpm (sd)	RS-BR wpm (sd)	RS-PT cpm (sd)	RS-PT cpm(sd)
text 1	190 (36)	173 (31)	1145 (215)	1040 (185)
text 2	203 (35)	187 (31)	1185 (203)	1085 (182)
text 3	187 (35)	174 (28)	1176 (217)	1097 (176)
text 4	205 (34)	186 (30)	1303 (216)	1183 (193)
text 5	181 (31)	175 (27)	1118 (195)	1084 (165)
text 6	181 (30)	172 (26)	1179 (198)	1118 (168)
text 7	195 (31)	191 (28)	1092 (173)	1065 (159)
text 8	197 (33)	192 (31)	1143 (198)	1108 (178)
text 9	188 (30)	182 (29)	1174 (187)	1137 (183)
text 10	179 (34)	170 (25)	1143 (221)	1082 (161)

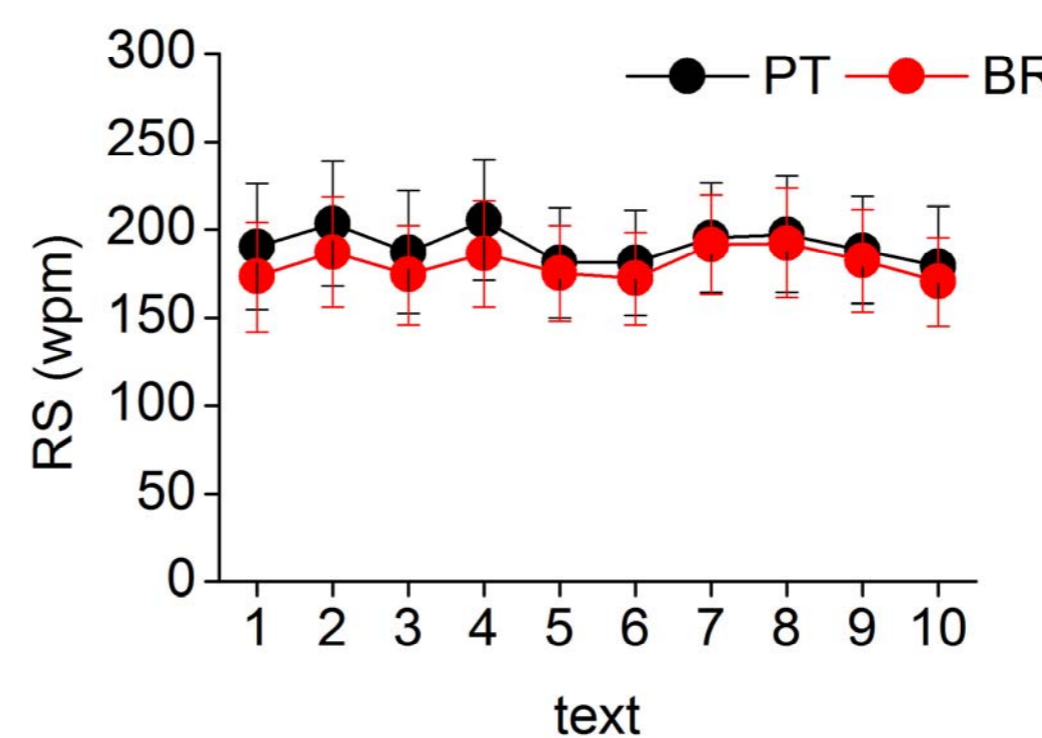
Reading speed amongst texts in the Portuguese group

The effect of text in reading speed was not statistically significant for both dependent variables: reading speed in wpm ($F(9,120)=0.77$, $p=0.64$) and reading in cpm ($F(9,120)=0.89$, $p=0.53$)

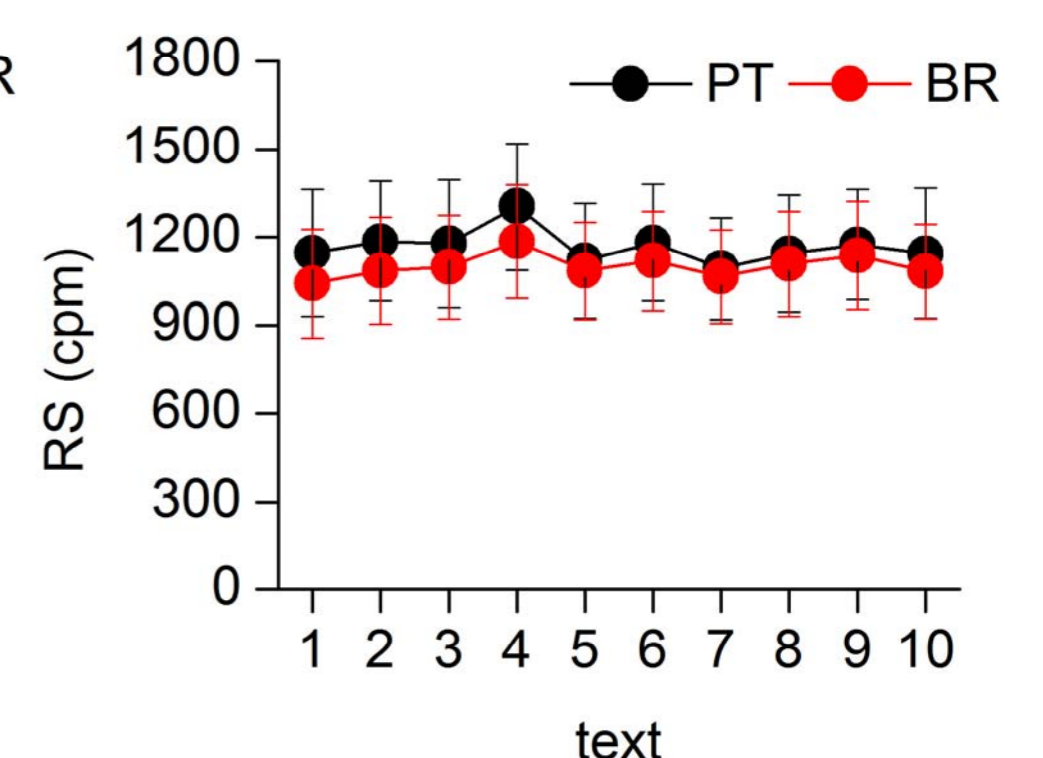
Reading speed between Portuguese and Brazilian readers

Reading speed in wpm in the Portuguese group was 191 wpm with standard deviation of 9 wpm and in the Brazilian group was 180 wpm with a standard deviation of 8 wpm, the mean difference between groups was 11 wpm. This difference was statistically significant with $F(1,18)=7.0$ and $p=0.016$. **Graph below-left.**

Reading speed in cpm in the Portuguese group was 1166 cpm with standard deviation of 57 cpm and in the Brazilian group was 1100 cpm with a standard deviation of 40 cpm, the mean difference between groups was 66 cpm. This difference was statistically significant with $F(1,18)=9.0$ and $p=0.007$. **Graph below-right.**



Results of reading speed in words-per-minute in both groups, Portuguese (PT) and BR (Brazilian), for the 10 texts of the IReST test. Error bars show 1 standard deviation.



Results of reading speed in characters-per-minute in both groups, Portuguese (PT) and BR (Brazilian), for the 10 texts of the IReST test. Error bars show 1 standard deviation.

Results of errors for each text in words and characters

We qualified the number of errors as missed, additional or wrong words/characters. The effect of text in number of errors was not statistically significant for both both results.

CONCLUSIONS

The main results of this exploratory study showed that reading speed in the Portuguese version of the IReST was higher for Portuguese readers than for Brazilian readers. This difference of about 6% faster reading speed amongst the Portuguese may be due to a higher level of education of the sample. This results require further investigation and show that, at least in Portugal, we need to always include a control group until consistent normative data become available.

Texts produced similar reading speeds. Contrary to the Brazilian study that found reading differences amongst texts, we failed to find significant differences. We believe that may be due to different randomization procedures.

The number of errors was not different amongst texts. Contrary to our expectations, we found a low rate of errors and no systematic errors were found in any text.

This result shows that we can confidently use IReST texts in Portuguese readers and compare with other languages; however, caution must be keep due to the differences in reading speed as reported above.

REFERENCES

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- 2) Messias A, Cruz AAV, Schallenmüller SJ, Trauzettel-Klosinski S. New standardized texts in Brazilian Portuguese to assess reading speed - comparison with four European languages. Arq Bras Oftalmol. 2008;71(4):553-8