

1**Bayesian approaches to imputation, hypothesis testing, and parameter estimation [Recurso electrónico] / Steven J. Ross, Beth Mackey**

Este artículo se encuentra disponible en su edición electrónica. Los datos para su localización y/o acceso electrónico están accesibles a través del enlace al título de la publicación.

References: p. 225-227

This chapter introduces three applications of Bayesian inference to common and novel issues in second language research. After a review of the critiques of conventional hypothesis testing, our focus centers on ways Bayesian inference can be used for dealing with missing data, for testing theory-driven substantive hypotheses without a default null hypothesis, and for extending the findings of meta-analyses to Bayesian estimations of parameters hypothesized to be larger or smaller than those derived from earlier research summaries. Missing data is examined by taking a complete data set and decimating it to simulate a missing at random data set, one common in longitudinal research. Data imputation is then applied to replace the missing data. Comparisons of the full and replaced data sets are made to show that valid inferences about change are possible after imputation of missing data has taken place. The second application of Bayesian inference is demonstrated with the use of a confirmatory analysis of variance approach in which theory-driven ordered prior hypotheses about mean differences are postulated before the means are compared. Posterior model probabilities and Bayes Factors are discussed as criteria for supporting or refuting the hypothesized mean differences. The third application of Bayesian analysis takes the results of a validity generalization meta-analysis of aptitude for foreign language learning and tests if a median parameter estimate derived from the validity generalization will be corroborated against data from a language categorized as difficult to learn.

Language learning. -- 2015 (June), v. 65, supp. 1, p. 208-227

1. ANOVA 2. Bayesian analysis 3. Imputation 4. Parameter estimation

2**Design issues and inference in experimental L2 research [Recurso electrónico] / Thom Hudson, Lorena Llosa**

Este artículo se encuentra disponible en su edición electrónica. Los datos para su localización y/o acceso electrónico están accesibles a través del enlace al título de la publicación.

References: p. 94-96

Explicit attention to research design issues is essential in experimental second language (L2) research. Too often, however, such careful attention is not paid. This article examines some of the issues surrounding experimental L2 research and its relationships to causal inferences. It discusses the place of research questions and hypotheses, threats to internal and external validity, specific experimental designs, sample size, and the language used in discussing causal relationships. It is hoped that this discussion will bring design issues to the forefront in experimental L2 research.

Language learning. -- 2015 (June), v. 65, supp. 1, p. 76-96

1. Causal inferences 2. Experimental research 3. External validity 4. Internal validity 5. L2 research 6. Research design

3**Improving the Validity of Quantitative Measures in Applied Linguistics Research¹ [Recurso electrónico] / James E. Purpura, James Dean Brown, Rob Schoonen**

Este artículo se encuentra disponible en su edición electrónica. Los datos para su localización y/o acceso electrónico están accesibles a través del enlace al título de la publicación.

References: p. 68-72

In empirical applied linguistics research it is essential that the key variables are operationalized in a valid and reliable way, and that the scores are treated appropriately, allowing for a proper testing of the hypotheses under investigation. The current article addresses several theoretical and practical issues regarding the use of measurement instruments and scores. Starting from an elaborated treatment of validity and validation, it introduces a comprehensive framework for score interpretation and score use. Kane's framework serves as a

rich context to raise the right questions about a measurement instruments' validity, and it provides guidance in addressing questions about validity and score use. Application of the framework is illustrated with examples from a recent second language acquisition study about the effects of recasts (Révész, 2012). The critical generalization inference from the framework, as it applies to measuring productive L2 performance, is then examined in greater detail, discussing the different facets of these kinds of measurements and the way reliability issues are and should be dealt with. The paper concludes with a series of common measurement mistakes in applied linguistics research and recommendations to avoid these. The paper offers a brief checklist for proper quantitative data collection and for adequate data treatment in subsequent analyses.

Language learning. -- 2015 (June), v. 65, supp. 1, p. 37-75
1. Generalization 2. Measurement 3. Quantitative 4. Validation

4

Methodological synthesis in quantitative L2 research [Recurso electrónico] : a review of reviews and a case study of exploratory factor analysis / Luke Plonsky, Talip Gonulalb

Este artículo se encuentra disponible en su edición electrónica. Los datos para su localización y/o acceso electrónico están accesibles a través del enlace al título de la publicación.

References: p. 31-36

Research synthesis and meta-analysis provide a pathway to bring together findings in a given domain with greater systematicity, objectivity, and transparency than traditional reviews. The same techniques and corresponding benefits can be and have been applied to examine methodological practices in second language (L2) research (e.g., Plonsky, 2013). In the first half of this paper, we integrate findings, trends, and critiques from a number of syntheses to both illustrate the potential of this approach and to promote more methodologically informed research practices. Our emphasis here is on study designs and sampling practices. In the second half, we provide an example of a methodological synthesis that reviews the use of one particular statistical technique as applied in L2 research: exploratory factor analysis (EFA). Here and throughout the chapter, we provide specific recommendations for primary research as well as for future efforts to synthesize methodological practices in the field.

Language learning. -- 2015 (June), v. 65, supp. 1, p. 9-36
1. Factor analysis 2. Meta-analysis 3. Research methods 4. Research synthesis

5

Reporting and interpreting quantitative research findings [Recurso electrónico] : what gets reported and recommendations for the field / Jenifer Larson-Hall, Luke Plonsky

Este artículo se encuentra disponible en su edición electrónica. Los datos para su localización y/o acceso electrónico están accesibles a través del enlace al título de la publicación.

References: p. 155-159

This paper presents a set of guidelines for reporting on five types of quantitative data issues: (1) Descriptive statistics, (2) Effect sizes and confidence intervals, (3) Instrument reliability, (4) Visual displays of data, and (5) Raw data. Our recommendations are derived mainly from various professional sources related to L2 research but motivated by results from investigations into how well the field as a whole is following these guidelines for best methodological practices, and illustrated by L2 examples. Although recent surveys of L2 reporting practices have found that more researchers are including important data such as effect sizes, confidence intervals, reliability coefficients, research questions, a priori alpha levels, graphics, and so forth in their research reports, we call for further improvement so that research findings may build upon each other and lend themselves to meta-analyses and a mindset that sees each research project in the context of a coherent whole.

Language learning. -- 2015 (June), v. 65, supp. 1, p. 127-159
1. Confidence intervals 2. Effect sizes 3. L2 4. Language 5. Mean 6. Meta-analysis 7. Methodology 8. Quantitative 9. Raw data 10. Reporting practices 11. Standard deviation

6**Statistical measures for usage-based linguistics [Recurso electrónico] / Stefan Th. Gries, Nick C. Ellis**

Este artículo se encuentra disponible en su edición electrónica. Los datos para su localización y/o acceso electrónico están accesibles a través del enlace al título de la publicación.

References: p. 250-255

The advent of usage-/exemplar-based approaches has resulted in a major change in the theoretical landscape of linguistics, but also in the range of methodologies that are brought to bear on the study of language acquisition/learning, structure, and use. In particular, methods from corpus linguistics are now frequently used to study distributional characteristics of linguistic units and what they reveal about cognitive and psycholinguistic processes. This paper surveys a range of psycholinguistic notions that are becoming ever more important in theoretical and cognitive linguistics -for example, frequency, entrenchment, dispersion, contingency, surprisal, Zipfian distributions- and current corpus-linguistic approaches toward exploring these notions and their roles for linguistic cognition.

Language learning. -- 2015 (June), v. 65, supp. 1, p. 228-255

1. Associative learning 2. Contingency/association 3. Corpus data 4. Dispersion 5. Frequency 6. Psycholinguistics 7. Surprisal

7**Statistical significance testing in second language research [Recurso electrónico] : basic problems and suggestions for reform / John M. Norris**

Este artículo se encuentra disponible en su edición electrónica. Los datos para su localización y/o acceso electrónico están accesibles a través del enlace al título de la publicación.

References: p. 124-126

Traditions of statistical significance testing in second language (L2) quantitative research are strongly entrenched in how researchers design studies, select analyses, and interpret results. However, statistical significance tests using p values are commonly misinterpreted by researchers, reviewers, readers, and others, leading to confusion regarding the actual findings of primary studies and critical challenges for the accumulation of meaningful knowledge about language learning research. This paper outlines the basic challenges of accurately calculating and interpreting statistical significance tests, explores common examples of incorrect interpretations in L2 research, and proposes strategies for resolving these problems.

Language learning. -- 2015 (June), v. 65, supp. 1, p. 97-126

1. Inferential statistics 2. Null hypothesis significance testing 3. 'p' value 4. Recommended practices

8**Structural equation modeling [Recurso electrónico] : possibilities for language learning researchers / Gregory R. Hancock, Rob Schoonen**

Este artículo se encuentra disponible en su edición electrónica. Los datos para su localización y/o acceso electrónico están accesibles a través del enlace al título de la publicación.

References: p. 181-184

Although classical statistical techniques have been a valuable tool in second language(L2) research, L2 research questions have started to grow beyond those techniques' capabilities, and indeed are often limited by them. Questions about how complex constructs relate to each other or to constituent subskills, about longitudinal development in those constructs and factors affecting that development, and about differences among populations in average amounts of complex constructs or in their relations require a broader analytical framework. Fortunately, that of structural equation modeling (SEM), a versatile and ever-expanding family of techniques, is able to accommodate such questions and many more. The current article describes some of the questions that can be addressed by SEM, presents some research examples within the existing L2 literature, and then provides examples of the incredible potential of SEM, cautions in its practice, and resources for further information.

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1. Covariance structure analysis 2. Modeling relations 3. Multi-group comparisons 4. SEM

9

The utility and application of mixed-effects models in second language research [Recurso electrónico] / Jared A. Linck, Ian Cunnings

Este artículo se encuentra disponible en su edición electrónica. Los datos para su localización y/o acceso electrónico están accesibles a través del enlace al título de la publicación.

References: p. 205-207

Second language acquisition researchers often face particular challenges when attempting to generalize study findings to the wider learner population. For example, language learners constitute a heterogeneous group, and it is not always clear how a study's findings may generalize to other individuals who may differ in terms of language background and proficiency, among many other factors. In this paper, we provide an overview of how mixed-effects models can be used to help overcome these and other issues in the field of second language acquisition. We provide an overview of the benefits of mixed-effects models and a practical example of how mixed-effects analyses can be conducted. Mixed-effects models provide second language researchers with a powerful statistical tool in the analysis of a variety of different types of data.

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1. Mixed-effects models 2. Language science 3. Second language acquisition 4. Random effects 5. Statistics