Inductive and Deductive Approaches to Grammar in Second Language Learning: Process, Product and Students’ Perceptions

Approche inductive et déductive en langues secondes: processus, produit et perceptions

Colloque: Le bilinguisme au sein d’un Canada plurilingue: recherches et incidences
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(subvention CRSH 2006)
The study

- An investigation of how students react (process, product, perception) to two different types of grammar teaching procedures, each type presented in a different unit.

- In-classroom experimentation:
  - All participants exposed to the two units
  - one unit after the other over approximately one month with regular teachers.

- Mixed-Method: qualitative and quantitative data collected through:
  - Questionnaires (students’ and teachers’)
  - Teacher’s log
  - Students’ productions in exercise booklet
  - Tests
  - Learning style survey
Research questions

1) As part of a metalinguistic task, can high school FSL and ESL students come up with their own grammatical rules? If so, which language do they use (L1, L2 or both) and what is the content of their productions? What is their metalanguage like? Can they reassess their hypotheses with the help of counter examples?

2) Can deductive and inductive approaches each produce noticeable results on the accuracy with which students use a targeted grammar pattern?

3) Which perceptions do students have of the inductive and deductive approaches: effectiveness, interest, relationship with preferences in general and, more specifically, with preferred learning styles?

4) Are there correlations between the gains obtained through inductive and deductive grammatical instruction, students’ appreciation of each type of instruction, and students’ learning styles as assessed through a self-report learning style survey?
Explicit form-focused instruction: Inductive or deductive?

- Few studies, especially with high-school learners;
- Some studies have shown an advantage for a deductive approach for rule presentation (Erlam, 2003; Robinson, 1996; Seliger, 1975);
- Other studies have shown an advantage for an inductive approach (Herron & Tomasello, 1992);
- Some others have shown no difference (Rosa & O’Neill, 1999; Shaffer, 1989; Toth, 2006);
- Most have conceptualized (operationalized) the approaches in different ways.
What is a deductive approach to metalinguistic rule presentation?

- The P-P-P approach (Presentation-Practice-Production):
  - The rule is presented, then practiced in drill-type exercises;
  - A text is read that includes a targeted grammatical pattern. A rule is presented about the pattern. The rule is practiced in different types of exercises;
  - The rule is presented. Exercises are done to practice it. The targeted pattern is used in texts to be read or listened to.
  - Learners may engage in meaningful activities at the end of any of these types of deductive grammar rule presentation.
Ways of conceptualizing an inductive approach to metalinguistic rule presentation

- Students try to discover the rules, then the teacher states them;

- Students implicitly discover the rules by working with language samples and test their hypotheses with progressively more sophisticated samples. Students never state the rules. (Herron & Tomasello’s Guided Induction Approach, 1992)

- Students, with the help of the teacher, develop rules from authentic samples and then apply the rules;

- Students work collaboratively to discover and state the rules with guided questions relating to language samples and progressively modify and complete the rules with new input and teacher’s feedback.

- Learners may engage in meaningful activities at the end of any of these types of inductive grammar rule presentation.
Can learner differences make a difference?

- Most studies have investigated overall group gains;
- Studies have not investigated how learner differences may affect the effectiveness of inductive VS deductive approaches;
- Learning styles, although not a perfect indicator of learner differences, may offer a lead into understanding learner’s reactions to inductive and deductive approaches.
How are language learning styles assessed?

- Mostly used: self-report instruments (surveys);
- Most of them developed for practical rather than research purposes (Dörnyei, 2005);
- Some include language-related issues, others don’t;
Adapted survey

- A cross between the young learners’ survey and the adults’ survey;
- 7 parts out of 11 of the original survey:
  Extroverted/introverted; random-intuitive/sequential; closure-oriented/open; global/particular; synthesizing/analytic; deductive/inductive; field-dependent/field-independent;
- Language simplified (some items borrowed from the young learners’ version);
- Equal number of items per style (8 per pairs);
- Did not use parts’ titles so as to avoid influencing the learners;
- Ungrouped the statements in each pair of learning styles;
- Tried to avoid negative-type statements
Experimentation: Teaching units

- Two specifically designed grammatical units:
  - Unit 1: rules presented deductively;
  - Unit 2: rules presented inductively;
  - Both text-based:
    - African fables (deductive);
    - Tales (inductive)
  - Two grammar elements:
    - Determiners (deductive unit): definite, indefinite, possessive and demonstrative
    - Object pronouns (inductive unit): *le, la, les, l’, lui, leur, y, en*
  - Both task (project)-based: free writing of a fable or a tale at the end.
Experimentation: Participants

- 7 classes (secondary cycle 1: 3 secondary 1 and 4 secondary 2 classes): ±138 participants
- 3 teachers
- Students’ motivation to learn grammar (as reported by their teacher):
  - Groups A, B, G: average
  - Groups C, D, E, F: rather low
- Reported accuracy in the use of determiners:
  - Groups A, B, C: rather poor
  - Groups D, E, F: quite good
  - Group G: average
- Reported accuracy in the use of object pronouns:
  - Groups A, B, C: rather poor
  - Groups D, E, F: average
  - Group G: rather poor
Previous exposure to the targeted grammar features

- Previous explicit teaching of determiners:
  - NO for groups A, B, C and G;
  - YES for groups D, E and F.
- Previous explicit teaching of object pronouns:
  - NO for all groups.
- Some corrective feedback done previously on the targeted features in groups D, E, F, G.
Experimentation: Steps and materials

- Teacher’s questionnaire;
- Diagnostic test (two forms) for each unit;
- Step-by-step teaching of the units
  - Students’ Booklets for readings and exercises;
  - Teacher’s Guide (with teacher’s log);
- End-of-unit test (inverted forms) for each unit;
- Sociodemographic and unit appreciation questionnaire at the end of the deductive unit;
- Unit appreciation questionnaire and learning style survey at the end of the inductive unit.
Data analysis

- Diagnostic and end-of-unit test results
- Unit appreciation
- Interaction between gains and unit appreciation
- Language style survey results
- Interactions between gains and learning styles
- Interactions between unit appreciation and learning style
Results: Diagnostic and end-of-unit tests

Part 1:
- determiners / pronouns to be inserted in a fable/tale

Part 2:
- determiners/pronouns to be inserted in out-of-context sentences.

Part 3:
- giving examples of determiners/pronouns (knowledge of the metalanguage)

Parts 1 and 2 analyzed together. Part 3 analyzed separately.
Results: Diagnostic and end-of-unit tests (cont’d)

Parts 1 & 2: use of the target forms

- Participants significantly progressed from the beginning to the end for both units.

- Participants significantly made more gains (parts 1 and 2) in the inductive unit than in the deductive unit.
**Results:**

**Diagnostic and end-of-unit tests (cont’d)**

**Part 3: Knowledge of the metalanguage**

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<thead>
<tr>
<th>DEDUCTIVE UNIT</th>
<th>INDUCTIVE UNIT</th>
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Results: 
Unit appreciation

- Do you enjoy learning grammar?
  - (Likert scale: 2,4/5) Not much.
- No significant difference between the deductive and inductive units, except for:
  - Preferred the grammar activities of the deductive unit;
  - Enjoyed the deductive unit more;
  - Preferred the way the deductive unit was structured: rule presentation followed by practice.
- As many students chose the deductive or the inductive unit as the unit that dealt with grammar the most efficient/useful way.
- More students (76/132) chose the deductive unit as the one that fit their learning style/preferences the best.
Results: Interactions between gains and unit appreciation

- Significant difference observed for the gains made with the deductive unit:
  - those who preferred the deductive unit showed more gains on that unit than those who preferred the inductive unit;

- No difference observed for the gains made with the inductive unit.
Results: Learning style survey

Global scores according to the Ehrman & Leaver (2003) construct:

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<th>S/N</th>
<th>ECTENIC</th>
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68 5 65

Alpha de Cronbach = .713
Results: Interactions between gains and learning styles

- No interaction observed between total gains (parts 1 & 2) and learning styles.

However,

- Deductive unit test, part 1
  Inductive > deductive (md=-.95; p=.04)

- Inductive unit test, part 1
  Ectenic > Synoptic (md=.690; p=.05);

- Inductive unit test, part 2
  Introverted > extroverted (md=1.18; p=.02)
Results: Interaction between unit appreciation and learning style

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Q1: Students who enjoyed the readings.
Q2: Students who enjoyed the grammar activities.
Q3: Students who enjoyed the unit in general.
Q4: Students who felt they improved on their use of the targeted feature.
Q5: Students who felt they learned from the unit.
Q6: Students who liked the way it was structured.
Preliminary conclusions

- There are no interaction between the results from the approach (whether inductive or deductive) and the learners’ styles as measured by our survey.
- There seems to be a link between preferences (inductive vs. deductive unit) and gains.
- Students generally preferred to be taught deductively;
- Students made more gains with the inductive unit than with the deductive unit;
- Students situated towards the ectenic pole of learning preferences/styles seem to be generally more receptive to all type of instruction; this is particularly true for the following specific styles: closure-oriented, particular and deductive.
- Ectenic-oriented learners overall reported enjoying grammar instruction more than synoptic learners.