Post-Submission

Allowing for a final viewing day so that all groups watch each other's films would be one way for students to showcase their final product. Teachers wishing to draw explicit attention to 21st century skills could also use this opportunity to guide students' metacognitive reflection on the task, their learning, and other transferrable skills.

Conclusion

We conclude from our experiences that having students create 360-degree videos is a challenging but rewarding and novel way to invite content area English into the classroom. Although the resultant language can be achieved through other means, video creation can be a unique learning experience which promotes the modern-day skills that students will be able to draw on in the rest of their studies, and for the rest of their lives.

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[JALT PRAXIS] YOUNGER LEARNERS


Mari Nakamura & Marian Hara

The Younger Learners column provides language teachers of children and teenagers with advice and guidance for making the most of their classes. Teachers with an interest in this field are also encouraged to submit articles and ideas to the editor at the address below. We also welcome questions about teaching and will endeavour to answer them in this column.

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Neurodiverse Students in Your Classroom

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Approximately 10% of the Japanese population, or about 12.6 million people, has a learning neurodiversity that they may not be aware of. Many are acutely aware that they are different, suffering very difficult school experiences, and many underachieve. This leaves a lifelong sense of shame and social isolation. Some leave education early. The costs to the individual can be high, with increased rates of depression, anxiety, often later self-treated with tobacco and alcohol (Miyazaki & Tabuchi, 2018; Tabuchi & Kondo, 2017). However, many people with neurodiversity are highly creative. There is a net loss to these individuals and society (Kinsella, Waduud, & Biddlestone, 2017). Some of these students are in your classrooms now. So, what can be done?

Many of Japan's teachers are ill-informed about learning differences and what they primarily affect: dyslexia (spelling), dysgraphia (handwriting), dyspraxia (motor skills, also known as developmental coordination disorder DCD), and dyscalculia (mathematical

ability). Intelligence testing is frequently available but testing for the *dys* conditions is limited to a few practitioners in major cities. The usual assumption is, "The child is of normal to high IQ, therefore they are not trying." Attention deficit hyperactivity disorder ([ADHD] both the inability to focus and to remain stationary for long periods) and attention deficit disorder ([ADD] tendency to lose focus and daydream) are also part of these neurodiversities. Children with ADHD are estimated to experience up to 20,000 more negative teacher comments than their non-ADHD peers by age 10 (Jellinek, 2010).

These learning differences often coexist in individuals. They are also inheritable traits. Teachers may not be aware of familial patterns. The precise brain mechanisms governing these conditions are still unknown. Some students may also have autism spectrum disorder and/or color vision deficiency. These can overlap in complex ways. For a summary, please refer to the chart presented in the downloadable appendix.–

Learning differences affect many aspects of a student's life, both in their Language 1 and Language 2. They can be unintentionally bullied by well-meaning people who want them to try harder. What I am finding in my teaching context and elsewhere is that learners want recognition that they are trying hard already.

Neurodiverse students have more school absences and unfinished work than others. Studies from America show that students with dyslexia avoid tasks by Grade 2 (Syal & Torppa, 2019). It's important to reduce the shame and anxiety that they feel about their handwriting and spelling as early as possible. Shifting the focus to the content of their work rather than neatness will protect self-esteem.

In many countries, students with a neurodiversity diagnosis can request reasonable accommodations to improve their performance from elementary school upwards, such as extra writing time, using tools such as a pen that reads text aloud, a keyboard, larger fonts, and paper that is not pure white. Given that many parents are hesitant to pursue diagnosis, we can use some general accommodations with the whole class that won't affect others but will reduce barriers for neurodiverse students. Where possible, it can help students to work on a keyboard; all students' work will look the same. The following are a few techniques I have used.

Mastering the Alphabet

All students in Japan study the romanized alphabet in Year 3 for keyboarding using a student workbook over the course of four classes. Integrating all the skills needed is difficult for students with learning differences. Many feel that they've failed and that English will be too hard, so we need to find ways of helping these students succeed. The first step I use is an abc tower system that I learned from Marco A. Brazil at a JALT Chapter event in 2014. Learners build the abc tower using paper cups with letters written on the base. The cups sit on 10 round cardboard discs on which are written the sequences of "abc", "def", "ghi", with "y" and "z" as singletons as the top two levels.

Figure 1. abc tower and abc tower board cards.

From five years of classroom practice, the ABC/abc tower is preferred by all levels of elementary students over alphabet cards. They are easy to read because the surface is not shiny, and learners can pick them up more easily than two-dimensional cards, which increases the speed of the game. The construction element is interesting for children as they enjoy the thrill of making the tower. All these aspects make this activity attractive to diverse learners. I adapted the activity in three ways. I used the OpenDyslexicAlta font on the cups. I also made matching magnetized blackboard cards numbered 1-10 to show the letters on each tier during assembly. Students work independently of teachers to match the letter on the cup to the chart on the board. This teaches

them that instructions give them clues about how to do a task, and that they can solve the challenge themselves. After building the tower, the group knocks it down. If multiple towers are used, you should color code the rims of the paper cups by set to make it easy to identify the sets when the towers are pushed over.

The goal is to remove the child's fear and confusion with the alphabet. If a child has ADHD and oppositional defiant disorder, they may have difficulty in turn taking and waiting to push the tower over. Put these children in a smaller group to reduce waiting time and increase the speed of the activity. Children with ADHD get a lot of negative feedback about interrupting others. Good grouping helps all children to demonstrate their potential.

A smaller scale version which is also very motivating is making sets of upper- and lower-case letters that fit inside a 2.4-centimeter circle. These fit neatly onto the top of a pet bottle cap, which is a good way of recycling these items. They can be used for learning the alphabet and other activities. Making their own or their classmates' names using these caps creates a very personal connection to using English and exploring the differences between Romaji and English spelling and syllabification. Children under eight years old or those with dyspraxia/DCD may have difficulty in cutting out printed letter circles to fit caps. Children who are perfectionists may need reassurance or a few replacement circles. Stick-type glue works better than liquid glues.

Figure 2. abc caps keyboard layout and caps for constructing sentences.

Tactile letters using a glitter pen are also useful for creating a physical memory of letter shape and stroke order.

Figure 3. Tactile letters.

Fonts

When making 3D resources, I use OpenDyslexicAlta font so students can spontaneously remember the correct orientation of letters. This font's letters are thinner at the top and thicker at the bottom. This is very useful for the most challenging letters such as upper-case C, M, W, N, Z, Y and lower case b, d, h, n, p, q, and u. I have watched students with a range of profound learning challenges accurately use letters in this font. In Japan, the recently released universal design font UD Digitalkyokashojitai (UDデジタル教科書体) is compliant with national disability discrimination prevention goals and is now used in many national textbooks. I have also tested this font in both Japanese and English on student worksheets, and it works very well.

Another important factor is how you use the font. Ideally, choose wider spacing between letters, words, and rows of text (Perea, Panedero, Moret-Tatay & Gomez, 2012). Block or align text to the left-hand side rather than justifying it, so that the spaces will be uniform and less distracting. The British Dyslexia Association recommends the following guidelines for optimal use of fonts: size (12-14), inter-letter spacing (35% of the average letter width), inter-word spacing (3.5 times the size of the character spacing) and inter-line spacing of 1.5. Layout is important for readability. An excellent set of digital posters was created under the auspices of The United Kingdom Home Office: *Do's and Don'ts on Designing for Accessibility* (The United Kingdom Home Office, 2016). The web link to the posters is included in the reference section.

Spelling

Helpful spelling strategies include practicing phonics, phonemic awareness, morpheme and syllabification training, or sight reading, depending on which support suits the individual student. Another method of memorization is *The Proofreaders' Trick* (Berminger, 2018). It is a variant of look, cover, write, and check, with the "look" step lasting about 20 seconds the first time. Students need a pencil and paper. Tell them to just look at a word without speaking or 'air writing'. Cover the word and ask students to close their eyes and let the word float up in their minds. Ask them if they can see it. If some can't, give them another five seconds of exposure. Ask them to spell the word from the last letter to the first, then first letter to last, and then they write the word. Last, the teacher reveals the word and students check their spelling. Ninety-five percent of students can do this activity the first time, including dyslexics. Typically, I do this process twice, and the second time all students can usually do it. During the spelling aloud phase, students' eyes usually drift towards the top left or right corner of the room. This tool increases students' self-confidence. It can be used with upper elementary to adults. I've received feedback from other teachers that this has helped students who are stuck to move on and learn much faster.

Dealing with Longer Texts

Some students are overwhelmed by large amounts of text. A useful solution is to place a visually boring object, such as a blank card or pencil, on top of the text above or below the current sentence. This increases focus on the current sentence, and for some students may help with tracking and visual stress (Daloiso, Deleney, Ianes, Kormos, & Smith, 2018).

A few students are very sensitive to the background color of text on worksheets, books, and slideshow presentations. Pure white is the most problematic for some students. Some academics say it makes no difference, while others say it does (Uccula, Enna, & Mulatti, 2014.) I have seen task avoidant students suddenly become active participants, writing more extensively and neatly, when the right color was offered to them. I offer standard printing options of pink, blue, green, blue-green, and yellow for a few important documents. To identify which color is easiest to read, get the students to individually compare and try to read aloud from a sample of each color with simple text. Try it out on yourself on paper or on your computer screen by changing the background color.

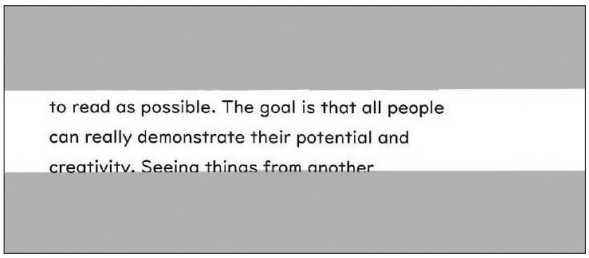

Figure 4. Masking can increase tolerance of longer texts.

Choral Reading of Text and Instructions

Reading aloud is one of the most frightening experiences for neurodiverse students. A non-threatening method is group continuous reading, where students keep rereading at their own pace until you say stop. Monitor them and stop the activity when the slowest student has started rereading. Then give feedback on pronunciation at the board to the group as a whole.

Many students with neurodiversity have working memory challenges and are not good at taking notes. They may also not be ready for instructions. Before activities, have the students choral read instructions as a group, then use information questions to confirm what they are doing and how. This works because some students have gaps in the lexicon because they were unable to focus at the time when particular words or characters were originally studied. Offering this pre-activity scaffolding increases successful participation in written and group work.

Physical Activity in the Classroom

Plan for some standing time at least every 20 minutes. For example, standing up and talking in pairs about what they just learned will help all students to focus, particularly those students with ADHD/ADD (Ratey & Hagerman, 2008). Some students

have left-right confusion. If you are planning a performance including dance, place students with left-right confusion directly behind students who have good directional skills. They can copy the movements and feel more successful.

If these techniques are used at the whole class level, more students can participate effectively without feeling like they are being targeted. Everyone will benefit, and learners will also see that the idiom of *10 people, 10 colors* works in educational preferences, as well as in life.

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Appendix: ***Some Typical Classroom Challenges Faced by People with Neurodiversity***

	Reading	**Writing**	**Speaking**	**Listening**	**Organisation**
Dyslexia	Reads slowly with frequent errors. Difficulty in rapid naming of letters, characters and words in comparison with peers.	Writes slowly and makes errors in letter orientation or choice. Letters may range from neat to messy. May forget to use particles and punctuation.	Very articulate in comparison with written work; gets criticized for not trying.	Can be extremely good at memorization of things heard but unable to document effectively.	Working memory issues—forgets things needed for class or loses place in work. Copying from the board is difficult. Difficulty remembering left and right.
Dysgraphia	Reads slowly.	Writes slowly with uneven pressure. Inconsistent shape and size of letters. Lines of text drift up and down across the page.	Difficulty when reading handwriting.	Misses details because of focusing on other information.	Work will be messy; may not be able to read their own notes. Taking notes while listening may be impossible.
Dyscalculia	Misinterprets symbols in math problems. May struggle to read music. Difficulty interpreting positive & negative numbers and fractions.	Makes mistakes such as lining up columns of numbers. May not be able to use words to describe how to solve math problems. Difficulty in using math facts and fractions. May use side memos of addition to solve multiplication problems.	Difficulty with timing during prose, poetry, clapping rhythm. Can't fluently recite math facts, times tables.	May have difficulty recognizing patterns with timing. Difficultly taking down memos to solve problems.	May be unable to calculate time or to estimate time of tasks. May use fingers when counting numbers or calculating time or days. Can give answers but cannot show their working process: these students are often unfairly accused of cheating. Teachers assume that if they can't remember the math facts, they can't do more complex math.
Dyspraxia	Loses place while reading. May move head while reading.	Writes slowly, applies uneven pressure. Letters are not consistent shapes and sizes. Lines of text may drift across the page.	Difficulty producing sounds compared with peers.	Difficulty in filtering out background noises.	Gets picked last for sports: Slower than other students to finish tasks. Sitting still may cause physical stress. Study items may spread out of their own workspace. Time management.

	Reading	Writing	Speaking	Listening	Organisation
ADHD	May miss words or punctuation and/or lose place when reading. May appear to read aloud when expected to read silently. May have difficulty comprehending text when reading. Lacks text attack skills.	Problems with accuracy and proofreading of work. Copying text from a book or board may be difficult.	Talks excessively. Uses novel words and expressions or inappropriate language in class. May lose track of ideas while speaking or suddenly change topic.	New information causes thinking ahead, so current information is missed. May not sustain eye contact.	Interrupts others. Loses materials. Becomes overwhelmed. Poor impulse control. Anxiety about errors. Using distraction behaviors like pencil sharpening when stressed. Sleeps when bored or can't understand. Study items may spread out of their own workspace.
ADD	Misses words, or punctuation and loses place when reading. May have difficulty comprehending text when reading. Lacks text attack skills.	Problems with accuracy and proofreading of work. Copying text from a book or board may be difficult. Loses place when writing. May forget to use particles and punctuation.	May lose track of ideas while speaking or suddenly change topic.	Can appear not to be listening. May not sustain eye contact.	Loses materials. Becomes overwhelmed. Girls with ADD may go undetected because of bias that girls are more passive. Anxiety about errors. Study items may spread out of their own workspace. Expects rejection. May draw/daydream during class.

Sources

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