Research Group in Psycholinguistics

Human Cognition Lab

School of Psychology, University of Minho, Portugal

Where do we come from?
Where we are?

- The RGP was created in 2008 and is housed in the Human Cognition Lab of the School of Psychology at the University of Minho (Portugal).
Welcome to the Research Group in Psycholinguistics website!

The Research Group in Psycholinguistics (RGP) was created in 2008 and is housed in the Experimental Lab of the School of Psychology at the University of Minho (Portugal). RGP brings together faculty, students and researchers who share an interest in the study of the cognitive processes that allow us to use, understand and acquire language (mother tongue and other languages). Our studies cover a broad range of psycholinguistic topics, including:

* Sentence processing and syntactic ambiguity
* Lexical and sublexical units in visual word recognition
* Bilingual word representation, processing and acquisition
* Tip-of-the-Tongue (TOT) states resolution
* Development and adaptation of lexical databases

RGP also provides research support to students who wish to pursue graduate studies (Master studies and PhD) in Experimental Psychology at the University of Minho.
Links

Escola de Psicologia da Universidade do Minho

Research group “Procesos Cognitivos y Conducta” of the Department of Psicoloxía Social, Basica and Metodoloxía of the University of Santiago of Compostela (Spain)

Associação Portuguesa de Psicologia Experimental (APPE)

Sociedad Española de Psicología Experimental (SEPEX)

ESCoP: The European Society for Cognitive Psychology

Psycholinguistics Arena

LinguisticList

Psychonomic Society

Psycholinguistics Research Group (PRG)
Welcome to the Psycholinguistics Research Group (PRG) website. We are an intercollegiate research group born out of the efforts of its members to create a unit of scholars sharing a common interest: the study of the faculty of language. The sole aim of this site is to introduce the group and its results to the academic community.

Some of the topics our research group addresses include the following:

- The theoretical foundations of Cognitive Science.
- The role of recursion in human cognition.
- The relationship between linguistic knowledge and its use.
- Speech perception.
- Language comprehension, including syntactic processing and the prosody-syntax interface.
- Bilingualism, focusing on the processing and representation of L1 and L2.
- Theory of Mind and language comprehension in schizophrenia.

As a research group in receipt of both national and regional funding, we have the necessary resources to carry out qualitative and quantitative research, including controlled experiments and electrophysiological techniques.

If you require further information about us or our work, do not hesitate to contact any of the group’s members.
El grupo **Procesos Cognitivos y Conducta** de la Universidad de Santiago de Compostela (USC) es un grupo constituido formalmente en el año 2004 con el objeto de incorporarse al actual catálogo de grupos de investigación de la USC. PCC es un grupo interdisciplinario, integrado mayoritariamente por psicólogos experimentales, pero también por psicólogos clínicos y lingüistas cuyas aportaciones científicas interesan no sólo a la Ciencia Cognitiva, sino que también pueden ser relevantes en ámbitos aplicados como el bilingüismo, la adquisición de habilidades y el diseño de protocolos de entrenamiento, la publicidad, o la prevención de trastornos y el manejo de emociones. Así, su principal dominio de trabajo es la Cognición Humana, que aborda desde la interdisciplinariedad, incorporando líneas de investigación que responden a los intereses de ámbitos muy diversos, como aprendizaje, memoria, lenguaje, emoción, etc.

Actualmente el grupo PCC está compuesto por ocho investigadores senior, dos estudiantes de doctorado, dos licenciadas en Psicología y dos licenciadas en Filología contratadas como personal de apoyo.

Los objetivos principales del grupo son la investigación básica, la formación de doctores y la transferencia de conocimiento.

**MIEMBROS:**

- Isabel Fraga, coordinadora; isabel.fraga@usc.es
- Carlos Acuña-Fariña; carlos.acuna.fariña@usc.es
- Miguel Alcaraz; miguelangel.alcaraz@usc.es
- José Fernández-Rey; jose.fernandez.rey@usc.es
- Luis Jiménez; luis.jimenez@usc.es
- Castor Mendez; castor.mendez@usc.es
- Hipólito Merino; hipolito.merino@usc.es
- Jaime Redondo; j.redondo@usc.es

**PERSONAL EN FORMACIÓN:**

- Beatriz Permuy; beatriz.permuy@ral.usc.es
- Ana Píñeiro; ana.pineiro@usc.es

**PERSONAL DE APOYO:**

- Vanessa Gil; vanesagil04@hotmail.com
- Anavía Méndez; anavia.mendez@ral.usc.es
- Isabel Padrón; isabel.pardon@usc.es
- Sara Riveiro; smro84@hotmail.com

**COLABORADORES EXTERNOS:**
The RGP conducts research in different topics of language comprehension, production and acquisition using behavioral measures (e.g., chronometric studies) as well as neuroimaging techniques (e.g., ERPs). Specifically the projects in each of the five research topics are:

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Research topics

- Development and adaptation of lexical databases
- Tip-of-the-Tongue states (TOT) resolution
- Bilingual word representation, processing and acquisition
- Sentence processing and syntactic ambiguity
- Factors in visual word recognition
Lexical databases

- Adaptation of the **ANEW** (Affective Norms for English Words) to European Portuguese (EP)
  - Affective norms for 1034 words (including verbs, nouns, and adjectives) (Bradley & Lang, 1999)
  - Adapted to Spanish (Redondo et al., 2007)
  - Categorical assessment also available – 1034 words assessed into the 5 discrete universal categories (happiness, sadness, fear, disgust, and anger) (see Stevenson, Mikels, & James, 2007).

Participants

- 958 university students:
  - 633 females (66%) and 325 males (33%) ($M_{age} = 22.82; SD=5.41$) native speakers of European Portuguese;
  - different degrees (Humanities, Economics, Sciences, and Technologies) of several public and private universities from the North to the South of Portugal;
  - all districts of Portugal (including Madeira and Azores islands).
- right-handed (92.1%) and normal (54.6%) or corrected-to-normal visual acuity (45.4%).
Materials

- Translation to EP of the 1034 words of the ANEW
  - Two philologists specialized in English language and with a deep knowledge of the American culture;
  - 90% of inter-judges agreement (disagreement resolution of the 106 words through consensus).

- Spanish translation of the ANEW (Redondo et al., 2007) in order to assure comparability across languages:
  - when a word was difficult to translate to EP (due to word’s polysemy, syntactic ambiguity or to the lack of lexical parallelism between the languages), we often decided to use the Spanish word translation of that word.
    - E.g.: the English words “assassin” and “murder” -> “assassino” in EP. As in the Spanish adaptation of the ANEW:
      - “murder” -> “assassino”
      - “assassin” -> “assassinar”
Procedures

SAM measurement scale:

- 3 affective dimensions:
  - **valence** (from *unpleasant* to *pleasant*)
  - **arousal** (from *calm* to *excited*)
  - **dominance** (from “*out of control*” to “*in control*”).

- 5 figures for each affective dimension;
- 9-point Likert scale.
Procedures

- **Paper-and-pencil procedure:**
  - 198 students (34 male and 164 female; $M_{age} = 21.28; SD=5.26$)
  - 17 random lists (≈60 words each)
  - classroom.

- **Web self-paced procedure:**
  - 760 students (291 male and 469 female; $M_{age}=23.06; SD=5.43$)
  - E-mail with a hyperlink to answer to the on-line questionnaire ([http://natura.di.uminho.pt/aneuw/](http://natura.di.uminho.pt/aneuw/)).
  - 60 random words.
Results

The affective norms of the EP adaptation of the ANEW can be downloaded from our lab site (excel format).

word identification fields | affective norms (means and standard deviations) fields | objective psycholinguistic metrics fields
Results

- The ANEW adaptation for the EP:

  - **Boomerang-shaped distribution** ($R = .62$, $p < .001$, explaining 39% of variance)
  
  - **MANOVA (sex x words’ valence):**
    
    - **Sex**: females rated words as significantly more arousing than males ($p < .001$) and males tended to assess words as more positive than females ($p = .064$);
    
    - **Sex x words’ valence**: females rated unpleasant words as more negative ($p < .001$) and pleasant words as more positive than males ($p < .05$).
    
    - **Words’ valence**: unpleasant words were rated with lower scores of valence ($p < .001$) and dominance ($p < .001$) and with higher scores of arousal ($p < .001$).

*Figure 2*. Distribution of means values (male and female) for the 1034 words of the EP adaptation of the ANEW in the valence and arousal affective dimensions.
Results

- The ANEW standardizations:
  - Boomerang-shape in the 3 standardizations;
  - MANOVA (sex x ANEW standardization):
    - ANEW standardization: EP subjects rated words as less arousing than American ($p < .001$) and Spanish ($p < .001$) subjects; but with higher levels of valence and dominance ($p < .001$) than Spanish ($p < .001$).
    - Sex: females rated words as more arousing ($p < .001$) and males with higher levels of dominance ($p < .001$);
    - Sex x words’ valence: in USA standardization, males rated words with higher levels of dominance than females ($p < .001$).

*Figure 3. Distribution of mean values for the 1034 ANEW words in USA, SP and EP for valence and arousal affective dimensions.*
Conclusions

- The EP adaptation of the ANEW is a valid and useful tool that will allow the development and internationalization of the Portuguese affective research.
  - the 1034 words generate emotional responses that were appropriately distributed in the bidimensional affective space.
  - contrary to the American and the Spanish standardizations, the EP standardization is characterized by gender differences (i.e., higher arousal ratings by EP females, higher valence ratings by EP males for unpleasant words, and higher valence ratings by EP females for pleasant words).
  - ANEW words have elicited similar emotional responses across languages, although some socio-cultural specificities were observed (i.e., EP subjects rated ANEW words with higher levels of valence and dominance than Spanish subjects, but showed lower emotional reactivity than American subjects).
Lexical databases

- **IAPS** (International Affective Picture System - Lang, Bradley, & Cuthbert, 2008)

- **IADS-2** (International Affective Digitized Sounds – Bradley & Lang, 2007)

- **P_PAL** (Procura_PALavras)
  - Web application for European Portuguese words that will allow researchers to:
    - Assess lists of words in specific lexical and/or sublexical proprieties;
    - Generate list of words with specific lexical and/or sublexical proprieties.

Procura-PALavras (P-PAL)

- Search functions:
  - **Obter palavras**: find out words that fulfill the lexical and/or sublexical proprieties selected from the menu of analyses (e.g., corpora or subtitles frequency, number of phonemes, bigram frequency, orthographic, phonological and phonographic neighborhoods).
  - **Analisar palavras**: analyze lists of words in the lexical and/or sublexical proprieties selected from the menu of analyses (e.g., uniqueness point, pronunciation, number of syllables, part of speech, homographs, transposition neighbors, Levenshtein metrics).
Procura-PALavras (P-PAL)

○ Search features:

**Lemma search**: conventional word form chosen as representative of all the inflected forms of a given word (e.g., “ser” “menino”, “bonito” “animal”… “homem”, “mulher”).

**Wordform search**: each of the potential occurrence of a word (e.g., “cantar”, “canto”, “cantava”, “cantei”, “cantamos” […] are wordforms of the same word represented by the lemma “cantar”.)
Procura-PALavras (P-PAL)

- Menu of analyses:

![P-PAL Menu](image)

- Índices de frequência lexical
- Índices morfológicos e morfo-sintácticos
- Índices ortográficos
- Índices fonológicos
- Índices fonográficos
- Índices silábicos
- Índices semântico-lexicais
- Índices subjectivos
Procura-PALavras (P-PAL)
Procura-PALavras (P-PAL): A web application for European Portuguese words

http://p-pal.di.uminho.pt/
THANKS!
MUITO OBRIGADA!

labling@psi.uminho.pt