Do-it-yourself NeuroELT: Ways to make your textbook more brain-friendly

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Brain-based Education pioneer Leslie Hart famously said, "Designing educational activities without an understanding of the brain is like designing a glove without an understanding of the human hand." (1983, quoted in Tokuhama-Espinsoa, 2010). Unfortunately, Mind, Brain and Education (MBE) is a very new field looking at the nexus of brain science and teaching/learning. The insights from MBE have not yet influenced most ELT textbooks.

Fortunately, there are many "take-a ways" from neuroscience that can easily and quickly be used to modify nearly any textbook to make it more "brain-friendly." The present writers are textbook authors in addition to being classroom teachers who are very interested in neuroscience as it applies to the ELT classroom. Based on both experience in writing and teaching as well as interest in neuroscience, the following are ten simple principles that can be used to modify textbooks.

Support materials for this article including handouts, internet links and a video appear at **http://tinyurl.com/NeuroELT**

Go for emotion. Emotion shapes learning. So make the content as relevant and moving as possible (Willis, 2010; Krashen, 2013). Emotion is essential for the release of dopamine, the neurotransmitter (brain chemical) linked to memory and motivation (Achor, 2010). Using touching stories, facilitating self-disclosure, unleashing creativity, organizing non-threatening competition, fostering learning through discovery, all work towards this purpose. People remember what moves them and what is personally relevant.

- If a task or a topic is not emotionally engaging, skip it. It will not make any difference anyway. Instead, replace it with something more interesting.

- At times, a textbook page will have a series of questions/topics for students to discuss. Have them look over the questions and rate them for interest, 1-2-3 or J-K-L. They start with the items they are interested in.

- Turn it into a game. "Rock, scissor, paper" or coin flipping are easy to add to Question and Answer activities. Players compete for the "right" to answer the questions.

Give students choices. (Rock, 2009) Let students choose how to do activities. For example:

- During listening tasks or tasks where they prepare for pair or group work, let them decide if they want to do it alone or in pairs. Doing challenging listening tasks in pairs is useful since students usually focus on what they understand, not what they missed.

- Naturally different learners take different amounts of time to complete pair and group work tasks. As they work, write options for what to do next on the board:

Finished? Choice:

- *Keep going. Change partners. Do the pair work again. Do the other page.*

- (Another task, from the Teachers Manual or a resource book)

- Free conversation in English. *Talk about* (topic related to the text).

Choice is essential, but two interesting points need to be considered. Rock (2009) states that it is the existence of choices, not the particular choice a person makes, that stimulates the reward system in the brain. That means it is perfectly alright to arrange things so most learners would make the choice the teacher prefers. For example, you might ask the students, "Do you want to work alone or with a partner? You decide." As a teacher, you would probably prefer they work with a partner since that will encourage more language. Most students will probably make that choice because working with a partner is social – something most people enjoy. But just having the choice is important and gets learners more involved.

Schwartz (2004), however, points out that though choice is important, too much choice is overwhelming. We find that, in most cases, two or three choices are enough to keep learners involved, as well as make their decisions quickly.

Teach across the senses. Make sure every class includes something for the three major sensory modalities: visual, auditory and haptic (tactile/kinesthetic [touch & movement]). Note that this is not suggesting teaching to "learning styles" – a formerly popular idea that has been largely discredited scientifically (Willingham, 2012). Rather, it is a suggestion to teach in a multi-modality way, using as many of the senses as possible. Multi-sensory teaching leads to greater learner recall and more creative problem-solving (Medina, 2014). Also, each sense is handled in a different place in the brain. Multi-sensory teaching and learning means students are developing more connections in their brains.

For specific ideas, see: **http://tinyurl.com/ELTsenses**. Download the article: *Multi-modality teaching.*

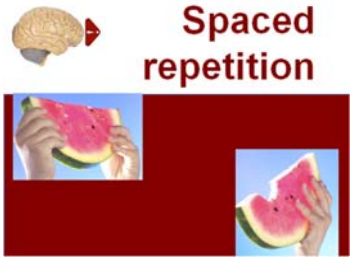
Personalize. Personal experience increases memory (Caine, et al., 2009). Almost any dialogue, pair or group work can be personalized. After the student has done the task as the book presents it, have them do it again, this time using their own ideas and personal information.

Increase variety/novelty. Our brains are wired to notice things that are different.

Thousands of years ago, on the Serengeti, it was a matter of survival: *"Is that a stick? Or a snake!"* We simply don't pay attention to things that are boring (Medina, 2014). Do at least one "out of the textbook" activity in each class. The *Teacher's Manual* for your textbook may have extra activities. If not, get some resource books. *Cambridge Handbooks*, *Oxford Resource Books for Teachers* and Helbling's *Resourceful Teacher Series* are good places to start. Search the web for "EFL activities." Also, look for ways to build in surprises.

Let learners create. If practical, get the class sets of things like colored pencils, magic markers, scissors, glue sticks and colored papers. Invite learners to draw, make posters, create mind-maps (graphic organizers), etc. as a way to prepare for a speaking activity. Such materials and activities are standard with children's classes, but often disappear as students get older – even though their brains are maturing, making them capable of much more real creativity.

• **Repeat to remember/Remember to repeat.** Recycle tasks, especially ones that involve personal stories, by doing them again with different partners. Since students are thinking about what they are saying (in contrast with mechanical repetition), it builds memory and fluency. Working with a new partner each time, the story doesn't get old. Spaced repetition is the key: 90 minutes – 120 minutes is ideal. But any spaced repetition is better than none (Medina, 2014).



• **Challenge**. We need the positive stress of a challenge so that we can be successful in tasks (Csikszentmihalyi, 1997). How much challenge? As Sousa and Tomlinson (2011) point out, "Work that interests students will necessarily be at an appropriate challenge level. Too easy and they get bored. Too difficult and they give up. Here are some ways to adjust the challenge level.

Vocabulary. Give the topic. Have pairs/ small groups see how many words related to the topic they can write (magic markers on big paper is a good way.)

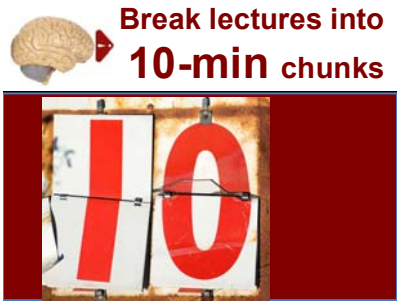
Listening. Try to catch 2-3 bits of information beyond what the textbook asks for.

Conversation/Dialogue practice. Create the next scene. Or, after practicing, close your book. Try to have a 2-3 minute conversation in 100% English, on the same topic.

Pair-/group work. Add your own ideas and vocabulary. Try to say 2-3 extra sentences beyond what the page asks for. Add ideas and questions.

Of course, competition is one way to add challenge, but avoid competition based totally on skill. If the most skillful students always win, the weaker learners –those who need the most practice – are likely to give up.

See http://www.eltandhappiness.com/flow.html for an introduction to Csikszentmihalyi's concept of *flow*.



Break activities into 10-minute (or less) **bits.** For longer tasks, do separate stages. For example, if there are target sentences, first do pronunciation work with the students (see Language models and the senses at http://tinyurl.com/ELTsenses). Give a minute or two of *Thinking time* before the speaking task. Of course, in student speaking tasks let them keep going if they are engaged. Remember the "choices" ideas for those who finish the main task.

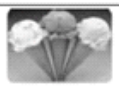
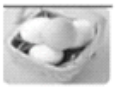
Stand up and move. When we sit for 20 minutes, there's a build up of blood in the feet, lower legs and buttocks. Stand and move for one minute and there is a 15% increase of blood (and therefore oxygen) to the brain (Sousa, 2011). Look for chances for students to stand and move.

Dialogues and finding pair and group work partners are good places to start. We have started adding short (5-minute) "energy breaks" to our classes where learners do quick physical activities during classes that require very little space for movement. On our webpage above, there is a link to a series of PowerPoints that teachers can download for free – or just use the activity ideas in class if PowerPoint is not practical.

None of these ideas are particularly difficult to do nor require a lot of preparation time. We are not suggesting you need to do them all in any given class. In our own classes, we often choose one or two and add them, just to keep our learners – and their minds – more active which is, of course, a key to brain friendly learning. And, naturally, they keep our brains active, too!

Neuroelt Textbook Modification Strategies X Genre

Any page of any textbook can be taught in many, many different ways. It is largely a matter of simply deciding to do things in a fresh way. This chart lists a few ways to modify some of the most common exercises in textbooks. It is organized in ways we know have a positive impact on brain-friendly learning. On this chart 'you/your' = 'the students' and (?) = 'they decide'.

	Dialogs	Speaking Tasks (pair, group work)	Listening	Reading (with comprehension questions)
 **emotion**	Make your voice show the emotion(s) of the characters.	Rate the questions/items for interest: (☺, 😐, ☹). Start with the interesting ones.	Rate questions: (☺, 😐, ☹)	(☺, 😐, ☹) OR rock/scissors/paper for 'right' to answer. Partner checks.
 **choice**	Underline key words. Think of and use substitutions. (Funny ones are great!)	Stand up. Find a partner. Finished? Find a new partner. Do it again with or without book.	Do you want to do this alone or with a partner? Book open or closed? (?)	Do you want to (try to) answer the questions before or after you read? (?)
 **novelty**	Students change something to make the story surprising. Perform for another pair. Repeat. OR Add costume elements like hats, props, masks etc.	Check Teachers' Manual/website for alternative activities. If it can be personalized, choose a character and do it as him/her (Harry Potter, Micky Mouse)	Listen. Write the opposite answers. (Some are easy: 'yes' = 'no'. But what's the opposite of 'pink'? (Yes it is crazy but it ensures thinking!)	Read the text. Then, change some words. Read it to a partner. Partner, listens, finds 'mistakes'. Decide if partner uses book or not. (?)
 **senses**	Act it out OR 'walk & talk' as you do the task. Refer www.tinyurl.com/sensoryELT	Add senses to practice target sentences. Refer www.tinyurl.com/models-senses	Listen, then act out the scene. OR Listen & shadow: with or without script. (?)	Instead of writing answers, draw pictures. OR Pantomime.
 **challenge**	Group of three (for a 2-person dialog). A, B and the human CD player. Only the CD player has the book open. Others listen, remember & say. OR Create the next scene in the conversation.	Work with the key sentences/ language target: study for one minute. Close books and pairs try to recreate. OR Teacher eliminates some words. Students guess, then check.	Choose your support: (?) (1) Listen & touch words/pictures in book. (2) Watch teacher who points to key words on board OR (3) Close your eyes. Watch the 'mental movie'.	Work in pairs. Put the reading on the wall. Run to it, read, run back. Tell the answers. Partner writes. Take turns. OR 'speed reading aloud' (pairs. 45 minutes)
 **creativity**	Change voices. Refer www.tinyurl.com/varydialogs	Use colored pencils. Make a system for the colors.	Listen. Then act out the scene. OR Draw your answers.	Draw your answers.
 **personalize**	Change story to your ideas.	Change it to be about you and your partner. OR Skip the task. How long can your partner & you speak in English?	'About you'. Teacher asks questions like those in recording. Answer about self. Then compare.	Before you read, look at the pictures. Write three questions. As you read, answer them.

References:

Note: Books marked with an "*" are particularly good to read if you are new to brain science and looking to see how it can impact your teaching.

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Their website for this topic is:**tinyurl.com/NeuroELT**