Research-led teaching of state-of-the-art laboratory phonology: Intonation atlases

Ingo Feldhausen

Goethe University Frankfurt (Germany)
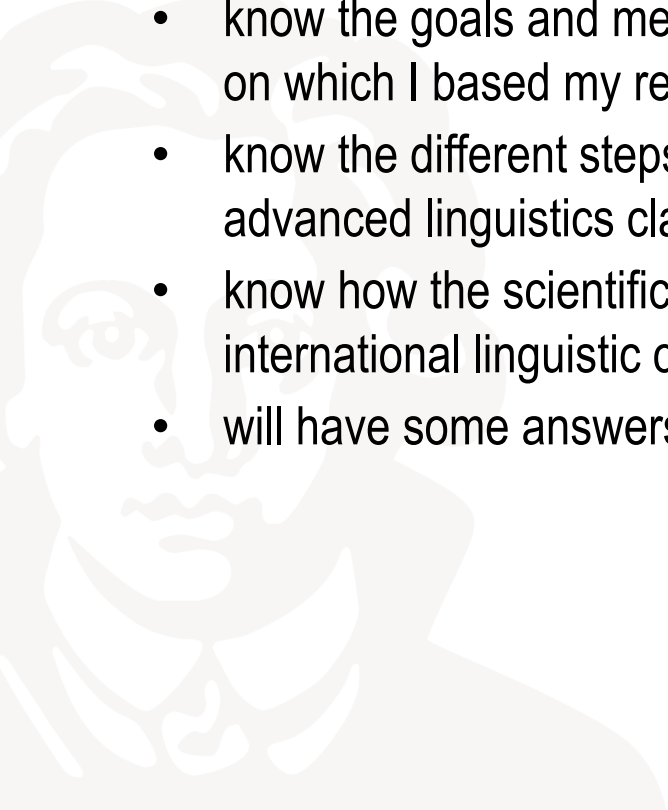
Contact: *feldhausen[at]em.uni-frankfurt.de, ingo.feldhausen[at]gmx.de*

July 09, 2020

Satellite workshop "Pedagogical Approaches to Laboratory Phonology", LabPhon17

UBC & SFU, Vancouver (Canada)

Introduction

At the end of this talk you…

- have an idea of how undergraduate students of linguistics experience learning through research and inquiry into laboratory phonology in my university classes
- got to know a definition of "research-led teaching"
- know the goals and method(s) behind the *Interactive Atlas of (Spanish) Intonation*, on which I based my research-led teaching projects
- know the different steps of how I implemented my research-led teaching project in advanced linguistics classes
- know how the scientific results of these projects were made accessible to the international linguistic community and how they are taken up by the community
- will have some answers to the central questions of this satellite workshop
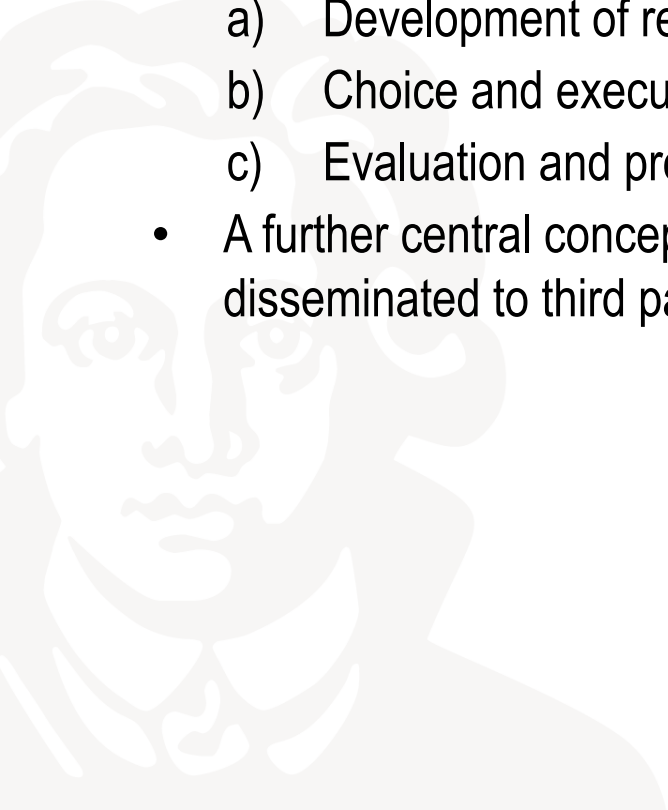
Introduction

Road map

1. Introduction
2. A definition of research-led teaching
3. Research project: Intonation atlases
4. Implementation in the classroom
5. Dissemination of the results to third parties
6. Reflection on my pedagogical approach to Laboratory Phonology
7. Central workshop questions and conclusion

Research-led teaching
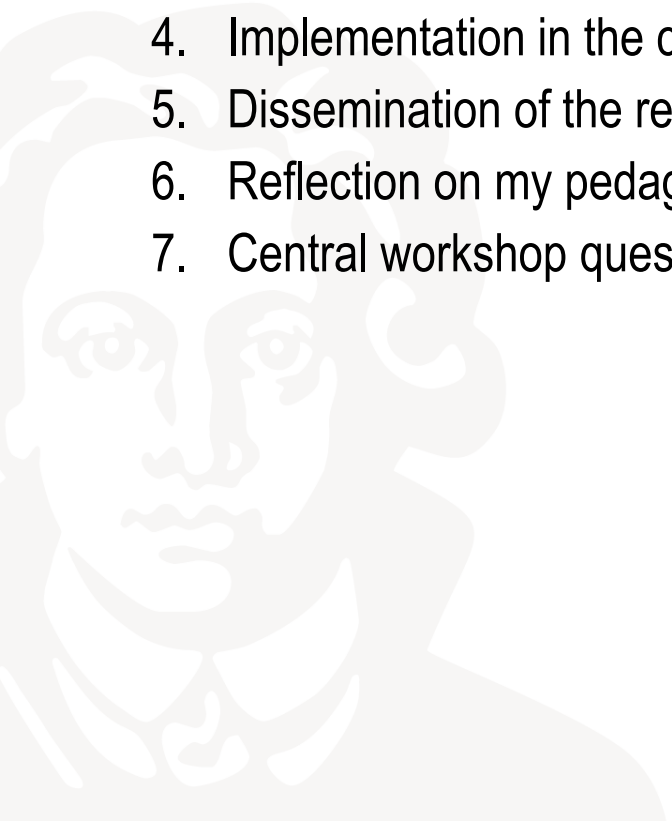
Definition

- The learning parties create, experience and reflect on the process of a research project in its essential phases:
  a) Development of research questions and hypotheses
  b) Choice and execution of the method
  c) Evaluation and presentation of the results
- A further central concept of research-led teaching is that the results are disseminated to third parties

(Huber 2009: 11)

Research project - Intonation atlas

Research project

- Execution of an experimental production study
- *Subject*: Intonation of a specific sentence type in Spanish (or any other Romance language)
- *Foundation*: Interactive atlas of Spanish/Romance intonation (Spanish: Prieto & Roseano 2009-2013, Prieto & Roseano 2010; Romance: Prieto et al. 2010-2014, Frota & Prieto 2015)

Educational context

- Advanced linguistics seminars (BA, MA, teacher training)
- Romance linguistics
- University of Frankfurt (3x)
- University of Konstanz (1x)

Research project - Intonation atlas

Language atlas

- Investigation of linguistic phenomena based on their geographical distribution
- Cartographic description of geographical varieties
- Collection of specific verbal productions of different subjects at different locations (exploration points)
- First atlases:
  - *Atlas Linguistique de la France* (ALF; Jules Gilliéron, 1854-1926)
  - *Sprachatlas des deutschen Reiches* (G. Wenker, 1852-1911, & F. Wrede, 1863-1934)

Fig.1: Example of a language atlas for German showing lexical variation of the word referring to 'breakfast break' (Leemann et al. 2017, Source: rowohlt.de)

Interactive atlas of Spanish / Romance intonation

- Atlas of intonation: Cartographic description of the geographical distribution of intonation contours

  - **Spanish**: Atlas interactivo de la entonación del español (Prieto & Roseano 2009-2013, 2010)

- **Romance languages**: Interactive Atlas of Romance Intonation (Prieto et al. 2010-2014, Frota & Prieto 2015)

Research project - Intonation atlas

Interactive atlas of Spanish / Romance intonation

Set up of the intonation atlases:

- Presentation of intonation contours (pitch accents and boundary tones) of different sentence types / speech acts
  - Declaratives
  - Interrogatives (*Yes-no*-questions, *wh*-questions)
  - Imperatives, requests, vocatives etc.
- Different methods used for data gathering (*Discourse Completion Task* [Prieto 2001; Vanrell, Feldhausen & Astruc 2018], *MapTask*, free interviews)
  - audio and video materials
- Materials are accessible by means of interactive maps of Europe and the Americas
- 2-3 native speakers per exploration point
- See next slide for an example of *yes-no*-questions in Spanish; for further details, please take a closer look at the corresponding homepages of the atlases

Yes-no-questions in Spanish

falling (L%)

rising (H%)

Implementation in the classroom
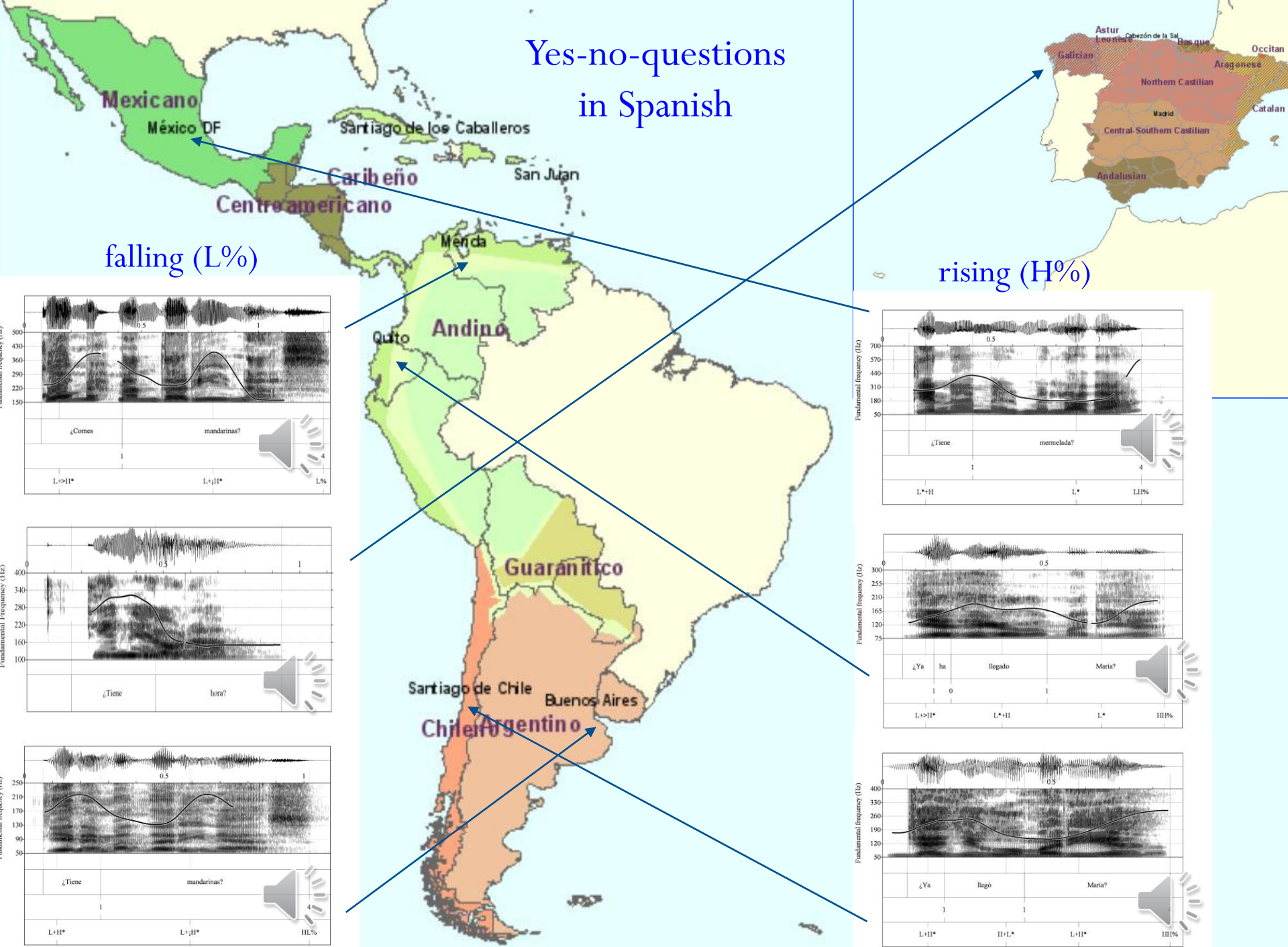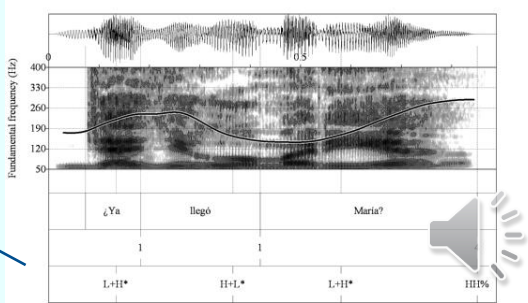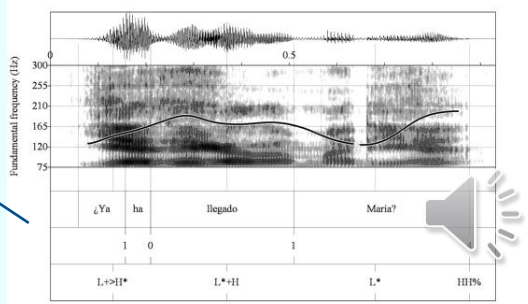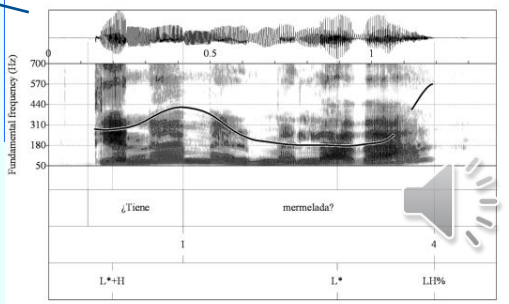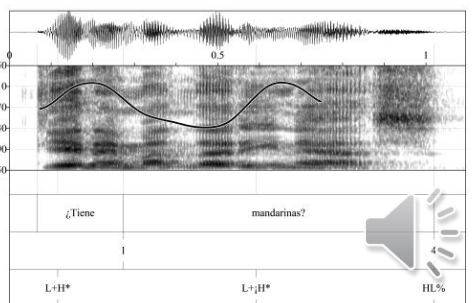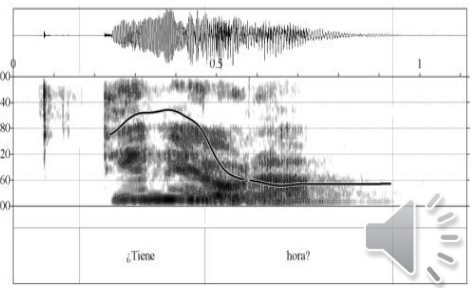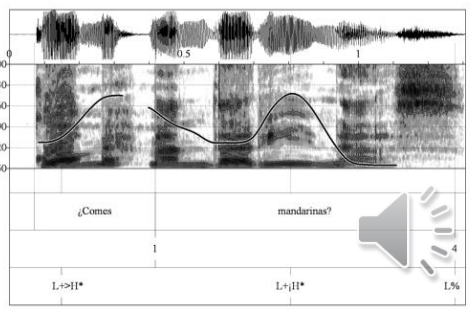
Students task

a)   to pick one sentence type (out of the different types in the atlas),

b)   to choose one dialectal variety of Spanish (or another Romance language),

c)   to refine the research question based on their sentence type and chosen variety

d)   to set up stimuli (based on the questionnaires provided by the interactive atlases);

e)   to find and record three to four native speakers of the chosen variety; and

f)   to analyze, present, and discuss these data.

- The students were not left alone with this task
    - Introduction part of class: What is intonation? How to analyze intonation? How to use *praat*? Basic concepts of doing scientific research: What is a research question and a hypothesis? What is the added value of a discussion? Etc.
    - Further guidelines on the next slides

Development of research questions and hypotheses

- One central research question for all:
  - Are the results for sentence type X of variety Y replicable?
    - More speakers and more lexicalizations for a given condition than most often provided in the intonation atlas
  - Background for that research question:
    Undergraduates' seminar assignments were linked to the intonation atlases by concentrating on an empirical limitation of the atlases. That is, in most cases only a small number of speakers provided only a small number of tokens per condition. Thus, one central idea behind this teaching project was to enrich the data base of the atlas.
  - Research question could be modified in case students wanted to do so
  - Hypothesis: Students were encouraged to formulate a hypothesis based on the research question and previous results of the intonation atlas

Implementation in the classroom

Methodological guidelines

- Use of the same method which is central for the intonation atlases:
  - *Discourse Completion Task* (DCT) (Prieto 2001, Vanrell, Feldhausen & Astruc 2018)
- Data analysis: Use of the same method which is central for the intonation atlas:
  - *Autosegmental-Metrical (AM) model* (Pierrehumbert 1980, Ladd 2008), and
  - *ToBI annotation systems* for the given language (see Frota & Prieto 2015)
- Advantage: Comparison of results easily possible
- Short presentation by the students in the classroom before conducting the study:
  - What is their research question and its motivation?
  - Presentation of test sentences/mini contexts for conducting the DCT
  - Goal: getting feedback from me (and other students) to improve quality

Implementation in the classroom

Presentation of the results

- Two kinds of implementation processes carried out (just one per seminar):
  - Oral presentations during the seminar
  - Poster session at the end of the seminar (i.e. mini-workshop for which the entire department was invited)
- Presentation following the example set by the intonation atlas
- Figures of presented intonation contours as seen before
- Quantification: percentages
- Structuring of oral presentations or posters: Like a research paper (Introduction, research question and motivation, methodology, results, discussion, conclusion; see metaphor of *hourglass* by Bem 2003)
- Students were supposed to work in teams

Dissemination of the results to third parties

Different options:

1. **Oral presentations**: Classical oral presentations during the seminar (students present in front of the other students attending the course)
2. **Poster presentation in form of a mini workshop**: Students prepare a poster presentation of their conducted study; the workshop is open for interested colleagues of the department or faculty
3. **(Inter-)national conferences**: Submission of the studies with the highest quality to (inter-)national conferences with a peer review process
4. **Publication**: Publication of the best studies

Nota bene: Point 3 and 4 demand additional effort outside of the classroom by the students as well as by the lecturer

Dissemination of the results to third parties

Up to now: Several conference presentations and publications

- From left to right: - Brehm et al. 2014 [*International Seminar on Speech Production*]
  - Lausecker et al. 2014 [*Speech Prosody*]
  - Huttenlauch et al. 2016 [*Speech Prosody*]
  - Feldhausen & Lausecker 2018 [*Phonetics and Phonology in the German-Speaking Countries*])

- Work cited by international community: e.g. Martín Butragueño (2014), Robles-Puente (2017, 2019), Terán & Ortega-Llebaria (2017), Torreira & Grice (2018), Pinem (2019)

Reflection on pedagogical approach

Motivation for didactic method and the added value I hoped for

- Getting students practically acquainted with scientific methods used in our field
- Conduct, experience and reflect a small research project under guidance by an experienced researcher as a preparation for upcoming final assignment for BA or MA degree
- Organization in teams with a clearly defined goal
- Gaining insight in the work done by the lecturer when s/he is not teaching
- Students gain insight in current research
- Students have a potential topic for the final thesis
- Possibility of gaining experience in presenting at workshops and conferences
- The lecturer receives much better final assignments (in the best case)
- Joint publications are possible

Reflection on pedagogical approach

Stumbling blocks and challenges

During the essential phases of the research project (cf. points (a)-(c) of the definition of research-led teaching):

- Formulating of (own) research questions and hypotheses is demanding
- Setting up stimuli/contexts is complex
- Finding test subjects might be complicated (courses took place in Germany, but variety of interest was located outside of Germany: Where to find speakers without travelling and spending money)
- Data analysis requires theoretical knowledge
- Discussion of results is demanding
- Creating a coherent and well-structured presentation or poster is demanding
- Student groups might not be robust (in case someone is unreliable or extricates oneself from the seminar)

Reflection on pedagogical approach

Possible solutions

- **Realistic expectations of lecturer**
  - Goal should be the introduction of students to working scientifically
  - Most of the studies cannot be published as they are, and results cannot be used for own research
- **Providing clear orientation for students**
  - Usage of the intonation atlas because existing studies can be consulted as guidelines (e.g. Prieto & Roseano 2010, Frota & Prieto 2015, but also Brehm et al. 2014 etc.)
  - Providing the students with a clear research question and method
- **Guidance during essential phases of research project**
  - Quality assurance by means of short presentations of research question and test items before study is conducted
  - Introduction classes by lecturer
- **Highlighting the benefit for the students**
  - Knowledge of how to work scientifically
  - Future teachers: Benefits for the language classroom

Workshop questions and conclusion

- What role does laboratory phonology have in the undergraduate/graduate curriculum?
  - At my current department: No role at all. It is just me who teaches (sometimes) labphon
- Is it possible to design a course in laboratory phonology that does not have a more "traditional" phonology and/or phonetics course(s) as pre-requisite(s)?
  - Yes, most of my students hardly had any previous knowledge of phonology or phonetics, but they were able to conduct the studies
- Does a laboratory phonology approach lend itself more to a topic-driven course in which a particular research question is investigated?
  - Yes, my approach was clearly topic-driven and students were provided with a particular research question
- What do sample activities/assignments/syllabi centered on a particular topic within laboratory phonology look like, and how might they be improved based on current research in pedagogy?
  - Example just presented; Improvement: Using idea of research-led teaching and highlighting the structure of an empirical research paper ("hourglass", Bem 2003)

Conclusion

At the end of this talk you…

✓ • have an idea of how undergraduate students of linguistics experience learning through research and inquiry into laboratory phonology in my university classes

✓ • got to know a definition of "research-led teaching"

✓ • know the goals and method(s) behind the *Interactive Atlas of (Spanish) Intonation*, on which I based my research-led teaching projects

✓ • know the different steps of how I implemented my research-led teaching project in advanced linguistics classes

✓ • know how the scientific results of these projects were made accessible to the international linguistic community and how they are taken up by the community

✓ • will have some answers to the central questions of this satellite workshop

Thank you for your attention / reading my slides!

References

ALF = Gilliéron, Jules & Edmond Edmont (1902-1910). *Atlas linguistique de la France*. Paris, Champion, 9 vol., supplément 1920.

Bem, Daryl (2003). Writing the Empirical Journal Article. In: Darley, J. M., Zanna, M. P., & Roediger III, H. L. (Eds) (2003). *The Compleat Academic: A Practical Guide for the Beginning Social Scientist, 2nd Edition*. Washington, DC: American Psychological Association.

Brehm, Annika, Alina Lausecker & Ingo Feldhausen (2014). The Intonation of Imperatives in Mexican Spanish. *Proceedings of the 10th International Seminar on Speech Production (ISSP), Köln (Germany)*, 53-56.

Feldhausen, Ingo & Alina Lausecker (2018). Diatopic Variation in Prosody: Left- and Right-Dislocations in Spanish. In: Malte Belz, et al. (eds.). *Proceedings of Phonetics and Phonology in the German-Speaking Countries* (P&P 13), Berlin (Germany), pp. 57-60.

Frota, Sónia & Pilar Prieto (eds.) (2015). *Intonation in Romance*. Oxford: OUP.

Huber, Ludwig (2009). Warum Forschendes Lernen nötig und möglich ist. In: Huber, L. et al. (eds.). *Forschendes Lernen im Studium. Aktuelle Konzepte und Erfahrungen*. Bielefeld: UVW, Webler, 9–35.

Huttenlauch, Clara, Sophie Egger, Daniela Wochner & Ingo Feldhausen (2016). The intonation of echo wh-questions in Ecuadorian Spanish. *Proceedings of Speech Prosody 8*, Boston (USA), 385-389.

References

Ladd, Robert D. (2008²). *Intonational Phonology*. Cambridge: CUP.

Lausecker, Alina, Annika Brehm & Ingo Feldhausen (2014). Intonational Aspects of Imperatives in Mexican Spanish. *Proceedings of Speech Prosody 7*, Dublin (Ireland), 683-687.

Leemann, Adrian, Stephan Elspaß, Robert Möller & Timo Grossenbacher (2017). *Grüezi, Moin, Servus! Wie wir wo sprechen*. Rowohlt.

Martín Butragueño, Pedro (2014). Más sobre la llamada entonación imperativa. Datos del español de México. *Quaderns de filología. Estudis lingüístics* 19: 173-196.

Pierrehumbert, Janet. 1980. *The Phonology and Phonetics of English Intonation*. Massachusetts: MIT Ph.D. dissertation.

Pinem, Yune Andryani (2019). Stylistic analysis of English imperative command mood transfer to Javanese. *LLT Journal: A Journal on Language and Language Teaching* 22(1): 11-22.

Prieto, Pilar (2001). L'entonació dialectal del català: el cas de les frases interrogatives absolutes. In Bover i Font et al. (eds.). *Actes del novè col·loqui d'estudis catalans a Nord-Amèrica*, 347–377. Barcelona: Publ. de l'Abadia de Montserrat.

Prieto, Pilar & Roseano, Paolo (eds.) (2009-2013). *Atlas interactivo de la entonación del español*. http://prosodia.upf.edu/atlasentonacion/

Prieto, Pilar & Roseano, Paolo (eds.) (2010). *Transcription of Intonation of the Spanish Language*. Lincom: München.

References

Prieto, P., Borràs-Comes, J., & Roseano, P. (eds.) (2010-2014). *Interactive Atlas of Romance Intonation*. Web page: <http://prosodia.upf.edu/iari/>

Robles-Puente Sergio (2017). Read! – On the intonational properties of short imperatives in Spanish. Probus 29(1) DOI: https://doi.org/10.1515/probus-2015-0008

Robles-Puente. Sergio (2019). Sociopragmatic factors and melodic patterns: Spanish vocatives and imperatives compared. *Studies in Hispanic and Lusophone Linguistics* 12(1).

Terán, Virginia & Marta Ortega-Llebaria 2017. A Description of Tucumán Spanish Intonation in Argentina. *Open Linguistics* 3(1). DOI: https://doi.org/10.1515/opli-2017-0023

Torreira, Francisco & Martine Grice (2018). Melodic constructions in Spanish: Metrical structure determines the association properties of intonational tones. *Journal of the International Phonetic Association* 48(1): 9-32.

Vanrell, Maria del Mar, Ingo Feldhausen & Lluisa Astruc (2018). The Discourse Completion Task: status quo and outlook. In: Feldhausen, Ingo, Jan Fliessbach & Maria del Mar Vanrell (eds.). *Methods in prosody: A Romance language perspective*. Berlin: Language Science Press, 191-227.