

## **P.19 Using the Classroom Performance System for spelling tests**

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Warren Junior School

### **Background to Warren Junior School**

Warren Junior School is a four-form entry school for 7-11 year olds. It is in The London Borough of Barking and Dagenham and is part of the Test Bed initiative. Test Bed funding has enabled the school to equip its classrooms with a range of equipment. All teaching areas have a PC and visualiser<sup>1</sup> linked to a ceiling-mounted data projector. There is a graphics tablet to enable the teacher to be mobile in the classroom. In addition to these whole-class teaching tools, there is a set of Classroom Performance System (CPS)<sup>2</sup> zappers in each classroom that can be used to assess the children through multiple-choice questions.

I am a class teacher in year 3. The current cohort of year 3 children have already been through one year of ICT Test Bed at their infant school and so have come to us with a higher level of IT skill and confidence than in previous years.

### **Using CPS technology to carry out spelling tests.**

For some time, I had been thinking about how using ICT could enhance the weekly spelling test in class. I was already using CPS in other parts of the curriculum (most successfully in the plenary section of Maths lessons) and was contemplating trying to create a multiple-choice spelling test which could be administered using the CPS zappers.

At 9pm on Wednesday 20<sup>th</sup> October 2004 I began to understand how this might work as I took part in ITV1's *The Great British Spelling Test*<sup>3</sup>. This was a series of 50 multiple-choice questions about spelling. Here is an example of a question:

**Question Number: 4**

You may remember the \_\_\_\_\_, but can you spell it?

- 1 Millenium
- 2 Millennium
- 3 Millennium

My initial feelings were that the weekly spelling test could be made up of a series of multiple-choice questions like the above, administered using CPS. I thought that this would benefit both teachers and students because:

- Children are well motivated and enthusiastic when using the CPS zappers.
- Teachers' workload will be reduced as the CPS program collects the children's scores.

The instant feedback given by the CPS program after each question motivates the children, as does the physical act of selecting the answer using their own handset.

My concerns regarding carrying out the test in this way were that:

- The children could copy each other.
- The children may be silly with the zappers and select wrong answers to be 'funny'.

However, past experience of using the zappers with my year 3 class last year (and conversations with a year 5 colleague who uses them daily) has shown me that when the children are 'well trained' they do not mess about. In fact, my experience is that last year the

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<sup>1</sup> For an explanation of visualisers: <http://www.reflex.co.uk/Visualisers-19>

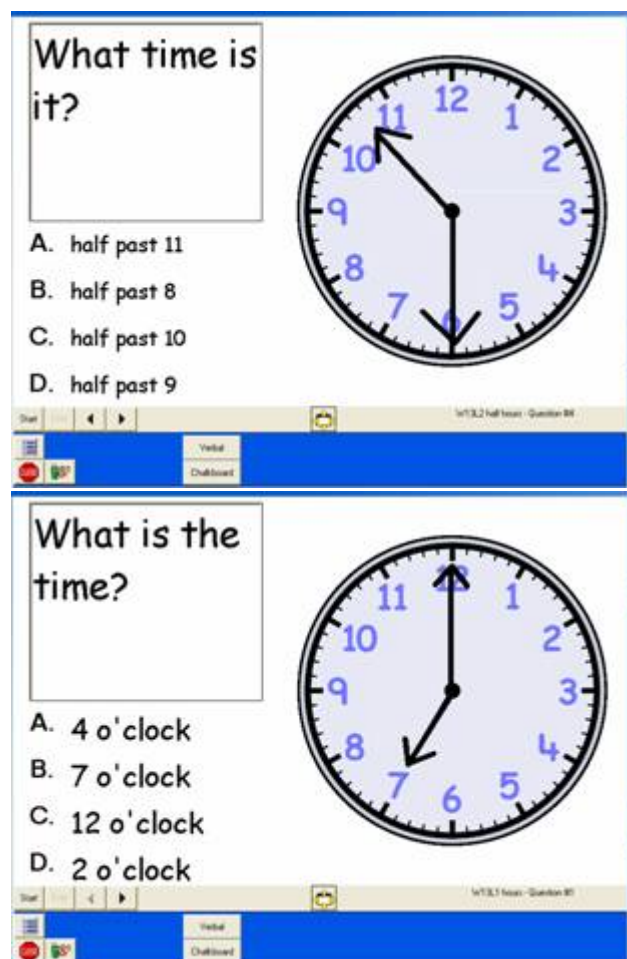
<sup>2</sup> For an explanation of CPS: <http://www.bullet-point.co.uk/cps.htm>

<sup>3</sup> For information on the ITV programme and examples of questions:  
<http://www.itv.com/page.asp?partid=2358>

children tried as hard and worked as conscientiously using the zappers as when working in books, and their scores always reflected their ability.

I used a series of CPS tests at the end of maths lessons to establish the children's understanding of work we had done on learning to read the time. I presented the children with

a picture of a clock face and they had to select the correct time from four options:



In class, all of the children – working in mixed ability pairs - could make and read o'clock and half past times. In the test, however, they had to work independently, selecting the correct time to match the clock face. The test results highlighted which children, away from their peers' support, needed some additional input on the concept taught that day. This way, the tests drew to my attention children who I thought had "got it" (because they had been successful when working with another child) but who actually needed more support. The variety of results also reassured me that the children were not cheating or copying during these tests.

### Is it such a good idea to use CPS?

As the ITV1 test began, I realised that I was going to under perform. I knew that I could write the words with the correct spelling; however the multiple-choice format of the 50 questions was confusing me. I found being presented with a choice of spellings confusing and wondered if this might also impact on the scores of the children:

- lower ability children may do better (through lucky guesses)
- higher ability children may do worse (by questioning their learning)

I realised that I would need to carry out a written test (as normal) alongside the multiple-choice test to enable me to draw comparisons between the two. Comparing the children's answers question-by-question would establish any discrepancies in results and I could then reflect on whether carrying out a multiple-choice test truly reflects the spelling ability of the children doing the test. I had some concerns that it might in fact be testing their reading.

### Collecting the data.

I collected my data on Friday 10th December 2004 and Friday 28th January 2005.

The 26 children in my class are split into four groups for spelling. Each group learns words from a given list or lists, according to their ability. Each list is of six words that generally follow a certain pattern or rule that has been taught that week. List 1 contains basic cvc words, progressing to list 4 which is a selection of more difficult words.

This table shows that group A is my basic group leading up to group D who are the most able spellers:

Group	Name	Spelling lists learned	Number of words learned	Number of children in group
A	Egg	1	6	3
B	Fish	2	6	2
C	Fish and chips	2 and 3	12	9
D	Chips and peas	3 and 4	12	12

#### 10.12.04

a) On Monday, the children were organised into their usual spelling groups according to their ability and given 6 or 12 words to learn. Usually, they just get tested on the words they have learned with one extra word for each list (following the week's spelling rule or pattern), taking the number of words tested on up to 7 or 14. However, this week the written test was all 24 of the learned words (which had been displayed in class all week) plus the 4 extras in a jumbled order. In the test I repeated each word twice, then I used it in a sentence and then I repeated it for a final time. (For example: anyone, anyone, would anyone like to join in? anyone.) The spelling lists are shown here:



b) The children completed the test using CPS. They were tested on the same 28 words, in the same order and with the same sentence. For each word, there were four possible answers. The order of the tests and the options given with the CPS are shown below:

No.	List	Word	Sentence	CPS options			
				A	B	C	D
1	1	wet	The dog was ...	wit	wet	wat	wot
2	2	rich	The man was ...	rish	rit	rich	ritch
3	3	shirt	He wore a ...	chirt	shirt	shurt	shrit
4	4	eyesight	She had good ...	eyesight	eysite	eyesite	isite
5	1	net	They took a fishing ...	net	met	not	nit
6	2	chess	The boys played ...	shess	cess	ches	chess
7	3	firm	The fruit felt ...	furm	frim	firm	fim
8	4	highlight	It was the ... of the show.	hilite	highlite	highlight	hylight
9	1	pet	She had a ... dog.	pit	pet	pot	put
10	2	chip	Can I have a ... ?	chip	ship	cip	chp
11	3	skirt	She has a blue ...	skrit	scirt	skurt	skirt
12	4	mighty	He is very high and ...	mity	mitey	mighty	mytea
13	1	met	They ... outside the shop.	met	mitey	mot	net
14	2	such	It was ... a nice surprise.	sush	such	sch	sutch
15	3	dirt	There was ... on his face.	drit	dirt	durt	dit
16	4	flight	They took a ... to France.	flight	flite	fight	flit
17	1	let	I will ... you go out.	lit	lot	let	lt
18	2	chat	Please don't ...	cat	cht	chap	chat
19	3	thirty	He is ... years old.	thrity	furty	thirty	firty
20	4	sighed	He ... because he was happy.	sighed	side	sied	seyed
21	1	get	Can I ... on this bus?	git	get	got	gt
22	2	much	This is too ... food!	chum	moch	much	mucho
23	3	birthday	It is my ... in January.	bifday	birthday	brithday	burfday
24	4	highest	It is the ... mountain.	hyist	highist	hiest	highest
25	1*	set	Can you ... the table?	set	sit	sat	sot
26	2*	chop	Please ... the carrots.	chip	chop	poch	shop
27	3*	first	You can go ...	furst	frist	thirst	first
28	4*	lightest	Which is the ... bag?	lytist	lightist	litest	lightest



\* = extra word

28.01.05

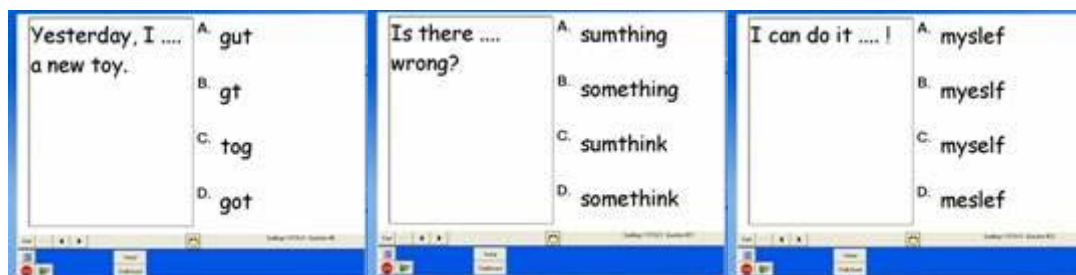
a) As a above. The spelling lists are shown here:



b) As b above. The order of the tests and the options given with the CPS are shown below:

No.	List	Word	Sentence	CPS options			
				A	B	C	D
1	1	mop	I need to ... the floor.	mop	mopp	map	mup
2	2	football	I like playing ... .	futbal	football	football	footbol
3	3	tonight	Can we go to the cinema ... ?	tonigh	tonight	tonite	toniyt
4	4	whatever	I go for a run ... the weather!	wotever	wotevr	whatever	whotever
5	1	got	Yesterday, I ... a new toy.	gut	gt	tog	got
6	2	today	Can we go to Romford ... ?	tody	today	towday	twoday
7	3	everyone	Can ... join in?	everyone	evreyone	evryone	evereyone
8	4	yourself	Do it ... !	yourslef	yourself	youslef	yourself
9	1	dot	You have a ... on your shirt.	dt	today	dot	dat
10	2	into	Let's go ... the room!	into	onto	in to	on to
11	3	something	Is there ... wrong?	sumthing	something	sumthink	somethink
12	4	outdoors	It's sunny now. Let's go ... .	owtdoars	owtdoors	ourtdores	outdoors
13	1	top	I am sitting at the ... of the stairs.	top	tup	pot	tp
14	2	outside	It's very cold ... .	owtsid	outside	owtsiyd	outsiyd
15	3	anyone	Would ... like to join in?	eneyone	enyone	annyyone	anyone
16	4	someone	Can ... help me please!	sumone	sumwon	someone	somewon
17	1	hop	Please ... around the circle.	top	hop	poh	hp
18	2	onto	I am going to climb ... the fence.	onto	into	on to	in to
19	3	netball	There is ... training after school.	net ball	ntball	netball	netbal
20	4	nickname	Do you have a ... for her?	niknam	nickname	niknayme	nikname
21	1	lot	There are a ... of people here!	tol	lt	lut	lot
22	2	someone	Can ... help me please?	sumone	someone	somewon	sumwon
23	3	myself	I can do it ... !	myslef	myeslf	myself	meslef
24	4	whenever	I can go ... you are ready.	whenever	wenevr	wenever	whenevr
25	1*	pot	Please put it in the ... .	pot	top	pt	pat
26	2*	somebody	Can ... call the fire brigade?	somebdy	somebody	sumbody	sumebody
27	3*	everything	I'm sure that ... will be OK.	everything	evrythink	everythink	evrything
28	4*	whoever	I'd like to meet ... made these mummy cases.	whoevr	whoever	howevery	howevr

\* =  
extra  
word



### How do the results compare? CPS v Written Test.

I assumed that the written test gave a true representation of the children's spelling ability. In order to analyse the results of the two tests, I will first present an overview of the class's performance and then focus on some individual results.

When CPS was used to assess the children's spellings, it led to discrepancies in the results. In the first test, 18 children's scores changed and in the second test the figure was even higher at 24.

#### First test: 10.12.04

	Number of children	Range of change in score (+/-)	Average change in score
CPS led to improved score	13 (50%)	1, 15	3
CPS scored the same as written test	8 (31%)	n/a	n/a
CPS led to reduced score	5 (19%)	1, 5	3.8

#### Results shown by group:

	A	B	C	D
CPS led to improved score	2 (67%)	1 (50%)	5 (56%)	5 (42%)
CPS scored the same as written test	1 (33%)	0 (0%)	1 (11%)	6 (50%)
CPS led to reduced score	0 (0%)	1 (50%)	3 (33%)	1 (8%)
	3 (100%)	2 (100%)	9 (100%)	12 (100%)

#### Second test: 28.01.05

	Number of children	Range of change in score (+/-)	Average change in score
CPS led to improved score	12 (46%)	1, 9	3.6
CPS scored the same as written test	2 (8%)	n/a	n/a
CPS led to reduced score	12 (46%)	1, 15	4.3

#### Results shown by group:

	A	B	C	D
CPS led to improved score	3 (100%)	1 (50%)	5 (56%)	3 (25%)
CPS scored the same as written test	0 (0%)	0 (0%)	0 (0%)	2 (17%)
CPS led to reduced score	0 (0%)	1 (50%)	4 (44%)	7 (58%)
	3 (100%)	2 (100%)	9 (100%)	12 (100%)

I have highlighted where more than 40% of a group reduced marks when using the CPS. For both weeks, the results show that for group A (doing the most basic words), using CPS improves their results. For group B, the results are mixed. This reflects the personalities and abilities of the two children in this group. For group C, there seems to be an indication that using CPS improves scores although a significant number of children have reduced scores using CPS or their scores stay the same. Group D's results are interesting and inconclusive with 92% of the group staying the same or improving in the first test, and only 42% staying the same or improving in the second.

## Looking at the results of some focus children.

By looking at six children's scores in greater detail, I hope to highlight how the scores can vary between written tests and CPS administered tests. I also hope to show how a multiple-choice test benefits certain children and disadvantages others.

The children I have chosen represent the four ability groups for spelling. There is one child for group A and one for group B. Because groups C and D are larger, I have chosen two children from each. These are children who could be trusted to complete the tests seriously and to the best of their ability. I have also tried to achieve a spread of boys and girls. The children have been anonymised.

Name	Reading Age	Group	Expected score for this group	Date	Actual score (written)	Actual score (CPS)	Change in score (CPS score - Written score)	Number of different responses (compare tests q by q)	Number of times written test wrong and CPS right	Number of times written test right and CPS wrong
Grace	6.11	A	7	10.12.04	11	26	+15	15	15	0
				28.01.05	7	16	+9	9	9	0
Hannah	7.05	B	14	10.12.04	18	23	+5	11	8	3
				28.01.05	16	21	+5	9	7	2
Kevin	8.05	C	21	10.12.04	18	17	-1	7	3	4
				28.01.05	23	17	-6	12	3	9
Anna	8.03	C	21	10.12.04	20	24	+4	8	6	2
				28.01.05	25	28	+3	3	3	0
Henry	9.00	D	28	10.12.04	27	27	0	0	0	0
				28.01.05	26	28	+2	2	2	0
Louise	8.06	D	28	10.12.04	27	24	-3	5	1	4
				28.01.05	27	24	-3	5	1	4

The results show that four children (Grace, Hannah, Anna and Henry) did better with the CPS test, while two children (Kevin and Louise) performed worse. All of the children performed similarly in both tests.

Grace (A) and Henry (D) made no 'silly' mistakes in the CPS test. They both only improved their scores by recognising the correct spellings of words that they had had difficulty spelling in the written test.

Hannah (B) and Anna (C) had more mixed fortunes. They both improved their scores overall but made 'silly' mistakes in the CPS test when they had spelled the words correctly in the written test. They may have been confused when faced with close alternatives to the correct spelling.

Kevin (C) and Louise (D) performed worse with CPS. Both made errors on the CPS test with words that they had already proved they could spell in the written test. They did this consistently in both tests which suggests to me that they began to question their own learning when faced with four choices (as I did when watching the ITV1 quiz).

### Why should I use CPS for spelling tests?

- **It is efficient for the teacher.** The test itself takes half an hour to create using the software and about 20 minutes to administer. There is no marking involved and the software can analyse the results in depth. "Now that I'm familiar with the software, I can create the tests quickly. They're easy to carry out and I love the different ways of looking at the results. I like seeing how the children have responded question by question because it helps me to identify children's misconceptions or common errors that need addressing in future lessons." (Year 5 teacher)
- **The children are motivated by the technology.** There is no doubt in my mind that the children enjoy using technology and I always get a cheer when the bag of zappers comes out. "I like it because I got to press some buttons" is a typical comment from the children. They are used to using similar technology at home to control the TV and with computer games, so this is technology that they feel comfortable with and enjoy using.
- **The children see the CPS test as easier.** Because the children enjoy using the zappers, they are excited about doing a test in this way. They also think that the test is physically easier because "All you have to do is pick the number you want" or "You just had to press the button". Another typical response is that "It's much easier because you don't have to write it down."
- **The children perform better.** For approximately 40% of children this is true and in some cases, significantly so, especially for lower ability learners. The children are visually recognising the word in some way which enables them to perform better than when they are relying on their own ability to construct words.

### Why should I not use CPS for spelling tests?

- **The children's scores are different from in a written test.** A small number of children scored the same in both the written and CPS tests but there was a discrepancy between the two scores for most of the class. Interestingly, some children felt that the CPS was easy because "Two answers are similar but I knew which one was right" while for others, being faced with four options raised doubts about how words were spelled: "I couldn't decide which to choose. I knew that A was definitely wrong, but I wasn't sure about B, C or D because they all looked OK so I just guessed." It seems unfair to carry out a test which can have two such opposite effects on the children.
- **It may not provide the spelling that the children believe to be correct.** When I devised the tests, I tried to use common misspellings of the test words. However, because there are only four options available, it is impossible to give every misspelling. This leads to some children guessing an answer and having a 1:4 chance of getting it correct, as oppose to a much smaller chance of them spelling it correctly on their own without prompting.
- **The children may not take as long making their decisions.** At the bottom of the CPS screen the children can see when they have responded. While I never move on to the next question until all children have responded, they have an unofficial race to see who can respond first. This may lead some of them to not be as thoughtful about the option they have selected. (It is possible for children to change their responses after an initial choice however.)
- **It doesn't reflect how spellings are learned and practised.** Children practise their spellings using the look-say-cover-write-check method at school and home. While some children said that their parents might ask them to spell words aloud, none of them had to pick out the correct spelling from a given selection as part of their regular learning. It seems sensible for the test to reflect the learning.



**It tests the children's reading, not spelling.** This piece of action research is not big enough to investigate this claim fully. I instinctively feel that spelling is part of the writing process which is a physical activity, while recognising and selecting a word from a list is a reading activity. Using CPS takes away the physical process of writing which is linked with the actual formation of words and – as mentioned above – is how the children learn their spellings.

### **Concluding remarks about using CPS for spelling tests.**

This research has made me realise that using CPS technology to carry out spelling tests does not provide me with a true reflection of my children's ability to spell. This does not mean that different technologies can't enhance tests in other ways, but that a multiple-choice test does not best test what the children have learned in this instance.

For other assessments, CPS is a wonderful way to test the children's knowledge and understanding. I find it particularly useful as a starter or plenary activity in Maths lessons where the children have to identify the correct answer to a small number (5?) of questions related to their work. There is potential to use CPS to carry out end of unit assessments in a range of subjects as well as to survey the children on school matters.

Issues that have been discussed in this paper become increasingly relevant when we think about the exponential increase in computer use for writing and word processing. Using a spellchecker is straightforward when you know how to spell words and have simply made a typing error. However, when you are unsure of a spelling and you consult the spellchecker you are faced with the same dilemma as the children who did their spelling tests using CPS. Essentially, your reading skills become important and your ability to recognise the word you want from a list of possible choices can be the difference between writing what you mean to and writing nonsense. I will watch with interest as children are taught how to use spellcheckers and will review in the future whether using CPS to assess spelling ability is appropriate.

