

# Applying Genre Theory to the Teaching of Technical Writing in Computer Science

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# Outline

- **What Is Genre?**
  - Genre has been described as, “*Slippery*”, “*Fuzzy*” (Swales, 1990)  
“*Enormously complex*” (Freedman, 1994)  
The source of “*confusion*” and “*annoyance*” (Richardson, 1994)
- **How Should Genres Be Taught?**
  - Proposed ways in which genres should be taught  
e.g. Freedman (1994), Coe (1994), Hunt (1994)
- **Teaching Genres in a Foreign Language Classroom**
  - Teaching research article writing (title, abstract) in  
computer science

# What is a Genre?

- **In Literary Fields:**
  - For labeling different types of stories, e.g. myths, tales, ...
- **In the Film and Music World:**
  - For labeling action movies, love stories, rock music, heavy metal
- **In Applied Linguistics:**
  - Since the late 1970s, to label different types of texts e.g. business letters, research articles, ... (TEXT TYPES) with similar characteristic features.

If we can identify the characteristic features of a **GENRE**, we can teach these to learners in reading/writing classes

**BUT WHAT ARE THE CHARACTERISTIC FEATURES??**

# Characteristic Features of Genres

- **Text Structure**
  - See work on Formal and Content Schemata (Carrell & Eisterhold, 1983)
  - (General Text Structures) Hinds (1982, 1983), Winter (1994), Hoey (1994), ...
  - (Specific Text Structures) Weissberg (1984), Swales (1990), Bhatia (1993), ...
- **Writer Purpose**
- **Audience Expectations**
- **Social context**
- ...

**So a GENRE has been seen as something more than just a TEXT TYPE.**

# Definitions of Genre

- Pare and Smart (1994, p. 147)  
*“a set of texts, the composing process involved in creating these texts, the reading practices used to interpret them, and the social rules performed by writers and readers”*
- Miller (1994, p. 37)  
*“ [a] conventional category of discourse based in large scale **typification of rhetorical action**: as action it acquires meaning from **situation** and from the **social context** in which that situation arose”*

# Definitions of Genre

- Swales (1990, p.58)

*“A genre comprises a **class of communicative events**, the members of which share some set of **communicative purposes**. These purposes are recognized by the **expert members of the parent discourse community** and thereby constitute a rationale for the genre... In addition to purpose, exemplars of a genre exhibit various patterns of **similarity in terms of structure, style, content and intended audience.**”*

# Problems with Teaching Genre

- **Variation across texts**
  - Different writers will use different structures
    - use different styles and content
    - have different audience expectations
- **Variation across different fields / disciplines**
  - Has lead some researchers to used the term ‘sub-genres’
- **Variation over time**
  - Writing structure, styles, tense etc. vary over time
    - “genres change, evolve and die” (*Miller, 1994: 36*)
- **Classificatory Power of Genre**
  - No two texts will show identical features
    - (How can we label a text as an example of a genre??)
  - Often ‘TEXT TYPE’ and ‘GENRE’ are interchangeable.

# Problems with Teaching Genre

- **Teacher Inexperience**
  - Most teachers are not from the target field/discipline of the learners
  - Many teachers are unaware of the characteristic features of the target genre/text type
    - (Johns and Dudley-Evans, 1991; Bhatia, 1993; Currie, 1994; Freedman, 1994)
  - This can lead to descriptions of writing that are **inaccurate!**
  - This can lead to descriptions that are **overgeneralizations!**
  - This can lead to the **hindering of writing acquisition**
    - Freedman (1994)



# Previous Proposals for Teaching Genre

- We should NOT teach genres explicitly!
- Teachers should ‘facilitate’ learning by,
  - Exposing students to many different genres
  - Allowing students to analyze texts to develop their own descriptions of writing
- “Re- invent the wheel of the genre” (Coe, 1994)
- **BUT this assumes,**
  - Highly motivated students
  - A good knowledge of general English
  - A lot of time to study

**TRUE FOR NS AND SL LEARNER GROUPS**

**NOT TRUE FOR MANY FL LEARNER GROUPS**

# Teaching Genre in a Foreign Language Context

- **Terminology**
  - Genre is a difficult concept (a poor classifier)
    - Describe features of TEXT TYPES not GENRES
    - **GENRE ANALYSIS** is a good concept to describe a detailed analysis of characteristic features of TEXT TYPES
- **Learner Context**
  - We must reduce the number of taught TEXT TYPES
    - Use needs analysis (ESP)
  - Reduce amount of variation within taught TEXT TYPES
    - The learner group should be homogeneous (same needs, same discipline, same ability level, ...)
    - A homogeneous group reduces variation in audience expectations, social contexts, structural patterns etc.
  - Apply an ‘explicit’ (prescriptive?) approach to teaching!

# Teaching Genre in a Foreign Language Context

- But ‘explicit’ teaching leads to

**INACCURACY**

**OVERGENERALIZATION**

**TEXT EVOLUTION PROBLEMS**

# Teaching Genre in a Foreign Language Context

- **Producing Accurate Descriptions of Writing**
  - Analyze **MANY** target texts
    - Reviewing the literature on writing
    - Conducting large scale corpus based studies
  - **Get help from Specialist Informants (field specialists)**
    - To supply suitable texts for analysis and classroom materials (Currie, 1994)
    - To validate the results of corpus based studies (Bhatia, 1993)
    - To determine important vocabulary (van Naerssen, 2000)
    - To assist in teaching (Johns & Dudley-Evans, 1991)
  - **Get help from learners**
    - If the learners have experience of the target field/discipline, they can offer useful information about the reasons behind text features (using L1 in the classroom?)

# Teaching Genre in a Foreign Language Context

- **Avoiding Overgeneralizations**
  - Always state the data from which results are obtained
  - Show exceptions to ‘standard’ texts
  - Teach learners how to analyze texts so they can perform a genre analysis of texts after the course has finished
- **Overcoming Evolution Problems**
  - Update knowledge about the target text types
    - Using the latest published literature
    - Using updated corpus data
      - Easy for Frequency counts, Tense analysis, etc.
      - Structural analysis is much more time-consuming
        - » I am currently developing software tools to, automatically classify text types automatically perform structural analysis

# Teaching Research Article Writing in Computer Science

- **Learner Context**
    - **Class size:** 6 students (Grad. School of Info. Sci.)
    - **English ability:** Low
    - **Motivation:** Low
    - **Class time:** 18 hours (twelve 90 min. classes)
  - **Learner Needs**
    - **Text types:** Research Articles in Computer Science (Esp. Title / Abstract)
  - **Learner Experience**
    - **All read and write research articles in L1**
    - **All present research in L1**
    - **All currently conducting research**
- A Very Homogeneous Group!**

# Teaching Research Article Writing in Computer Science

- **Text Analysis / Materials Selection**
  - **Texts:** 600 RA titles/abstracts from IEEE CS journals
  - **Features:** Structure, Vocabulary, Prepositions, Tense
  - **Validation:** Input from 3 specialist informants (also I have a background in CS)
  - **Materials:**
    - 1) General English from CS magazines (High number of semi-technical words) (Low number of highly-technical words)
    - 2) Inauthentic specialist materials (As a bridge to authentic specialist materials)
    - 3) Authentic RA Titles/Abstracts
    - 4) Student writing set as homework
  - **Re-analysis:** Corpus updated with new RAs each year (Data re-analyzed each year)

# Teaching Research Article Writing in Computer Science

- Course Outline

- Lesson 1- 3

Reading/Writing (General)

**Vocab:** Semi-Technical

**Surface Features:** Headings, Figures, etc.

**General Text Structures:** SPRE, GS

**Grammar:** Noun phrases, Clause structure, ..

- Lesson 4

Differences between General and Specialist Texts

- Lesson 5 - 6

Features of RA Titles

- Lesson 7 - 8

Features of RA Abstracts

- Lesson 9 - 12

Writing RA Titles/Abstracts  
(Using L1- L2 translation, Student Writing)



# Teaching Research Article Writing in Computer Science

- Lesson Materials
  - Lesson 1 - 3 Reading/Writing (General)
  - Lesson 5 - 6 Features of RA Titles
  - Lesson 7 - 8 Features of RA Abstracts
  - Lesson 9 - 11 Writing RA Titles/Abstracts (Student Writing)

# Teaching Research Article Writing in Computer Science

- Writing RA Titles/Abstract (Student Writing)

Mid-Term:

*“Virtual book system”*

End-of-Term:

*“Developing a user-interface for virtual books using mixed reality”*

Mid-Term:

*“A method for visualization of brain waves”*

End-of-Term:

*“Visualizing brain waves”*

Mid-Term:

*“The development of the billiard learning support system”*

End-of-Term:

*“Developing a pool learning support system using mixed reality”*

# Teaching Research Article Writing in Computer Science

- Writing RA Titles/Abstract (Student Writing)

**Mid-Term:**

*“Recently, the billiards popularity has upped again. Many people play and enjoy the nineball, eightball and so on. However, nearly all the people desperately pocket the object ball, and they don’t think about where the white ball will set next. Maybe, this is that they don’t have much progress.”*

**End-of-Term:**

*“Research on games, such as chess, shogi and go have been studied in the field of computer engineering for a long time. We attempt to apply computer technology to the game of Pool. In this paper, we present a new Pool learning support system using Mixed Reality.”*

# Teaching Research Article Writing in Computer Science

- Writing RA Titles/Abstract (Student Writing)

**Mid-Term:**

*“The state of the measuring of actual data, there are cases where the observed data is limited by upper and/or lower levels. It is difficult that accurately calculate statistical quantities about complex data from this data. To remove influence of amplitude limitations, first, expression of the probability density function ....”*

**End-of-Term:**

*“In this paper, we propose an estimation method for various statistics quantities about random signals using amplitude limitations. It is important to calculate various statistics quantities based on the observation data to make an analysis of random signals. However, there are many cases where the data ...”*

# Conclusions

- **Writing involves knowledge of many different features:**
  - **Structural Organization, Purpose, Audience, Social context ...**
- **Teachers of Writing must avoid:**
  - **Inaccurate, Over-generalized, and out-of-date descriptions**
- **Teachers in a NS or SL context can ‘facilitate’ learning**
- **Teachers in a FL context have to:**
  - **Reduce the number of taught text-types**
  - **Reduce the amount of text-type variation**
  - **Analyze a large number of target texts**
  - **Work with specialist informants**
  - **Clearly state the boundaries of the descriptions**
  - **Re-analyze the data regularly**