Making connections:
helping young people to gain access to specialist writing

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Abstract

Specialist knowledge and skills are produced by specialist communities, such as artists, scientists, electricians, carpenters and stamp collectors. People in groups such as these tend to develop special styles of language for use among themselves. These styles can become characteristic of the way members write when they prepare technical manuals, safety alerts and incident reports. Failure to understand such documents can have consequences ranging from slowed development and spread of technical skills to increased occurrences of workplace injuries and death.

Technical and vocational education and training institutions exist to give young people, who are outside such specialist communities, access to the knowledge and skills which those communities produce. However, the style in which much specialist text is written can provide a real barrier to access for our young people.

This paper will explore some of the reasons for the development of such potentially alienating styles and suggest ways in which TVET trainers can help young people to comprehend, and hopefully make better use of, specialist knowledge and skills.

Household and motor vehicle electrics remain mysterious phenomena for people in many parts of the world, only a step or two away from magic. This can cause them to do remarkably silly things in the home and it can surface in TVET sessions as trainee difficulty in understanding basic circuit theory. They have trouble connecting with content that seems simple to us. Are they just thick, are we not working hard enough or is something else going on?

> *Almost thirty years ago, I began working in a part of Australia where English was an optional extra for a full adult life. A tight nest of Sydney suburbs housed a Mediterranean community and almost all essential services could be accessed in the Sicilian or Calabrian dialects of Italian. However, school happened in English. One day I walked into class with a film projector (it **was** a long time ago!) to be greeted by a chorus of calls from the class: "Sir, sir, can I close the lights?" I thought it a little odd, but soon worked out that they were talking about darkening the room.*
>
> *I have since found that many European languages 'close' and 'open' lights rather than turning them 'off' or 'on', which is the more usual*

*English language pattern. This might be a piece of linguistic trivia, except for the fact that an '**open**' electric circuit '**turns off**' any lamps connected to it. The usual way that we use English to describe simple electric circuits is flatly contradictory to the language that people from such backgrounds bring to any explanation we give. People from such backgrounds do not find our explanations difficult to understand: they find them meaningless as we persist in contradicting ourselves. The light in 'open' circuit can **not** be 'off', can it?*

Specialisation

We share a fascinating, complex and changing world with our trainees. We try to expose them to the more intriguing and useful aspects of that world, as their experience widens out from the circle of home and family. Reading is an efficient and effective way of exposing trainees to experiences beyond those available in their personal contexts or in our direct contact with them and of providing them with access to further resources once they leave our courses.

Although TVET contexts in Africa have often been limited in their access to, and use of, written resource materials (AU 2007), developments in the sector are likely to make written material a more important part of technical training across the continent.

However, different people who produce the text we will increasingly put in front of the trainees for whom we are responsible. They form part of different communities with specific areas of interest, and members of each community develop a specialised language style, which they use to communicate among themselves. A particular mix of vocabulary and structure is chosen because its features give expression to the basic language values of a particular community. For example, the scientific style developed in response to the three demands of precision, clarity and brevity, while the legal community values precision above all else, historians value empathy and mathematicians seek elegance. Different styles developed as members of particular communities, wanting to use language in particular ways, mediated through community language values, chose particular features from the standard dialect of the language(s) within which they operate. Electrical contractors share a common focus on the safe provision of power to businesses and communities. This common focus leads to the use of common technical words and a supporting web of semi-technical words and common grammatical patterns. The use of 'open' and closed' to describe circuits is one example of this.

The same process can also lead to the production of entirely new languages. The development of Fanagolo from Zulu is an African example and English itself arose in a similar way as the French-speaking Normans stripped the inflections out of the Germanic language spoken by the Saxons whom they had conquered. Closely connected communities tend to produce shared languages but the process is not always friendly! Development of specialist styles is not restricted to 'academic' professions and there is a wide range of specialist language in use, such as the styles developed by knitters, quilters, potters or stamp collectors (Swales 1990 pp 27-29).

Entering any specialist community is dependant on gaining control of its specialised language

style. A native speaker will select the style required from the range which makes up the prestige dialect. Native speakers who are not members of the group, but who are speakers of the prestige dialect, will usually understand what is communicated, although they may not be able to produce the style themselves. People who do not speak the prestige dialect (or, perhaps, any dialect of English at all) may need to actively consider the specialist language style if they are to understand it. Fowler (2008) suggests that TVET trainees in England and Scotland make deliberate decisions regarding the styles with which they will most actively engage.

Control of the particular style will happen more quickly if the demands of the style are made explicit. That is, people learn more quickly if they have help. Some may come to control specialist styles on their own, but many more will not. Fowler suggests that trainees will respond more positively, and experience more success, if they come to grips with appropriate written material in a supportive environment.

A great deal of training actually consists of learning to control the specialist styles of specialised communities. In TVET contexts, this very often happens within bureaucratic frameworks that differ from the communities from which our trainees come. These academic and administrative bureaucracies have language demands of their own. However, our trainees rarely come to us already in control of the styles which are characteristic of the different communities within which they find themselves and those which we are training them to join. Sometimes, as is the case with the light globe example with which we began, the style we expect will flatly contradict the forms of language that have proved effective for trainees until they begin to work with us. It should **not** surprise us, therefore, if they have difficulty understanding us and the texts we set them, or that they have difficulty producing the kind of text which we have come to regard as good specialist writing.

Trainers work to teach mainstream material, be it motors and mechanisms, money supply and marketing, stresses and structures or respiration and reproduction. These are most certainly legitimate concerns, but the acquisition of skills and concepts within any of those areas will be dependant on a certain level of trainee competence in the particular specialist style. **We** have all successfully mastered the specialist styles of our trades. So, we have come to see those styles as the **natural** way to discuss our area of expertise. Our trainees are not so adept. They have not mastered the specialist style(s) in which we were trained, in which the manuals to which we expose them are written and within which we often expect them to express themselves. They will spend a lot of time trying to master that style as they train. Some will master the style more quickly than others. Some will master it more fully than others. Some trainees will succeed in our classes and some will not. At least some of those who fail will do so because the specialist styles that many of us use automatically provide barriers that trainees are unable to surmount.

Barriers to access

My area of expertise lies at the intersection of science and language, and therefore some of the concrete examples which follow refer to the scientific style of English. However, many of the implications drawn from these examples apply equally well to other specialist styles.

Science has long been seen as a rich but inaccessible part of the terrain of human knowledge.

The perceived difficulty of scientific English is widely acknowledged. The whole edifice of numerical readability research (Zakaluk and Samuels 1988) began as a response to the recognition of the difficulties which **science** books provided for American school students in the first decades of last century (Lively and Pressey 1923). Work on estimating the access difficulty that particular written material might pose has continued (Daniels 1996, O'Toole 2003). However, there has also been on-going work on the specific difficulties that different groups of learners might experience (Clerk & Rutherford 2000, Gee 2003, Luke, Comber & Grant 2003, O'Toole 1996, Rollnick 2000, Wyatt-Smith & Cumming 2003).

Sampling Student Difficulty

Some recent work concerns the difficulties of Biology students at the University of Guam (O'Toole & Schefter 2008). Guam is an island possession of the United States of America in the Northern Pacific. Its local population is Chamorro, a resilient people with ethno-cultural roots in the original Micronesian inhabitants of the archipelago, the Spanish who came after Magellan and the Mexicans who formed the colonial garrison. Guam is currently the major US base in the western Pacific and the contemporary garrison is composed of men and women from the range of ethnicities that characterizes the US military. The strength of the local economy draws Micronesians from the rest of the region as well as the Philippines. The University of Guam draws students from the local population, the Philippines, Korea and the American mainland. This group of students experienced less difficulty with the scientific style of English than other populations that had been sampled earlier (from O'Toole & Dalton 1981). They could be expected to experience less difficulty than the African trainees for whom local trainers are currently responsible. Therefore, the pattern of difficulty that emerges from this recent work forms a very conservative basis for predicting possible difficulties in TVET contexts on this continent.

Investigation of the specific difficulties being experienced by particular groups of learners has been based on the use of cloze tests, which were produced by deleting every fifth word from authentic texts. Learners were asked to replace the words that had been deleted and then their suggestions were coded as representing exact replacement, conceptually correct replacement or clear error. The particular test used in Guam was based on a Year 9 secondary science textbook, specifically a passage on the human immune system, and the results, coded for conceptual total, indicated a test reliability of 0.89 (Cronbach's Alpha). The validity of the cloze technique is more controversial than its reliability. However, the ability to apply the redundancy present in written English to the predictive task which lies at the heart of the cloze technique seems clearly related to the task of accessing text. Further, the regular deletions may be considered as individual gaps in nine word spans. Such spans have been long been considered sufficient for interpretation by able readers (Taylor 1979). Cloze tests are efficient and economical. They produce objective results, which may be defended by reference to a wide body of research. They seem valid for the present task. Table 1 sets out the crude results of the Guam study, with the mean conceptual scores of the differing heritage language groups expressed as integer values (from a possible top score of 50).

The apparent differences between the conceptual total scores on Table 1 are statistically significant at the conventional level ($p<0.05$, $F=2.516$, Sig = 0.022). The recognition that students specifying English as their home language perform better on tests of scientific style within that language than those specifying Micronesian or Philippino confirms common

assumptions. However, the results on Table 1 indicate that even monolingual university Biology students may be unable to suggest appropriate words to fill almost a third of the gaps in a passage written for science learners three years their junior. Students who specified a Micronesian language (predominantly local Chamorro people) were unable to replace almost half of the deletions.

Table 1 Language performance of Guam students of differing language background.

Heritage Language Group	Mean Conceptual Total (/50)	Number of Students	Standard Deviation
English	35	113	7.25
Korean	36	4	4.55
Micronesian	30	43	11.35
Philippino	34	124	8.16
Other	35	6	7.72
Total	34	290	8.48

Modified from O'Toole & Schefter 2008 p. 137

This does not inspire confidence in the ability of these students to use more level-appropriate texts independently. That may be a worrying but the data is not of great practical use to instructors at that level of specificity.

Table 2 Specific student difficulty with Scientific English

Row	Language Group	No. (% of sample)	Noun %* wrong	At'cle % wrong	Verb % wrong	Prp'n % wrong	Tchlty % wrong	Word Stacks % wrong	Pas've Voice % wrong	Cohsv Device % wrong	Overall D'fclty % wrong
A	**English**	113 (39%)	**32**	**23**	**23**	**29**	**20**	**12**	**23**	**35**	**30**
B	**Micronesian**	43 (15%)	**40**	**42**	**37**	**41**	**27**	**24**	**40**	**47**	**40**
C	**Philippino**	124 (43%)	**36**	**27**	**26**	**34**	**24**	**13**	**28**	**39**	**32**
D	**U/G Guam**	290	**35**	**27**	**27**	**33**	**23**	**14**	**28**	**39**	**32**
E	***U/G Chinese Sample***	*114*	***53***	***39***	***52***	***47***	***48***	***32***	***43***	***38***	***49***
F	***Secondary Philippino***	*380*	***49***	***33***	***48***	***55***	***37***	***20***	***46***	***52***	***47***
G	***Secondary English***	*179*	***45***	***29***	***39***	***41***	***37***	***25***	***36***	***41***	***42***

NOTES: Modified from O'Toole & Schefter 2008 p. 138

- Student data was recoded so that a clear error = 1 and acceptable replacement or defeat was = 0.
- Cloze test deletions were classified by language category.
- Two SPSS routines were written ('dictionary categories' + 'modern grammar categories'). These did the following:
  1. count number of items representing a particular language category a pupil got wrong
  2. divide that number by the number of items representing that category deleted to give the individual pupil category difficulty
  3. add individual category difficulties and divide by number of pupils completing the sub-test to give the mean pupil difficulty with that category
  4. multiply that mean by 100 to yield a percentage.

It would be more useful to know *which* features of the scientific style are causing trouble.

Table 2 provides that information (Rows A to D); together with some comparative data from earlier phases in this on-going research program (Rows E to G). The analysis generating this data used a two-fold language feature classification: deletions were first classified by their dictionary classification (traditional grammar) and then again by their semantic/functional classification (modern grammar). The first classification yields data that can be easily interpreted by mainstream instructors, the second yields more linguistically sophisticated data that can be used to explain the impact of the difficulties identified by the cloze test. Data emerging from such language feature subtests was discarded if the sub-tests exhibited a reliability of less than 0.5.

Illustrating the impact of difficulty

This may seem far from TVET sessions in Cape Town, Venda or Maseru. However, it will seem less distant, if you recall that trainees in such places are likely to have greater difficulty than any of the students involved in this on-going study up to this point. The language context here is considerably more complex than that on Guam and TVET trainees are likely to have lower literacy skills than undergraduate science students. The details of the difficulties reflected on Table 2 are merely suggestive of the difficulties being experienced by TVET trainees in Southern Africa. However, the foreign data can help us to recognize the impact of such problems in our own training sessions and explore the practical impact of such difficulties. The impact of even these relatively modest levels of difficulty can be better appreciated if differing degrees of 'noise', representing the varying patterns of difficulty, is inserted into a passage that might form part of TVET coursework. The text passage in Figure 1 deals with basic circuit theory and it is similar to material that could well form part of a TVET text.

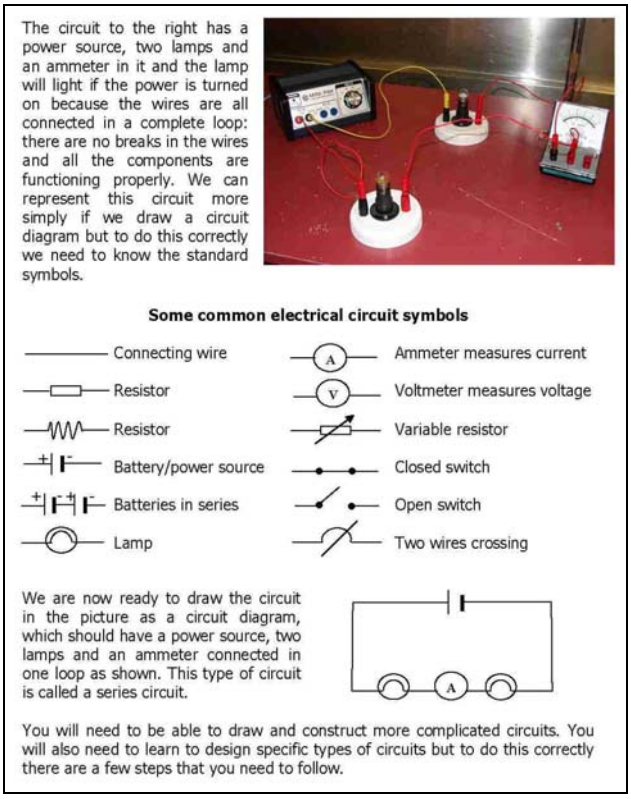


Figure 1 Text Sample

This page has a number of features that will also be present in much other TVET text. It includes both text and illustrations. The illustrations are of more than one kind; in this case a photograph and symbolic representations (circuit components and diagram). Readers are expected to recognize the connections between the various parts of the page and that is in turn implicitly connected to activities with which trainees are either expected to be familiar, or in which they will soon be involved. The text itself comprises 156 words, with 33% passive sentences, a Flesch Reading Ease of 64.9 and a Flesch/Kincaid Reading Grade of 10.6.

Data from the Guam study can be used to illustrate the impact of difficulties such as those experienced by the students acknowledging a Micronesian heritage language on the comprehensibility of the passage by replacing language features indicated by Table 2 with words from an Irish folksong (*Oro, Se Do Bheatha 'Bhaile*). The impact of the difficulties increases as they accumulate.

> Na circuit to na right has a saile source, two lamps and i gcreach ach it and na lamp will light if na saile is se on because na wires are all connected ach a complete bhfeicim: there are no ngeibheann ach na wires and all na leanmhar are siad properly. We can diolta this circuit more simply if we meirleach a circuit franncaigh but to do this correctly we need to ach na standard gallaibhs.
>
> We are now ready to meirleach na circuit ach na picture ach a circuit franncaigh, which should have a saile source, two lamps and i gcreach connected ach one bhfeicim ach leis. This type of circuit is called a series circuit.
>
> You will need to be able to meirleach and bheith more complicated circuits. You will also need to mbean to design specific types of circuits but to do this correctly there are a few graachne that you need to follow.

Figure 2 Impact of 'Mean Micronesian' language difficulties on trainee comprehension

Guam students specifying a Philippino language as their heritage could be expected to experience less difficulty than their Island classmates and that would appear as less 'Gaelic noise' in the passage. Those students asserting that only English is spoken in their homes would certainly have less difficulty but reducing the noise to a 'monolingual' level still leaves palpable confusion. Consider the following 'monolingual' version of the passage.

> Na circuit to na right has a power source, two lamps and i gcreach as it and na lamp will light if na power is se on because na wires are all connected as a complete loop: there are no ngeibheann as na wires and all na components are functioning properly. We can diolta this circuit more simply if we meirleach a circuit franncaigh but to do this correctly we need to ach na standard gallaibhs.
>
> We are now ready to meirleach na circuit as na picture as a circuit franncaigh, which should have a power source, two lamps and i gcreach connected as one loop as shown. This type of circuit is called a series circuit.
>
> You will need to be able to meirleach and construct more complicated circuits. You will also need to mbean to design specific types of circuits but to do this correctly there are a few graasne that you need to follow.

Figure 3 Impact of 'Mean Anglo' language difficulties on trainee comprehension

Even this lesser degree of difficulty is far from trivial. This text deals with ideas that are fundamental for the electrical trades. The language was relatively simple and few trainers would consider that it required specific treatment in class. Most would expect trainees to use

such text to go over work done in class or clarify misunderstandings. Such expectations of easy trainee access may not be well founded. Concern about trainee access to written training materials is not a new thing (O'Toole 1994).

Judging the height of the barrier

The first step towards overcoming barriers to access is the recognition that they exist. Many people interpret trainee failure as an indication of lack of "ability" when it may be an indication of difficulty in gaining access to the resources being offered to that trainee. If the things trainees are asked to read are written in a language style which is unfamiliar to them, they may not be able to access or make use of the concepts and skills which were the trainer's reasons for selecting the written material. We may see straight through the text to the meaning communicated, but the language style can make understanding difficult for some of our trainees and impossible for others.

Estimating the difficulty of text

Readability formulae are one convenient, although very crude, method of estimating the comprehensibility of a piece of writing that you plan to use with your trainees. Most readability formulae are based on a sampling of sentence and word length. The assumption is that short sentences made up of short words are easier to read than long sentences made up of long words, and further, that long words are likely to be less frequent, and thus less familiar, than short words. Word and sentence length are surface features of a text, and consideration of them will not expose other, 'deeper' features, the most obvious of which are elaboration and cohesion. So, a text may produce a low, formulae based 'readability' score, because it has short sentences made up of small words, but still prove difficult for an actual reader, because the links within it are not explicit and the clarification that elaboration allows is not present. 'Shorter' is not always clearer. However, 'longer' is more often likely to be confusing. The crude 'measures' provided by readability formulae are a very useful **first** check on the comprehensibility of text that you are preparing or selecting.

The formulae fall into two basic groups, calculation and graphical types. Both types of formulae depend on averaged sums of sentence and word length. 'Calculation' type formulae differ in their reach.

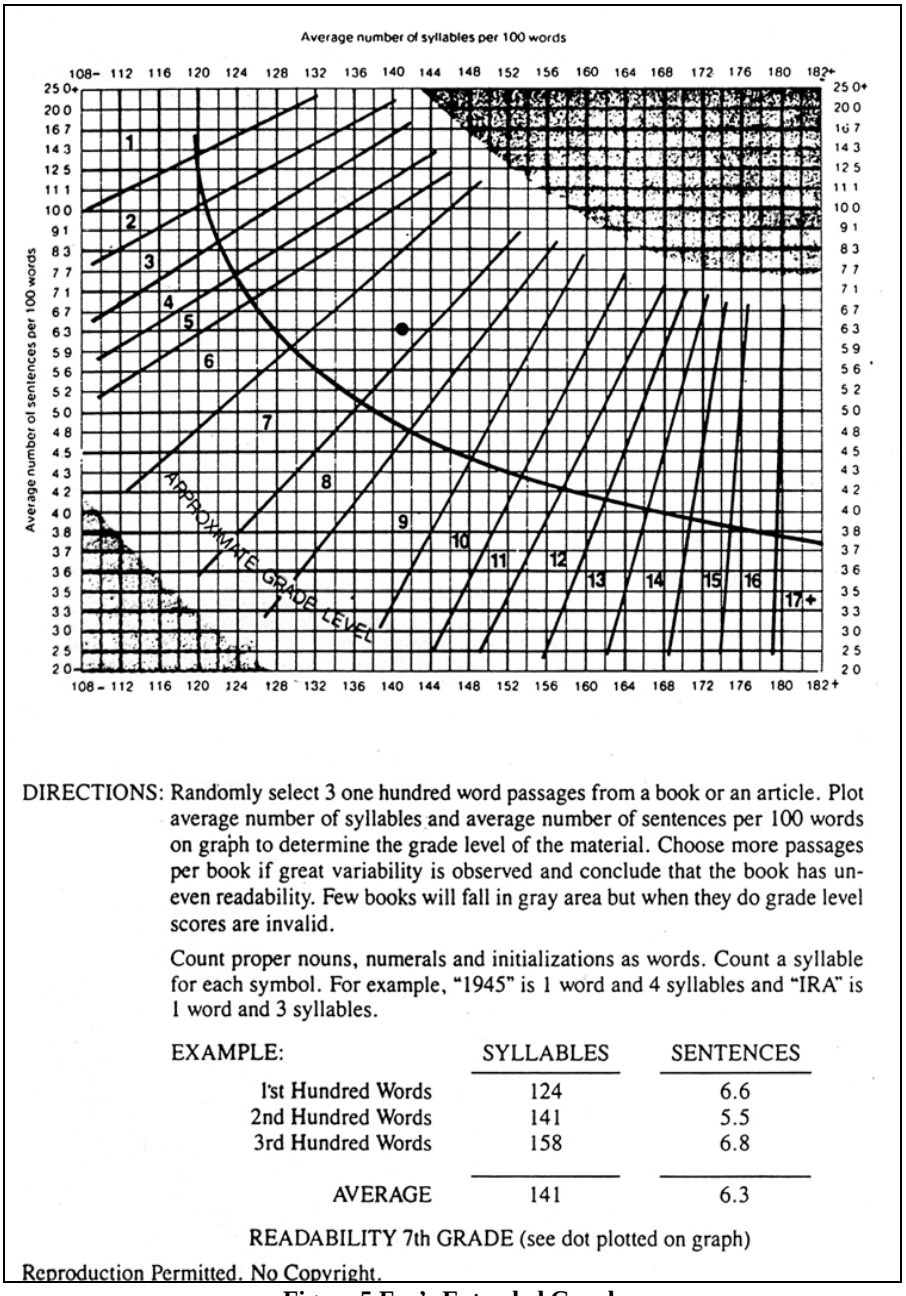
> Select 10 sentences at the beginning, middle and end of the text you wish to check. Count all of the words with 3 or more syllables, calculate the square root of this total, round down and add three.
> This gives the (US) grade a person must have reached to understand the text completely.

Figure 4 SMOG procedure

For example, Flesch 1948/58 purported to indicate that 75% of (middle American) students at the indicated grade could comprehend the material, while SMOG (standing for 'Simple Measure of Gobbledygook') purports to indicate the grade level at which ***all*** such readers could comprehend the material (Gilliland 1972). MS WORD calculates Flesch Reading Ease and Flesch/Kincaid (a 1975 version of Flesch's Reading Ease formula), both based on character rather than syllable counts. This facility is embedded in the program's 'Spelling and Grammar' functions (Tools → Spelling & Grammar → Options → tick 'Show readability

statistics'). Use of the spell check should end with a screen display of the sort of data that was provided for the text in Figure 1. This is particularly useful for text that you are preparing for yourself. SMOG yields a rough estimate for text that you have not already digitized (see Figure 4).

Fry's Extended Graph (Fry 1988) is a very popular procedure that allows the readability 'score' to be directly read from a graph. Fry's work has the advantage of being developed against African rather than American norms. His basic research was done in Uganda.



DIRECTIONS: Randomly select 3 one hundred word passages from a book or an article. Plot average number of syllables and average number of sentences per 100 words on graph to determine the grade level of the material. Choose more passages per book if great variability is observed and conclude that the book has uneven readability. Few books will fall in gray area but when they do grade level scores are invalid.

Count proper nouns, numerals and initializations as words. Count a syllable for each symbol. For example, "1945" is 1 word and 4 syllables and "IRA" is 1 word and 3 syllables.

EXAMPLE:	SYLLABLES	SENTENCES
1st Hundred Words	124	6.6
2nd Hundred Words	141	5.5
3rd Hundred Words	158	6.8
AVERAGE	141	6.3

READABILITY 7th GRADE (see dot plotted on graph)

Figure 5 Fry's Extended Graph

The text from which the text sample was taken yields a SMOG grade of 11 and an extended Fry of 9. These are either side of the Flesch/Kincaid grade indicated by WORD. Such concurrence does not always happen (O'Toole 2004), so it is a good idea to choose one readability formula and then stick to it! Data emerging from the same scale can be validly compared but, in a manner that is similar to differing temperature scales, comparing data generated by different scales will only cause confusion.

Gauging your own trainees' problems

'Cloze' procedures allow text to be directly challenged by readers who are similar to the target group. The cloze technique consists of selecting a random page from an appropriate text and then selecting a random paragraph from that page. The first sentence of the chosen paragraph is left alone and then a word is deleted (again at random) from the next sentence. Every fifth word (or seventh or twelfth) is then deleted until 50 deletions have been made. The rest of that final sentence and the one following are left unchanged. The passage is then duplicated and the target group is asked to replace the deleted words. A modification of this was used in the research described in the previous section on 'Sampling student difficulty'.

The technique was invented in the 1950s (Taylor 1953) and popularized several decades later (Oller 1979). The effect of cloze tasks may be understood in terms of communication theory, as the reader decodes the 'noise' that the procedure puts into the text. Cloze tasks were first developed to measure the readability of texts, then suggested as a means of assessing the reading ability of students. Many instruments designed to provide an estimate of 'student reading age' depend on deletion techniques, as do many 'English language proficiency' tests. Various 'criterion' scores have been suggested for use with class results from cloze tests. One of the most commonly used sets of criteria suggests that, if every fifth word is deleted at random, an average of 57% exact replacements (or above) suggests that the target group could learn independently from the text. If they score an average of around 47%, they could probably handle the text with help, and at 37% or lower the text will frustrate them (Robinson 1981).

The study that provided the research base for this paper is the latest phase of an on-going project to investigate the impact of linguo-cultural background on readers' understanding of specialist text. Much of the earlier work has been synthesized to produce a **web-based language test**, based on the same passage as the pen and paper cloze test used in Guam. The web version has fifty gaps which users fill by selecting from five alternatives on pull-down menus. The alternatives include the word that was originally deleted and the four most common clear errors entered by previous users of the pen-and-paper test. The test is accessible through http://literacy.tinyrock.com. As with any web-based resource, it is very important that instructors play with the program before putting trainees into its tender care! With this program, in particular, instructors need to establish a 'class' before trainees can use it.

The test is most easily used with a class in a computer laboratory with access to the internet. Ensure that each machine is connected to the web and then follow the directions given on Figure 5. The program will mark the tests and then generate individual reports for each trainee who completed one. The individual reports identify the difficulties represented by the trainee's pattern of error, explain the appropriateness of the correct answer and offer language exercises that deal with the problems that were identified. The language exercises use the

same ‘immune system’ context as the test itself. The program will also provide a class report that shows individual scores, a description of the class pattern of error and a set of language activities that would help trainees deal with the problems identified. The site also contains other useful materal on literacy in specialist contexts.

http://literacy.tinyrock.com Program prepared by Richard Laugesan

1 **Access website given above.**
You should see the Literacy Test home screen: multicoloured with a cartoon and three shooting stars, login windows and a hot link to ‘Register new user’. From here, you can login or register as a ‘Student’ or ‘Teacher’. It is easiest to let students register themselves into a class that you have previously established as a teacher. This is quicker than entering them yourself. The process described below should take about 40 minutes for the slowest students in the group.

Give students the following instructions.

2 **Click on ‘Register new user’.**
You should see the ‘Register new student or teacher screen’.
Enter ‘Username’ and ‘Password’ (twice). These should be unique to each user and easily remembered. They establish identities within the system and will be used to re-enter it after initial registration. **Click on ‘Register’**.

3 You should see the ‘Information Profile’ screen. **Enter the data into the information windows.** Down arrows indicate pull down menus and plain windows require manual entry. Plain windows following pull down menus need only be filled if none of the alternatives in the pull down menu apply to you. Name and email address can be dummy if you wish to remain anonymous. However, the dummy form needs to have conventional format (eg., email: xxx@yyy.com). **Click on ‘Submit’.** The screen should change to tell you that you are successfully registered.

4 You should see the ‘Welcome back’ screen. **Click on ‘Join a class’.**

5 You should see the ‘Class choice’ screen. **Enter the class** (previously set up by teacher). The screen should change and you **click on ‘Join a class’**.

6 You should see the ‘Class password’ screen. **Enter the class password** (previously set up by teacher: ‘Cheng’) and then **click submit**. The screen should change to tell you that you are entered into the class. **Click ‘Continue’**.

7 You should see the ‘Tests/Classes’ screen. **Click on ‘Do test’**.

8 You should see the ‘Defences against disease’ test. This is a passage of about 500 words with 50 words replaced by pull down menus. **Go through the passage choosing the best word from the five on each pull down menu to complete the passage.** The word you choose will fill the gap in the passage. Go back over the passage when you finish and change any words that you want to. ***When you are finished,* click on ‘Submit’.**

9 The machine will mark the test very quickly and then show the ‘Test marked successfully’ screen. **Click on Report.**

10 The machine will:

- ► display a ***test summary***, including specific types of difficulty experienced by the student,
- ► offer a ***customised activity sheet***, based on these difficulties,
- ► display the passage with the ***correct words and mistakes*** (clicking on any correct word will reveal an *explanation* of why it is more correct than the other alternatives provided in the pull down menus),
- ► offer a printed individualised report sheet.

Figure 6 Access Instructions for web-based test of specialist style

Generation of cloze tests based on text that you actually intend to use with your trainees will provide information on the degree of difficulty that they will probably experience in dealing with it. Use of the web-based test will give you a general picture of the problems they are likely to experience with specialist text and a set of language activities designed to help them with those problems. That brings us to the crux of this paper. It is one thing to recognize that difficulties with specialist language styles may explain much trainee underperformance. However, the more important thing is to decide what the trainer is going to do about it.

Pausing at the brink

Does any of this really matter?

Technical instructors are very rarely trained in language teaching. We do the work we do because we are expert in our trades and we want to pass our skill on to another generation. We are well aware that possession of technical skill can mean the difference between poverty and security for the most disadvantaged within our communities and that a high degree of technical skill can generate wealth for individuals and communities. There are at least three reasons why dealing with the problems raised in this paper may seem a distraction from the job we are actually being paid to do. The differences between the languages spoken by our trainees may seem so great that concern for language style seems more appropriate for other places or a later time. The trainees in our groups may look uniform enough to make such concerns seem over-sensitive. We may feel our own inadequacies so keenly that we do not know where to begin.

"They speak Xhosa and Zulu, Hindi and Urdu, Afrikaans and Arabic, I speak Shona, class is in English and you want me to worry about 'style'!?!"

This response is usually associated with a withdrawal from text, whwere written training materials are available.

Trainers who are **not** prepared to accept high attrition and failure rates strive to develop a common spoken language with the changing population in each class and depend greatly on demonstration, peer translation and group activity. Such a process requires great energy and can yield solid results, as excellent trainers bring the trainees up to within sight of their own level of expertise. This is the situation in many contemporary African TVET contexts, where written training materials may be in very short supply.

However, the trainees in text-poor contexts will never achieve access to the specialist text that will enable them to continue developing when they no longer have access to their original mentors. A change in technology will leave them in the same place as they were when they began their training. The manuals that come with the new motor vehicle, oven or loom may just as well be written in Sanskrit. The technician cannot access the new skills without a new mentor. This is the concrete situation in many places but it need not remain so as training materials become more widely available as TVET develops (AU 2007).

Further, the same responses that increase access to specialist styles through which power is exercised will also increase fluency in the language from which that specialist style is drawn.

"We all do pretty well as it is, and you want me to slow the class for the couple of trainees who come from somewhere else!?!"

Trainers in many parts of the world, dealing with many different subjects, face classes made up of trainees with various degrees of reading competence. This provides a real challenge. Should we concentrate on the needs of the least competent, those who are almost inevitably outside the local linguistic mainstream? Will this disadvantage a more adept, native-speaking

majority? Won't slowing down damage the development of the more adept? Such an argument from **majority equity** often inhibits concerned trainers from dealing directly with reading issues in mainstream workshops.

The results shown in Tables 1 and 2 indicate that this majority equity argument may be fundamentally flawed. Both English language background and trainees from language backgrounds other than English seemed to experience difficulty with a similar range of language features. These difficulties can have serious consequences, as illustrated by Figures 2 and 3. The less adept trainees may serve as a barometer, exposing problems that many others are experiencing without recognizing their origin in the specialist style being used by trainer and manual.

"This is just too big to handle! Isn't there an expert who can come and do this for me?"

There are those who can help us to help our trainees learn more effectively and more deeply. However, TVET is an amazingly diverse field and resources prepared for one context can do no more than point the way for trainers working in other contexts. In the end, what matters is what happens in our classes and we know our trades, our quality assurance frameworks and our trainees better than anyone else. Many of these things are very widely experienced and remain contentious (Blings & Spottl 2008, Fowler 2008, Group 2008). However, the details of different contexts make direct transfer of 'solutions' highly problematic. For example, the South African situation has many unique characteristics (NQF 1995, SAQA 2000) that make its situation different from that of Ghana. In fact, the differences between hairdressing, printing, hospitality and electrical trades can make direct transfer between programs in the same institution problematic. In the end, we can learn from those whose expertise differs from our own but there is no one else who can respond to our trainees' difficulties for us.

So what should we do?

Bridges

Some trainers want to help their trainees with reading, but they don't really want to change the way they teach most periods. Language based supplementary exercises, such as those generated by the web-based package described above Figure 6, can be quite attractive to such trainers. These activities act as revision of past work and such an approach deals most comfortably with features at the word and sentence levels of specialist style. Supplementary exercises can be sequenced into conceptually coherent sets which form a more active alternative to the more usual practice of note copying or distribution. Use of such exercises has proved to be quite effective in helping learners to cope with the language of science (O'Toole 1998).

Figures 7, 8 and 9 are based on the short passage provided earlier in this paper. Such conceptually coherent language development activities would normally be based upon text extracts chosen by the trainer as representing the core content of the material being covered in a component of the course concerned.

*The **maze frame** is one of the most flexible and could be used as follows.*

Words from the following passage have been replaced by numbered blanks.

- **Complete the passage by filling the blanks with the correct form of words from the list below. You do not have to use every word in the list. You may use words more than once.**

  circuit, diagram, components, lamps, wires, ammeter, loop,

- **The first blank is filled for you.**

The (1. __ ***circuit*** __) to the right has a power source, two lamps and

The (1. _____) to the right has a power source, two (2. _____) and an (3. _____) in it and the lamp will light if the power is turned on because the (4. _____) are all connected in a complete (5. _____): there are no breaks in the wires and all the (6. _____) are functioning properly. We can represent this circuit more simply if we draw a circuit (7. _____) but to do this correctly we need to know the standard symbols.

Figure 7 Focus on Nouns

*The **pointer word** frame is also quite adaptable.*

Pointer words make written English read more smoothly. Pointer words may be repeated nouns or they may be words similar to earlier nouns. They may be small words that replace nouns in running text. If you lose track of the original nouns to which pointer words refer, written material can lose all meaning.

- **Put a ring around the pointer words in the passage below.**
- **Put an arrow from the ring to the words to which the pointer refers.**
- **The first pointer word is analyzed for you.**

The circuit to the right has a power source, two lamps and an ammeter in it and the lamp will light if the power is turned on because the wires are all connected in a complete loop: there are no breaks in the wires and all the components are functioning properly. We can represent this circuit more simply if we draw a circuit diagram but to do this correctly we need to know the standard symbols.

We are now ready to draw the circuit in the picture as a circuit diagram, which should have a power source, two lamps and an ammeter connected in one loop as shown. This type of circuit is called a series circuit.

Figure 8 Focus on Cohesion

*Various forms of **editing** task can be used to focus student attention on different language features.*

- **The prepositions in the following passage have been replaced by nonsense syllables.**
- **Draw a circle around the nonsense syllables each time one occurs.**
- **Rewrite the passage correctly.**

The circuit xi the right has a power source, two lamps and an ammeter iz it and the lamp will light if the power is turned xz because the wires are all connected iz a complete loop: there are no breaks iz the wires and all the components are functioning properly. We can represent this circuit more simply if we draw a circuit diagram but to do this correctly we need to know the standard symbols.

We are now ready to draw the circuit iz the picture as a circuit diagram, which should have a power source, two lamps and an ammeter connected iz one loop as shown. This type uy circuit is called a series circuit.

You will need to be able to draw and construct more complicated circuits. You will also need to learn to design specific types uy circuits but to do this correctly there are a few steps that you need to follow.

Figure 9 Focus on Prepositions

Consequently, each exercise would be based on different content and completion would build a record of content that the trainer had previously decided was important. This approach develops competence within the specialist language style and revises the core content at the same time.

Previous research has indicated that the language-conscious approach described above produces rapid improvement in language performance without adversely effecting conventional demonstrations of control of course content. Trainees get better at the language and their content scores go up a little! Integration of this language conscious approach into science teaching produced increasingly positive impacts on student learning of that science. The more they did, the better their science scores got!

Some trainers are prepared to risk greater changes in their classrooms. The boundary between "reading" and language development can become blurred for such people. These trainers may be prepared to adopt an oral approach to their subject matter, or a deliberate attempt to teach the textual demands of their scholar community, or attempt other more ambitious changes. The conventional aspects of practical activities can be directly taught and trainee interactions carefully watched so that possibilities for language enhancement are maximised. Language development tasks can be used to realise the positive potential of group based activity.

Making connections

So, how do we connect our trainees with the knowledge and skills that we think that they are going to need?

It seems to me that we need to recognize that they will need to be able to read trade-related material if they are going to maintain their expertise as technology changes. It seems to me that we need to recognize that this material is written in ways that will not seem 'natural' to our trainees, particularly when they begin their time with us.

Therefore, it seems reasonable that we should try to begin with material that is easier for them to read. Readability formulae will give us a crude indication of what is easier and what is not. It seems reasonable that we should try to match the written material to the trainee group. Cloze tests based on the material that we plan to use will help us do that. It seems reasonable that we should help trainees with features of the language style, which we expect them to use, and that they could be expected to find difficult. Supplementary language exercises, such as those appearing above and provided by the web-based language test, will help us to do that.

However, we need to remember that our contexts differ. It seems that the languages often spoken in southern Africa 'light' and 'extinguish' the lamps in a workshop. What implications does that have for trainee understanding of current *flow* around electric circuits?

The language features dealt with in this paper are limited and, as Fowler (2008) makes clear, the literacy demands on trainees are much wider than its focus on instructional material might suggest. Our trainees do not come to us as empty vessels which it is our responsibility to fill and they will make decisions regarding where they invest their time and energy. They are more likely to invest in the things we see as important if we help them see why those things matter. 'Significance' becomes more important as people become more independent and our trainees are likely to be less compliant than their younger siblings who are still within the school system. Trainees will engage with those things that they recognize as important, so it seems reasonable that we strive to make relative importance clear and ease trainee access to the most crucial parts of the training we offer them. This is especially so in the early stages of their training.

The legitimacy of various trainer responses to the issues raised in this paper needs to be acknowledged. It is my belief that the styles characteristic of different trades provide a substantial barrier for many trainees. All too often, we reward those trainees who catch on to our differing expectations, and ignore or patronise those who do not. In my own area, I am growing tired of being told that "so and so" (usually female and from a minority linguo-cultural background) "has no head for physics"! It may be that some who hear me share the frustration that this can cause. However, we must remember that the situation will not change unless **trainers** see the need for change, believe that the strategies proposed have some hope of success and feel confident of their own ability to manage the change. We should not let our own enthusiasm cause us to demand so much of our colleagues that they politely ignore **us**! They are also part of this profession, none of us are in it for the money, and some of us will choose different approaches to meeting the needs of the trainees who are our reason for bothering. The point is to help each other so that those trainees may be as well served as possible.

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