A multilingual study of normative data for 210 colour pictures

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INTRODUCTION

Normative data for pictures are needed to the careful design of experiments on perception, memory and language. As picture norms seem to be influenced by cultural/linguistic factors (e.g., name agreement), cognitive researchers call for the selection of language-adapted materials (see Yoon et al., 2004). Thus, the aim of the present study was to provide researchers with normative data for 210 colour pictures in three languages (European Portuguese, Spanish, and British English). The pictures were standardized on five dimensions: Name agreement, image agreement, conceptual familiarity, visual complexity, and valence and arousal. Most of pictures names were cognates (39% in the three languages and 40% in two languages), a feature that will allow researchers to develop studies with bilingual or multilingual populations as a function of cognate status. In addition, all pictures were designated by low-frequency nouns making them really suitable for Tip of the Tongue (TOT)-induction studies.

PARTICIPANTS

272 university students (194 female and 78 male; mean age = 21,69; SD = 2,97) from Portugal, Spain and Britain took part in the study (90, 86 and 84 participants, respectively). All had normal or corrected-to-normal vision acuity. The data of participants whose native language were other than European Portuguese, Spanish or British English were not considered for the analysis (7,35 %).

MATERIALS AND PROCEDURE

210 images of real objects or animals were selected from public picture databases such as Google Images (www.google.com/imghp). All pictures were colored and had a size of 800x400 pixels.

A Web-based application was created by following the recommendations of Burke and James (2006) to collect the data in Portugal, Spain and Britain. Assessments were done in soundproof booths. To do that, each participant accessed the online survey (via the URL link) and after completing the registration data, he/she had to rate all pictures in two out of five dimensions: a) name agreement and conceptual familiarity, b) image agreement and valence and arousal, or c) visual complexity and other one of the mentioned dimensions.

RESULTS

Table 1. An example of the database in which the percentage of TOT states, Do not Know Name (DKN), Do not Know Object (DKO), and Name Agreement (NA) for each image in the three languages as well as the Mean and Standard Deviations (in brackets) for Image Agreement (IA), Conceptual Familiarity (CF), Visual Complexity (VC), Valence (Val), and Arousal (Ar) are presented. We used a 5 point-scale to assess IA, CF, and VC, and a 9 point-scale to assess Val and Ar. CG and NCG stand for Cognate and Noncognate words.

European Portuguese

	Modal Name	%TOT	%DKN	%DKO	%NA	IA	CF	VC	Val	Ar
CG	Coala	9.1	0	0	90.9	4.56 (0.88)	2.00 (1.36)	2.90 (1.24)	6.36 (1.40)	3.97 (1.74)
	Seringa	2.33	0	0	97.67	4.69 (0.82)	2.92 (1.53)	1.64 (0.82)	2.78 (1.72)	5.97 (2.35)
	Tampão	0	0	0	97.5	4.82 (0.40)	3.89 (1.16)	1.31 (0.53)	4.15 (1.30)	3.52 (1.94)
NCG	Queque	0	0	0	76.74	4.50 (0.98)	4.05 (1.01)	2.13 (0.98)	7.15 (1.20)	4.64 (2.10)
	Caixão	0	0	0	100	4.34 (0.94)	2.42 (1.43)	2.66 (1.15)	1.91 (1.64)	6.49 (2.87)
	Pilão	30	25	0	30	2.41 (2.77)	2.13 (1.40)	1.56 (0.76)	4.70 (0.98)	3.48 (1.94)

Spanish

	Modal Name	%TOT	%DKN	%DKO	%NA	IA	CF	VC	Val	Ar
CG	Koala	0	0	0	100	4.27 (0.98)	2.03 (1.10)	3.68 (0.72)	6.68 (1.12)	3.45 (1.53)
	Jeringuilla	0	0	0	72.22	4.47 (0.71)	2.94 (0.96)	1.90 (0.76)	3.00 (1.35)	6.65 (1.77)
	Tampón	0	0	2.70	97.30	4.50 (0.53)	3.97 (1.16)	1.68 (0.79)	4.10 (1.35)	5.25 (1.33)
NCG	Magdalena	2.78	0	0	88.89	4.43 (0.57)	4.41 (0.62)	2.29 (0.80)	7.35 (1.19)	3.73 (1.64)
	Ataúd	0	2.77	0	83.33	4.03 (0.71)	2.32 (0.95)	2.68 (0.95)	2.05 (1.22)	6.22 (1.98)
	Mortero	19.44	30.56	2.78	36.11	4.50 (0.50)	2.68 (1.13)	1.48 (0.62)	5.28 (0.45)	4.20 (1.16)

British English

	Modal Name	%TOT	%DKN	%DKO	%NA	IA	CF	VC	Val	Ar
CG	Koala	0	0	0	100	4.72 (0.43)	2.68 (1.36)	3.29 (1.09)	6.65 (0.85)	4.43 (1.33)
	Serynge	0	0	4	60	4.49 (0.66)	3.03 (1.09)	1.52 (0.60)	3.39 (1.22)	5.83 (1.38)
	Tampon	0	0	3.85	96.2	4.18 (0.88)	3.79 (1.08)	1.76 (0.80)	4.52 (1.06)	3.57 (1.82)
NCG	Muffin	0	0	0	88	3.00 (1.03)	4.15 (0.70)	2.62 (1.10)	6.65 (1.09)	4.61 (1.40)
	Caffin	0	0	0	96	4.00 (0.67)	2.44 (1.28)	2.57 (0.98)	2.87 (0.80)	4.00 (1.48)
	Pestle	15.38	23.08	15.38	46.15	4.23 (0.80)	3.18 (1.16)	1.57 (0.60)	5.10 (0.24)	2.70 (1.51)

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