Thinking and learning

Why thinking?
- vital part of language learning (Skehan 1998)
- major overall educational goal (Nunan 1999, Part I)
- motivation (cf. Ur 2013)

Getting EFL learners to think therefore very important

BUT:
- What do we mean by thinking?
- What kind of activities involve what kinds of thinking?
- How can thinking be done by learners at the lower language levels?

What is thinking?
- Definition: the kinds of mental operations used by learners in the learning process
- Many possible conceptual frameworks (cf. Ur 2013), e.g:
  - ‘Critical’ vs. ‘creative’
  - ‘Convergent’ vs. ‘divergent’
  - ‘LOTS’ vs. ‘HOTS’
- Also see Waters 2006

Levels of thinking (Sanders 1966)

<table>
<thead>
<tr>
<th>Level</th>
<th>Activity</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Memory (recognizing/remembering information)</td>
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<td></td>
<td>• Understanding a vocabulary or grammar rule explanation, doing a ‘mechanical’ drill, using prior knowledge when reading/listening to a comprehension passage, etc. e.g., ‘Put these instructions for making a paper model of a boat in the right order’</td>
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<tr>
<td>2</td>
<td>Translation (reformulating information)</td>
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<td>• Doing substitution tables, information transfer activities, etc. e.g., ‘Use the corrected instructions to make the model of the boat’</td>
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<tr>
<td>3</td>
<td>Interpretation (identifying relationships in information)</td>
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<td></td>
<td>• Discovering logical connections in ‘non-linguistic’ content, working out the meaning of unknown words, grammatical rules, etc. e.g., ‘Look at the form of the verbs (the imperative) in the instructions (e.g., “Fold the paper in half”) and then complete this sentence: To make the imperative, we use the [infinitive/to form] without [to].’</td>
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Levels of thinking (contd.)

<table>
<thead>
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<tr>
<td>4</td>
<td>Application (guided use of new knowledge)</td>
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<td></td>
<td>• ‘Use the drawings you have been given to produce a set of instructions for making a paper aeroplane’</td>
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<td>5</td>
<td>Analysis (free application of new knowledge)</td>
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<td></td>
<td>• ‘Think of another paper model you already know how to construct and produce instructions for making it’</td>
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<tr>
<td>6</td>
<td>Synthesis (creative application of new knowledge)</td>
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<td></td>
<td>• ‘Think about how you could construct a new paper model (e.g., of the Beijing ‘Bird’s Nest’ Stadium), and produce instructions for making it’</td>
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<tr>
<td>7</td>
<td>Evaluation (meeting criteria for the application of new knowledge)</td>
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<tr>
<td></td>
<td>• ‘Think about how you could construct a new paper model (e.g., of the Beijing ‘Bird’s Nest’ Stadium) in the simplest way, and produce instructions for making it’</td>
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</tbody>
</table>

N.B. All the levels use the same language

Levels of thinking (contd.)

- Learning involves two overall levels of thinking (see, e.g., Bruner 1973; Johnson 2008: 101-2; Gagné 1975):
  A | Levels 1 – 2: Staying within the information given (cf. levels 1 –3: learning about)
  B | Levels 3 – 7: Going beyond the information given (cf. levels 4 – 7: learning how to)

- Also, thinking is hierarchical: ‘[The] categories are sequential and cumulative. In other words, each category of thinking has unique elements but also includes some form of all the lower elements’ (Sanders 1966: 9 – 10)
- Learners therefore first need to think at Level A in order to think at Level B → this requires a two-level teaching approach (cf. Hutchinson & Waters 1987/2002: Ch: 10)
Two-level learning unit design

Teaching context: class of 14 year-old low intermediate-level (CEF ‘B1’ level) EFL students in state-sector school

Unit INPUT text (full text = c. 175 words):

ROBOTS – THE IDEAL WORKERS?

We hear many complaints about work in factories: the work is often boring, heavy and repetitive; the workers do not have to think about the work; they get no job satisfaction.

The answer: a robot. For many jobs a robot is much better than a human... It never gets bored; it works at a constant speed; it doesn't make mistakes … Robots can be designed to do almost any job. You can't change the human body, but a robot’s arms, for example, can be made to move in any direction... etc., plus some pictures of robots at work.

Stage 1: design an appropriate ‘Level B’ TASK, i.e., a holistic application of the main language and ideas in the INPUT

Main TASK design criteria: i) creative and challenging, ii) relevant to the INPUT in terms of LANGUAGE and CONTENT

TASK: You are going on an expedition across the Sahara desert.

You can take either a car or a camel.

a. Work out the advantages and disadvantages of each. Make a list like this:

b. Make your decision [+ map and route]

Stage 2: develop appropriate ‘Level A’ exercises by working out what main language and content knowledge learners need for doing the chosen TASK. To find this out, do the TASK as the typical learner would, then analyze the results, e.g:

ANALYSIS

Possible language knowledge topics:
• vocabulary;
• negatives;
• comparatives;
• can/can’t (etc.)

Possible content knowledge topics:
• thinking about advantages and disadvantages;
• comparing/contrasting ‘animal’ and mechanical abilities;
• giving reasons (etc.)

Design vs. teaching sequences:

The TASK is at Level B, but i) its design and ii) Steps 1 - 9 make it manageable for lower language-level learners

i.e., the key to enabling learners to carry out higher-level thinking activities is to:

i. design a TASK with high-level thinking but also involving the right language level

ii. do the necessary assumed lower-level thinking work with the learners beforehand

Conclusion

Often assumed that ‘Level B’ thinking can only be done if learners also already have a relatively high language level…

However, there is no necessary connection between level of language and level of thinking…

Using a ‘two-level’ teaching approach enables learners with lower language levels to take part in ‘Level B’ as well as ‘Level A’ thinking…

Greater motivation at earlier stages ➔ better learning?

‘I think, therefore …’
References


References (contd.)

- Ur, P. (2103). ‘Language-learning task design: Using higher-order thinking skills.’ *IATEFL Webinar*