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

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

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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)

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)
Research project - Intonation atlas

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)

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
Sprachliche Variation

Text

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
Implementation in the classroom

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:
• 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]

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?
Conclusion

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✓  will have some answers to the central questions of this satellite workshop
Thank you for your attention / reading my slides!
References


References


