Title:
The use of visual feedback to enhance the teaching and learning of comprehension skills

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Abstract:
Usually the marking of comprehension simply means ticks and crosses on students' work. With these, students might not necessarily understand what exactly is wrong with their answers, even after the teacher has gone through the answers in class. Hence to ensure that each student is given personal feedback on their work, we developed a set of symbols for them to look at and immediately know what exactly went wrong with their answers. This will be more effective as students can be constructive in their learning of comprehension skills and do better in future comprehension practices and tests.

The pilot class was from the Secondary One Express cohort. The students were given one comprehension practice, which the teacher marked and provided visual feedback in the form of four key symbols. Students were taught how to interpret the symbols so as to have a better understanding of the kinds of errors they make and can hence avoid. Students then sat for a comprehension test, for which they scored better even though it was harder.

Visual feedback is a useful error analysis strategy that can help guide the teachers in their lesson planning as the authentic responses of the students can help determine the level of mastery of specific comprehension skills.

Key words: visual feedback, enhance teaching and learning, comprehension

Introduction

As teachers, it is our duty to find means and ways to help our students improve the quality of their answers and hence their academic grade. In Presbyterian High School (PHS), we have adopted the PETALS framework as our instructional programme. This framework promotes the use of five dimensions of practices to foster engaged learning in the classroom. These five dimensions are Pedagogy, Experience of learning, Tone of environment, Assessment and Learning content. Since, assessment is an integral part of our teaching and learning process, we have decided to use students' authentic work as a pedagogical tool to help them improve.

This strategy of using students' authentic work as a pedagogical tool is not new to the English Language department in PHS. We have long adopted this method of analysing students' work and using the findings to fine-tune teaching and learning in 2011. However, our focus then was on Paper 1 – the writing component, where we analysed students' writing, and thereafter conducted the necessary lessons on grammar and content development. The improvements we see in our students' writing have been really motivational and now, we

have shifted our focus to comprehension to see how we can value add to our students' learning of comprehension skills.

With the introduction of the 2010 English Language syllabus, students need to make meaning of the nuances in the language presented in the texts. When they are unable to do so, the tendency to misinterpret the texts and give inaccurate answers is high. Our previous way of marking comprehension, which consists of only ticks and crosses, has become ineffective because students still do not understand what exactly is wrong with their answers even after teachers have gone through the papers in class. Hence to provide our students with a more effective and personalised manner of feedback, we have decided to use metalanguage (symbols) as a form of visual feedback to highlight to students what exactly is wrong with each of their answers.

This use of metalanguage helps students to be more aware of the comprehension skills they lack. When students fail to give correct answers, it means two things: the failure to understand key directional words in the question and/or the failure to grasp the Skills, Strategies, Attitudes and Behaviours (Annex 1) of the 2010 English Language syllabus. What this means is that when students give wrong answers, they have failed to fully understand the process of doing a literal, inferential or language appreciation question. There is a gap in their understanding of these skills. Thus we have decided to use symbols as a device to help them plug the gap in their understanding of these skills.

Literature Review

It is important to ensure that the feedback we give students is comprehensive as prior research has shown that the benefits detailed feedback can reap are manifold. In fact, when marking is not detailed or specific enough, it can be 'directly responsible for the regression in students', especially when they cannot understand what to make of it (Clarke, 2001). Thus, if we want students to learn from any form of assessment, feedback must be given. Corrective feedback will help students to become aware of the gaps between the skills that are expected of them and the answers they have produced (Ellis, 1991).

In fact 'corrective feedback will set the stage for the learners to focus on the incorrect aspects of their answers, which will lead to learning' (Long, 1977). Hence, assessment can enhance students' learning when feedback given highlights specific qualities of their work and tells them how to improve on their answers (Black & William, 1998). Teachers should always provide students with descriptive feedback as 'such feedback is far more effective in improving student learning than comparative assessment in which a student receives an assessment-based grade or class ranking' (Popham, 2008).

According to Lyster& Ranta (1997) there are six types of feedback, namely: recasts, explicit correction, clarification requests, metalinguistic feedback, elicitation, and repetition, and feedback is most effective when accompanied with by metalinguistic clues (Lightbown & Spade, 1990).

Research Method

To provide our students with personalised visual feedback on their work, we developed a set of four symbols for them to look at and immediately ascertain the incorrect aspects of their

answers. As students will now know precisely what went wrong with their answers, the learning of comprehension skills becomes more effective as teachers and students alike can take the necessary measures towards improvement. Below are the four symbols we have developed and their descriptions:

S/N	Description of symbols	Symbols
1	Circling the directional word / question stem in the question that the students have misinterpreted.	Explain Fully
2	Drawing a squiggly line and annotating with the letter 'L' so that students know the language they have used misrepresents the information in the text.	 L
3	Using the carrot symbol to indicate answers with missing information.	^L / ^I
4	Using brackets and the letters 'E.D' to indicate Excess Denied - meaning that students have given too much information in their answers.	[…….] E.D

Here are four authentic examples of how we have used each of the above symbols when marking a comprehension practice paper, text adapted from an article in Reader's Digest (Gower, 2009):

Example one:

Text: The Asian diet is traditionally low on red meat but the combination of population growth, rising incomes and increasing urbanisation has given rise to the consumption of red meat.

*Question: **In your own words**, name one factor that has led to an increase of red meat in Asian eating habits.*

Student's Answer: Rising incomes ✗

Students who fail to paraphrase their answers for this question will not be awarded any marks as the question clearly states that they must reflect answers in their own words. In this case, circling the directional words in the question will help them realise where they went wrong. An accepted answer would be: an increase in salary.

Example two:

Text: As for adults, a recent Swedish study found that young men who ate fish more than once a week scored nearly 11 percent higher on IQ tests than males who rarely eat fish. In later years, fish eaters appear to be less likely to develop dementia – a loss of mental ability to make coherent thoughts.

Question: How will eating fish benefit fish eaters in their later years?

Student's Answer: Fish eaters will not develop dementia.

When doing comprehension, accuracy is key. Hence when students fail to correctly represent the idea presented in the text, they will not be awarded any marks. In this case, the student has failed to understand the difference between 'less likely' as given in the text and 'will not' as produced in his answer. His inaccurate use of language is highlighted to him with a squiggly line and a capital L, so that he is directed to that incorrect portion of his answer.

Example three:

Text: Fear about fish's mercury levels have gotten a lot of attention in the past decade. Indeed, large doses of the metal can damage a child's developing brain.

Question: Explain fully how eating fish with high mercury levels can affect a child's mind?

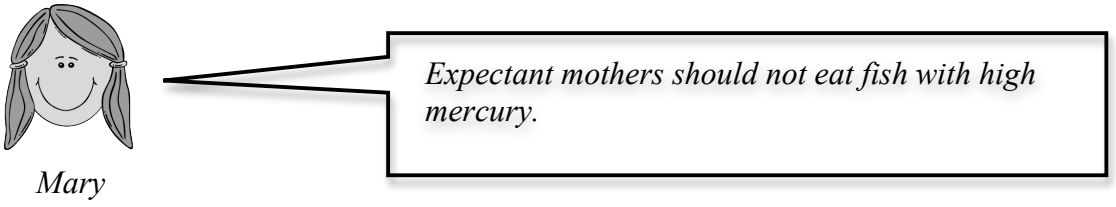
Student's Answer: Eating fish with large doses of the metal can damage a child's developing brain. ^ I?

For this question, students must remember that an 'Explain fully' question requires two types of answers: it requires a literal answer - information that can be lifted from the text, and an inferential answer - information that they have to glean by looking at the contextual clues given in the literal answer. In this case, the student has successfully identified the literal answer from the text. However, the answer is incomplete as no inference has been made, and this is highlighted to the student with a carrot symbol followed by a capital I. Additionally, the directional words in the question have also been circled to remind the student of the question requirement. An accepted inferred answer would be: it can lead to learning difficulties in a child.

Example four:

Fish such as swordfish, shark, king mackerel and tilefish are culprits of high mercury levels. High levels of mercury can even double the risk of a heart attack.

Question:



Identify one example from the text that Mary can use to support her view.

Student's Answer: [Fish such as swordfish, shark, king mackerel and tilefish are culprits of high mercury levels.] High levels of mercury can even double the risk of a heart attack. ✗ E.D

As mentioned, when doing comprehension students must give the most accurate answers. Students should not copy a whole block of information from the passage with the hope that the markers will do them a favour of extracting the correct answer from the long chunk of answer they have given. Hence, excess information such as the one given in the example above, as indicated by the brackets, tells us that students do not really understand what the question is asking for. When they give answers with irrelevant information, they will not be

awarded any marks. By using brackets, we help students to be more aware of the part(s) of their answers that are unnecessary. This will motivate them to ensure accuracy in answer selection with reference to the specific question that is asked.

To test the effectiveness of the visual feedback we have developed, we identified one class from the Secondary One Express cohort to work with. We chose secondary 1 Grace, a class of 37, as our pilot class because of their English Language Mid-Year Examination Paper 2 results. 1 Grace achieved a below average median MSG of 5.13. We wanted to employ the use of visual feedback on this class in hopes of pushing their scores up to the average mark. In addition, the language abilities of the students in 1 Grace are more homogenous compared to the other Secondary 1 Express classes. This meant that the strategies we utilise in class would benefit most of the students at the same time – we will not be putting a large group of fast learners at a disadvantage when we revise certain comprehension skills once again. The students had to sit for two comprehension assignments: a class assignment (25m) and a common test (25m).

The comprehension class assignment was administered under strict examination conditions so that we can accurately assess how well each student understands the different skills involved in answering the various types of comprehension questions. The team also met with Ms Ayaduray Jeya, a Master Teacher in Singapore, to go through the scripts and formulate the types of symbols to use. The scripts were then marked and specific visual feedback was given in the form of the above-mentioned symbols.

In class, once the scripts were returned to the students, the teacher showed the students how to interpret the symbols used, so that they could have a better understanding of the comprehension skills they lack. In fact, by looking at the trend of symbols on their scripts, students can see the types of comprehension questions they are weak in and the errors that they commonly make. For example, if there are many carrot symbols on a student's script, the child will know that he or she has the tendency to give incomplete answers.

Using symbols as feedback also helps teachers in general to take note of the commonly made errors. This improves our effectiveness as teachers as when we look at our students' work and analyse their mistakes, we know which concepts to re-teach, perhaps in a different way, so that the skills are clearer to them.

In this case, with the help of the visual feedback given, the teacher was able to determine that the students in 1 Grace were generally weak in inferential questions. To tackle this problem, we decided to teach students the eight ways of making inferences: inferring main ideas, inferring supporting details, inferring sequence, inferring comparison, inferring cause-and-effect relationships, inferring character traits, predicting outcome and inferring figurative language, as stated in Barrett's Taxonomy of Reading Comprehension (1974).

Once the students in 1 Grace were educated on these eight ways to infer, they relooked at the inferential questions in the comprehension practice to apply what they have learnt. The teacher asked questions along the way to stimulate the students' cognitive processes and help them tease out the inferential answers:

> *Question: Explain fully how eating fish with high mercury levels can affect a child's mind?*
>
> *Literal answer: can damage a child's developing brain.*

Teacher asked the class several probing questions to get them to think about possible inferential answers.

Question asked: when a three year old child's brain is damaged, what do you think the child will no longer be able to do?

A student's answer: he cannot learn his ABCs!

Inferential answer: can lead to learning difficulties in the child (inference skill 7: predicting outcome).

Based on the visual feedback given, it was also apparent that the students in 1 Grace were weak in answering literal questions accurately. As answering literal questions involve the recall of immediate information (Ruddell, 1974), it was key to ensure that students can make sense of the ideas presented in the text. Besides reminding students to take note of the text structure, which helps them to understand the text more coherently, we decided to train students in the think-aloud method as research has shown that this strategy helps students to monitor their comprehension during reading. The think-aloud method encourages students to voice out what they think of the ideas presented in the text, and these think-aloud ideas could manifest in the form of recalling prior knowledge, visualising based on given information, summarising the ideas in the paragraph and clarifying the information presented in the paragraph by asking questions and eventually looking for answers (Trehearne & Doctorow, 2005).

To help 1 Grace understand the think-aloud strategy better, the teacher modelled the technique using a paragraph from the comprehension practice they attempted:

Paragraph: You can thank fish oil, nature's richest source of omega-3 fatty acids, for that cardiac protection. It steadies heart rhythm, lowers artery-clogging triglycerides, cools inflammation in the arteries, and helps to drop blood pressure. But it is not just your heart that benefits when you dine on fish. Your brain does too. Fish lovers suffer fewer strokes, cutting their risk by 40 percent.

Teacher: I remember reading an article in Reader's Digest about how fish is brain food. I can also remember my mother insisting that I consume my daily dose of brain food - cod liver oil (recalling prior knowledge).

Teacher: I imagine the hearts of people who regularly consume fish to be a healthy red, to have a steady pulse and clear arteries. I even imagine a happy, smiling heart (visualising ideas).

Teacher: The omega-3 fatty acids found in fish is good for the heart and brain (summarising ideas).

Teacher: How exactly is fish good for the brains? It reduces the risk of stroke by 40% for people who consume fish regularly (Clarifying information and looking for answers).

The students were then asked to do the same for the remaining paragraphs, in groups. Ultimately, this strategy really helped the students to interact with and unpack the text, hence contributing to a greater comprehension of the reading passage. The greater the understanding of a text, the better the accuracy of answers to literal questions.

The use of visual feedback also alerted the teacher to a group of students in 1 Grace who were unable to ascertain the subtle meanings and nuances of words, hence leading to answers that misrepresent the information given in the text. As understanding the nuances of language comes with exposure, vocabulary teaching is most useful when it is explicit (Trehearne & Doctorow, 2005). Thus, the teacher carried out cline activities in class to expose the students to the subtle meanings of words so that they can learn to paraphrase more accurately. Given below is part of an activity conducted in class:

*1) Micah is arachnophobic. He is **scared stiff** of spiders.*

A. frightened *B. terrified*

C. petrified *D. spooked* *(C)*

The visual feedback method was also useful in allowing the teacher to identify a handful of students who have the tendency of giving irrelevant chunks of information in their answers. Where accuracy of answers is concerned, there seems to be a comparison between the skilled decoders of the text and the less skilled decoders. Based on a study done by Spooner, Baddeley and Gathercole (2004), '...children with weaker decoding skills were expected to select incomplete or inaccurate information from text.' For weak decoders with 'poor reading accuracy', this could be one possible reason for why they tend to extract a large portion of answer from the text which consists of only a small portion being relevant to answering the question.

To help these students, they are taught to identify keywords or phrases in the question by highlighting or circling them. These identified keywords or phrases would be useful in helping them locate the relevant parts of the passage which would answer the question. Once they have done so, the students are taught to check that every idea presented in their answer directly answers the question, and that nothing more is given. For example:

Text: Nobody spoke. Nobody laughed. Nobody sang. It was a silent harvest. The only noise was wave after wave of sullen hisses as the rice stalks were slashed and flung to the ground (Ho, 1990).

Question: Find the phrase from the text which suggest:

(i) a steady sound of gloom: <u>wave after wave of sullen hisses</u>

Based on the question given above, when students check to ensure that their answers are specific, they should check to make sure that the phrase 'wave after wave' from the text accurately reflects the idea of 'steady' as given in the question, and that the phrase 'sullen hisses' from the text accurately reflects the idea of 'sound of gloom' from the question. Checking that every part of their answer directly answers the question will prevent students from losing marks unnecessarily.

Findings

After an intensive week of revisiting several comprehension skills, the students sat for their common test, and below are the results in comparison to the comprehension practice done earlier that week.

Table 1:

	Comprehension Practice	**Common Test**
No. of failures	13 (35.14%)	3 (8.11%)
No. of students who improved	-	19 (51.35%)

The above table shows that for the Comprehension Practice, there were 13 failures (35.14%). There was an improvement in the number of passes for the Common Test as there were only 3 (8.11%) students who failed. In total, 19 students (51.35%) improved in their performance for the Common Test.

Table 2:

Marks scored	**No. of students (Comprehension Practice)**	**No. of students (Common Test)**
8	**1**	**-**
9	**2**	**-**
10	**2**	**1**
11	**1**	**-**
12	**7**	**2**
13	**5**	**9**
14	**6**	**8**
15	**5**	**5**
16	**3**	**7**
17	**4**	**3**
18	**1**	**1**

From Table 2, we can discern that the lowest mark has increased from an 8 to a 10, and the highest mark is now 19 instead of an 18. With the exception of marks 15 and 17, for all the other passing marks (13 and above), there is an increase in the number of students scoring better. This shows that when feedback is informative, it actually helps the students to fill in the gaps in the SSABs they lack, and this leads to more effective learning and better grades.

Table 3:

	Comprehension Practice	**Common Test**
Mean (average)	13.49	14.81
Median score (middle value)	14	14
Mode (most no. of students scoring that particular grade)	12	13

Table 3 shows that the average mark scored has increased by 1.32. This tells us that more students have done better. The mode for Common Test has increased to 13 which means that most of the students have passed, compared to the many who have failed the Comprehension Practice. Hence, this shows that although the improvement may not be vast, there is still an improvement as more students have passed.

Table 4:

Failures for the Common Test	**Comprehension Practice (25 marks)**	**Common Test (25 marks)**
Student A scored	15	12
Student B scored	12	10
Student C scored	10	12

Based on the data shown in Table 4, unfortunately out of the three failures for the Common Test, two performed better for the Comprehension Practice. The good news is that although Student C failed the Common Test, he did make an improvement from the Comprehension Practice 1. This means that the visual feedback method is slowly, but surely helping him improve.

Limitations

There were several limitations to this project. Firstly, time was an issue. Term 3 started with Formal Letter writing. However, this project was meant to initiate with the Expository module, which was the second module of the term, and only 3 weeks away from the Common Test. The first week of the Expository module was dedicated to teaching the students how to write an expository essay. Week 3 was mostly taken up by the National Day celebration and holiday. This meant that the teacher had just 1 week of intensive comprehension lessons with the students.

The second limitation was the differing levels of difficulty between the comprehension practice and the common test. The Common Test text was much more difficult than the text in the comprehension practice. This could mean that with a simpler text for the Common Test, the quality of passes may improve. It was surprising that more students passed the Common Test, which is a testimony to the effectiveness of visual feedback.

Conclusion

Even with the short period of execution, it is evident that the students did benefit from the visual feedback given. Hence, we can conclude that visual feedback is effective and indeed enhances the teaching and learning of comprehension skills. This strategy will definitely be put in place early in the year (2014), and for all the Secondary One classes. A key learning point that can be applied across departments is that feedback, whichever form it takes, should be detailed so that students will know how to improve and can improve.

Annex 1: Skills, Strategies, Attitudes and Behaviours (SSABs)

Comprehension Question Types	Description of SSABs
Literal	Provide and interpret evidence to support understanding
Inferential	Make inferences to draw conclusions from contextual information / identify the meaning conveyed by the interplay of what is written and the visuals in a text.
In Your Own Words	Paraphrase information or ideas.
Evaluate	Select and evaluate relevant information for defined information needs.
Summarising	Summarise main ideas.
Language Appreciation	Demonstrate understanding of how a writer's style can impact the reader's interpretation of the text.

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