This is a repository copy of *IRIS:a new resource for second language research*.

IRIS: A new resource for second language research

IRIS is a digital database of materials used to collect data for second language research that went fully live in August 2012. At the time of writing (May 2013), there have been over 1800 downloads of materials held on the site, and almost 7000 visits, demonstrating a clear need for the resource. IRIS has the potential to make a step-change in the way our field works, impacting the nature and rate of second language (L2) research. Here we outline the motivations for the project, what the IRIS database consists of, how it is structured, and the future of the resource.

What is IRIS (Instruments for Research Into Second languages)?

IRIS is a freely accessible online database that contains an extensive range of materials, instruments and stimuli used to collect language data (www.iris-database.org). It is an up-and downloadable multimedia repository, hosting a wide range of research tools used in L2 research. 'L2 research' is defined broadly, including foreign and second language learning and teaching, early and late bilingualism, and attrition. IRIS is designed to facilitate research in L2 applied linguistics, psycholinguistics, neurolinguistics, sociolinguistics, teacher education, amongst other sub-disciplines. Areas that can be researched using instruments from IRIS include the processing, representation and acquisition of L2s, the effectiveness of particular instructional interventions, the geographical or socio-cultural contexts in which second languages are used and learned, linguistic and cultural identity, and learners', teachers', policy makers' opinions about language use and learning, amongst many others.

Rationale. Before IRIS, data collection instruments were typically created by individual researchers for their own studies and were rarely available in full for scrutiny by other researchers and the community. Access to them was *ad hoc,* depending on how easy it was to

contact the researcher, whether they could locate their data collection materials, and whether the materials were in a format compatible with current technology.

This poor access to the complete original instruments contributed to a general paucity of replication research, observed by many (e.g. Porte, 2013), and made systematic reviews and meta-analyses difficult, a problem noted in numerous reviews (e.g. Norris & Ortega, 2000 & 2006). It also impeded the scrutiny of research quality, and perhaps most importantly, led to considerable and unnecessary duplication of effort and resources when developing research tools, retarding the pace of enquiry and increasing its cost. By making more data elicitation tools transparent and accessible, IRIS brings far-reaching and permanent benefits to the field of L2 research, ensuring greater visibility of the primary data collection tools, enhancing the replicability of research agendas, thus improving the quality and generalisability of meta-analyses and systematic reviews. IRIS provides more complete information to the consumer of research, facilitating the scrutiny of data collection so that researchers can more easily evaluate the face and construct validity, reliability and generalisability of instruments used. Secondary benefits include increasing the visibility of researchers' work, establishing a 'collective memory' of research methods, enabling junior researchers to contribute to established agendas, providing established researchers with a source to direct requests for their instruments, and increasing awareness about format standardisation.

The instruments held in IRIS. To qualify for upload to IRIS, materials must have been used to collect data for a peer-reviewed published (or in-press) journal article, book, conference proceedings, or approved PhD thesis. Data collection materials are defined as any stimuli used to elicit data from the full spectrum of L2 research areas, and instruments held to date have been used to investigate 70 research areas. IRIS hosts materials from all theoretical and methodological perspectives. For example, materials can include image stimuli (both still and motion, e.g. cartoons, maps, short videos) to elicit oral and written production; audio

stimuli including native and non-native speech to elicit perception, comprehension and judgements about language; written verbal stimuli and tasks to elicit comprehension and production; experimental teaching materials, such as processing instruction activities; questionnaires to elicit attitude, motivation and behavioural data; observation protocols to document language use and instructional contexts; interview protocols, to investigate stakeholders' opinions and behaviours. To date, IRIS holds over 180 data collection instruments, many of which contain multiple files, such as a sound file and its transcript, or two versions of the same grammaticality judgement test, or a questionnaire and its rating scale. The instruments have been used to research 24 different languages, focusing on 32 different linguistic features, with 38 different L1-L2 language combinations.

Metadata and searching. As well as the materials themselves, IRIS holds a rich set of metadata about each instrument. This makes it possible to search for materials along a number of parameters. For example, searches can be done for a broad research area (e.g. acquisition, fluency, implicit learning, interaction, interfaces, morphosyntax, processing instruction, pronunciation), or for a certain type of data collection tool (e.g. a grammaticality judgement test, information gap task, observation schedule, oral production test, questionnaire, working memory test). In addition, searches can be done for a particular author or reference. Currently over 500 authors are cited on the database, including both well-established and novice researchers, and more than 45 journals are referenced. Most contributors also choose to enter additional metadata about their materials, thus making the instruments even more likely to be returned in specific searches. This can include the target linguistic feature (e.g. articles, modals, pronouns, quantifiers, questions), or a range of participant characteristics (e.g. the first or second/third/fourth language, proficiency, age, amount of prior instruction). Although IRIS already spans an admirable range of target

languages, proficiency levels, and research areas, the database is clearly still in its infancy, and the aim is to achieve even greater variety.

The classification system itself is organic, allowing the community to suggest new labels for research areas, instrument types, linguistic features, participant types, etc. In this way, IRIS has the capacity to grow to reflect emerging fields and new research priorities. Over time, the ontologies will evolve, gradually providing a fuller reflection of the L2 research field.

Downloading resources and adapting them to context. One of the guiding principles behind IRIS is that materials can be re-used as is, or adapted by other researchers. For example, materials can be translated into other languages, adapted to elicit different linguistic features, edited to make them appropriate for different ages, proficiencies or socio-cultural contexts. Such adaptations should enhance the systematicity of research agendas, with different participants and in different locations.

A fundamental principle behind IRIS is to promote full and accurate assignation of publication credit and authorship. For contributors of materials, this includes agreement that upload of the materials is rightful. For example, where contributors have adapted their instruments from other materials, the submission form asks for these to be acknowledged via citation of the earlier versions or publications that have been used in the creation of the material. The IRIS team also offers to pursue permission requests (e.g. to publishers or to other researchers) on behalf of the contributors. To protect the rights of the resource creators, whilst enabling the open access sharing of resources, all materials are given a Creative Commons License (http://creativecommons.org/about/licenses/). Contributors are encouraged to select the license known as "Attribution; derivatives allowed; non-commercial; share-alike", that specifies that materials can be re-used and that future versions of the materials should be shared under the same license, but no financial gain can be made from them.

However, contributors can also choose any of the other three licenses. Downloaders agree to the relevant terms, thus agreeing to cite the authors of the materials in any future publications that use the materials or have adapted them.

Interaction between contributors and downloaders. Contributors can choose to permit feedback about their instruments from those who have downloaded their material. For example, comments about further use of an instrument, new contextual information, problems, updated reliability statistics (generalisability). Contributors can choose whether to allow or refuse such comments, and whether they are posted online, or sent to them personally. The contributor can also choose to be alerted when their instrument has been downloaded. If the contributor and downloader both wish, they can be put in touch, thus promoting further collaboration or discussion.

Supplementary material. A range of support documents are available on the site, for example providing updated ontologies of research areas and instruments, and guidance with searching, uploading, and questions about intellectual property. The terms and conditions documents include a take-down policy that ensures that any contested material could be promptly removed from IRIS.

Future Directions

IRIS has received overwhelming support from both the research and language teaching communities. Indeed, it has been described as "one of the most interesting and potentially widest-impact second language acquisition projects in a long time… ground-breaking" (Ortega, 2013, http://www.iris-database.org/iris/app/home/peoplesaying). The physical sustainability of the resource is guaranteed by collaboration with the Digital Library at the University of York, which has undertaken to curate and provide some continued technical support. But to realise the full potential of IRIS, continued engagement is required from the

research community. To this end, many journal editors have agreed to encourage submission of data collection materials to IRIS in their notification of acceptance sent to authors and/or in the Notes to Authors/Contributors. To date, these include *Annual Review of Applied Linguistics, Applied Linguistics, Applied Psycholinguistics, Asian EFL Journal, Bilingualism: Language and Cognition, International Journal of Bilingualism, International Journal of Bilingual Education and Bilingualism, International Review of Applied Linguistics, Journal of French Language Studies, Language Learning, Language Teaching, Language Teaching Research, Language Testing, Lingua, Linguistic Approaches to Bilingualism, Modern Language Journal, Second Language Research, Studies in Second Language Acquisition,* and *System.*

Capability to provide overviews. IRIS has the capacity to provide a window into methodological trends, replication and innovation. Over time, full analysis of the contents of the repository can indicate whether and how particular instrument types are used, which research areas seem most active, the methodological and theoretical trends within those areas, or even which journals and authors are most highly cited on the resource (one indicator of 'empirical activity'). Statistical information about download usage is also stored, and there are plans to make some of these data available for public scrutiny, for example, statistics about the status of downloaders (language tutor, student, faculty), or the number of downloads per research area and per instrument type.

Research Methods Training. IRIS is a useful resource for research methods training, as multiple examples of particular instruments can be sourced and critiqued. Although IRIS stipulates that instruments must have been used for peer-reviewed publications (serving as one measure of quality), criticality continues to be essential. For example, IRIS currently holds ten working memory tests and forty questionnaires; selecting from amongst these and adapting them to context requires careful consideration of issues addressed in research

methods training courses and textbooks. Indeed, one longer term plan is to hold research methods training packages alongside instruments or groups of instruments. For example, materials for students could accompany questionnaires, elicited imitation protocols, working memory tests or information gap tasks, providing information, bibliographies and training on relevant issues such as research design, validity, reliability, and data analysis. Extending on this, another ambition is to link instruments to datasets and research reports. The existence of IRIS does not diminish the fact that no elicitation instrument is foolproof, as all elicitation methods have their advantages and limitations, but IRIS can help us to identify these, enriching our understanding of the quality and rigour of data collection methods.

References

Norris, J. and Ortega, L. (2000). Effectiveness of L2 instruction: A research synthesis and quantitative meta-analysis. *Language Learning*, 50, 3, pp. 417–528.

Norris, J. and Ortega, L. (Eds.) (2006). *Synthesizing research on language learning and teaching.* Amsterdam: John Benjamins.

Porte, G. (Ed.) (2013). *Replication research in applied linguistics research.* Cambridge: Cambridge University Press.