2 Developing Students' Writing Skills: The Science Log

Students arriving at university are keen to learn and are motivated to carry out tasks even if unassessed. The first few weeks of the first year, therefore, are crucial for both students and staff. A study at the University of East Anglia, funded by the Centre for Bioscience, aimed to improve levels of literacy in undergraduates in the School of Biological Sciences. The study was incorporated into an existing year-long module, 'Skills for Biologists'. In addition to assignments and teaching on subjects such as essay writing, students were given a number of teaching sessions on writing skills and different writing tasks, of which the Science Log was the first.

In their first week, undergraduates were set a writing task to complete a Science Log. This was a booklet comprising a page of instruction and fourteen blank pages. Students were told to use one page per day to write for ten minutes on a scientific subject of their choice. In the first week they could use only full-stops, in the second week they could use any punctuation (Figure 1). The exercise of limiting punctuation has been used with previous cohorts of students at UEA and was first suggested by an adult basic skills consultant (Prudence Jones). The aim behind limiting the punctuation was to get students to write in short, focused sentences; one of the biggest problems in students' writing being long rambling sentences.

Many students improved their writing over the two weeks (Table 1). What was fascinating was that this came from the students themselves, they were not directly instructed on writing skills while they carried out the exercise. A couple of examples of feedback from students about the exercise:

"I found the science log really useful in developing my writing skills"

"I thought the science log exercise was extremely useful. It really showed how to structure sentences and paragraphs."

The Science Log had additional and unexpected benefits. Many students reported on articles they had read from publications such as New Scientist (Figure 1). This assisted constructive reading skills and self-directed learning. Most students do not understand what self-directed learning is, and this exercise could potentially be used to demonstrate this. The Log also provided students with the opportunity to write freely about the subject they had chosen to specialise in. Many students showed a deep interest in biological issues, and clearly enjoyed writing about subjects they read about or discussed with their peers. Some students wrote about facing ethical issues they had deep concerns about, some wrote about life-long passions about ecological issues, and their concerns about climate change. Perhaps this is only to be expected from students who have chosen to study this subject, but nevertheless, it was encouraging to see such motivation and depth of thought.

The Science Log proved to be extremely popular with our first years. It could only have been done in the first couple of weeks when students were happy to carry out unassessed assignments. It was by far the most effective piece of work within the module, and had many added benefits for both students and staff. It will now become a permanent fixture for biology undergraduates at UEA.

Table 1. Improvements in students' writing over two weeks as observed in their Science Logs

Type of improvement	% students showing this improvement
Fluidity of writing	24.1
Handwriting	26.5
Grammar, incl. punctuation, paragraphs, sentence structure	18.1

Day 7

An article on brain electrodes raises some interesting ethical points. The electrodes work by artificially stimulating the thalamus. The thalamus is a region of the brain associated with wakefullness and arousal. This technology has been used on coma patients to a level where he can speak & control his limbs.

This technique is known as deep brain stimulation and its applications are varied. DBS can help conditions such as Parkinsons and depression.

There are concerns over this treatment. There are patients who may not wish to prolong their life in a state of partial recovery and deciding when to intervene could be difficult.

Day 10

An article in the magazine 'New Scientist' delves into the story of Daniel Rolander, a budding scientist who worked for the emminent Carl Linnaeus. Rolander was one of 17 Swedish scientists who went on scientific expeditions for Linnaeus. The intrigue of the story centers around Rolanders obscurity in relation to the attention given to the other 16 'apostles', as they are commonly known.

For the 300th anniversary of Linnaeus's birth the IK foundation set about publishing all the apostles' journals in English. Most of these journals had already been published, apart from Rolander's. However, his manuscript was recovered from the Natural History Museum in Copenhagen and after two years translating it from Latin to English his story was finally revealed.

Figure 1. An example from Student X's Science Log, showing transcribed entries from day 7 and day 10.

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