

## Appendix 7 - CD learner case study

CD was a new learner to the college and was placed in our English for Life class (E1-E2). He disclosed as ASD (Asperger's syndrome) on his enrolment form.

### Overview of neurodiversity / challenges to learning from cognitive profile screening at pre-course assessment

- CD answered very few reading comprehension questions so it was difficult to know whether or not he was able to comprehend the questions or the text he was required to read, or if there was another reason for his lack of responses.
- He did though respond to the writing task which illuminated a large discrepancy between the receptive and productive macro skills in this assessment.
- The writing showed a good grasp of vocabulary but his responses indicated possible ASD. Two of his written responses indicated an inability to grasp 'theory of mind', that is to understand the intention/what is in the mind of another person from what is implied as opposed to what is directly stated. He also appeared to have taken literally an idiom that an adult which a person with English as his first language might be expected to understand. This may be the reason why this student had previously not progressed--his English may have been hampered by an apparent lack of capacity to answer comprehension questions but may not have been indicative of his actual comprehension.
- Probably not dyslexic as there were no indicators in his writing of phonological difficulties.
- Possible SLI as there were some inaccuracies in grammar including verb tenses. Odd use of personal pronouns. He wrote, for example, 'her' not 'she' and vice versa.

### Description of learner in class from early sessions

- CD identified as a first language English speaker but some of his written language was similar to that of a second language English speaker.
- Needed a great deal of support in class
- Did not appear to be comprehending or listening effectively to oral instructions in class
- Did not respond to reading comprehension questions without support
- Would regularly leave the room to go to the toilet.

### Observations by neuro-scientist prior to suggesting activities/strategies

- In his written work, CD found many questions perplexing and so would not respond. If one was simply to observe, it appeared as if he did not understand the requirements of the question. A question such as, 'How many times a day do you say hello to people?' has no precise answer but learners without ASD tendencies would probably understand what the question was asking. When

CD did not know what the requirement of the question was, he would respond, commonly, orally, 'I can't tell.' (An honest response rather than a rude or general one.) He left this question blank in writing. When, though, the question was recast so that CD could answer definitively, 'How many times did you say hello today?' He had a confident response: 'Twice.' A follow up was then: 'Who did you say hello to?' He was able to answer this definitively in writing.

- CD left the room when he felt overloaded and anxious. This seemed to be a good strategy as he came back when he was able to process what was happening in the classroom.
- CD had excellent reading skills and read reasonably fluently when he was asked questions that were concrete and literal. This was in apparent contrast to what he showed in most of his initial assessment. His comprehension was good when the questions were literal. He did show this same understanding with non-literal or idiomatic questions.
- CD displayed some errors when reading words aloud that caused him to make predictions and to guess. Making predictions was possibly a strategy he had learnt. When asked to sound out the word or to uncover parts of the word bit by bit, he could usually read it correctly.
- When given tasks that required copying, CD had no difficulty but when required to fill in gaps in cloze activities he usually did this incorrectly. When he was asked to write 'from scratch' about a topic of interest, he was fluent in his writing. This was confirmed in his screening assessment *but was not previously shown in this course/class*.

### Suggested activities/strategies that would best address the learner's challenges

- Unlearn guessing or predicting unfamiliar words when reading that had become automatic. When CD comes across an unfamiliar word, he should cover up parts of it to make him read the parts and not predict the whole. This will require classroom TA to assist until this becomes a habit. When reading, the brain tends to operate with confirmation bias and so it is reasonable that CD would read inaccurately if what the word he was expecting was not the word but still went ahead and read it anyway. This might appear to be poor reading or dyslexic. However, this can be unlearned as the brain also 'enjoys' increased activation with novelty. So exposing CD to being able to read new words or words he didn't expect to see will lead to effective learning if he perseveres with this technique.
- Read a text and make up his own comprehension questions which he would also answer. This would show his teacher what he understood and did not understand (which may be one of the most important points about comprehension questions) and lead to increased enjoyment and reading confidence. Neuroscience studies confirm that questions and uncertainty are activated in the brain much more so than answering correctly and certainty, and lead to more effective learning.

- When others in the class are writing cloze sentences (filling in the blanks), CD should be given the opportunity to 'free' write (with clear parameters) about a topic of interest. CD is struggling with gap-filling because he cannot predict what it is that the teacher or the task is wanting. He has poor theory of mind so will not be able to know what is expected of him or when something sounds 'right' as he does not know what 'right' entails. For example: *What connecting word do you use between these two (simple) sentences to make a longer new (compound) sentence to make sense, so that it sounds right? I ran for the bus. The bus didn't stop.*

### Activities experimented with (in class) based on suggestions

- With a support assistant in the classroom, when reading new/unfamiliar words, CD was encouraged to use a card or ruler to cover parts of the word. Whenever possible, when he made a prediction/guess, he was asked to try again. (Asking, 'Did that sound right?' was not a good strategy as CD would answer. 'I can't tell.' This is a reasonable answer as there is no way of him knowing what 'right' meant in this context.)
- Read a text and made up his own comprehension question which he also answered. While other learners in the class used the comprehension questions provided, CD was happy to make up 2 or 3 questions and then to answer these. The questions were all, predictably, 'concrete' or explicit and so there are limitations when wanting to ascertain CD's understanding of implicit meaning in a text, or when asking him to make predictions. CD is not able to necessarily understand how to answer certain questions or to comprehend the meaning of idioms and metaphors that have not previously been explained to him. CD also has difficulty understanding some forms of sentences such as the passive form and so requires support in recasting this kind of sentence. This may be SLI or it may be ASD.
- The whole class of learners used connectives/conjunctions to make simple sentences into compound sentences. They did this by being given simple sentences and then experimented with which conjunction to use to make the compound sentence make sense and to 'sound right'. CD was supported to write these from scratch rather than to use the sentences that he felt had no interest in and could not see the point, unless he was copying them directly. He was not able to tell if the sentences that were provided sounded 'right' but was able to write compound and complex sentences that made sense about his favourite football team. He did this by coming up with the start of the sentence together with the TA and then he finished it off: 'Man U played well against Liverpool but... still lost 2 nil.' for example.

## Observed outcomes/results (in class)

- CD achieved more or was much more able than anticipated with most of these strategies.
- He did not resist any of them, which may have been expected. In fact, he seemed to enjoy them.
- With only a few sessions it is difficult to know if he will continue to make good progress in his writing, particularly.

## Teacher's thoughts and comments (in class)

- The tutor found the insight into the types of questions to ask in class – both orally and for written task – involving rephrasing them into a more specific concrete form particularly insightful and helpful. This style of questioning revealed that CD understood far more in his reading and in class interactions than immediately apparent since it could be the original question which confounded him not the text or the activity.

## Neuroscientist's reflections

- The feedback from the teacher and the support assistant suggests that having a knowledge of CD's difficulties in comprehending what is being asked of him and the challenges that ASD poses in this type of learning setting, and an understanding of how these impact learning and how he undertakes tasks, provides a greater chance of engaging CD in his learning. It did lead to progress in writing. He wrote meaningful short passages that were mostly accurate. He had better reading responses and marked lower levels of anxiety, at least in the short term. On the first occasion observing CD he left the classroom three times during the lesson because he felt overloaded. On subsequent occasions, he left once only during the lessons. While he did not articulate that he was feeling overloaded/anxious I have made this assumption. We know that people who have ASD are likely to have anxiety. However, we also know from a large number of studies that a poorer working memory and high anxiety levels are like to co-occur. Because CD has fewer social filters than many adults he is possibly more aware that he/his brain has 'had enough', is overloaded, and so the most sensible thing to do would be to take a break. (In addition to this clever strategy, during the break when the brain is not focused on the task at hand, it then is able to often solve the problem that it could not solve when highly focused.)