Interview

Vocabulary Within a Four Strands Curriculum: An Interview with Paul Nation

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Abstract
In this interview, Paul Nation answers a number of pertinent questions at length. The questions address the origin of his interest in vocabulary, in addition to his views on ways in which vocabulary is learned, taught, assessed and researched. In a number of answers, Nation returns to his four strands framework, in which he seeks to imbed vocabulary teaching and learning. Finally, he gives some direction for future vocabulary research.

Keywords
Vocabulary learning, vocabulary teaching, vocabulary assessment, vocabulary research, the four strands

Paul Nation is Emeritus Professor in Applied Linguistics at the School of Linguistics and Applied Language Studies at Victoria University of Wellington in New Zealand. Although he has been a part of the TESOL scene for quite a while and has contributed to the EFL teaching methodology in general, he is best known for his impressive opus of writing on various vocabulary related issues. He has pioneered the applications of electronic corpora within the scope of teaching and learning English as an additional language, creating one of the first tools for profiling a text in terms of vocabulary frequency. His research into the impact of text vocabulary profiling on its readability and learnability in EFL contexts can hardly be overestimated. Equally important is his work on vocabulary assessment, which has resulted in the now well-known Vocabulary Size Test (VST). Initially, Professor Nation dedicated a number of his writings to the role of reading in language and vocabulary development. More recently, he has turned to the four strands approach in language teaching.

Paul Nation's work has an international presence. He has taught in Indonesia, Thailand, the United States, Finland and Japan. His resources, including a large number of his publications and electronic tools, can be found at https://www.wgtn.ac.nz/lals/resources/paul-nations-resources. Many of those are fortunately free downloads. We are indebted to Professor Nation for those, and last, but not the least, for giving us this interview.

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How did you get interested in vocabulary?

Well, I remember reading an article quite a few years ago, probably about 30 years ago, which was about Edward Thorndike, the great educational psychologist, who was interested in vocabulary. They drew a family tree of his vocabulary influence, but the family tree was not of his family members, but of who taught whom and the person who was taught and then taught somebody else and so on.

When I think back about my own place in the EFL vocabulary family tree, then I was lucky enough when I began training teachers to have had two colleagues.

They were my boss, H.V. George and a senior lecturer in the department, Helen Barnard, who were both very interested in vocabulary development. They had a very strong influence on me. In fact, Helen Barnard had just published a best-selling academic vocabulary course for Newbury House, which was being set up right then by Rupert Ingram. She was brought to New Zealand from India by H.V. George for a pre-university English course. He could see that it really needed some strong professional input and some organising. She made her own vocabulary lists for the course and went on to designing the course and then published a course book that was called *Advanced English Vocabulary* (1971).

H.V. George introduced me to things like Zipf's Law and vocabulary frequency and corpus studies and also to the writings of Michael West, by whom he was very influenced. Michael West is one of my big heroes because he was, like E. Thorndike, a very prolific researcher of vocabulary who always had a strong application aim in all of his work and writing. Reading West's early stuff and Thorndike's, I marvel at the work they did because they didn't have computers or anything like that. Thorndike took something like 10 years to make his 10,000 word list. We can now make a 10,000 word list, I would say in half a day, and it would be a reasonable list. So, I was influenced by the people who trained and taught me. And I now hope that that influence has persisted to my students and it's getting to the point where it's my students' students and my student's students' students who are now interested in vocabulary. It's a bit like a family tree of teachers, where a student becomes a teacher and influences the people around.

What prompted you to start researching vocabulary?

We were the first university in New Zealand to get a copy of the Brown corpus. It was a corpus from Brown University, in the US, which contained 1 million words of American English. A later corpus was the LOB (Lancaster-Oslo-Bergen) corpus, which was a parallel in British English. We were the first university to get a copy of it on a reel of computer tape. We used to do word searches on it. For example, I investigated the word "too", looking at the grammatical patterns the word occurred in. To do a concordance on the word "too", on a million-word corpus would take us all night. We had to give our computer cards to the computer science people and then all night, when nobody was working, it would search the concordances on the word "too", which nowadays only takes a fraction of a second.

I was interested in corpus studies because we were ahead of other departments getting into the computer age. Our department got the first dedicated PC in the arts faculty. We paid something like 10-20,000 dollars for a 10MB computer with a 10MB expansion disk. That was the beginning of me creating word lists and something like the Range program, where you can analyse a text and find out about word frequencies and similar.

One of the great joys of my life was that I saw the beginning of the computer age and managed to at least partly keep up with the computer age in my work. For it's really hard to be left behind in the computer age. The internet and the computer were one of the major influences on academic work, especially in our field. It was a very fortunate time, which has had a major influence on my work.

I am also interested in family history. I read one of my ancestors' writings, who in pre-1900s was saying "What a marvellous time I live in! I've seen motor cars; I've seen aeroplanes fly in the sky!". He

was marvelling at all of these things which he'd seen in his life, thinking they were almost miraculous. I have the same attitude at the internet and the computers. I've seen this change, which is really only forty years old, now making an enormous difference in our work. A lot of my research is based around corpus studies and analysis of text using computer based programs.

Why are you still convinced that vocabulary is important? (Are they the same reasons that guided you at the beginning of your career or different ones?)

I'm interested in vocabulary not because I think it's important, but because I'm interested in vocabulary, so in a way I've got intrinsic motivation to study vocabulary. I just got hooked by it in my early work and study and bits of research, but I don't do it because it's important. I'm motivated because I enjoy doing it. If I didn't enjoy doing it, no matter how important, I wouldn't be doing it. But it is important. And I think vocabulary's age has come again. I think there was an age of vocabulary between 1930 and 1940, and then it lapsed. The age of vocabulary began again in the 1990s, and the amount of research published on vocabulary regarding learning another language is just enormous. I'm working on the third edition of *Learning Vocabulary in Another Language* (2001; 2013; 2022). When I did the 2nd edition, I figured out that 30% of the total research on vocabulary over the last 100 years had appeared in the last 10 years, and the pace has not slowed down yet. When I think of the research that I had to read for the third edition, it is hundreds of articles to read, and the work continues and rightly so. It is now getting recognised and represented. It is quite interesting actually because I think there is almost a divide – people who are interested in SLA (Second Language Acquisition) tend to be more interested in grammar, but the people who are interested in EFL (English as a foreign Language) tend to be more interested in vocabulary. It's a very rough generalisation. I think in SLA research vocabulary does not probably get quite the attention it deserves, but in the EFL studies vocabulary gets a lot of well-deserved attention.

What should teachers do to facilitate vocabulary learning in English as an Additional Language classes?

Teachers should be aware that there is a lot of research on vocabulary, but also there is good research on the learning of reading, listening, speaking, writing and fluency, all sorts of aspects that would have immediate and direct practical application in the classroom. The first thing teachers should be aware of is that there is research and then look for guiding principles and things to apply in the classroom. I think it's quite hard for teachers to read research and be critical. I am not criticising the reading skills of teachers here. I mean, I find it hard to read research. You have to be quite critical when reading it and approach it in a quite a different way from if you are just reading to see what the researchers found. For example, I'm reading research by one of my ex-students who is now a very famous researcher, and when I look through the findings very critically, I think it's a very good piece of research, but they might be overstating the results and the findings, so you have got to be a bit cautious about it.

Just to draw an analogy, I was at my dentist's two years ago. My dentist is good, she has all the latest equipment etc., so I asked her whether she read any research on dentistry. She said she wouldn't know where to begin. I asked where she found out about all the advances in dentistry. She said they had workshops and seminars and they found out about such things there. It got me to thinking that it would be unrealistic to expect teachers to read research, large amounts of research. Because, first of all, it's hard to read it with a critical eye (you need some background in experimental research), and the articles tend to be very long. I spend about two hours on an article reading very carefully and critically. Teachers can't afford that amount of time. It is important for the teachers to be aware of research and to find people who know about research and write reports that can bridge the gap between research and the

classroom teaching. That is a part of my job. The teachers still have to take further steps to implement it in the classroom.

Teachers really need to know where to go to find this information. The unfortunate thing is that the number of EFL research journals is increasing, but the number of those publishing applications of research is decreasing. We have lost journals like *ELT Journal* and I think *English Teaching Forum* to some degree because they think they are going to get a higher status if they publish original research and are now starting to neglect the needs of teachers. This is probably a fairly harsh judgement, but I have seen that trend in the last forty years or so. We really need high quality journals that would bridge the gap between research and the classroom practice. The teachers really need to know how to find those journals and they don't have very much to look at, and they should start looking at books which do that. The book I have written which has given me the most satisfaction is called *What Should Every EFL Teacher Know*. I saw other people writing similar books and thought that I could do better. If I can't do that, if after fifty years of teaching and training teachers I can't write such a book, then there is something wrong with me, so probably within the space of two weeks I wrote such a book. I feel very happy about it. I have written several such books on teaching reading and writing and vocabulary etc. from the perspective of what the teachers should do. I did a deal with a publisher to sell it cheaply and the publisher was perfectly happy with that. Compass Publishing is now selling it for US $15, which is not cheap in some countries, but it's cheaper than the $40 or $80 that they charge for some of my other books. So, teachers need to look for those resources. Teachers need to look for places where they can get that sort of information.

What kind of reading is conducive to vocabulary learning? What would you say about graded readers, which are still controversial among a broad range of language professionals? How do they compare to reading one long unabridged book?

I'd take a step back first. The step back I would take is, yes, reading is helpful for learning, but the principle I operate on is called the four strands: If you want to have a well-balanced course, you should spend a quarter of the time on learning from input, reading and listening. You should spend a quarter of the time on learning through output, that is speaking and writing. Another quarter of the time should be spent on studying the language. This includes vocabulary, learning strategies, becoming autonomous language learners by actually deliberately learning the language learning principles. I think that even children from the age of about five or six should know how to learn. They should know the importance of spacing repetitions, the importance of quality of mental processing etc. There's only a relatively small number of principles which are needed, probably about half a dozen but I think any learners should know those. Finally, a quarter of the time should be spent at becoming fluent with what you know. In the case of reading, you should become fluent in reading, not that you can read a thousand words per minute, but that you can read at a speed approaching that of a normal native speaker. So a quarter of the time should be spent on input, a quarter on output, a quarter on deliberate study and a quarter on fluency development.

Within that framework, reading clearly fits into input because if you want to learn vocabulary through reading, you should do a lot of reading. The meaning focused input part of reading would be extensive reading. This can be done through graded readers. Many SLA people are critical of those because they cannot accept that those can be authentic. I go back to Henry Widdowson in that respect. Henry Widdowson (1976) wrote an article about authenticity, regarding authentic materials and authentic experience. For language learners with three thousand words, reading an authentic text is not an authentic reading experience. In terms of the American constitution, this would be called a cruel and unusual punishment. If they want to get an authentic reading experience, they should concentrate on texts where they understand most words. People should concentrate on enjoying the text because that is an authentic experience. When we talk about authenticity, we should concentrate on experience, rather than on the

material. It's a mistake to think that if you are bringing authentic material to class that you are doing the right thing. You should run it through the vocabulary profiler on Tom Cobb's Lexical Tutor website (www.lextutor.ca). You should see how many words are at what level and what kind of experience it would be.

The number one most important change the teachers could make is to introduce an extensive reading program, if they don't already have one. This would be the single most significant change in terms of the amount of increased learning that they could make. I am very much in favour of extensive reading, which means reading the material at the right level for the learners, where around about 98% of the running words are already familiar to them. There should also be an extensive listening programme, making up half of the meaning focused input, so that about 1/8 of the course would be an extensive reading programme and the other eighth would be extensive listening. However, let's stick with the reading.

OK, so if we're looking at reading then we've got meaning focused input.

Now what about language focused learning? What study could people do associated with reading and obviously something like intensive reading with a teacher and the learners or the learner and a dictionary or the learner and another learner, working their way through a somewhat difficult text, dealing with the language features in it as they go. There is clearly a place for the grammar translation in this. I'm all in favour of grammar translation, as long as it's only a part of the language focused learning strand, of course. When it becomes a whole course, it is just ridiculous, because the whole course becomes language focused learning, with no meaning focused input, no meaning focused output, no fluency development. That's just silly!

And then if we look at fluency development, learners clearly need to develop fluency in reading as well, and so to do that they need to develop their reading fluency through first of all reading very easy graded readers, the ones which are way below their level, but reading them as fast as they can and then re-reading books they read before, so that they can now re-read them at a faster speed. I also think that there should be a dedicated speed reading course as a part of a reading programme because a speed reading course has very strong effects on reading fluency and it only takes about 5 to 10 minutes each lesson. And you need to do it for about 20 lessons and by doing that you can in many cases double some learners' reading speed and you can at least increase your reading speed by 50%, provided all the words are known. I want learners to do a speed reading course or do easy extensive reading. There shouldn't be any unknown vocabulary at all and the texts should all be familiar texts with familiar vocabulary and so on and even the content of the text should be at least partly familiar so that they can then exercise this reading skill to the best of their ability and increase their ability to do it. Whenever I'm asked about how to teach reading, how to teach writing, how to teach vocabulary, the answer for me is always the same answer: how do these fit into the four strands, of course, and then you work out for each strand what you should do in each strand to help that learning.

In an article from 2013 (Nation, 2013c), you advocate revisiting a text three times in succession. Could you explain why?

I don't actually remember that, but this might be the technique of repeated reading. This is used as a kind of fluency development measure. I would not recommend it as the main way of developing fluency, but as one of the ways. It is often oral reading, borrowed from the first language, where it is used with young learners. It involves reading aloud and it helps pick up reading skills. It is not an accurate measurement of speed, and to measure the reading speed, they often get learners to read aloud, but in fact when you read aloud, you're limited to a speed of somewhere around about 150 maybe 200 words a minute, whereas if you didn't read aloud you could probably read between 250 and 300 words a minute, so you could actually double the speed. So, it's not actually a good measure of fluency really, but it's a way of picking up reading skills so the repeated reading technique is simply there, and I think it's largely a

fluency development technique and so therefore it should be using texts which don't contain unknown vocabulary, but which the learners are able to deal with reasonably easily. By reading it three times, they get quite good. There is a good reason why it is limited to three times, as afterwards it gets quite boring. By the time you're reading it the fourth time, you never want to see the text again.

More recently, you have written about vocabulary tests. How can teachers be sure to use the available vocabulary tests appropriately? What vocabulary assessment should they use in the classroom? How should they measure vocabulary growth?

This is a matter of considerable debate at the moment, of which I'm glad, because it forces us to clarify ideas. My simplest advice is, if you are an EFL teacher and want to measure vocabulary knowledge, and your learners are not highly proficient in English, you should use one of the two recent Vocabulary Levels Test (VLT), written by ex-students of mine. They are better than the original tests that I made because we now have better word lists. To simplify, I'd say, don't use Vocabulary Size Tests (VST), which are written for native speakers or very highly proficient foreign language learners, but use vocabulary levels tests (VLT), which measure vocabulary knowledge up to the 5th thousand. There is also a debate regarding lemmas and word families. We are getting near a resolution. It is good to have word family based tests that match the levels of students, but it's not tragic if they don't exactly suit the proficiency level of the students. Like any test, we have to take it with a pinch of salt.

The other thing that I would also say about vocabulary testing relates to testing in general. We recently tested young native speakers of English in secondary schools in New Zealand in two ways. We did it either in the classroom, or by each student having a supervisor keeping them motivated and on-task. Having someone sitting next to them was beneficial to low level learners. It increased their vocabulary scores considerably. It kept them motivated. If you have a group of unmotivated learners, don't group administer the test in the classroom. Sit next to them. If the learners are high proficiency, it doesn't matter. Highly motivated proficient learners did worse when there was someone sitting next to them. If tests are really important and the learners are unmotivated, you should sit next to them.

In order to measure vocabulary growth, you could use VLT. Many have parallel forms. You can test using one form and later the other. Within a year, you could use the same test. Vocabulary Levels Tests (VLT) have 30 items per level, which means a reliable score.

The learners don't have to sit the whole test in order to get a reliable score and so that means with the vocabulary levels test you can pick and choose the levels that you give to the learners to test. They don't have to sit 150 items to measure the first, second, third, fourth and fifth thousand words. If your learners have some degree of proficiency, you might not bother testing the first thousand because you are sure they know just about all of those already, and then you might test say the second and the third or the second, third and fourth thousand, which would give you a total of 90 items. I think it's a good idea for teachers to have some knowledge of their learners' vocabulary size or certainly their mastery of the high frequency words, the first one, two or three thousand and the beginning of the mid frequency words, the fourth and fifth thousand, because this helps in directing them to graded reading, but it also helps in choosing passages for intensive reading. It also helps when the teacher is going to do some direct vocabulary teaching and things like that. So, I think it's important for teachers to know how many words their learners know, as I think teachers underestimate learners' vocabulary knowledge.

Unfortunately, teachers do not operate in a vacuum. Often institutions limit what teachers can do, be it because of the misplaced beliefs regarding language teaching and learning

in general, or for any other reasons indeed. What would you say to the teachers of today who work with such constraints? How can they still have some control of vocabulary when placement, methods, materials and assessment are set in concrete?

I think there are lots of constraints so I would think that the constraint of time would be the greatest constraint and probably the other one you mentioned of the school expecting things to happen would be another big constraint. I think that teachers sort of have to then start prioritising, but I would say once again to come back to the principle of the four strands. I think that the four strands principle indicates that about three quarters of the time, that is input-output influenced development, should be spent on meaning focused activities where learners are reading to understand and listening to understand. I don't mean doing a reading passage in the book followed by comprehension questions and fifteen different exercises. I simply mean reading to understand what's in the text. The other ones are approaching what I'd call intensive reading, which was really the language focused learning strand. I would be trying to apply that principle and get some kind of balance in that way, so that the classroom wasn't all language focused learning, but there were opportunities to read and things like that and then I would be trying to get learners to do something outside the classroom.

Extensive reading and perhaps extensive listening are quite good for that, and I generally recommend that when the teachers begin getting the learners doing extensive reading, it starts within the classroom. Learners are reading different books and learners could be reading books at different levels for different learners to suit their proficiency level and so on. Once the learners realise that they can be successful in such reading, then you work out some kind of monitoring motivational system which will then allow this work to be done outside of class rather than in class, so teachers need to be a bit flexible in that way. I mean this is where the teachers' school really comes in because you can say these are all good things to do, but the teacher really has to fit it all in. But I think you should fit in a principled way of looking for a balance of opportunities for learning, I think that it's important to focus on various opportunities for learning, as you don't learn to read by not reading and you don't learn to speak by not speaking. You've really got to have a balance of all sorts of different things. So, looking for the balance would be the thing that I would think is important.

Another thing I think is really important is repetition. I think that when teachers teach from coursebooks and so on, they should keep going back to the old material and doing it again, but doing it rather quickly and doing it in a slightly different way or a rather different way from how it was done before. I would say at least a third or even a half of the time in the classroom should be spent on old material. If you're always moving forward through lessons and not going back to what was done before, you're actually not going to get very much repetition which leads to learning. It's really important that you go back to something you did a couple of weeks ago and do it again; maybe not do it again as listening, but do it again through reading or something like that; or vice versa, but revisiting old material and so on. I think you've touched on the really important point, but I think you have got to have the principle of getting a balance and then making sure that there is opportunity for repetition, so that learning will occur.

What do you think might happen in terms of attention to vocabulary in the post-pandemic classroom? What would you like to see happen?

I think the Covid world has given us the opportunity for learner autonomy. I think that learners need to take responsibility for their own learning, but the teachers should make sure that the students know how to take responsibility for their own learning. That's why I'm now a strong advocate of teaching

the principles of learning to students. I remember when I began my early teaching of teachers, I was in Indonesia. I wanted to learn Javanese, the local language where I was. I had my own Javanese teacher, but I didn't have a clue about how to learn. If I had known then what I know now, about how to use the teacher and how to learn, it would have made an enormous difference to my learning. So, not so long ago, I sat down and wrote a little book about this, which is called *What do you need to know to learn a foreign language?* (Nation, 2014), which outlines important principles of learning. It's available for free from my website (https://www.wgtn.ac.nz/lals/resources/paul-nations-resources/paul-nations-publications/publications/documents/foreign-language_1125.pdf). The book is being translated by some kind people into about four or five different languages now because if you're trying to learn English and you want to know the principles and are reading about them in English, there's going to be a bit of a struggle, but I tried to write the book within a limited vocabulary, but even then it's good to have a first language version of it and that short book then tries to outline the important ways in which you can go about taking control of your own learning.

I think learners need to know about balancing opportunities for learning, like the four strands. They need to know that spaced repetition is really important for learning; they need to know that the quality of the meetings with vocabulary will determine how well they learn and the quality of meetings is increased by doing retrieval, that is not by seeing the word and the meaning together, but when you meet the word, to have an opportunity to try and recall what it means from your previous meetings with that word. Then they need varied meetings with words, that is meeting the words again, but in some slightly different way. They also need to know about time on task, which is a principle that simply says if you want to learn to write do a lot of writing. This is a very simple principle, but it's a very powerful one. Another principle is autonomy – taking control of your own learning, where Covid has pushed the learners. Also, there is the cost-benefit principle – i.e. make sure the things you learn are useful. When we come to vocabulary, the first thousand words are more useful than the second thousand etc.

I think coursebook writers should now be including those principles in course books. I think there should be little parts of each lesson which say e.g. here's how you get repetition and there are two kinds of repetition - verbatim repetition, where you do exactly the same thing again and varied repetition where you do it in a different way. Now, activities like extensive reading are really good because in graded readers words recurs in a slightly different context, and so we get varied repetition, in addition to spaced repetition, which promotes spaced retrieval as well as quality of processing and enables time on task, all of which are important.

How can vocabulary research most productively engage language teachers (and thus perhaps bridge the gap you currently observe between research and the teaching practice)?

I'm still working on that. First of all, when I write books about vocabulary, I try to talk to teachers. I try to address teachers in the book, which is important. I was also playing around with the idea of having some journals which publish summaries of articles and I've been playing around with the idea that in a way a teachers' journal should include some sort of column saying this is a piece of recent research; we're not going to go into the methodology of it, but here's what it means for you. One of the first pieces of research that I worked on applying was Warwick Elley and Francis Manghubi's (1981) research on the book flood in Fiji, where they did a book flood in the classroom and in the space of eight months the learners made something like 16 months' progress in their various language skills. It is very easy to see the applications of this to the classroom and it's a very important piece of research. I would say that it would be great having a little column like that which would say look here's a really important piece of research and here's what you should do tomorrow in the classroom to put it into practise. I think the journals can help in this in quite a big way.

What are some of the most pressing research questions regarding vocabulary that research should address next?

It is always hard for me to answer this because there are so many areas and I tend to be distracted by what I'm working on at the time and think that that's the most important thing. At the moment, I'm trying to write a chapter on extensive viewing, that is learning a language through watching television programmes and movies and things like that. It is clear to me that there needs to be more longitudinal and more extensive research on this, looking at a wider variety of language and vocabulary knowledge and that sort of thing. I think that would be very useful research to do. I think it would also be interesting to do research on how you get learners to take control of their own learning and the barriers that stand in the way of doing that and how you could overcome those barriers. I think that's really important.

I also think that we need quite a lot of more research on fluency development. There's quite a good amount of research now on developing fluency in reading, but there's not very much research at all on developing fluency in listening. For example, we now have the technology which enables us to change the speed at which we can listen to recorded materials, and they don't sound funny. An area of research which would be really interesting for me is that we can simplify reading texts, but how about simplifying listening texts? Can we take listening texts and using technology replace the low frequency words with higher frequency words without too much interruption to the actual video or recording? I'm sure the technology is there to do that. We can now make people say all sorts of things they never actually said, but it would be quite interesting to see if there is some program that could be developed so that you could take something like say a Ted talk or something like that and go through it and make any edits to it, which would then bring it within the vocab level of your learners to a large degree, and it wouldn't matter if it was clear where changes were made, as long as this was not too distracting to the people doing listening. I can see there's a sort of ethical reason to make it clear where the changes are being made, but it's if you're only changing words and the ideas are the same, the ethical issue isn't so strong. At the moment, trying to find listening materials which are appropriate level for all learners who know only the first one thousand words or less of English, learners who know fifteen hundred words and learners who know two thousand words is very difficult because otherwise you get these concocted artificially sounding listening materials, where I think you could actually edit existing materials quite successfully to do that. So that's something I look forward to with interest.

How can the language teachers and learners in underprivileged contexts take advantage of what research has taught us about vocabulary, given the lack of resources and opportunities? What would be the crucial principles and resources regarding vocabulary that could work in any environment?

I was lucky in the way that, early in my teacher training, I had to train teachers in Indonesia, and there conditions were very difficult. I mean, we were a part of a foreign aid project and because when I went there the second time, because of my knowledge of what it was like before, I said we've got to have our own copier when we go. When we eventually gave our teacher trainees handouts and said they didn't have to give them back, but could keep them, they were astonished, because the teachers' college there couldn't really afford to have large amounts of copying done and things like that. But under those conditions, we worked out quite ways of dealing with that. One way was what I call plastic technology, which I now have second thoughts about, but then, plastic bags were so readily available that you could take a sheet of reading text or something and quickly seal it in a very cheap plastic bag. It wasn't expensive technology at all and you could re-use the material. So, we for example wrote a speed reading course and all we did was we sealed each text and the questions in a plastic bag, text on one side and

questions on the other. So, for a class of 40 or 50 people you only needed three sets of each text because the texts were all on the same level. If you have 20 texts all the same level and then the learners just grab the plastic bag with a text and then they read that text; then the next day, they grabbed another and then put it back; and so on. That way, with very little cost you could run a speed reading course. Each learner didn't have to have their own copy of the book or anything like that.

I think that learning occurs in the brain, when people have the opportunity to retrieve and benefit from repetition and to do deep quality processing. It doesn't matter too much whether the materials are presented in a high quality form. There are cheap ways of dealing with the lack of resources.

We even had our own extensive reading programme and we gathered together all the extensive readers we could find and then bought a few more and had each learner reading a different book. That way, you only need about four or five books more than the number of people in the class to get an extensive reading programme operating. If you then got each learner to buy a book and then the teacher somehow got finance for another four or five, you could have people exchanging books doing extensive reading programmes. So, I think, the lack of money and resource is something that nowadays can fairly readily be got around. There are also cell phones, which are becoming more common and becoming much cheaper, so that you can now do speed reading courses on cell phones. A colleague of mine has just put a lot of Sonia Millet's fluency development passages (https://www.wgtn.ac.nz/lals/resources/paul-nations-resources/speed-reading-and-listening-fluency) into a fluency app which now can be used on a cell phone. So, I think there are ways around that. It's good to have a lot of money, but if you haven't got a lot of money, then I think that you can still do all the things which are really important.

I should also mention the Extensive Reading Foundation, which is a non-profit charitable organisation set up for promoting extensive reading. It provides support for such schools in underprivileged places, and you can actually now do extensive reading programmes solely on the web. One of my ex-students has developed XReading (https://xreading.com/login/index.php), which allows access to graded readers in return for a rather small subscription fee. You can actually get access to a very large number of graded readers and read as many as you like on a very small monthly subscription. We're talking something like less than four or five dollars, I think, per month. Even if that is difficult, I'm sure an organisation like the Extensive Reading Foundation would have things which would help support such learners. The web has many promises for us, but realising those promises in a principled and well organised way is not always easy, but we have to believe that it will get better eventually.

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