Timing repetition to enhance listening comprehension

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Background to the study

- Looking for online activities to help my students practice listening
  - Right level
  - Activating prior knowledge
  - Using on-demand help options (different modes, repetition)

- What’s the best way to repeat texts?
  - Difference in using repetition in class vs. in online materials

- Can repetition be used to enhance comprehension and promote smarter listening?
Based on Anderson’s (1985) model of language comprehension

- **Perceptual processing**: Learners recognize sounds and segment them into words
  - [STM]

- **Parsing**: Recognized words assigned semantic and structural relations
  - [STM → LTM]

- **Utilization**: New information linked with existing information
  - [LTM]
Input processing and L2 listening comprehension

- Comprehension can be divided into Anderson’s (1985) three phases (O’Malley et al., 1989)
- Effective and ineffective listeners use different strategies during each phase (Bacon, 1992; O’Malley et al., 1989)
## Comprehension Strategies

<table>
<thead>
<tr>
<th>Phase</th>
<th>Effective</th>
<th>Ineffective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceptual processing</td>
<td>Focused attention on task</td>
<td>Stopped listening after encountering unknown language</td>
</tr>
<tr>
<td>Parsing</td>
<td>• Listened for larger chunks of information</td>
<td>• Relied on bottom-up processes</td>
</tr>
<tr>
<td></td>
<td>• Focused on individual words only when a breakdown occurred</td>
<td>• Concentrated on individual words</td>
</tr>
<tr>
<td>Utilization</td>
<td>Elaborated on input by drawing on personal/world knowledge</td>
<td>Fewer elaborations overall</td>
</tr>
</tbody>
</table>

Successful listeners = better at combining bottom-up and top-down strategies
Comprehension Problems (Goh, 2000)

- Looked at real-time comprehension problems of EFL tertiary-level students
- Identified 10 problems related to Anderson’s (1985) phases; focused on 5 most common:
  - Do not recognize words they know
  - Neglect next part when thinking about meaning
  - Quickly forget what was heard
  - Unable to form a mental representation from words heard
  - Understand words but not intended message
Why is repetition used?

- Helps make input comprehensible (Chapelle, 1998)
- Gives learners more time to process meaning and form (Jensen and Vinther, 2003)
- Improves long-term retention (Ellis and Sinclair, 1996)
## Repetition and listening comprehension

<table>
<thead>
<tr>
<th>Repetition found to have a positive impact on listening comprehension</th>
<th>Timing of Repetition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervantes and Gainer (1992)</td>
<td>Exact repetition following pre-determined dictation segments</td>
</tr>
<tr>
<td>Cabrera and Martinez (2002)</td>
<td>Repetition of words or phrases taken from three, previous utterances</td>
</tr>
</tbody>
</table>

**Repetition encouraged in:**

- **Listening textbooks**
  - Whole text
- **CALL Materials**
  - Whole text, words, parts of words
The Problem

- No clear way to present repeated input to listeners
  - Differ in terms of *duration* between 1st and 2nd exposure to input and *length* of input repeated
- Listening textbooks advocate whole-text repetition
  - Advantages, Disadvantages
- CALL materials developers giving learners control
  - Advantages, Disadvantages
- Meet in the middle with theory-supported, structured repetition
Structuring repetition: The episode

- Episodes (van Dijk, 1981) are units of discourse organized around a specific theme

- new episodes may be indicated through:
  - pauses and hesitations in spoken discourse
  - paragraph indentations in written discourse
  - time, place, and ‘cast’ change markers (e.g. indefinite articles to introduce new individuals)
Advantages of episodic divisions

- Ease cognitive burden by dividing complex tasks into smaller processing units of shorter duration (Samuels and LaBerge, 1983)
- Can assist learners in building a mental representation of the text as a whole
- Can help the learner appropriately ‘chunk’ information in a way that allows for “more structured representation in memory and especially better recall” (van Dijk, 1981, p. 191).
Research Questions

How does task type (whole-text, segmented repetition) impact:

1. overall comprehension for learners of varying proficiency levels?

2. the number and types of problems that learners of varying proficiency levels experience?
Pilot study participants

- 12 Students, 3 proficiency levels
- Each level split for treatment

<table>
<thead>
<tr>
<th>N</th>
<th>Level</th>
<th>Description</th>
<th>Listening scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Low-intermediate</td>
<td>Intensive English program; Not yet admitted to the University due to low TOEFL scores</td>
<td>67.5% (Michigan listening--average)</td>
</tr>
<tr>
<td>4</td>
<td>High-intermediate</td>
<td>Admitted to University; Enrolled in Academic English Listening Strategies course</td>
<td>45% (University English Placement Test)</td>
</tr>
<tr>
<td>4</td>
<td>Advanced</td>
<td>Admitted to University; Were not required to take listening course</td>
<td>77% (EPT)</td>
</tr>
</tbody>
</table>
Materials

- Listening texts
  - Three-minute lecture excerpts
  - 9 texts rated for difficulty by 6 independent raters
  - Each level listened to 2, 3-minute texts
  - Topics in the human or social sciences (e.g. culture, history, human behavior, etc.)

Low-intermediate: Lecture 1, Lecture 2
High-intermediate: Lecture 3, Lecture 4
Advanced: Lecture 5, Lecture 6
Design of Listening Texts

Whole Text

Whole Text

Segment 1

Segment 2

Segment 1

Segment 2
Example of episodic divisions

<table>
<thead>
<tr>
<th>Length</th>
<th>Text</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>00:33</td>
<td>“Ok. Usually when we deal with different people, we deal with them as if we were all members of the same culture....”</td>
<td>Introduce topic of the lecture</td>
</tr>
<tr>
<td>00:39</td>
<td>“And Edward Hall is an anthropologist who spent a large part of his life studying American Indians...”</td>
<td>Introduce Edward Hall, his work and views</td>
</tr>
<tr>
<td>00:59</td>
<td>“Ok, a high context culture is...”</td>
<td>Definition of high-context culture</td>
</tr>
<tr>
<td>00:32</td>
<td>“First of all, let’s look in terms of interpersonal relationships”</td>
<td>Interpersonal relationships in a high context culture</td>
</tr>
<tr>
<td>00:24</td>
<td>“So, for example, in terms of legal paperwork...”</td>
<td>Example of interpersonal relationships in a high-context culture</td>
</tr>
</tbody>
</table>
Procedure

- Pre-task questionnaire
- Training for think-aloud procedure
- Think-aloud data collected for 2 texts
  - Data collected at pre-determined pauses for whole-text group (Vandergrift, 2003)
  - Data collected between segments for segmented group
- Immediate recall following each text (Berkemeyer, 1989)
- Post-task interview
Analysis

- Listening comprehension measured based on Hahn’s (1999) method of rating each immediate recall for
  - Overall pause units recalled (Johnson, 1970)
  - Main ideas recalled
  - Details recalled

- Comprehension problems identified in think-aloud data as times when there ceased to be a match between input and the learner’s knowledge
RQ1: Overall comprehension

Overall, students in the whole-text group recalled more idea units than students in the segmented group

- True across levels
- Difference was slight for low and advanced group
- Advanced segmented group recalled slightly more details than whole-text group
**RQ 1: Overall comprehension**

<table>
<thead>
<tr>
<th>Segmented</th>
<th>Whole-text</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Maybe by repeating segment by segment I don't know what I've missed and I can remember it and I’ll pay special attention to what I've missed. But I cannot possibly remember what I've missed if... it's played in one whole time. I cannot really know because if it is a long piece I cannot remember at which paragraph or at which time I missed something.”</td>
<td></td>
</tr>
<tr>
<td>“The first time I [don’t have] the complete idea what is topic.”</td>
<td>“The good part playing the whole thing is that I can get the general picture of the what he's trying to say.”</td>
</tr>
</tbody>
</table>
RQ2: Problems by task type

- Unable to form mental representation
- Incorrect inferences
- Missed information
- Unknown vocabulary
- Misinterpret sounds
- Quickly forget what is heard
### R2: Problems by task and level

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<thead>
<tr>
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<th>Incorrect Inferences</th>
<th>Missed Info.</th>
<th>Unknown vocab.</th>
<th>Misinterpret sounds</th>
<th>Quickly forget</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low: Segments</strong></td>
<td>22</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td><strong>Low: Whole</strong></td>
<td>2</td>
<td>3</td>
<td>8</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td><strong>High: Segments</strong></td>
<td>0</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td><strong>High: Whole</strong></td>
<td>2</td>
<td>9</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>Advanced: Segments</strong></td>
<td>2</td>
<td>7</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>Advanced: Whole</strong></td>
<td>7</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Future Directions

Pilot data
- Does segmented repetition encourage *noticing* of comprehension problems? (Monitoring)

Dissertation
- Recruit more students
- Ensure proper placement
- Conduct more in-depth qualitative analysis
Implications

- Provides information about how task type influences ways in which learners process L2 input (Vandergrift, 2007)
- Impact how instructors and materials designers structure tasks
- Influence how we train students to use online, self-study materials
Thank you!

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