CHAPTER EIGHT

PHASE ONE FINDINGS:

TEACHER CHARACTERISTICS, CLASSROOM ENVIRONMENTS AND TEACHING PRACTICES FOR THE DEVELOPMENT OF READING LITERACY

8.1   ORIENTATION

Findings for the phase one secondary analysis of the PIRLS 2006 teacher questionnaire data are dealt with in this chapter. The goal is to describe and compare the characteristics of micro level classroom environments and teaching practices across the identified PIRLS 2006 class achievement benchmark re-classification sub-samples identified for this study. This chapter therefore partly addresses research sub-question 2 for the study, namely:

What are the practices of teaching Grade 4 reading literacy at each identified PIRLS 2006 achievement benchmark?

In section 8.2, the backgrounds of teachers who completed the PIRLS 2006 teacher questionnaire are illustrated and, class composition and reading specialist availability is then considered (8.3). Access to and use of reading resources by teachers in their classrooms is then outlined (8.4) followed by discussion of time allocation for instruction (8.5). Thereafter, reported classroom reading instruction activities and comprehension development practices are presented (8.6) followed by reports about homework and assessment activities (8.7).

The descriptive statistics for PIRLS 2006 teacher questionnaire data are presented from the perspective of learners' educational experiences and thus the unit of analysis for this chapter is the learner allocated a class average reaching each of the designated benchmarks and not the teacher who completed the questionnaire (see Appendix I for all of the teacher questionnaire data tables). Again, the data associated with class average benchmarks of EAL 325 and EFL 550 are based on small sample sizes due to the sampling strategy used which means that findings associated with these benchmarks are not generalisable. To determine whether there was an underlying structure for the items comprising selected scales from the teacher questionnaire, exploratory factor analysis[47] of each scale's items for four merged benchmarks (EAL 175-325; EFL 175- 325; EFL 400; and EFL 475-550) was undertaken. As discussed in Chapter Five, a number of criteria for the factorability of the

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[47] See Chapter Five for an explanation of the process undertaken for the factor analyses.

items were used. Only those factors and benchmarks meeting these criteria are included in the reporting for this chapter (see Appendix J for all of the factor analysis statistics). Furthermore the factors were also tested (see Chapter 5 for details) to explore if there were differences in the factors between benchmarks.

8.2 TEACHER BACKGROUND, TRAINING AND PREPARATION

In this section, trends in Grade 4 teacher age ranges are considered across the class average benchmarks (8.2.1), as are trends in their number of years of teaching experience (8.2.2). The teachers' formal education is also considered (8.2.3). A summary of the findings on teacher background, training and preparation is then presented (8.2.4).

8.2.1 Teacher age range trends

The language teachers indicated their age ranges (Table 8.1). The highest percentages (between 36% and 78%) of learners at each of the class average benchmarks were taught by teachers in the age range of *40 to 49* and the next highest percentages (22% to 40%) were taught by teachers in the age range of *30 to 39*. Very few learners were taught by teachers either *under 25* years of age or between *25 and 29* years.

Table 8.1: **Percentage of learners taught by teachers at each age range**

PIRLS 2006 Class Benchmarks	Under 25		25 - 29		30 - 39		40 - 49		50 - 59		60 or more	
	n	% (SE)	n	% (SE)	n	% (SE)	n	% (SE)	n	% (SE)	n	% (SE)
175 EFL	-	-	79	20.4 (12.2)	321	22.8 (11.3)	359	35.9 (13.9)	121	21.0 (7.8)	-	-
175 EAL	-	-	22	1.2 (1.2)	2643	39.5 (4.8)	3374	40.9 4.8)	1038	18.5 (3.6)	-	-
325 EFL	37	7.3 (6.7)	-	-	176	31.6 (13.2)	217	48.5 (15.2)	73	12.6 (9.2)	-	-
325 EAL*	-	-	-	-	55	35.6 (19.7)	62	43.1 (21.1)	67	21.3 (22.6)	-	-
400 EFL	-	-	-	-	101	40.3 (17.1)	159	57.0 (17.3)	37	2.8 (2.9)	-	-
475 EFL	57	17.3 (13.4)	19	11.4 (9.9)	48	29.6 (19.2)	86	39.0 (16.9)	-	-	31	2.7 (2.8)
550 EFL*	-	-	-	-	14	21.7 (23.1)	38	78.3 (23.1)	-	-	-	-

8.2.2 Years of teaching experience

There were generally not large differences in the mean number of years of overall teaching experience for teachers at benchmark EFL 400 and lower (Table 8.2 below). The teachers at

the highest class average benchmark of EFL 550 had the most years of teaching experience altogether with a mean of about 19 years which was also higher than the overall national mean of 15 years for the PIRLS main study (Howie *et al.*, 2007).

In comparison to their mean years teaching altogether, the teachers had fewer average years of experience teaching at Grade 4 specifically. The EFL 325 teachers had the least experience teaching at Grade 4 with approximately a 3-year mean. The EAL 325 and EFL 550 teachers had the most experience teaching at Grade 4 with a mean of nearly nine years at each benchmark.

Table 8.2: **Trends in number of years teaching altogether and at Grade 4**

PIRLS 2006 Class Benchmarks	*Years teaching altogether*		*Years teaching at Grade 4*	
	n	*Mean (SE)*	*n*	*Mean (SE)*
175 EFL	880	17.0 (4.0)	836	6.5 (2.7)
175 EAL	6557	15.6 (0.7)	6609	6.2 (0.6)
325 EFL	422	16.1 (3.0)	464	3.8 (0.9)
325 EAL*	184	15.5 (2.3)	184	8.9 (3.5)
400 EFL	297	16.6 (1.6)	297	8.0 (2.5)
475 EFL	241	10.1 (3.0)	241	4.8 (1.1)
550 EFL*	80	19.3 (4.1)	80	8.6 (4.5)

8.2.3   Teachers' formal education and training

The highest level of formal education that the Grade 4 teachers reported completing is considered in sub-section *8.2.3.1*. This is followed by discussion of the type of degree or diploma certifications teachers across the benchmarks held (*8.2.3.2*) and the focus areas for education and training reported by teachers (*8.2.3.3*).

8.2.3.1   Teachers' highest level of formal education completed

Teachers were asked to indicate the highest level of formal education that they had completed (Table 8.3 below). Responses were mostly spread across three categories: (1) *finished college or post Matric* certificate, (2) *finished degree or Technikon diploma* and (3) *finished postgraduate degree*. With the exception of EFL 475, the highest percentages of learners at the rest of the benchmarks had teachers who indicated that their highest level of formal education was the completion of *college or a post Matric certificate*. A small majority of learners (56%) at EFL 475 and another 43% of learners at EFL 550 had teachers who had

finished a postgraduate degree. Below the PIRLS international benchmarks only between 20% and 28% of learners had teachers who had *finished a postgraduate degree.* Although no learners were taught by teachers with a *postgraduate degree* at EFL 400, 23% were taught by teachers who had completed a *degree or Technikon diploma.*

Table 8.3: **Teachers' highest level of formal education completed**

PIRLS 2006 Class Benchmarks	Did not complete Grade 12/ Std 10		Finished Grade 12/ Std 10		Finished college or post Matric certificate		Finished degree or Technikon diploma		Finished postgraduate degree	
	n	% (SE)	n	% (SE)	n	% (SE)	n	% (SE)	n	% (SE)
175 EFL	-	-	-	-	553	71.5 (10.0)	157	8.3 (5.8)	134	20.3 (7.8)
175 EAL	192	3.9 (2.4)	-	-	4057	62.2 (4.6)	1720	23.6 (3.8)	747	10.3 (2.6)
325 EFL	-	-	43	9.3 (9.7)	199	49.1 (16.0)	79	16.3 (10.2)	144	25.3 (12.5)
325 EAL*	-	-	-	-	118	45.0 (22.0)	28	27.0 (18.6)	38	28.0 (19.0)
400 EFL	-	-	-	-	253	76.9 (16.0)	44	23.2 (16.0)	-	-
475 EFL	-	-	28	5.1 (5.4)	71	27.2 (17.6)	29	12.2 (12.9)	113	55.5 (18.4)
550 EFL*	-	-	-	-	24	56.6 (46.1)	-	-	28	43.4 (46.1)

8.2.3.2   Teacher certification

Between 95% and 100% of learners across the class average benchmarks had teachers who were certified to teach. Related to their certification, teachers were also asked what type of diploma or certificate they held, either: a Junior Primary Teacher Certificate (JPTC); a Senior Primary Teacher Certificate (SPTC); a 3-year College of Education Diploma; a 4-year College of Education Diploma; an Advanced Certificate in Education (ACE); a Further Diploma in Education (FDE); a university or Technikon Higher Education Diploma (HED); a Post Graduate Certificate of Education (PGCE); or Other qualification. Table 8.4 (see below) outlines which qualifications were held at each class average benchmark. The highest percentage (48%) of learners at EFL 550 was taught by teachers with a 4-year college diploma with a further 39% taught by teachers with a JPTC. The highest percentage of learners at EFL 175 (49%), EAL 175 (36%) and EFL 325 (29%) and 31% of learners at EFL 400 were taught by teachers with a 3-year college diploma. An ACE was the most prominent qualification held by teachers of those learners at EAL 325 (53%) and the highest percentages of learners at EFL 475 (37%) were taught by teachers with a PGCE. About 41% of learners at EFL 400 were taught by teachers with another type of diploma or certificate not listed.

Table 8.4: Type of diploma or certificate held

	175 EFL		175 EAL		325 EFL		325 EAL*		400 EFL		475 EFL		550 EFL	
	n	% (SE)	n	% (SE)	n	% (SE)	n	% (SE)	n	% (SE)	n	% (SE)	n	% (SE)
JPTC	40	20.5 (15.0)	689	13.1 (3.5)	67	20.7 (13.5)	-	-	37	2.8 (2.9)	19	17.0 (14.8)	28	39.3 (42.9)
SPTC	30	2.0 (2.1)	491	10.1 (3.4)	-	-	-	-	41	11.6 (12.2)	31	4.1 (4.3)	-	-
3 year college diploma	234	49.0 (18.0)	2036	35.9 (3.4)	123	28.7 (14.3)	24	29.8 (19.6)	104	31.0 (15.8)	-	-	-	-
4year college diploma	121	2.6 (2.4)	499	11.8 (2.6)	39	10.8 (3.2)	-	-	34	13.7 (11.3)	23	24.2 (26.2)	38	47.5 (33.6)
ACE	-	-	274	4.8 (1.7)	-	-	28	53.4 (21.7)	-	-	-	-	-	-
FDE	51	14.2 (11.7)	350	7.3 (2.9)	-	-	-	-	-	-	-	-	-	-
HED	90	11.7 (9.8)	441	9.8 (3.4)	57	6.1 (4.4)	-	-	-	-	-	-	-	-
PGCE	-	-	142	1.8 (1.2)	37	9.5 (8.3)	-	-	-	-	47	36.6 (25.3)	-	-
Other	-	-	431	5.4 (1.1)	87	24.2 (13.2)	27	16.8 (13.9)	81	41.0 (17.7)	29	18.2 (20.1)	14	13.2 (16.0)

8.2.3.3   Focus areas for education and training

Teachers specified to what extent (*not at all*, *overview or introduction to the topic* or *it was an area of emphasis*) they studied certain focus areas as part of their formal education and/or training. The response options included: language; literature; pedagogy/teaching reading; psychology; remedial reading; reading theory; children's language development; special education; and second language learning. The merged benchmarks of EAL 175-325 and EFL 175-325 met the inclusion criteria set (Table 8.5) for an exploratory factor analysis of the items.

All of the communalities were above .4 at the two merged benchmarks with the exception of one item (psychology) at both EAL 175-325 and EAL 175-325, and it was therefore removed from the analysis for each. Two components were identified at EAL 175-325 and three components at EFL 175-325 (Table 8.6 below). Table 8.7 (below) shows the factor loadings after rotation at EAL 175-325 and EFL 175-325. A Kreskas-Wallis test revealed that there are significant differences between the factors at each of the benchmarks (see Appendix J).

Table 8.5: **Kaiser- Meyer- Olkin (KMO)**[48] **and Bartlett's test of Sphericity for teachers' focus areas for education and training**

Merged benchmarks		EAL 175- 325	EFL 175- 325	EFL 400	EFL 475- 550
Kaiser-Meyer- Olkin Measure of Sampling Adequacy		.756	.697	.488	.287
Bartlett's Test of Sphericity	Approx chi-square	12846.014	5211.893	3748.657	3129.230
	Df	36	36	36	36
	Sig.	.000	.000	.000	.000

Table 8.6: **Total variance explained for teachers' focus areas for education and training**

	EAL 175-325			EFL 175-325		
	Initial Eigen values			Initial Eigen values		
	Total	Variance %	Cum %	Total	Variance %	Cum %
Component						
1	3.501	38.897	38.897	3.559	39.550	39.550
2	1.486	16.515	55.412	1.624	18.040	57.590
3	.822	9.130	64.542	1.174	13.044	70.634
4	.797	8.850	73.392	.976	10.849	81.483
5	.669	7.432	80.825	.679	7.547	89.030
6	.596	6.620	87.445	.323	3.590	92.620
7	.474	5.267	92.712	.269	2.993	95.613
8	.359	3.986	96.698	.233	2.593	98.206

Table 8.7: **Factors loadings**[49] **for teachers' focus areas for education and training**

Items	Factor loadings				
	EAL 175-325		EFL 175-325		
Component	1	2	1	2	3
Language		.741			.884
Literature		.827			.779
Pedagogy, teaching reading		.780		.844	
Psychology	-	-	-	-	-
Remedial reading	.753		.844		
Reading theory	.621		.780	.441	
Children's language development	.781		.762	.418	
Special education	.718		.883		
Second language learning	.538	.435		.722	

For EAL 175-325 the items that cluster on component 1 suggest that teachers at EAL schools below the PIRLS international benchmarks had teacher education focused mainly on

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[48] Based on Field's (2009) criteria where values greater than .5 are acceptable, with the further acknowledgement that values between .5 and .7 are judged as mediocre, values between .7 and .8 are good, values between .8 and .9 are great and values above .9 are superb.

[49] For each factor loading table presented in this chapter, negative factor loadings and factor loadings under .4 are suppressed. Items retained for each component after analysis are highlighted in Bold in each table.

addressing learning diversity (i.e. remedial reading, special education, second language learning, and children's language development) together with reading theory. Although remedial reading and special education were conceptually linked to the other items of the component, a review of the descriptive statistics for the two items at each benchmark for the merged benchmark revealed that whereas the other items were reported as areas of emphasis, neither of these items were reported as receiving any emphasis. Component 2 for EAL 175-325 has item clusters suggesting a secondary focus on traditional *language subject matter training* (language and literature) coupled with reading pedagogy. Second language learning loaded onto component 2 as well. As learners in these EAL schools were learning in English as a second or additional language, it could be that if their teachers were trained to teach English then they could have perceived this as training second language learning.

For EFL 175 -325, factor loadings for component 1 were similar to the items comprising component 1 for EAL 175 -325 in that training *addressing learning diversity* together with reading theory was key. However, unlike component 1 for EAL 175 -325, second language learning only loaded onto component 2 (*reading literacy teaching*) together with reading pedagogy, reading theory and children's language development. Items (language and literature) for component 3 suggested traditional *language subject matter training.*

Reliability analyses were calculated to determine whether the factors formed reliable scales at each of the merged benchmarks using Cronbach's Alpha. Table 8.8 provides the case processing summary for the scale under consideration at each.

Table 8.8: **Case processing summary for scale of teachers' focus areas for education and training**

Merged benchmarks Cases	EAL 175- 325		EFL 175- 325		EFL 400		EFL 475- 550	
	n	%	n	%	n	%	n	%
Valid cases included	4799	63.1	1241	85.9	503	100.0	550	89.0
Excluded	2812	36.9	203	14.1	0	.0	68	11.0
Total	7611	100.0	1444	100.0	503	100.0	618	100.0

With Cronbach's alpha coefficients between .7 and .8, the scale met the criterion of .5 set for exploratory analysis at each of the merged benchmarks (Table 8.9 below). Furthermore, a review of the item-total statistics (see Appendix J) revealed no conceptually viable possibilities to enhance the reliability of the scale at any of the benchmarks via the deletion of any of the items. Table 8.10 (below) provides the scale statistics across the merged benchmarks.

Table 8.9: **Reliability statistics for scale of teachers' focus areas for education and training**

Merged benchmarks							
EAL 175- 325		EFL 175- 325		EFL 400		EFL 475- 550	
Cronbach's Alpha	Highest Alpha if item deleted	Cronbach's Alpha	Highest Alpha if item deleted	Cronbach's Alpha	Highest Alpha if item deleted	Cronbach's Alpha	Highest Alpha if item deleted
.798	.790	.743	.777	.770	.809	.727	.769

Table 8.10: **Scale statistics for teachers' focus areas for education and training**

Merged benchmarks	EAL 175- 325	EFL 175- 325	EFL 400	EFL 475- 550
Mean	20.62	19.55	19.92	19.82
Variance	14.514	12.163	13.110	10.138
Standard deviation	3.810	3.487	3.621	3.184

8.2.4 Summary and discussion of teacher background, training and preparation

Most of the learners at each benchmark had teachers aged between 30 and 59 years. This could mean that many of these teachers, especially those with classes at the lower benchmarks, could have attended inferior teacher education programmes and/or did not receive prolonged training for teaching the RNCS (DoE, 2002a) unless via inservice teacher education initiatives. Very few learners had teachers aged *under 25* or between *25 to 29* years. If ongoing replenishment of the teaching force is to take place, one would expect that almost equivalent percentages of learners would be taught by teachers in their twenties, thirties, forties and fifties (Howie *et al.*, 2007).

There were not large differences in the mean number of years of overall teaching experience that teachers at EFL 400 and lower had. Teachers at EFL 550 had the most years of teaching experience altogether. All of the teachers had less average years of experience teaching at Grade 4 in comparison to their average number of overall years in the profession.

With the exception of EFL 475, the highest percentages of learners at the other benchmarks were taught by teachers who had completed *college or a post Matric certificate* as their highest level of formal education. At the two highest benchmarks, more learners had teachers who had *finished a postgraduate degree* than those learners at EFL 400 and lower.

Most learners across the benchmarks had teachers who were certified to teach. Nearly 50% of learners at EFL 550 were taught by teachers with a 4-year college diploma with a further 39% taught by teachers with a JPTC. The highest percentage of learners at EFL 175, EAL 175 and EFL 325 and a high percentage of learners at EFL 400 were taught by teachers with a 3-year college diploma. The highest percentages of learners at EFL 475 were taught by teachers with a PGCE. About 41% of learners at EFL 400 were taught by teachers with another type of diploma or certificate not listed. The majority at EAL 325 were taught by teachers with an ACE. The fact that the EAL 325 learners were the only majority grouping whose teachers had an ACE could suggest that this qualification was beneficial to these learners especially if one considers that this group of learners was the highest performing EAL benchmark grouping.

From the factor analysis it is also evident that for teachers at schools below the international benchmarks a main focus of their training was on addressing learning diversity such as remedial reading, special education, second language learning, children's language development and reading theory. Secondary focus was placed on reading pedagogy and language from a traditional subject matter orientation.

8.3   CLASS COMPOSITION AND READING SPECIALIST ACCESS

In this section, class composition attributes at each of the benchmarks are described (8.3.1). Thereafter, access to reading specialists in light of class composition is considered (8.3.2). A brief summary and discussion of the findings presented is then provided (8.3.3).

8.3.1   Class composition attributes

Table 8.11 (below) provides the mean: Grade 4 class size; number of learners experiencing difficulties with the spoken language of testing for the PIRLS 2006 assessment; number of learners in need of remedial reading assistance; and the number of learners receiving remedial assistance at each of the class average benchmarks. As evident in the table, the higher the class average benchmark achieved, the lower the mean class size apparent. Taking into consideration the high mean class sizes at EFL 400 and lower, it was also apparent that high means of learners experienced difficulties with the spoken language of testing or were in need of remedial reading assistance at these benchmarks. For example, at the lowest class average benchmark of EFL 175, a mean of about 22 learners per class reportedly experienced problems with spoken English, the language they were tested in for the PIRLS 2006, suggesting that these learners had not yet achieved BICS in the language

in spite of being in an EFL school. A mean of about 16 learners per class needed remedial reading assistance whilst a mean of only seven learners reportedly received it.

Table 8.11: Class composition

PIRLS 2006 Class Benchmarks	Class size		Learners experiencing difficulties with the spoken language of testing		Learners needing remedial reading assistance		Learners receiving remedial reading assistance	
	n	*Mean (SE)*	*n*	*Mean (SE)*	*n*	*Mean (SE)*	*n*	*Mean (SE)*
175 EFL	880	51.3 (4.1)	854	22.0 (2.7)	834	15.6 (1.6)	402	7.0 (2.0)
175 EAL	7076	45.0 (1.1)	5809	10.8 (0.9)	6712	12.5 (1.0)	5479	9.1 (1.0)
325 EFL	503	43.0 (3.0)	503	11.7 (3.3)	503	9.9 (0.9)	379	4.6 (1.6)
325 EAL*	184	40.3 (8.3)	146	4.1 (1.5)	146	3.9 (0.5)	146	3.3 (0.8)
400 EFL	297	38.4 (1.1)	227	4.7 (1.8)	263	7.9 (1.2)	182	5.8 (2.1)
475 EFL	241	24.6 (1.0)	241	0.8 (0.4)	241	2.5 (0.5)	241	1.5 (0.5)
550 EFL*	80	23.5 (4.0)	66	0.9 (0.2)	66	0.6 (0.8)	66	0.0 (0.0)

Teachers described the reading level of the learners in their class. With the exception of EFL 175, the majority of learners (54% to 100%) across the rest of the benchmarks had teachers who reported that their reading levels were *average* or *above average* (see Figure 8.1). At EFL 175, 46% of learners had teachers had who reported that their reading skills were *below average*. Even so, 34% had teachers who reported that they had *average* reading skills.
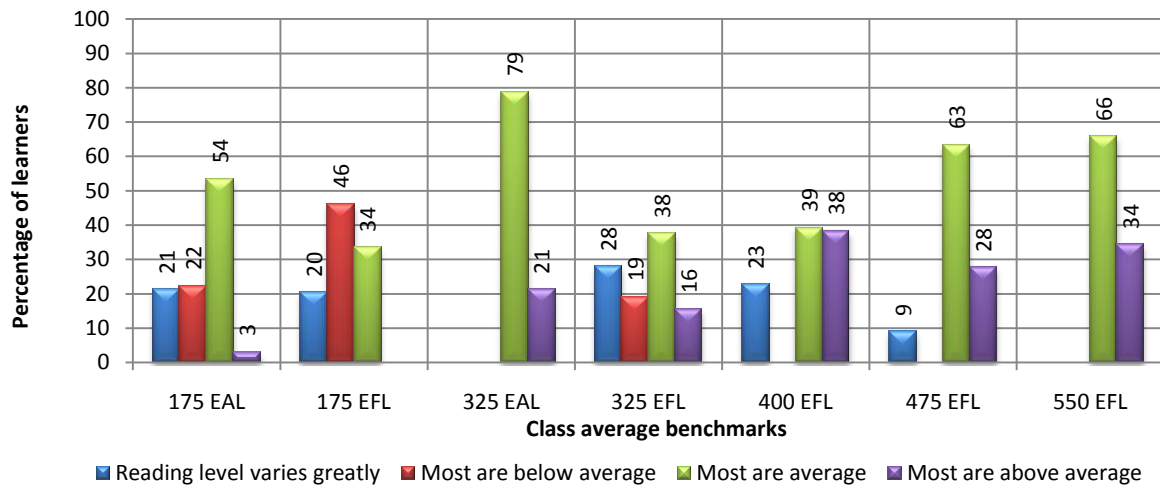

Figure 8.1: **Teacher reports on the reading levels of learners**

8.3.2   Reading support specialist access

Teachers were asked to what extent they had access to reading specialists, teacher aides and other educational support professionals to deal with learners experiencing difficulties

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with reading in their classes. Vast majorities of learners at EFL 400 and lower had teachers who had no access to any reading specialists (see Table 8.12). It was only at EFL 475 and EFL 550 that more learners had access to reading support specialists.

Table 8.12: **Non-availability of access to reading support specialists**[50]

PIRLS 2006 Class Benchmarks	No reading specialist to work with learners in the classroom		No reading specialist to work with learners in a remedial reading classroom		No teacher-aide/ teaching assistant or other adult to work in my classroom		No other professionals (e.g., learning specialist, speech therapist) are available	
	n	% (SE)	n	% (SE)	n	% (SE)	n	% (SE)
175 EFL	735	93.4 (4.3)	735	94.5 (4.1)	652	75.5 (10.0)	724	92.9 (5.0)
175 EAL	5708	90.2 (2.4)	5466	86.6 (2.7)	4973	80.8 (3.4)	5951	92.5 (2.2)
325 EFL	465	92.8 (6.6)	465	92.8 (6.6)	426	81.9 (15.8)	503	100.0 (0.0)
325 EAL*	156	100.0 (0.0)	156	100.0 (0.0)	156	100.0 (0.0)	156	100.0 (0.0)
400 EFL	223	95.5 (4.4)	115	56.2 (17.8)	260	100.0 (0.0)	192	86.0 (10.9)
475 EFL	241	100.0 (0.0)	85	28.3 (17.2)	241	100.0 (0.0)	124	58.3 (17.2)
550 EFL*	56	65.6 (30.5)	28	39.3 (42.9)	56	65.6 (30.5)	-	-

8.3.3 Summary and discussion of class composition and reading specialist access

The higher the class average benchmark achieved, the lower the mean class size apparent. At benchmarks below EFL 400 with a high mean class size a high mean number of learners also experienced difficulties with the spoken language of testing or were in need of remedial reading assistance which not all were likely to receive. This would make teaching conditions in such a class extremely difficult with the teacher having to address the varied learning needs of an excessively large class whilst attending to the specific language problems and reading difficulties of large groups in the class. Thus, the fact that few if any learners at these benchmarks had teachers with access to reading support specialists to assist them is especially worrisome. In contrast, despite less need for reading specialist access it was only at the two highest benchmarks that more learners had access to learning support specialists.

With the exception of EFL 175, the highest percentages of learners at the rest of the class average benchmarks had teachers who reported that their reading levels were *average* or *above average*. One might expect teachers in classes reaching the PIRLS international benchmarks to indicate that most of their learners had *average* to *above average* reading levels. However, one would not expect the same for learners at the lower benchmarks where most were clearly struggling with even the most basic reading skills. This suggests that

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[50] This table only reports the *never* response category for this item. Other response categories included *sometimes* and *always* (see data tables in Appendix I).

teachers had inaccurate perceptions of learners' reading abilities at these lower benchmarks which would impact the goals they set and the level of cognitive demand placed on learners.

8.4 AVAILABILITY AND USE OF READING RESOURCES

In this section, the availability and use of Grade 4 classroom libraries and reading corners and access to school libraries are outlined (8.4.1). Materials used for reading instruction and activities are then considered (8.4.2). Indications of teachers' use of fiction or non-fiction materials (8.4.3) and their differentiation of reading instruction materials (8.4.4) are also provided followed by a summary and discussion of the data presented (8.4.4).

8.4.1 School libraries, classroom libraries and reading corners

In sub-section *8.4.1.1*, availability of classroom libraries or reading corners[51] is discussed together with indications of the materials available in such libraries and frequency of access. Whether learners had access to libraries outside of the classroom is also examined (*8.4.1.2*).

8.4.1.1 *Classroom libraries*

Nearly all of the Grade 4 learners at the PIRLS 2006 international benchmarks had access to a classroom library (see Figure 8.2). At EAL 325, EFL 325 and EAL 175 the majority of learners did not have access to a classroom library whereas only a small majority of learners at EFL 175 (54%) did have access to such a library.
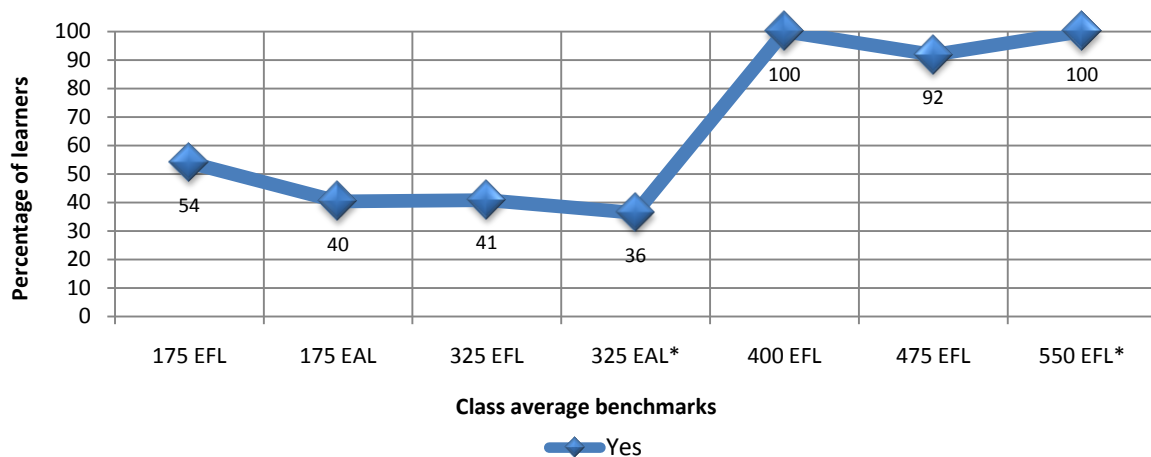

Figure 8.2: **Teacher reports on availability of a classroom library**

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[51] "Classroom library or reading corner" is referred to as "classroom library" in the rest of sub-section *8.4.1.1* to simplify reporting.

For those teachers who indicated that they did have a classroom library, they were also asked about the amount of book and magazine titles available, how much time they gave learners in their class to use this library and if their learners were allowed to borrow books to take home from it.

Table 8.13 reports the mean number of books and magazines with different titles in class libraries. With the exception of the two EAL benchmarks, EAL 175 and EAL 325, there appeared to be sufficient mean numbers of books with different titles at the rest of the class average benchmarks. There were also no magazine titles available at EAL 325 and a low mean of magazines with different titles available at EFL 475. EFL 550 learners had the highest mean number of magazines with different titles available to them.

Table 8.13: **Number of book and magazines with different titles in the classroom library**

PIRLS 2006 Class Benchmarks	Number of books with different titles		Number of magazines with different titles	
	n	*Mean (m) (SE)*	*n*	*Mean (SE)*
175 EFL	247	84.8 (44.1)	185	7.4 (3.0)
175 EAL	2077	28.1 (8.6)	1543	5.6 (0.8)
325 EFL	186	74.3 (47.5)	93	8.4 (3.5)
325 EAL*	67	6.0 (0.0)	67	0.0 (0.0)
400 EFL	260	77.5 (9.0)	37	10.0 (0.0)
475 EFL	224	69.0 (20.2)	149	4.3 (1.9)
550 EFL*	80	49.3 (4.7)	80	16.8 (3.9)

For those learners that did have access to a classroom library (Figure 8.3 below), the majority were given class time to use this reading resource *every day or almost every day* or *once or twice a week*.
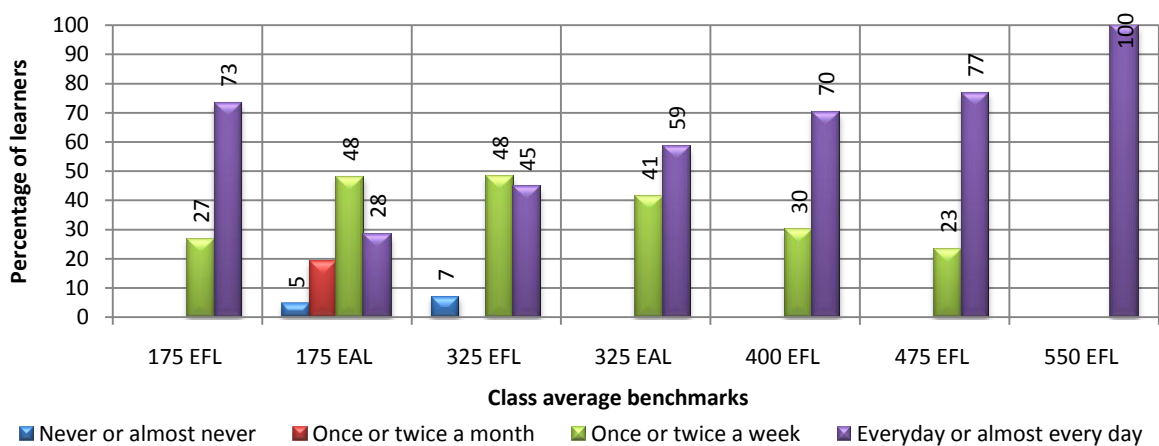

Figure 8.3: **Teacher reports on frequency of access to a classroom library**

Response distributions as to whether or not learners could borrow books from their classroom library to take home varied (Figure 8.4). The majority of learners in classes at benchmarks EFL 175, EAL 175, EAL 325, EFL 475 and EFL 550 were allowed to take books home but at EFL 325 and EFL 400 the majority could not.
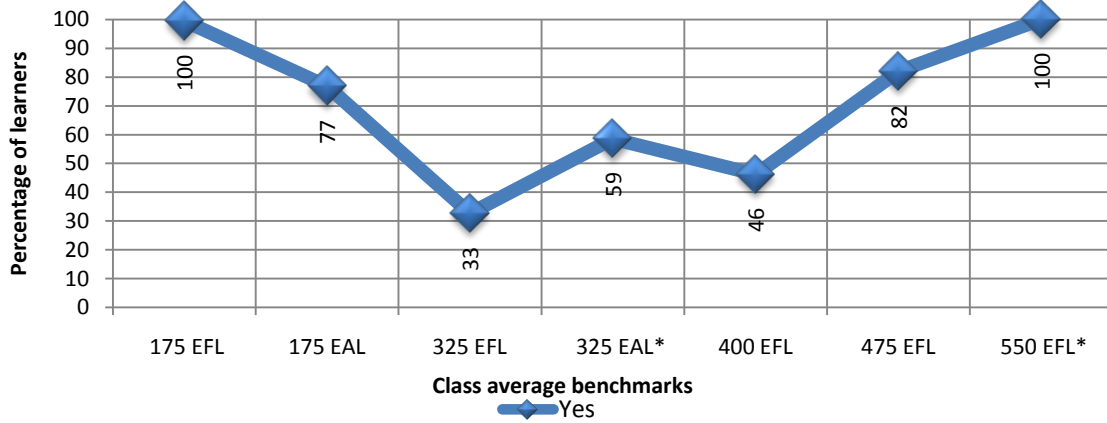

Figure 8.4: Teacher reports on whether or not learners could borrow books to take home from the classroom library

8.4.1.2   Access to libraries outside of the classroom

Most learners in EFL 475 and EFL 550 classes had access to another library outside the classroom *once or twice a week* (see Figure 8.5). In stark contrast, the majority of learners at EFL 400 and lower only had access to another library *once or twice a month* or *never or almost never*.
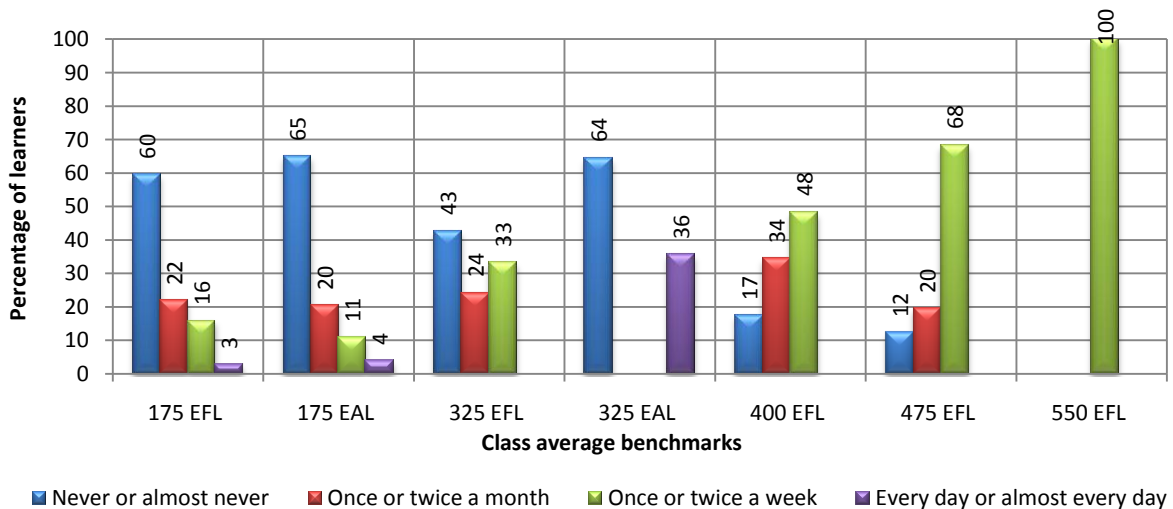
Figure 8.5: How frequently learners went to a library outside of the classroom

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8.4.2   Materials used for reading instruction and activities

Teachers were asked how often they used a selection of resources for reading instruction and/ or reading activities with their learners. These resources included: textbooks; reading series; workbooks or worksheets; children's newspapers and/ or magazines; computer software; reading material on the Internet; a variety of children's books; materials from other subjects; and materials written by students. The response options were: *every day or almost every day*; *once or twice a week*; *once or twice a month*; and *never or almost never*.

For the PIRLS main study, textbooks were the most often used reading instruction materials followed closely by workbooks and worksheets and reading series (Howie *et al*., 2007). The descriptive statistics across the class average benchmarks for this study also revealed clear patterns of response distribution for these three items. With the exception of EFL 400, textbooks were used *every day or almost every day* or *once or twice a week* for the majority of learners across the benchmarks. At EFL 400, 55% of learners had teachers who reported using this resource *once or twice a month* or *never or almost never* (Figure 8.6).
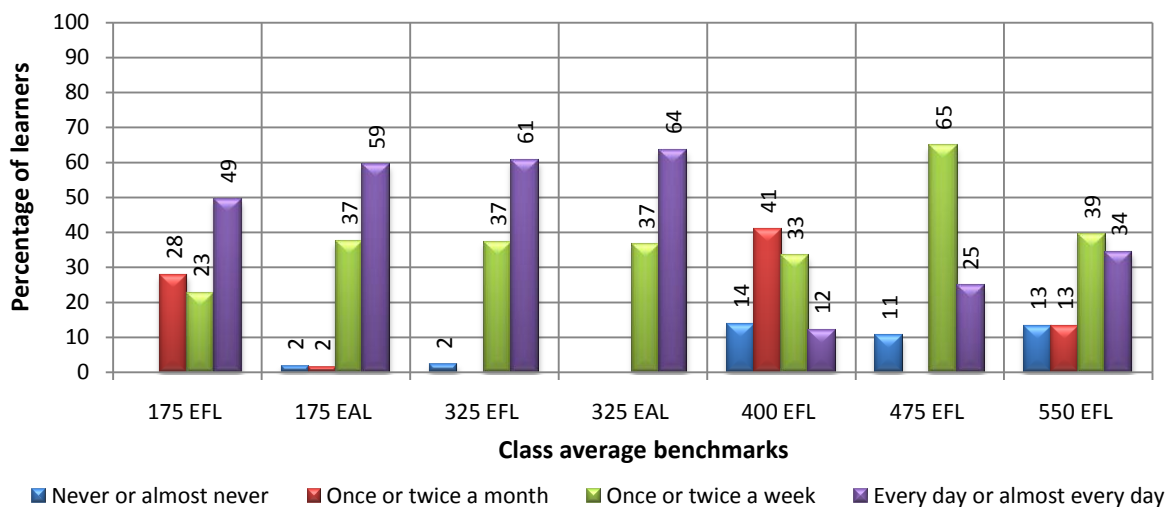

Figure 8.6: **Teacher reports on how frequently learners used textbooks**

Reading series were reportedly used *once or twice a week* for the majority of learners at the lower benchmarks. At EFL 400, 69% of learners *never or almost never* used reading series or only used reading series *once or twice a month*. At the two highest benchmarks the majority used reading series *every day or almost every day* or *once or twice a week* (Figure 8.7 below). Workbook or worksheet use was also dominant with large majorities of learners across the benchmarks reportedly using these *every day or almost every day* or *once or twice a week* (Figure 8.8 below).
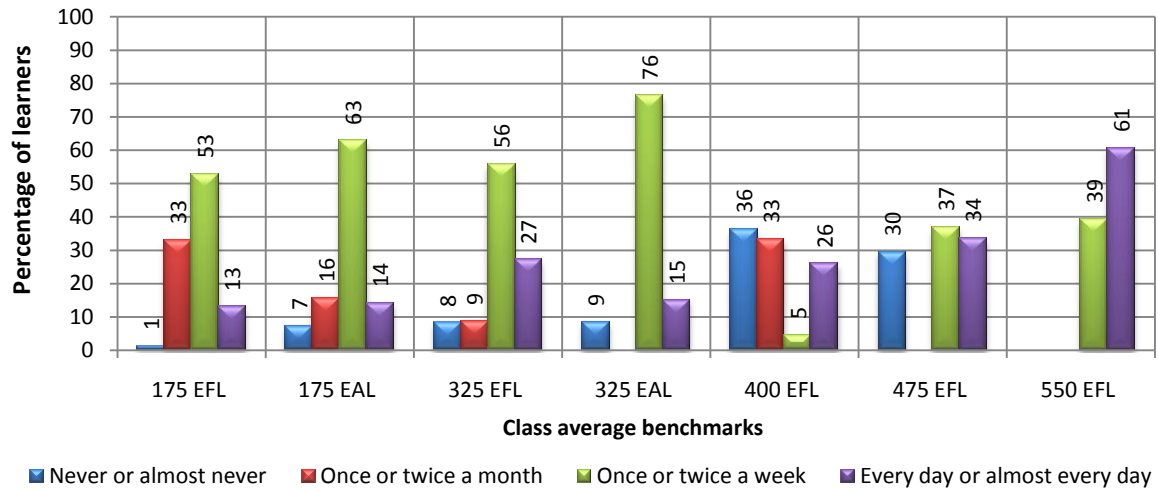
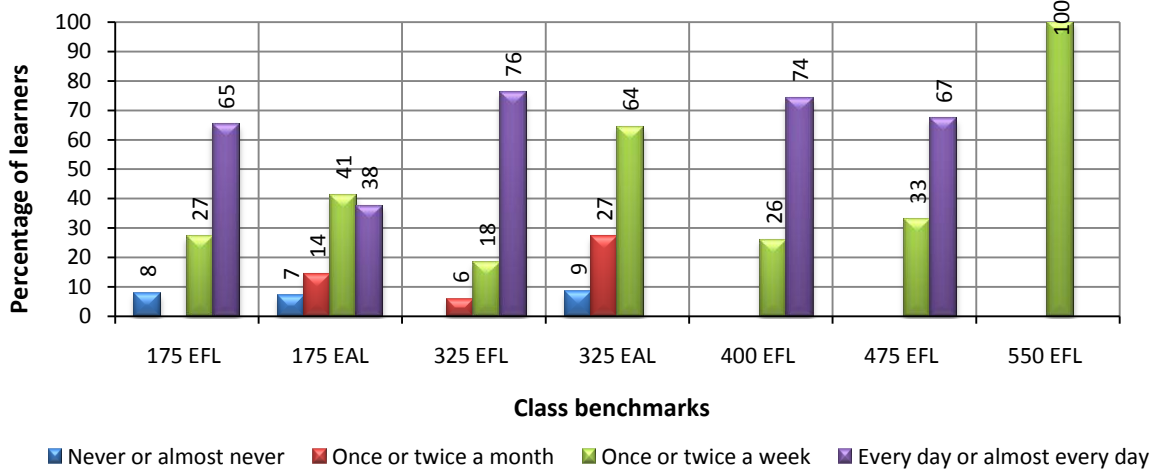**Figure 8.7:** Teacher reports on how frequently learners used reading series

Figure 8.8: Teacher reports on how frequently learners use workbooks or worksheets

Other items with clear patterns of response distribution included the use of newspapers and magazines, a variety of children's books, PC software and reading materials on the Internet. The majority of learners at all of the benchmarks only used newspapers and magazines *once or twice a month* or *never or almost never.* The majority of learners at EFL 400 and lower either *never or almost never* had exposure to a variety of children's books or only had so *once or twice a month.* In contrast, most learners at EFL 475 and EFL 550 had teachers who used a variety of children's books for reading instruction or reading activities *every day or almost every day* or *once or twice a week*. With the exception of the 96% of learners at EFL 400 and 42% of learners at EFL 475 whose teachers indicated that they used PC software *once or twice a week,* large majorities at the other class benchmarks *never or almost never* used PC software for reading instruction or activities. Material on the Internet did not feature at all for instruction at any of the benchmarks.

For the other items, patterns in response distribution were not readily discernable due to variation in reporting within and across the benchmarks. Thus, to determine whether there were underlying structures for all of the items of the scale, an exploratory factor analysis of the nine items for the four merged benchmarks was undertaken. The EAL 175-325 and EFL 175-325 merged benchmarks met the inclusion criteria set for the analysis (Table 8.14). All of the communalities were above .4 with the exception of one item (reading series) at EAL 175-325, which was therefore removed from the analysis. Three components were identified at EAL 175-325 and four at EFL 175-325 (Table 8.15).

Table 8.14: **Kaiser- Meyer- Olkin and Bartlett's test of Sphericity for teachers' reading instruction materials use**

Merged benchmarks		EAL 175- 325	EFL 175- 325	EFL 400	EFL 475- 550
Kaiser-Meyer- Olkin Measure of Sampling Adequacy		.695	.593	.163	.401
Bartlett's Test of Sphericity	Approx chi-square	61111.343	1981.821	3007.47	1943.765
	Df	36	36	36	36
	Sig.	.000	.000	.000	.000

Table 8.15: **Total variance explained for teachers' reading instruction materials use**

	EAL 175-325			EFL 175-325		
	Initial Eigen values			Initial Eigen values		
Component	Total	Variance %	Cum %	Total	Variance %	Cum %
1	2.381	26.450	26.450	2.519	27.991	27.991
2	1.401	15.566	42.016	1.313	14.594	42.585
3	1.086	12.070	54.086	1.202	13.351	55.936
4	.914	10.159	64.245	1.064	11.828	67.764
5	.792	8.799	73.044	.992	11.021	78.785
6	.709	7.881	80.925	.687	7.632	86.416
7	.622	6.916	87.841	.519	5.772	92.188
8	.567	6.297	94.139	.425	4.727	96.915

Table 8.16 (below) shows the factor loadings after rotation at EAL 175-325 and EFL 175-325. Four items (workbooks or worksheets, a variety of children's books, materials from other subjects and materials written by learners) loaded onto component 1 at EAL 175 -325. With the exception of workbooks and worksheets which were frequently used, the descriptive statistics for these items at both EAL 175 and EAL 325 revealed their infrequent use. Therefore, due to lack of conceptual coherence with the other items in terms of *infrequent use in teaching*, workbooks or worksheets was removed from the component. The two items (Internet reading materials and PC software for reading) that loaded onto component 2 involve *technology as a reading resource*. The descriptive statistics also suggest that this

component did not feature for instruction in EAL schools below the PIRLS international benchmarks. Component 3 has item clusters suggesting that textbook use, workbooks and worksheets and newspapers and magazines were *core reading resource materials* at EAL 175 -325. As the descriptive statistics showed that the majority of learners only used children's newspapers and magazines *once or twice a month*, it is likely that this material was used as a supplementary source in conjunction with textbooks and workbooks and worksheets although on a less frequent basis.

Table 8.16: **Factor loadings for teachers' reading instruction materials use**

	Factor loadings						
Items	EAL 175-325			EFL 175-325			
Component	1	2	3	1	2	3	4
Textbooks			.817				
Reading series (e.g. basal readers, graded readers)							.827
Workbooks or worksheets	.466		.420			.483	
Children's newspapers or magazines			.690	.708			.406
Computer software for reading instruction (e.g. CD, DVD)		.811		.778			
Reading material on the Internet (Web pages)		.821				.651	
A variety of children's books	.645				.864		
Materials from other subjects	.754				.799		
Materials written by learners	.710			.746			

Significant differences regarding the teachers' reading instruction were also found between the factors of the benchmarks (see appendix J). Items loading onto component 1 (children's newspapers and magazines, computer software for reading instruction and material written by learners) and component 2 (a variety of children's books, materials from other subjects) for EFL 175-325 also seem to share the feature of *infrequent use in teaching* based on patterns of response distribution from the descriptive statistics. Although reading material on the Internet loaded onto Component 3 together with the use of workbooks or worksheets, no conceptual link was evident between these two items especially as reading material on the Internet was not a frequent reading resource whereas workbook or worksheet use was. Thus, only workbook or worksheet use was retained as a *core instructional resource* for Component 3. Further core materials were revealed for Component 4 with reading series and children's newspapers or magazines loading onto the factor.

Reliability analyses were calculated for each of the merged benchmarks to determine whether the factors formed reliable scales at each using Cronbach's Alpha. Table 8.17 below provides the case processing summary for the nine items of the reading instruction materials scale at each of the merged benchmarks.

Table 8.17: **Case processing summary for scale of reading instruction materials**

Merged benchmarks	EAL 175- 325		EFL 175- 325		EFL 400		EFL 475- 550	
Cases	n	%	n	%	n	%	n	%
Valid cases included	5767	75.8	1149	79.6	465	92.4	525	85.0
Excluded	1844	24.2	295	20.4	38	7.6	93	15.0
Total	7611	100.0	1444	100.0	503	100.0	618	100.0

Cronbach's alpha coefficients were between .6 and .7 and thus the scale met the criterion of .5 set for exploratory analysis at each of the merged benchmarks (Table 8.18). Furthermore, a review of the item-total statistics at each benchmark did reveal possibilities to enhance the reliability of the scale at each the benchmarks via the deletion of an item for the scale. PC software at EAL 175-325, textbooks at EFL 175-325 and at EFL 400 and reading series at EFL 475 were possibilities for deletion based on the item statistics. As the descriptive statistics revealed that PC software did not feature in reading instruction at EAL 175-325 this was a viable possibility for removal. The removal of textbooks at EFL 175-325 would not have made any difference to the factors reported as it was omitted based on its factor loading value. Table 8.19 provides the scale statistics across the merged benchmarks.

Table 8.18: **Reliability statistics for scale of reading instruction materials**

Merged benchmarks							
EAL 175- 325		**EFL 175- 325**		**EFL 400**		**EFL 475- 550**	
Cronbach's Alpha	Highest Alpha if item deleted	Cronbach's Alpha	Highest Alpha if item deleted	Cronbach's Alpha	Highest Alpha if item deleted	Cronbach's Alpha	Highest Alpha if item deleted
.619	.649	.532	.644	.516	.704	.439	.657

Table 8.19: **Scale statistics for reading instruction materials**

Merged benchmarks	EAL 175- 325	EFL 175- 325	EFL 400	EFL 475- 550
Mean	24.27	22.78	22.99	22.68
Variance	12.009	9.087	8.265	8.123
Standard deviation	3.465	3.014	2.875	2.850

8.4.3 Teachers' use of fiction and non-fiction materials

Teachers indicated how often they had their learners read fiction[52] or non-fiction[53] texts (Table 8.20 below). Except for non-fiction which was used *less than weekly* for most learners at EAL 325, the majority of learners across the benchmarks used fiction and non-fiction

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[52] Short stories, longer books with chapters, poems, and plays.
[53] Descriptions and explanations about things, people or events, instructions or manuals about how things work, and charts, diagrams, graphs.

materials *at least weekly*. Even so, many learners at each of the class average benchmarks were in classes where fiction and non-fiction materials were used *less than weekly.*

Table 8.20: **Teachers' frequency of use of fiction or non-fiction for reading**

PIRLS 2006 Class Benchmarks	Use of fiction				Use of non-fiction			
	At least weekly*		Less than weekly**		At least weekly		Less than weekly	
	n	% (SE)	n	% (SE)	n	% (SE)	n	% (SE)
175 EFL	653	73.1 (10.8)	157	26.9 (10.8)	677	83.0 (11.6)	133	17.1 (11.6)
175 EAL	5718	84.7 (3.2)	1176	15.3 (3.2)	5413	79.6 (3.8)	1368	20.4 (3.8)
325 EFL	388	76.2 (15.9)	115	23.8 (15.9)	339	67.9 (15.9)	164	32.1 (15.9)
325 EAL*	184	100.0 (0.0.)	-	-	118	45.0 (22.0)	66	55.0 (22.0)
400 EFL	182	70.0 (17.7)	81	30.0 (17.7)	219	88.1 (12.5)	41	11.9 (12.5))
475 EFL	241	100.0 (0.0)	-	-	190	76.6 (16.1)	51	23.4 (16.1)
550 EFL*	52	60.7 (42.9)	28	39.3 (17.3)	38	54.7 (47.7)	28	45.3 (47.7)

* Response options *every day or almost every day* and *once or twice a week* were combined as *at least weekly*.
**Response options *once or twice a month and never or almost never* were combined as *less than weekly*.

8.4.4   Differentiation of reading instruction materials

Teachers gave an indication of their use of reading materials to differentiate instruction for learners at different reading levels. At all of the class benchmarks except EFL 550, teachers of the majority of learners reported using *the same materials with learners at different reading levels working at different speeds* (Figure 8.9 below). Teachers of most learners (61%) at EFL 550 reported using *different materials with learners at different reading levels* with the next highest percentages of learners at the rest of the benchmarks teachers who also used different materials for these purposes.
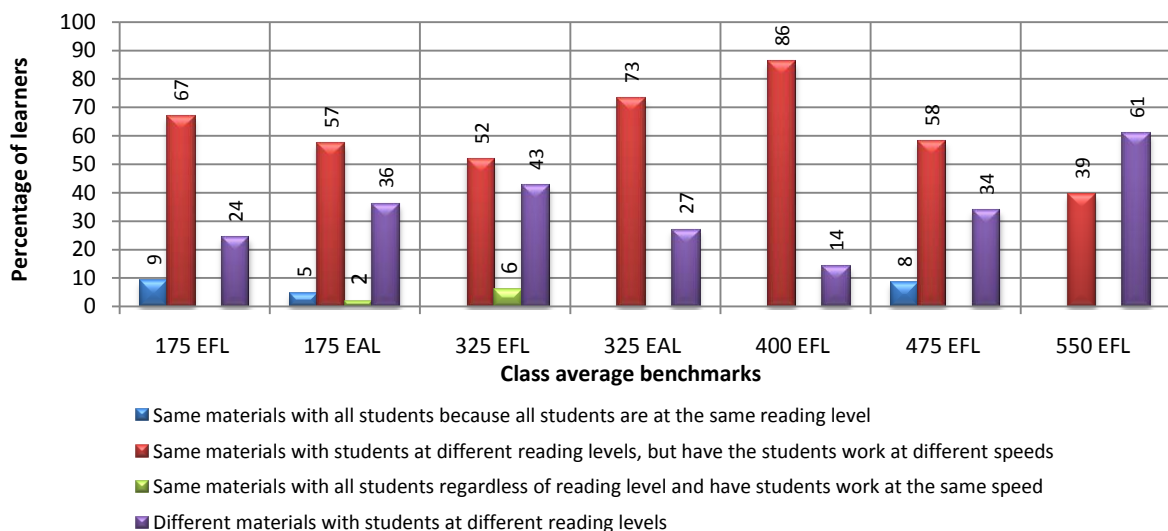

Figure 8.9: **Teacher reports on material differentiation for learners at different reading levels for reading instruction**

8.4.5   Summary and discussion of reading resource availability and use

Nearly all of the Grade 4 learners at the PIRLS 2006 international benchmarks were in classes with a library. At the EAL 175 and EFL 325 benchmarks the majority of learners did not have access to a classroom library whereas only a small majority of learners in classes with an average at EFL 175 did have access to such a library. Thus, most learners in the lowest performing classes did not have adequate access to a variety of resources in their classrooms to stimulate their reading literacy development. With the exception of the two EAL class average benchmarks, there appeared to be sufficient mean numbers of books with different titles in the classes which did have libraries at the other benchmarks. At EAL 325, there were also no magazine titles available. EAL learners especially need access to a wide variety of reading materials. The majority of learners who had access to a classroom library were given class time to use it *every day or almost every day*. Therefore, it does seem that if a classroom library was available then it was a frequently utilised resource. With the exception of most learners at EFL 325 and EFL 400 who were not able to take books home from the class library, the majority of learners at the other benchmarks were able to do so. Most learners at EFL 400 and higher had access to another library outside the classroom *once or twice a week.* In stark contrast, the highest percentages of learners at the lower benchmarks *never or almost never* had access to a library outside of the classroom.

Descriptive statistics revealed that textbooks were used *every day or almost every day* or *once or twice a week* for instruction for most learners except for the majority at EFL 400 who used them infrequently. Reading series were used *once or twice a week* for the majority of learners at the lower benchmarks. At EFL 400, most learners used reading series infrequently but at the two highest benchmarks the majority used reading series *every day or almost every day* or *once or twice a week.* Workbook or worksheet use was frequent across the benchmarks with the majority of learners using these *every day or almost every day* or *once or twice a week.* Newspapers and magazines were not used frequently for majorities at all of the benchmarks. Newspapers and magazines are readily accessible and a relatively inexpensive source to use. It is thus surprising that they were not a more regularly used resource. It was only at the two highest benchmarks that a variety of children's books were used daily for most learners whereas at the other benchmarks most learners *never or almost never* used them or only had exposure to such books *once or twice a month.* If one takes into consideration that many learners the lower benchmarks did not have access to a classroom library or any other library during school hours, this lack of frequent access to a variety of children's books could also contribute to a dearth in these learners' exposure to a variety of literature experiences for their reading literacy development.

Factor analyses at the merged benchmark of EAL 175-325 further revealed that a variety of children's books, materials from other subjects and materials written by learners linked together as infrequently used instructional materials along with technology for reading instruction. Core materials at the merged benchmark included textbooks, workbooks and worksheets as well as newspapers and magazines. At EFL 175-325 reading series, workbooks or worksheets and children's newspapers or magazines were core materials and similarly to EAL 175-325 materials from other subjects, technology for reading instruction and materials written by learners were infrequent reading materials used for instruction.

Apart from reporting about non-fiction material use at EAL 325, the majority of learners across the benchmarks had teachers who reportedly used fiction and non-fiction materials *at least weekly*. National policy guidelines (DoE, 2002b) for Grade 4 advocate the use of newspaper clippings, books, brochures, magazines and poems for reading instruction, as examples. Recommended texts vary from short written pieces to full-length literary works (DoE, 2002b). At all of the class benchmarks except EFL 550, teachers of the majority of learners reported using *the same materials with learners at different reading levels working at different speeds.* Teachers of the majority at EFL 550 reported using *different materials with learners at different reading levels.*

8.5 TIME ALLOCATION FOR INSTRUCTION

This section reports mean time allocation for language instruction at each of the class average benchmarks (8.5.1). It also reports mean time allocation for reading instruction and frequency of reading instruction and activities (8.5.2). In sub-section 8.5.3, the data presented in the section are summarised and discussed.

8.5.1 Teaching time allocation for Language

Teachers gave an indication of the amount of time (hours and minutes) allocated for instruction and/or activities in the language which their learners were tested in for the PIRLS 2006 assessments[54] (Table 8.21 below).

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[54] For learners in EFL classes, English was the language of testing and for learners in EAL classes, an African language was the language of testing.

Table 8.21: **Mean time spent on language instruction and/or activities for language of testing in a typical week**

PIRLS 2006 Class Benchmarks	n	HOURS Mean (SE)	n	MINUTES Mean (SE)	TOTAL
175 EFL	713	4.6 (0.4)	713	18.3 (4.9)	4 hours 54 minutes
175 EAL	4756	5.2 (0.3)	4756	16.8 (1.5)	5 hours 30 minutes
325 EFL	415	5.5 (0.6)	415	20.9 (4.5)	5 hours 54 minutes
325 EAL*	184	4.1 (0.6)	184	10.1 (6.9)	4 hours 27 minutes
400 EFL	179	6.8 (0.7)	179	17.6 (12.0)	7 hours 06 minutes
475 EFL	224	5.1 (0.4)	224	15.5 (5.8)	5 hours 24 minutes
550 EFL*	80	6.8 (1.9)	80	6.9 (6.1)	6 hours 54 minutes

Learners in classes at EFL 400 followed closely by those at EFL 550 had the most time allocated for English language instruction on average. At EAL 175, EFL 325 and EFL 475 a mean of about five-and-a-half to six hours was spent on instruction in the language of testing whereas at EFL 175 and EAL 325 a mean of about 4-and-a-half to five hours was spent.

8.5.2 Time allocation for and frequency of reading instruction

Teachers indicated, regardless of whether or not they had formally scheduled time for reading instruction, how much time they spent on reading instruction and/or activities in a typical week (Table 8.22 below). Mean time allocation across each of the class average ranged from 3 hours each at EFL 175 and EAL 325 to 9 hours and 24 minutes at EFL 475.

Table 8.22: **Mean time spent on reading instruction and/or activities in a typical week****

PIRLS 2006 Class Benchmarks	n	HOURS Mean (SE)	n	MINUTES Mean (SE)	TOTAL
175 EFL	767	2.7 (0.5)	801	15.1 (5.0)	3 hours
175 EAL	6156	3.2 (0.3)	6156	16.5 (1.5)	3 hours 30 minutes
325 EFL	430	5.1 (1.9)	465	24.1 (6.4)	5 hours 30 minutes
325 EAL*	184	2.8 (1.1)	184	10.7 (5.9)	3 hours
400 EFL	219	6.6 (2.3)	219	21.4 (6.1)	7 hours
475 EFL	202	9.2 (2.7)	202	11.3 (6.3)	9 hours 24 minutes
550 EFL*	80	2.4 (1.2)	80	15.7 (17.2)	2 hours 42 minutes

***Including cross-curricular reading instruction and formally scheduled time for reading*

As indicated in Figure 8.10 below, the majority of learners had teachers who pointed out that some of the time allocated for reading instruction activities was explicitly appointed to formal reading instruction. However, lower percentages of learners at EFL 175, EAL 175 and EFL 475 had such scheduled time compared to their peers at the other benchmarks.
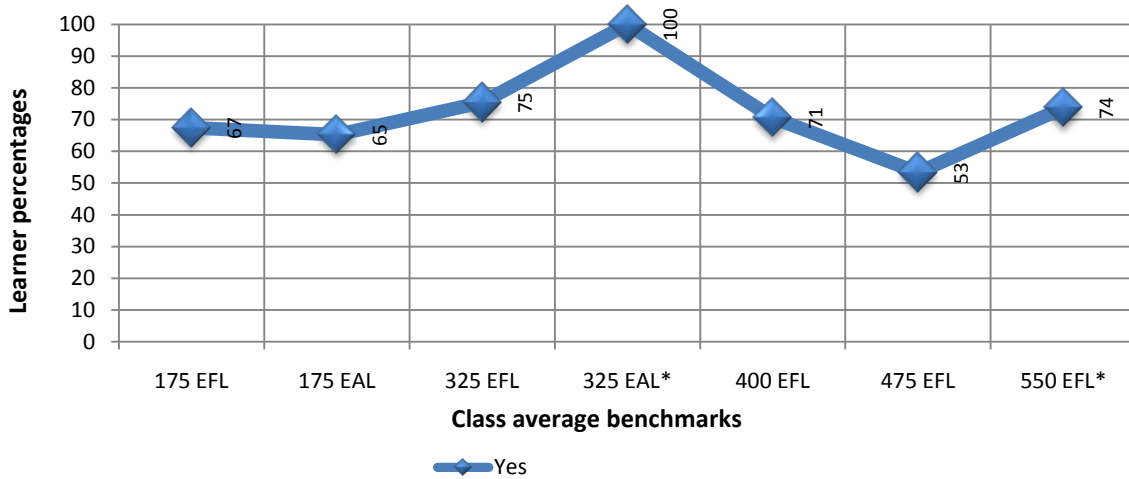
Figure 8.10: **Percentage of learners who had time specifically given to formal reading instruction**

Those teachers that indicated that time was explicitly dedicated to formal reading instruction, outlined how much time was given (Table 8.23 below). Mean time allocation at each of the benchmarks ranged between 1 hour 18 minutes at EFL 475 and 2 hours 48 minutes at EFL 400. Less mean time was allocated to formal reading instruction at the two highest benchmarks than to such instruction at the other benchmarks.

Table 8.23: **Mean time spent explicitly on formal reading instruction**

PIRLS 2006 Class Benchmarks	n	HOURS Mean (SE)	n	MINUTES Mean (SE)	TOTAL
175 EFL	592	2.2 (1.0)	592	14.4 (4.8)	2 hours 24 minutes
175 EAL	4110	1.7 (0.2)	4110	13.9 (1.9)	1 hour 54 minutes
325 EFL	393	1.4 (0.3)	393	15.9 (6.0)	1 hour 42 minutes
325 EAL*	117	1.8 (0.6)	117	3.3 (2.9)	1 hour 54 minutes
400 EFL	104	2.6 (0.7)	104	8.9 (9.6)	2 hours 48 minutes
475 EFL	123	1.1 (0.2)	123	11.2 (7.5)	1 hour 18 minutes
550 EFL*	52	0.9 (1.1)	52	45.3 (5.6)	1 hour 42 minutes

Teachers also indicated how often they had reading instruction and/ or did reading activities with their learners in a week. Response options were *every day, three or four days a week* or *fewer than three days a week*. Whereas one would anticipate that struggling learners would have had reading instruction and/ or reading activities every day, the data does not suggest that this is the case (Table 8.24 below). Most learners at EFL 175 and EAL 175 only had reading instruction or did reading activities either *three or four days a week* or *fewer than three days a week.* High percentages of learners at EAL 325 (50%) and EFL 325 (50%) had teachers who reported having reading instruction or activities *every day*. Despite this, there

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were still very high percentages of learners in at these benchmarks who had reading instruction or activities *fewer than three days a week*. At EFL 400 and EFL 475 the majority of learners (97% and 61% respectively) had reading instruction or activities *every day*.

Table 8.24: **Teacher reports on how often learners had reading instruction and/or did reading activities**

PIRLS 2006 Class Benchmarks	Every day		Three or Four days a week		Fewer than three days a week	
	n	% of learners (SE)	n	% of learners (SE)	n	% of learners (SE)
175 EFL	199	19.0 (9.6)	447	42.1 (13.1)	234	38.9 (14.4)
175 EAL	1641	25.7 (4.2)	2975	43.0 (4.3)	2323	31.3 (3.9)
325 EFL	204	49.7 (15.1)	66	9.0 (6.7)	233	41.4 (14.1)
325 EAL*	91	49.9 (26.9)	-	-	65	50.1 (26.9)
400 EFL	260	97.3 (2.9)	-	-	37	2.8 (1.0)
475 EFL	168	61.3 (18.4)	50	22.4 (14.1)	23	16.3 (5.0)
550 EFL*	24	34.4 (30.5)	28	39.3 (17.3)	28	26.3 (18.3)

8.5.3 Summary and discussion of time allocation for instruction

Learners at EFL 400 followed closely by those at EFL 550 had the most mean time allocated for language instruction. Like their peers at the lower benchmarks (see sub-section 6.4.2), high percentages of learners at EFL 400 did not speak English as a first language. Thus, the higher mean time allocated to English language at EFL 400 in comparison to allocation at the lower benchmarks may have been beneficial for their achievement. For those learners tested in an African language at EAL 175 and EAL 325 the majority of the allocated language instruction time may have been given to instruction in an African language even though it was likely that these learners had to learn in English at Grade 4.

Mean time allocation for reading instruction and/or activities across each of the class average benchmarks ranged from about three to nine hours. Perhaps the vast differences in mean time allocated are a reflection of differences in reporting by those teachers that either only taught their learners language as opposed to those who taught them all learning areas and could thus better judge the amount of cross-curricular reading undertaken. The majority of learners had some of this time for reading instruction activities explicitly appointed to formal reading instruction. Mean time allocation for formal reading instruction at each of the benchmarks ranged between 1 hour 18 minutes at EFL 475 and 2 hours 48 minutes at EFL 400, again suggesting that this may have been positive for the EFL 400 learners given their majority second language status. Less mean time was allocated to formal reading instruction

at the two highest benchmarks than at the others perhaps suggesting less need for such instruction at these benchmarks.

Most learners at the lowest benchmark of 175 only had reading instruction or did reading activities either *three or four days a week* or *fewer than three days a week*. At EAL 325 and EFL 325, although high percentages of learners had reading instruction or activities *every day*, still many others had reading instruction or activities *fewer than three days a week*. At EFL 400 and EFL 475 large majorities of learners had reading instruction or activities *every day*. Daily reading instruction and/or activities is crucial for further reading development.

8.6 INSTRUCTIONAL STRATEGIES AND ACTIVITIES

In this section reported classroom reading instruction practices (8.6.1) and reading comprehension development practices (8.6.2) are considered across the class average benchmarks followed by a discussion and summary of the data presented (8.6.3).

8.6.1 Classroom reading instruction practices

In this sub-section, teachers' reading instruction activities are discussed (*8.6.1.1)* followed by consideration of their organisation of learners for reading instruction (*8.6.1.2*).

8.6.1.1 Reading instruction activities

Teachers indicated how often they undertook a selection of ten different reading activities when they had reading instruction and/or did reading activities with their learners. These activities included: reading aloud to the class; asking students to read aloud to the whole class; asking students to read aloud in small groups or pairs; asking students to read silently on their own; asking students to read along silently while other students read aloud; giving students time to read books of their own choosing; teaching or modelling for students different reading strategies; teaching students strategies for decoding sounds and words; teaching students new vocabulary systematically; and helping students understand new vocabulary in texts they read.

An exploratory factor analysis of the seven items for the four merged benchmarks was undertaken to determine if any underlying structures were apparent for the scale. The merged benchmarks of EAL 175-325, EFL 175-325 and EFL 475 -550 met the inclusion criteria set for the factor analysis (Table 8.25 below). All of the communalities were above .4

at the three benchmarks. Four components were identified at EAL 175-325, three at EFL 175-325 and four at EFL 475-550 (Table 8.26 below).

Table 8.25: **Kaiser- Meyer- Olkin and Bartlett's test of Sphericity for teachers' reading activity undertakings**

Merged benchmarks		EAL 175-325	EFL 175-325	EFL 400	EFL 475-550
Kaiser-Meyer- Olkin Measure of Sampling Adequacy		.673	.578	.440	.642
Bartlett's Test of Sphericity	Approx chi-square	12591.786	4243.216	5160.388	3352.916
	Df	45	45	45	45
	Sig.	.000	.000	.000	.000

Table 8.27 below shows the factor loadings after rotation at EAL 175-325, EFL 175-325 and EFL 475-550. A Kruskal-Wallis test revealed significant differences in factors comprising the teachers' use of reading instruction at different benchmarks (see appendix J). Component 1 for EAL 175-325 comprised teaching strategies for decoding sounds and words, teaching new vocabulary systematically and helping learners understand new vocabulary in texts. The descriptive statistics for these items also suggest that the *vocabulary and fluency development* characterising this factor featured frequently at both benchmarks comprising the merged benchmark.

Component 1 for EFL 175-325, *vocabulary and fluency development with independent reading,* had the same items loading onto it as those for component 1 of EAL 175-325 with the addition of *independent silent reading activities* (reading silently on own and reading silently whilst other learners read aloud). From the descriptive statistics it was evident that learners' reading silently on their own was prominent with most doing this either *every day or almost every day* or *once or twice a week.* However, the majority of learners did not read silently whilst other learners read aloud and, as such, the item was removed from the component due to its lack of frequency coherence with the other items comprising the factor. Like those items loading onto component 1 for the other two merged benchmarks, at EFL 475-550 items loading onto component 1 also involved *vocabulary and fluency development* (teaching learners strategies for decoding sounds and words and teaching new vocabulary systematically). Moreover, like component 1 for EFL 175-325, the factor featured *independent reading* activities (reading silently on own and giving time to read books of own choosing). The descriptive statistics for these items confirmed the frequency of independent reading activities and vocabulary development but revealed that teaching strategies for decoding sounds and words was infrequent and therefore it was removed from the factor particularly as it loaded onto another factor for the merged benchmark.

Table 8.26: Total variance explained for teachers' use of reading instruction activities

Component	EAL 175-325			EFL 175-325			EFL 475-550		
	Initial Eigen values			Initial Eigen values			Initial Eigen values		
	Total	Variance %	Cum %	Total	Variance %	Cum %	Total	Variance %	Cum %
1	2.831	28.305	28.305	3.216	32.157	32.157	4.015	40.149	40.149
2	1.489	14.892	43.197	1.563	15.628	47.785	1.542	15.424	55.573
3	1.182	11.819	55.017	1.474	14.736	62.521	1.278	12.778	68.351
4	1.040	10.402	65.419	.948	9.480	72.001	1.029	10.285	78.636
5	.754	7.536	72.955	.727	7.274	79.274	.696	6.956	85.592
6	.734	7.336	80.291	.684	6.839	86.114	.614	6.143	91.735
7	.665	6.645	86.936	.499	4.993	91.107	.345	3.453	95.188
8	.577	5.768	92.704	.395	3.952	95.059	.280	2.796	97.984
9	.389	3.886	96.590	.307	3.072	98.131	.137	1.375	99.359
10	.341	3.410	100.000	.187	1.869	100.000	.064	.641	100.000

Table 8.27: Factor loadings for teachers' use of reading instruction activities

	Factor loadings										
Items	EAL 175-325				EFL 175-325			EFL 475-550			
Components	1	2	3	4	1	2	3	1	2	3	4
Read aloud to the class		.753					.705				.873
Ask learners to read aloud to the whole class		.852					.834			.813	.412
Ask learners to read aloud in small groups or pairs		.671				.653					.638
Ask learners to read silently on their own			.796		.709			.430	.583		
Ask learners to read along silently while other learners read aloud				.812	.766				.852		
Give learners time to read books of their own choosing			.770			.679		.759			
Teach or model for learners different reading strategies			.466	.585		.700			.862		
Teach learners strategies for decoding sounds and words	.684				.400	.678		.775	.411		
Teach learners new vocabulary systematically	.839				.719			.825			
Help learners understand new vocabulary in texts they are reading	.791				.657					.896	

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Component 1 for each of the merged benchmarks explained the highest percentage of variance. The remaining components at each benchmark had comparable percentage values explaining variance and therefore it does seem that each played a secondary role.

The descriptive statistics for how often the teacher read aloud and how often learners read aloud to the whole class revealed that reading aloud by both parties was a weekly or daily instructional activity for high majorities of learners across the class average benchmarks. Teachers also reportedly got the majority of their learners to read aloud in small groups or pairs either *once or twice a week* or *every day or almost every day* at benchmarks of EFL 400 and lower. At EFL 475 and EFL 550 reading aloud in small groups or pairs only featured *once or twice a month* for the highest percentages of learners. For the factor analysis of the merged benchmarks, reading instruction activities involving *reading aloud* (the teacher reading aloud, learners reading aloud to the whole class and learners reading aloud in small groups or pairs) as an instructional activity loaded onto component 2 at EAL 175-325 and component 4 at EFL 475-550. Two items involving *reading aloud* (teachers reading aloud to the whole class and learners reading aloud to the whole class) loaded onto component 3 of EFL 175-325. Learner reading aloud coupled with helping learners to understand new vocabulary in text also loaded onto component 3 of EFL 475-550. Thus *reading aloud* instructional activities played an important auxiliary role at each of the benchmarks.

Component 3 of EAL 175-325 had two items suggesting *independent reading activities* (asking learners to read silently on their own and giving learners time to read books of their own choosing) as part of instruction, activities that were part of the core instructional strategies for component 1 of EFL 175-325 and EFL 475-500. Teaching or modelling different reading strategies for learners also loaded onto this component but was removed as it does not seem to link practically with independent reading activities.

Component 2 of EFL 175-325 comprised items (asking learners to read aloud in small groups or pairs, giving learners time to read books of their own choosing, teaching or modelling different reading strategies and teaching decoding strategies) different to those which clustered onto component 1 for the benchmark with the exception of teaching decoding strategies. According to the descriptive statistics reading aloud in small groups and pairs and giving learners time to read books of their own choosing occurred frequently for the majority of learners at the benchmarks comprising EFL 175-325. Teaching or modelling different reading strategies was removed from the factor as it was an infrequent activity according to the descriptive statistics and teaching learners strategies for decoding sounds

or words was also removed as it did not relate conceptually to the other two *independent reading activities* and also featured as part of component 1 for the merged benchmark.

Component 4 of EAL 175-325 consists of asking learners to reading along silently whilst other learners read aloud, which was a frequent feature of instruction according to the descriptive statistics, and teaching or modelling different reading strategies for learners which was not frequently used as part of instruction. There appears to be no latent variable for the component and therefore the factor seems to be redundant.

Component 2 for EFL 475-550 had four items loading onto it (learners reading silently on their own, learners reading along silently while other learners read aloud, teaching or modelling different reading strategies for learners and teaching learners strategies for decoding sounds or words). According to the descriptive statistics at each benchmark comprising the merged benchmark, both forms of independent silent reading were frequently undertaken. Teaching strategies for decoding sounds and words and teaching or modelling different reading strategies were infrequent. As component 1 for EFL 475-550 already established the position of independent silently reading these were removed from the component. The other two items were retained as *infrequent reading instruction activities* at the merged benchmark.

Reliability analyses were calculated for each of the merged benchmarks to determine whether the factors formed reliable scales at each using Cronbach's Alpha. Table 8.28 below provides the case processing summary for the scale under consideration at each of the merged benchmarks. With Cronbach's alpha coefficients between .6 and .8, the scale met the criterion of .5 set for exploratory analysis at each of the merged benchmarks. Furthermore, a review of the item-total statistics (see Appendix K) revealed that there were no significant differences between the reliability of the scale and its reliability if any of its items were deleted at any of the benchmarks (see Table 8.29).Table 8.30 provides the scale statistics across the merged benchmarks.

Table 8.28: **Case processing summary for scale of teachers' use of reading instruction activities**

Merged benchmarks	EAL 175- 325		EFL 175- 325		EFL 400		EFL 475- 550	
Cases	n	%	n	%	n	%	n	%
Valid cases included	6538	85.9	1319	91.3	503	100.0	581	94.0
Excluded	1073	14.1	125	8.7	0	.0	37	6.0
Total	7611	100.0	1444	100.0	503	100.0	618	100.0

Table 8.29: Reliability statistics for scale of teachers' use of reading instruction activities

Merged benchmarks							
EAL 175- 325		EFL 175- 325		EFL 400		EFL 475- 550	
Cronbach's Alpha	Highest Alpha if item deleted	Cronbach's Alpha	Highest Alpha if item deleted	Cronbach's Alpha	Highest Alpha if item deleted	Cronbach's Alpha	Highest Alpha if item deleted
.693	.695	.749	.749	.871	.867	.817	.816

Table 8.30: Scale statistics for scale of teachers' use of reading instruction activities

Merged benchmarks	EAL 175- 325	EFL 175- 325	EFL 400	EFL 475- 550
Mean	21.18	20.58	20.75	18.12
Variance	18.763	18.966	29.481	24.068
Standard deviation	4.332	4.355	5.430	4.906

8.6.1.2   Organisation of learners for reading instruction and/or activities

Teachers were asked how often they organised learners in a number of ways for reading instruction and activities. Six items were included for consideration, namely: teaching reading as a whole class activity; organising same-ability groups for reading; organising mixed-ability groups for reading; using individualised instruction for reading; students working independently on an assigned plan or goal; and students work independently on a goal they choose themselves. At EFL 550, EFL 475, EAL 325, EFL 325 and EAL 175, the majority of learners *often* or *always or almost always* had reading as a whole class activity. For many of the learners at class benchmarks EFL 175 (53%), EAL 325 (43%) and EFL 400 (59%), reading as a whole class activity occurred *sometimes* (Figure 8.11).
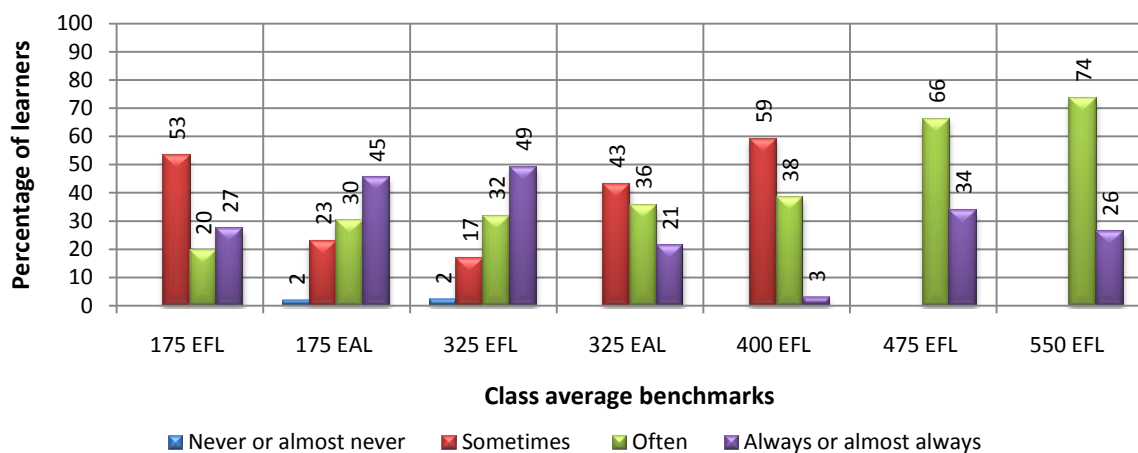

Figure 8.11: Teacher reports about teaching reading as a whole class activity

The creation of same-ability groups for reading instruction occurred *sometimes* or *often* for most learners at each of the class average benchmarks (Figure 8.12).
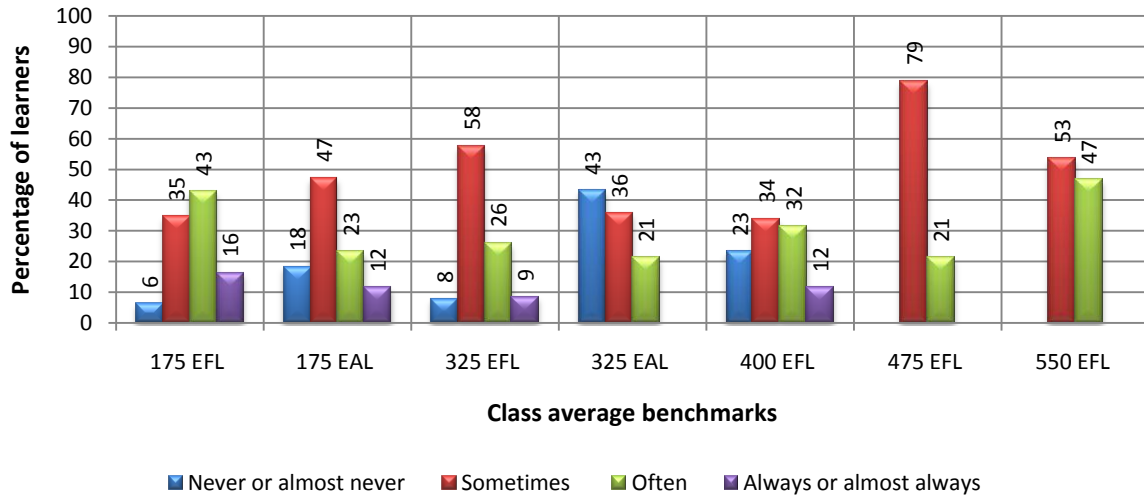

Figure 8.12: **Teacher reports about organising same-ability groups for reading**

Mixed-ability grouping for reading instruction appeared to be more prominent than same-ability grouping for instruction at EFL 400 and lower with the highest percentages of learners reportedly being grouping for reading in this manner *often* or *always or almost always.* However at the two highest benchmarks of EFL 550 and EFL 475 the majority of learners only had reading instruction in mixed-ability groups *sometimes* or *never or almost never* (Figure 8.13).
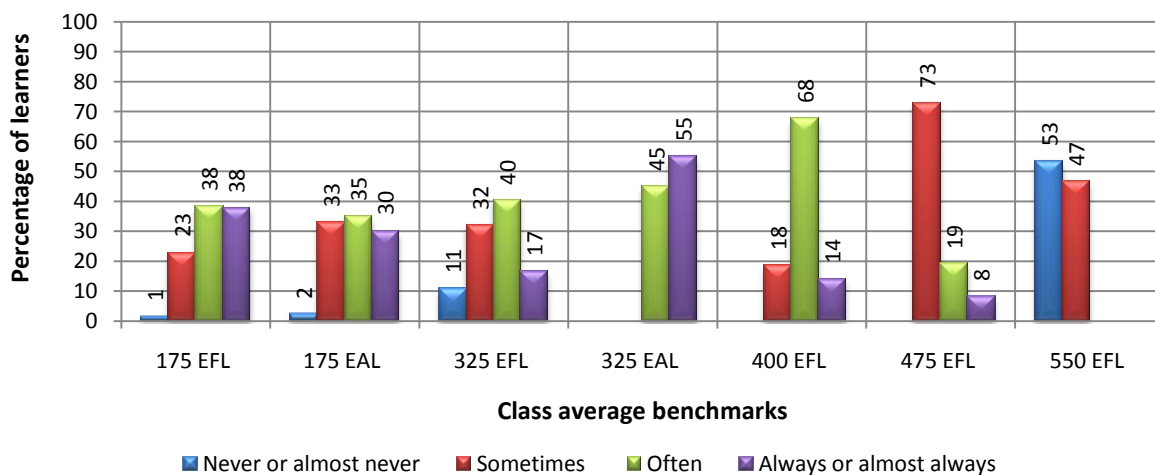
Figure 8.13: **Teacher reports about organising mixed-ability groups for reading**

Individualised instruction for reading *sometimes* occurred for the majority of learners in classes reaching each of the PIRLS international benchmarks. However, in comparison,

there was much more variation in the use of individualised instruction at the lower class average benchmarks. Perhaps indicative of the level of intensive support for reading still needed by these learners, the majority at EFL 175, EAL 175 and EFL 325 *often* or *always or almost always* and 30% of learners at EAL 325 *always or almost always* received such instruction (Figure 8.14).
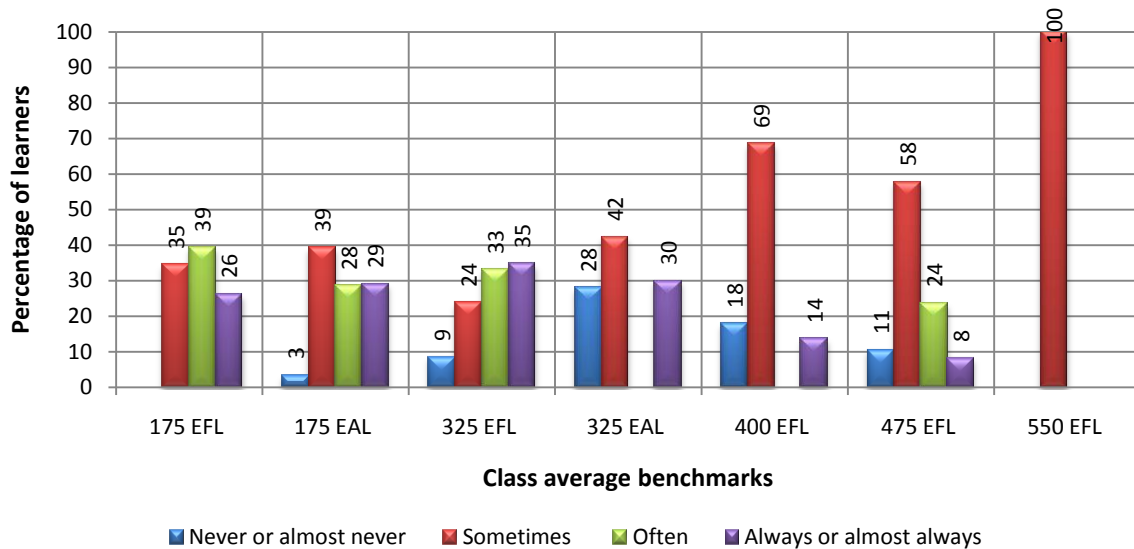

Figure 8.14: **Teacher reports about using individualised instruction for reading**

The majority of learners at EFL 475 and lower reportedly *often* or *sometimes* worked independently on an assigned plan or goal for reading instruction whereas all the learners at EFL 550 only *sometimes* did so (Figure 8.15).
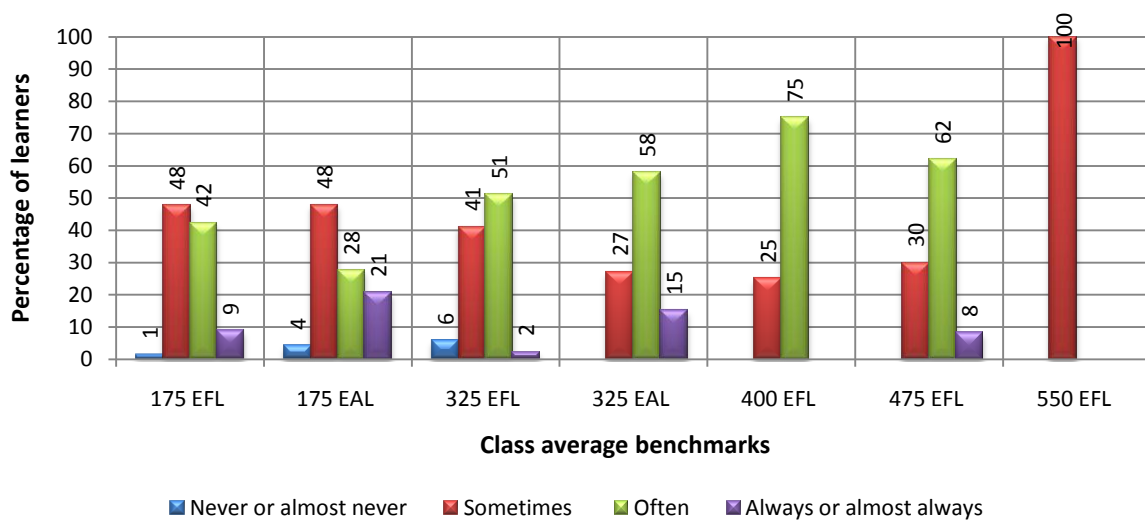

Figure 8.15: **Teacher reports about learners working independently on an assigned plan or goal**

Teachers reported that the highest percentages of their learners at each of the class average benchmarks *sometimes* worked independently on a reading goal they chose themselves (Figure 8.16 below).
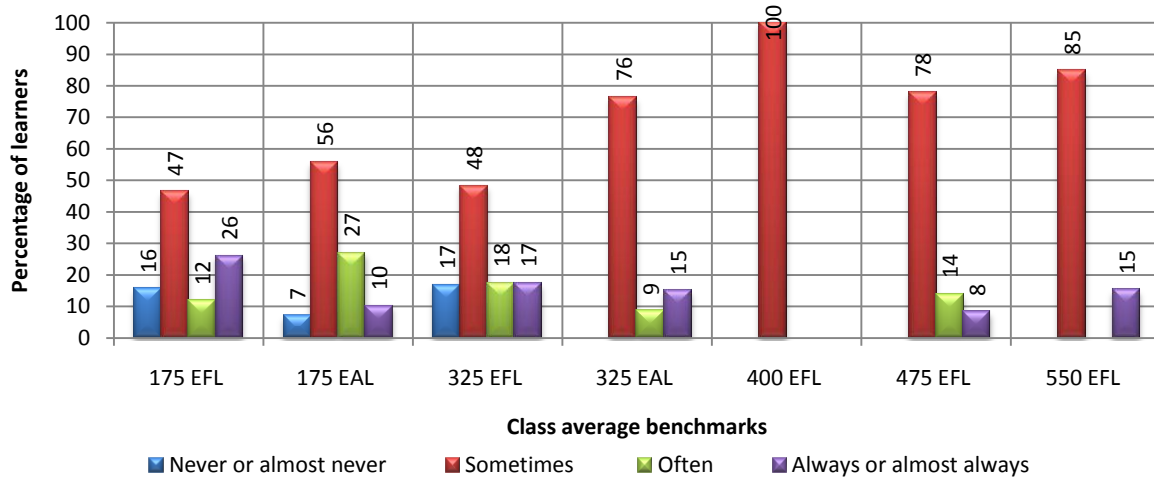

Figure 8.16: **Teacher reports about learners working independently on a goal they choose themselves**

8.6.2 Reading comprehension development practices

In this sub-section, teachers' reported reading comprehension skill and strategy development practices (*8.6.2.1*) are presented together with consideration of their post-reading comprehension activities (*8.6.2.2*).

8.6.2.1 Reading comprehension skill and strategy development practices

Teachers were asked about the frequency of seven activities to develop learners' reading comprehension skills and strategies. These activities included: identifying the main ideas of what they had read; explaining or supporting learners' understanding of what they had read; comparing what they had read with experiences they had; comparing what they had read with other things they had read; making predictions about what would happen next in the text they were reading; making generalisations and drawing inferences based on what they had read; and describing the style or structure of the text they had read. To determine whether there was an underlying structure for these items, an exploratory factor analysis of the seven items for the four merged benchmarks occurred. The merged benchmarks of EAL 175-325, EFL 175-325 and EFL 475- 550 met the criteria for inclusion in the analysis (Table 8.31 below).

Table 8.31: **Kaiser-Meyer-Olkin and Bartlett's test of Sphericity for activities to develop reading comprehension skills and strategies**

Merged benchmarks		EAL 175- 325	EFL 175- 325	EFL 400	EFL 475- 550
Kaiser-Meyer- Olkin Measure of Sampling Adequacy		.838	.811	.414	.713
Bartlett's Test of Sphericity	Approx chi-square	25403.526	5714.099	3367.927	2646.884
	Df	21	21	21	21
	Sig.	.000	.000	.000	.000

All of the communalities were above .4 at the three benchmarks. One component was identified for EAL 175-325, and two components for EFL 175-325 and EFL 475-550 respectively (Table 8.32 below).

Table 8.33 (below) shows the factor loadings after rotation at EFL 175-325 and EFL 475-550 and the factor loading at EAL 175-325. Significant differences were found for factors comprising teachers' activities to develop reading comprehension skills and strategies across the benchmarks (see appendix J). All seven items clustered onto component 1 at EAL 175-325 showing a lack of latent variables for the items of the scale at this merged benchmark. Six items loaded onto component 1 of EFL 175-325. Some of the items for component 1 also loaded onto component 2 of the merged benchmark which comprised five items. Similar to component 1 of EFL 175-325, component 1 at EFL 475- 550 comprised 5 reading comprehension skills and strategies. Some of these items also loaded onto component 2 at EFL 475-550 too. No latent variable could be determined for any of the components. After the lowest factor loading for items loading onto both components was deleted at each merged benchmark, it was evident that component 1 at EFL 175-325 and EFL 475-550 had the same remaining factors loading onto them (identifying the main ideas, explaining or supporting understanding, making predictions about what will happen next, making generalisations and drawing inferences, describing the style or structure of the text) suggesting that these were core reading comprehension skills and strategies taught at each of the merged benchmarks. After the deletion of the items with lower factor loadings for component 2 at EFL 173-325 and EFL 475-550, two items remained at each (comparing reading with other things read and comparing reading with experiences) suggesting that *comparison* played a secondary role at each of the benchmarks.

Reliability analyses were calculated for each of the merged benchmarks to determine whether the factors formed reliable scales at each using Cronbach's Alpha. Table 8.34 (below) provides the case processing summary for the scale under consideration at each of the merged benchmarks.

Table 8.32: **Total variance explained for teachers' activities to develop reading comprehension skills and strategies**

Component	EAL 175-325 Initial Eigen values			EFL 175-325 Initial Eigen values			EFL 475-550 Initial Eigen values		
	Total	Variance %	Cum %	Total	Variance %	Cum %	Total	Variance %	Cum %
1	4.087	58.390	58.390	4.241	60.591	60.591	3.753	53.614	53.614
2	.979	13.989	72.379	1.014	14.488	75.079	1.381	19.732	73.346
3	.646	9.235	81.614	.615	8.784	83.862	.733	10.473	83.818
4	.438	6.251	87.865	.417	5.957	89.820	.513	7.327	91.145
5	.325	4.641	92.505	.316	4.508	94.327	.314	4.480	95.625
6	.287	4.107	96.612	.253	3.607	97.935	.192	2.743	98.368
7	.237	3.388	100.000	.145	2.065	100.000	.114	1.632	100.000

Table 8.33: **Factor loadings for teachers' for activities to develop reading comprehension skills and strategies**

Items	Factor loadings				
	EAL 175-325	EFL 175-325		EFL 475- 550	
	1	1	2	1	2
Identify the main ideas of what they have read	.745	**.886**		**.659**	
Explain or support their understanding of what they have read	.732	**.697**	.489	**.529**	.520
Compare what they have read with experiences they have had	.776	.412	**.734**		**.907**
Compare what they have read with other things they have read	.822		**.916**		**.921**
Make predictions about what will happen next in the text they are reading	.768	**.657**	.506	**.889**	
Make generalisations and draw inferences based on what they have read	.759	.527	.723	**.470**	**.708**
Describe the style or structure of the text they have read	.744	**.812**		**.919**	

Table 8.34: **Factor loadings for teachers' activities to develop reading comprehension skills and strategies**

Merged benchmarks Cases	EAL 175- 325		EFL 175- 325		EFL 400		EFL 475- 550	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Valid cases included	6896	90.6	1313	90.9	503	100.0	618	100.0
Excluded	715	9.4	131	9.1	0	.0	0	.0
Total	7611	100.0	1444	100.0	503	100.0	618	100.0

With Cronbach's alpha coefficients of .8 the scale met the criterion of .5 set for exploratory analysis at each of the merged benchmarks. Furthermore, a review of the item-total statistics revealed that there were no significant differences between the reliability of the scale and its reliability if any of its items were deleted at any of the benchmarks (Table 8.35).Table 8.36 provides the scale statistics across the merged benchmarks.

Table 8.35: **Reliability statistics for scale of teachers' activities to develop reading comprehension skills and strategies**

Merged benchmarks							
EAL 175- 325		EFL 175- 325		EFL 400		EFL 475- 550	
Cronbach's Alpha	*Highest Alpha if item deleted*	*Cronbach's Alpha*	*Highest Alpha if item deleted*	*Cronbach's Alpha*	*Highest Alpha if item deleted*	*Cronbach's Alpha*	*Highest Alpha if item deleted*
.879	.868	.881	.883	.849	.860	.846	.836

Table 8.36: **Scale statistics for scale of teachers' activities to develop reading comprehension skills and strategies**

Merged benchmarks	EAL 175- 325	EFL 175- 325	EFL 400	EFL 475- 550
Mean	14.66	14.69	15.86	15.35
Variance	22.412	20.795	17.371	17.720
Standard deviation	4.734	4.560	4.168	4.209

The descriptive statistics revealed frequent use of the majority of the items comprising the scale at each of the benchmarks. Teachers reported getting their learners to identify the main ideas of what they had read *once or twice a week* for most learners at all of the class benchmarks except EFL 550 where most learners used this comprehension strategy *once or twice a month.* Most learners had teachers who indicated that they explained or supported their learners understanding *once or twice a week* or *every day or almost every day.* At all of the benchmarks except EFL 550, the majority of learners had teachers who reported getting learners to compare what they had read *every day or almost every day* or *once or twice a week.* At EFL 550, this was a weekly or monthly activity for the majority.

At the lower class benchmarks most learners were in classes with teachers that reported getting them to compare what they had read with other reading either *once or twice a month* or *once or twice a week*. In classes reaching the PIRLS International benchmarks teacher responses to this question were more varied. At EFL 400, 29% of learners were in classes where the teacher reported doing this activity *once or twice a month* and 30% were in classes where this activity featured *every day or almost every day*. At EFL 475, 58% were in classes where they teacher got them to do this activity *once or twice a week* whereas at EFL 550, most of the learners were in classes where the teacher reported this activity *once or twice a month* or never or almost never.

 At EFL 175, most learners had teachers who *never or almost never* got them to make predictions about what would happen next in the text they were reading or only did so *once or twice a month*. All of the learners at EFL 550 reportedly *never or almost never* did this activity either. At EFL 325, EFL 400 and EFL 475, most learners had teachers who reported that they made predictions about what would happen next *once or twice a month* or *once or twice a week.* At EAL 325 and EAL 175 most learners did this activity *once or twice a week* or *every day or almost every day*. Except for learners at EFL 175, it seems that this activity was more prominent at the lower class achievement benchmarks. Most learners in classes across the benchmarks had a teacher who reported getting them to make generalisations and draw inferences based on what they were reading *once or twice a month* or *once or twice a week* although the former was most prominent. It does appear that not enough learners in classes at the lower benchmarks did this activity frequently to encourage their higher order comprehension skills. At all of the EFL benchmarks, most learners were *never or almost never* asked to describe the style or structure of texts they were reading or were only asked to do *so once or twice a month.* At EAL 175 most learners either did this activity *once or twice a month* or *once or twice a week*. In contrast to response patterns suggesting little subscription to this comprehension activity at most of the benchmarks, 72% of learners at EAL 325 described the style or structure of text they read *once or twice a week*.

8.6.2.2   *Post-reading comprehension activities*

Teachers indicated how often their learners did a range of activities after they had read something including: answering reading comprehension questions in a workbook or on a worksheet about what they had read; writing something about or in response to what they had read; answering oral questions about or orally summarising what they had read; talking with each other about what they had read; doing a project about what they had read; and taking a written quiz or test about what they had read. To ascertain whether there was an

underlying structure for these items, an exploratory factor analysis of the six items at the four merged benchmarks occurred. All of the merged benchmarks met the criteria for inclusion in the analysis (Table 8.37).

Table 8.37: **Kaiser-Meyer-Olkin and Bartlett's test of Sphericity for teachers' post-reading comprehension activities**

Merged benchmarks		*EAL 175- 325*	*EFL 175- 325*	*EFL 400*	*EFL 475- 550*
Kaiser-Meyer- Olkin Measure of Sampling Adequacy		.750	.801	.716	.746
Bartlett's Test of Sphericity	**Approx chi-square**	8372.401	3810.884	2429.708	1121.381
	Df	15	15	15	15
	Sig.	.000	.000	.000	.000

With the exception of three variables at EAL 175-325, all of the communalities were above .4 at the other benchmarks. The variables *answer reading comprehension questions in a workbook or on a worksheet about what they have read*, *answer oral questions about or orally summarise what they have read* and *take a written quiz or test about what they have read* were removed from the analysis at EAL 175-325. One component was identified for EAL 175-325, one component for EFL 400 and two components for EFL 175-325 and EFL 475-550 respectively (Table 8.38 below). Table 8.39 (below) shows how the items loaded onto each factor at each of the benchmarks.

Three items (write something about or in response to what they have read, talk with each other about what they have read and do a project about what they have read) clustered onto component 1 at EAL 175-325. All of the items loaded onto component 1 for EFL 175-325 and EFL 400 revealing no latent structures for the scale at either merged benchmark. With the exception of asking learners to write something about or in response to what they had read which loaded onto component 2, 5 items of the scale loaded onto component 1 of EFL 475-550 and an underlying commonality was also not evident. Significant differences were revealed by a Kruskal-Wallis test between benchmarks for factors related to teachers' post-reading comprehension activities (see appendix J). Reliability analyses were calculated for each of the merged benchmarks to determine whether the factors formed reliable scales at each using Cronbach's Alpha. Table 8.40 (below) provides the case processing summary for the scale under consideration at each of the merged benchmarks.

Table 8.38: **Total variance explained for teachers' post-reading comprehension activities**

| | EAL 175-325 | | | EFL 175-325 | | | EFL 400 | | | EFL 475-550 | | |
| | Initial Eigen values | | | Initial Eigen values | | | Initial Eigen values | | | Initial Eigen values | | |
Component	Total	Variance %	Cum %	Total	Variance %	Cum %	Total	Variance %	Cum %	Total	Variance %	Cum %
1	2.591	43.188	43.188	3.504	58.393	58.393	4.091	68.188	68.188	2.841	47.352	47.352
2	.966	16.098	59.286	.987	16.453	74.846	.703	11.720	79.909	1.192	19.871	67.223
3	.865	14.419	73.705	.531	8.850	83.697	.534	8.905	88.813	.739	12.313	79.536
4	.621	10.346	84.051	.454	7.574	91.270	.379	6.311	95.124	.508	8.459	87.994
5	.526	8.769	92.820	.296	4.939	96.210	.237	3.945	99.070	.414	6.899	94.893
6	.431	7.180	100.000	.227	3.790	100.000	.056	.930	100.000	.306	5.107	100.000

Table 8.39: **Factor loadings for teachers' post-reading comprehension activities**

| | Factor loadings | | | | |
| Items | EAL 175-325 | EFL 175-325 | EFL 400 | EFL 475-550 | |
Components	1	1	1	1	2
Answer reading comprehension questions in a workbook or on a worksheet about what they have read	-	.772	.793	.821	
Write something about or in response to what they have read	.740	.743	.850		.934
Answer oral questions about or orally summarise what they have read	-	.783	.692	.856	.
Talk with each other about what they have read	.734	.647	.871	.672	
Take a written quiz or test about what they have read	-	.856	.902	.687	
Do a group project about what they have read	.551	.768	.829	.706	

Table 8.40: **Case processing summary for scale of teachers' post-reading comprehension activities**

	Merged benchmarks							
	EAL 175- 325		*EFL 175- 325*		*EFL 400*		*EFL 475- 550*	
Cases	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Valid cases included	7048	92.6	1328	92.0	503	100.0	618	100.0
Excluded	563	7.4	116	8.0	0	.0	0	.0
Total	7611	100.0	1444	100.0	503	100.0	618	100.0

With Cronbach's alpha coefficients between .7 and .9, the scale met the criterion of .5 set for exploratory analysis at each of the merged benchmarks. A review of the item-total statistics revealed that there were was only one significant difference between the reliability of the scale for EFL 475-550 and its reliability if the item *ask learners to write something in response to what they had read* was deleted (Table 8.41).Table 8.42 provides the scale statistics across the merged benchmarks.

Table 8.41: **Reliability statistics for scale of teachers' post-reading comprehension activities**

	Merged benchmarks							
EAL 175- 325		*EFL 175- 325*		*EFL 400*		*EFL 475- 550*		
Cronbach's Alpha	*Highest Alpha if item deleted*	*Cronbach's Alpha*	*Highest Alpha if item deleted*	*Cronbach's Alpha*	*Highest Alpha if item deleted*	*Cronbach's Alpha*	*Highest Alpha if item deleted*	
.732	.723	.851	.848	.904	.894	.711	.794	

Table 8.42: **Scale statistics for scale of teachers' post-reading comprehension activities**

Merged benchmarks	*EAL 175- 325*	*EFL 175- 325*	*EFL 400*	*EFL 475- 550*
Mean	13.13	12.76	14.00	13.44
Variance	8.589	14.828	16.488	6.970
Standard deviation	2.931	3.851	4.061	2.640

A review of the descriptive statistics for each of the items comprising the scale also revealed no major patterns of response distribution. Answering questions in workbooks or on a worksheet, writing something about or in response to reading, answering oral questions and oral summaries of reading were a part of instruction on a daily or weekly basis at each of the benchmarks. The majority of learners across the benchmarks answered reading comprehension questions in a workbook or on a worksheet about what they had read *every day or almost every day* or *once or twice a week.* Except for at EFL 325 and EFL 550 where

the majority of learners did this activity *once or twice a month,* the highest percentages of learners at the rest of the class wrote something about or in response to what they had read *once or twice a week.* Most learners at each of the benchmarks also did oral comprehension tasks *every day or almost every day* or *once or twice a week.*

Teacher reports about how often they got learners to talk with each other about what they had read showed much more divergence at each of the benchmarks. At the lowest class benchmarks most learners either did this activity *once or twice a week* or *every day or almost every day.* At EFL 400, most learners did this activity *every day or almost every day* or *once or twice a month* whereas at EFL 475 most did this activity *once or twice a week* or *once or twice a month.* The majority at EFL 550 only did this activity *once or twice a month.*

The highest percentages of learners (between 41% and 82%) at all of the class average benchmarks reportedly did a project about what they had read *once or twice a month.* The highest percentages of learners (35% to 87%) at EFL 175, EAL 175, EFL 325, EAL 325 and EFL 550 also only did a written quiz or test on reading *once or twice a month.* The majority of learners at EFL 325 (58%) and EFL 475 (51%) did a written quiz or test *once or twice a week* whilst the rest of their peers did this activity *once or twice a month.*

8.6.3 Summary and discussion of instructional strategies and activities

Factor analysis of the items comprising the scale of teachers' use of different reading activities when they had reading instruction and/or did reading activities revealed that vocabulary and decoding skill development were key features of instruction at the lower class average benchmarks. In EFL medium classrooms at these low benchmarks these activities also featured with independent reading activities as a core focus for instruction. Vocabulary and decoding skill development as a core feature for reading instruction makes sense for these learning environments characterised by poor achievement, low reading skill and the EAL status of most learners. Also, independent reading would be unlikely for learners in EAL medium schools due to their switch to English at Grade 4 and likely lack of independent reading ability in the language. Vocabulary development coupled with independent reading activities were core instructional practices at the highest class average benchmarks. Notably, the teaching of strategies for decoding sounds and words was an infrequent feature of reading instruction activities at these highest benchmarks likely as learners had already achieved some level of automaticity in this skill by Grade 4. Reading aloud activities and other combinations of silent and/or independent reading activities were factors apparent from the analysis which seemingly played secondary roles to the core activities of the principal

factor across the benchmarks considered. The descriptive statistics for the item and the analysis of how it loaded onto the components for the factor analysis revealed that teaching or modelling different reading strategies did not play any major complementary role in reading teaching at any of the benchmarks which may be an instructional oversight.

In terms of organisation of learners for reading instruction activities, at EFL 550, EFL 475, EAL 325, EFL 325 and EAL 175 reading was *often* or *almost always* undertaken as a whole class activity. At EFL 175, EAL 325 and EFL 400 reading as a whole class activity occurred *sometimes* for many of the learners. Same-ability grouping for reading instruction occurred *sometimes* or *often* for most learners at each of the class average benchmarks. Although not a feature at the two highest benchmarks, mixed-ability grouping for reading instruction appeared to be more prominent than same-ability grouping for instruction at EFL 400 and lower with many learners *often* or *almost always* doing it. Perhaps the use of more same-ability grouping at these lower benchmarks would make the task of teaching reading to diverse learner groups easier for teachers, especially in large classes. Individualised instruction for reading *sometimes* occurred for the majority at PIRLS international benchmarks. Perhaps indicative of the levels of intensive support for reading still needed by learners at the lower benchmarks, the majority *often* or *always or almost always* received such instruction. The feasibility hereof in large classes is uncertain.

The prominence of the teaching of certain reading comprehension skills and strategies versus others was difficult to ascertain. It was only at the EFL 175-325 and EFL 475-550 merged benchmarks where factor analysis revealed that identifying the main ideas, explaining or supporting understanding, making predictions about what will happen next, making generalisations and drawing inferences, describing the style or structure of the text were core reading comprehension skills and strategies taught. Comparing reading with other things read and comparing reading with experiences played a secondary role at each.

Moreover, a review the descriptive statistics revealed frequent teaching of the majority of the skills and strategies at each of the benchmarks such as: getting learners to identify the main ideas of what they had read; explaining or supporting understanding of what they had read; and getting them to compare what they had read with their own experiences. At the lower benchmarks, most learners had teachers that reported getting them to compare what they had read with other reading either *once or twice a month* or *once or twice a week*. Responses were more varied in classes at the PIRLS international benchmarks. Surprisingly, the highest percentages of learners at EFL 175 and EFL 550 had teachers who *never or almost never* got them to make predictions about what would happen next in the text they

were reading. In comparison, at EFL 325, EFL 400 AND EFL 475, most learners made predictions about what would happen next *once or twice a month* or *once or twice a week.* At EAL 175, EAL 325 and EFL 325 most learners did this activity *once or twice a week* or *every day or almost every day* making it a more prominent activity at the lower class achievement benchmarks*.* Making generalisation and drawing inferences was also not a frequent activity for high percentages of learners at EFL 550, EFL 400 and all of the lower benchmarks with most reportedly doing this *once or twice a month.* A lack of such an activity at the lower class average benchmarks could explain learners' difficulty with answering higher order comprehension questions from the PIRLS 2006. Describing the style or structure of texts was an infrequent activity at most of the benchmarks.

Variation in post-reading activities across the class average benchmarks was also difficult to ascertain as latent factors were not apparent from a factor analysis of the items comprising the scale. A review the descriptive statistics for each of the items also revealed no major patterns of response distribution. Generally, answering questions in workbooks or on a worksheet, writing something about or in response to reading, and answering oral questions and oral summaries of reading were a part of instruction on a daily or weekly basis for most learners across the benchmarks. At EFL 400 and lower, the highest percentages of learners spoke to each other about what they had read *once or twice a week* or *every day or almost every day* whereas at EFL 475 equal percentages of learners did this activity weekly or monthly and most at EFL 550 only did this activity monthly. The highest percentages of learners at all of the class average benchmarks reportedly did a project about what they had read *once or twice a month*. The highest percentages of learners at EFL 175, EAL 175, EFL 325, EAL 325 and EFL 550 also only did a written quiz or test on reading once or twice a month whilst the majority at EFL 325 and EFL 475 did so once or twice a week.

8.7 HOMEWORK AND ASSESSMENT

In sub- section 8.7.1 the frequency of assignment of reading for homework is considered followed by discussion of teachers' monitoring and assessment practices across the class average benchmarks (8.7.2). In 8.7.3, the data presented are summarised and discussed.

8.7.1 Frequency of assignment of reading for homework

Teachers reported how often they assigned reading as part of homework (for any subject) (Figure 8.17 below). It is evident that learners in classes with averages at the lowest benchmarks received far less homework for reading than their peers in classes with average

performance levels at the PIRLS international benchmarks. In fact, most learners in classes at the PIRLS international benchmarks of 400 (62%), 475 (73%) and 550 (61%) as well as 52% of learners at EFL 325 were assigned reading for homework *every day* or *3 or 4 times a week*. In contrast, most learners in classes with an average at EAL 175 (65%), EFL 175 (60%) and EAL 325 (58%) either never received homework, or got given homework *less than once a week* or only *one or two times a week*.
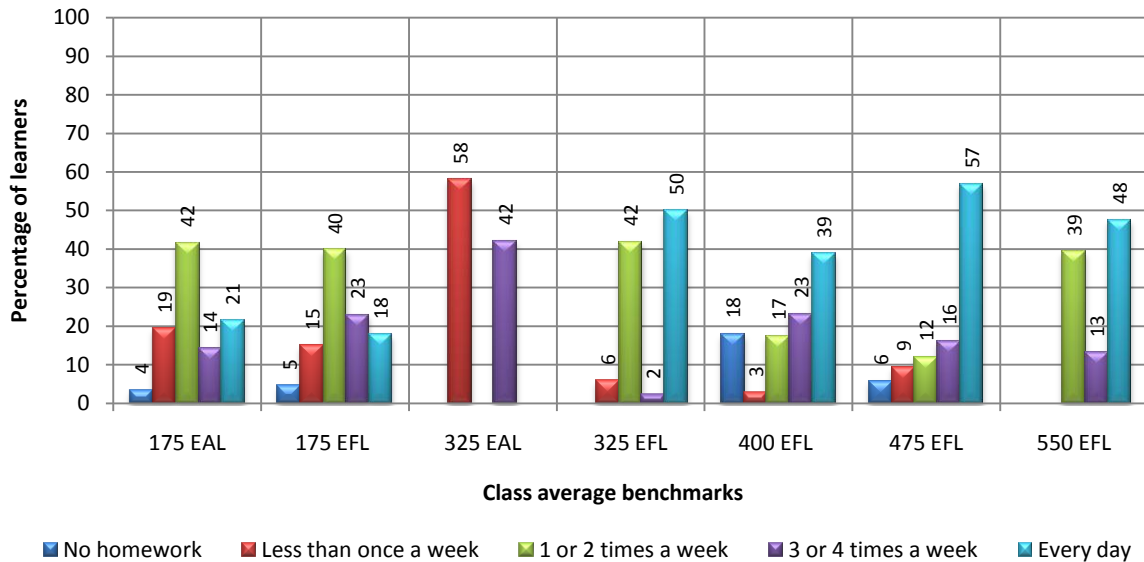

Figure 8.17: Teacher reports on assigning reading as part of homework

Teachers also indicated of how much time they expected learners to spend on homework involving reading (for any subject) when they assigned reading homework (Figure 8.18).
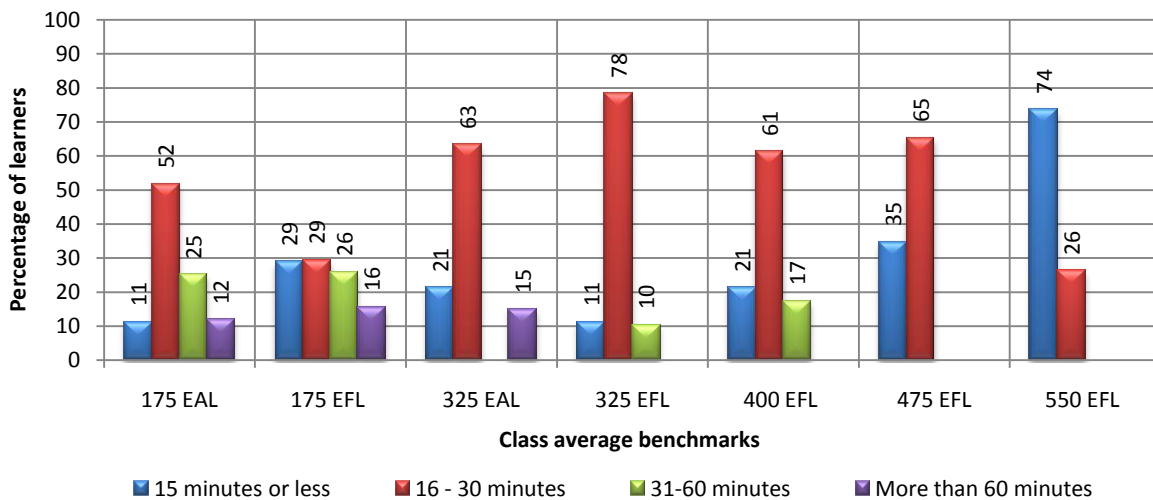

Figure 8.18: Teacher reports on time allocation in assigning reading as part of homework for any subject

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At EAL 175 (52%), EAL 325 (63%), EFL 325 (78%), EFL 400 (61%) and EFL 475 (65%), most of the learners were in classes with a teacher that indicated that, in general, when reading homework was assigned for any subject, there was a *16-30 minute* time allocation. Class benchmark EFL 175 had a greater spread of responses. About 29% of the learners received *15 minutes or less* of homework for reading. Another 29% were assigned *16-30 minutes*. The other exception was class benchmark EFL 550, where 74% of the learners received a reading homework time allocation of *15 minutes or less.*

8.7.2 Reading performance monitoring and assessment practices

Teachers were asked about the amount of emphasis they placed on selected sources to monitor their learners progress in reading (Figure 8.19 to 8.22 below). All learners at EFL 550 had teachers who only placed *some emphasis* on their own professional judgement to monitor their reading progress. The majority of learners at EFL 475, EFL 400, EFL 325 and EFL 175 and high percentages at EFL 175 (41%) and EAL 325 (42%) had teachers who placed *major emphasis* on using their own professional judgement to monitor learners' progress in reading (Figure 8.19).
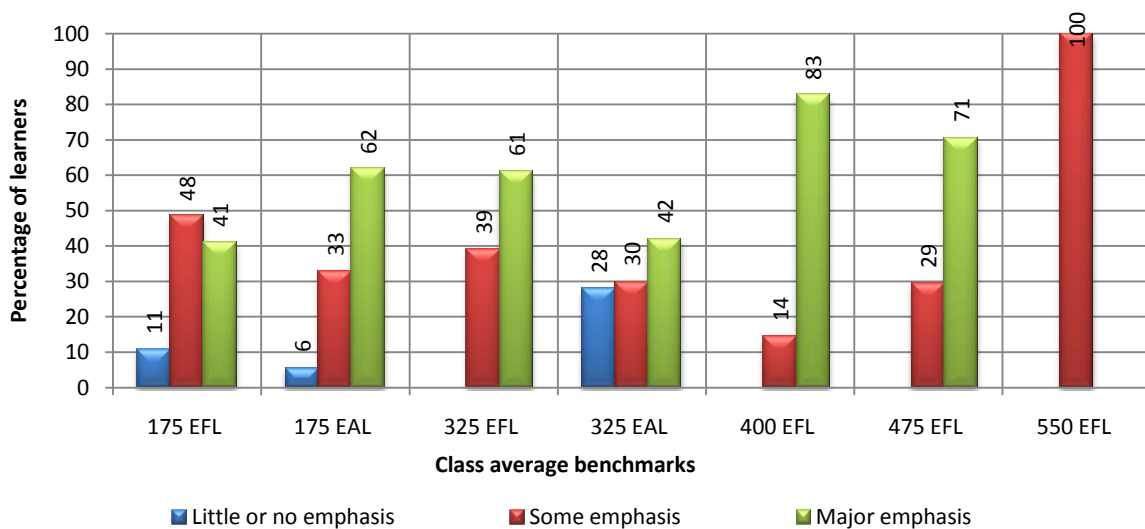

Figure 8.19: **Emphasis placed on teachers' own professional judgement for monitoring**

Another main assessment source involved *major emphasis* on the use of classroom tests for reading assessment for clear majorities at all of the class average benchmarks (54% to 82%) with the exception of EFL 325 and EFL 550 where most learners had teachers who reported placing *some emphasis* on classroom tests (Figure 8.20 below).
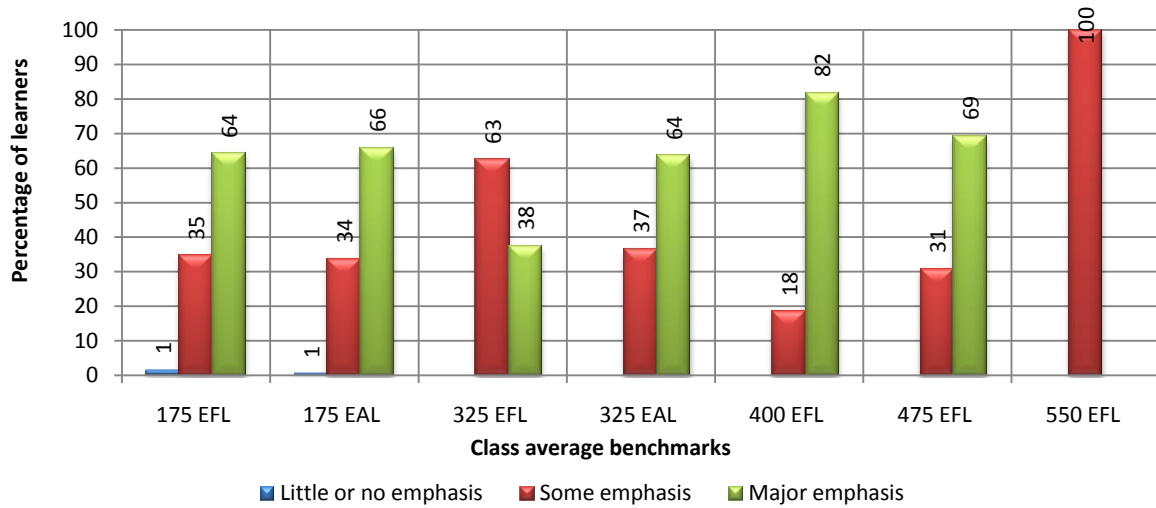
Figure 8.20: **Emphasis placed on classroom tests for monitoring**

As illustrated in Figure 8.21, diagnostic testing received *some emphasis* as a reading assessment source for small majorities at class average benchmarks of EFL 175, EAL 175, EFL 325, EAL 325, EFL 475 and EFL 550 and also for a small percentage of learners at EFL 400. For the majority at EFL 400 and next highest percentage of learners at each of the other benchmarks diagnostic testing received *little or no emphasis.*
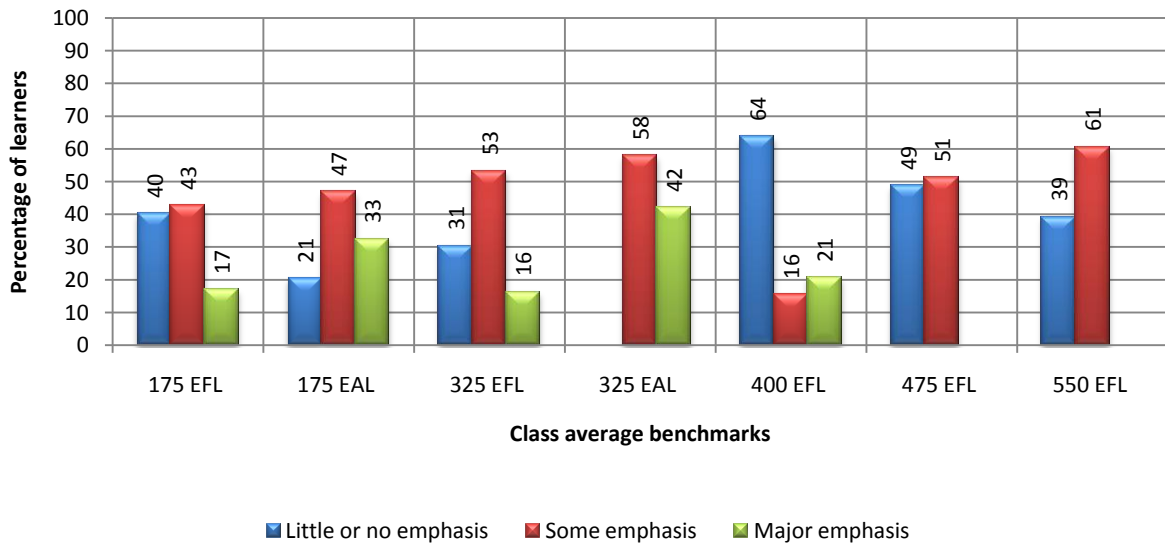

Figure 8.21: **Emphasis placed on diagnostic tests for monitoring**

To be expected, national or regional achievement tests clearly received *little or no emphasis* for most learners at all of the benchmarks (Figure 8.22 below).
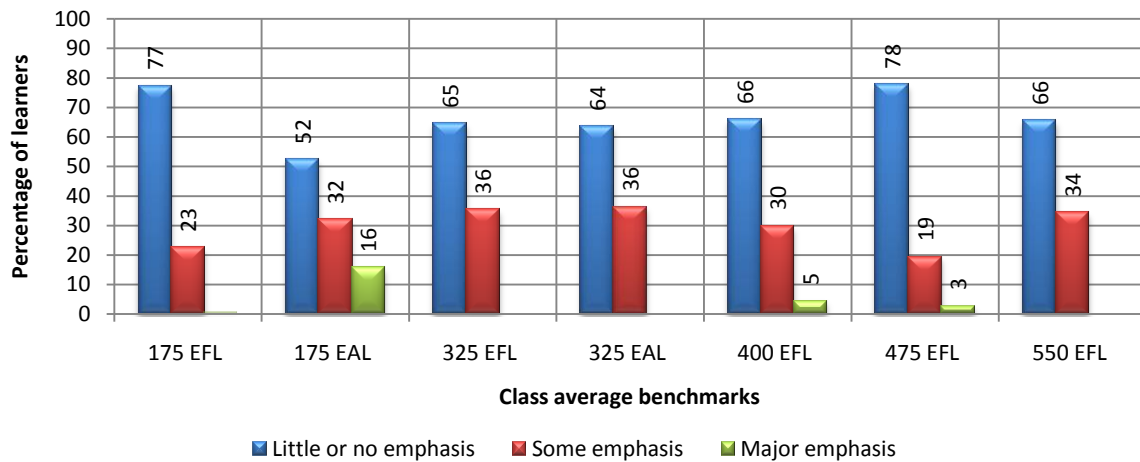
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Figure 8.22: **Emphasis placed on national or regional achievement tests for monitoring**

More specifically, teachers' most frequent practices for the assessment of learners' performance in reading were also investigated. Teachers were particularly asked how often (*at least once a week, once or twice a month, once or twice a year* or *never)* they used: multiple choice questions on material read; short-answer written questions on material read; paragraph-length written responses about what students had read; listening to students read aloud; oral questioning of students; students give an oral summary/ report of what they had read; or meeting with students to discuss what they had been reading and work they have done. To determine whether there was an underlying structure for these items, an exploratory factor analysis of the seven items for the four merged benchmarks occurred as each met the criteria for inclusion in the analysis (Table 8.43).

Table 8.43: **Kaiser- Meyer- Olkin and Bartlett's test of Sphericity for teachers' most frequent practices for assessment of learners' reading performance**

Merged benchmarks		*EAL 175- 325*	*EFL 175- 325*	*EFL 400*	*EFL 475- 550*
Kaiser-Meyer- Olkin Measure of Sampling Adequacy		.761	.756	.612	.551
Bartlett's Test of Sphericity	Approx chi-square	11431.425	2647.779	2780.606	1449.701
	Df	21	21	21	21
	Sig.	.000	.000	.000	.000

All of the communalities were above .4 at all of the benchmarks with the exception of one variable (*multiple choice questions on materials read*) at EFL 175-325 which was therefore removed from the analysis at this benchmark. Two components were identified at each of the benchmarks except for at EFL 475-625 where three components were found (Table 8.44 below). Table 8.45 shows the factor loadings after rotation at each of the benchmarks (below).

Table 8.44: Total variance explained for teachers' most frequent practices for assessment of learners' reading performance

Component	EAL 175-325 Initial Eigen values			EFL 175-325 Initial Eigen values			EFL 400 Initial Eigen values			EFL 475-550 Initial Eigen values		
	Total	Variance %	Cum %	Total	Variance %	Cum %	Total	Variance %	Cum %	Total	Variance %	Cum %
1	2.928	41.825	41.825	3.060	43.717	43.717	3.631	51.866	51.866	2.909	41.554	41.554
2	1.093	15.617	57.442	1.091	15.592	59.309	1.679	23.983	75.849	1.210	17.291	58.845
3	.898	12.829	70.270	.837	11.955	71.264	.774	11.057	86.906	1.113	15.906	74.751
4	.656	9.366	79.636	.750	10.710	81.975	.499	7.126	94.031	.872	12.453	87.204
5	.607	8.670	88.306	.577	8.241	90.215	.234	3.346	97.378	.442	6.318	93.522
6	.432	6.169	94.475	.373	5.330	95.545	.131	1.872	99.249	.292	4.171	97.693
7	.387	5.525	100.000	.312	4.455	100.000	.053	.751	100.000	.161	2.307	100.000

Table 8.45: Factor loadings for teachers' most frequent practices for assessment of learners' reading performance

Items	Factor loadings								
	EAL 175-325		EFL 175-325		EFL 400		EFL 475-550		
Components	1	2	1	2	1	2	1	2	3
Answer multiple choice questions on material read	.819		-	-		.809		.762	.455
Short-answer written questions on material read	.567			.870		.761			.952
Paragraph-length written response about what students have read	.793			.762		.875		.904	
Listening to students read aloud		.811	.689	.479	.638	.656	.751		
Oral questioning of students		.635	.730		.767		.684		.478
Students give an oral summary/report on what they have read		.685	.787		.952		.712		
Meeting students to discuss what they have been reading and work they have done	.551	.424	.586	.538	.878		.751		

A Kruskal-Wallis test found significant differences between the benchmarks for factors related to teachers' most frequent practices for assessment of learners' reading performance (see .appendix J). For EAL 175-325 two distinct factors were found (*written assessment* and *verbal assessment*). Component 1 revealed a key focus on *written assessment* (multiple choice questions, short-answer written questions, paragraph length written responses) with the possibility of meeting with students to discuss their reading. Component 2 has item clusters suggesting a secondary focus on *verbal assessment* (oral questioning, assessment of reading aloud, learners' provision of an oral summary or report and discussion of reading) at this benchmark. Similar factors were also evident at EFL 175-325. However, the items clustering onto component 1 suggest that *verbal assessment* (listening to reading aloud, oral questioning, oral reports on reading, and discussion with learners) instead or written assessment took precedence at the merged benchmark. The items clustering onto component 2 indicate that *written assessment* (short-answer questions, paragraph length responses) incorporating listening to learners reading aloud played a lesser role.

The items clustering onto component 1 for EFL 400 and EFL 475-625 were the same as those that clustered onto component 1 for EFL 175-325 indicating a strong focus on *verbal assessment* activities at these benchmarks too. Items clustering onto component 2 at EFL 400 also indicate *written assessment* (multiple choice questions, short answer and paragraph length written response) tasks as a secondary activity together with listening to learners read aloud as well. The answering of multiple choice questions clustered onto both components 2 and 3 at EFL 475-625, both of which comprised aspects of *written assessment*. Component 2 incorporated multiple choice questioning and paragraph length written response assessment tasks. Component 3 included multiple choice questioning and short-answer written response tasks. Although oral questioning clustered onto component 3 too it did not make conceptual sense and therefore was not retained.

Reliability analyses were calculated for each of the merged benchmarks to determine whether the factors formed reliable scales at each using Cronbach's Alpha. Table 8.46 (below) provides the case processing summary for the scale under consideration at each of the merged benchmarks. With Cronbach's alpha coefficients between .7 and .8 at each of the merged benchmarks, the scale met the criterion of .5 set for exploratory analysis at each of the merged benchmarks. Furthermore, a review of the item-total statistics revealed that there were no significant differences between the reliability of the scale and its reliability if any of its items were deleted at any of the benchmarks (Table 8.47).Table 8.48 provides the scale statistics across the merged benchmarks.

Table 8.46: **Case processing summary for scale of teachers' most frequent practices for assessment of learners' reading performance**

Merged benchmarks	EAL 175- 325		EFL 175- 325		EFL 400		EFL 475- 550	
Cases	n	%	n	%	n	%	n	%
Valid cases included	6909	90.8	1354	93.8	503	100.0	553	89.5
Excluded	702	9.2	90	6.2	0	.0	65	10.5
Total	7611	100.0	1444	100.0	503	100.0	618	100.0

Table 8.47: **Reliability statistics for scale of teachers' most frequent practices for assessment of learners' reading performance**

Merged benchmarks							
EAL 175- 325		EFL 175- 325		EFL 400		EFL 475- 550	
Cronbach's Alpha	Highest Alpha if item deleted	Cronbach's Alpha	Highest Alpha if item deleted	Cronbach's Alpha	Highest Alpha if item deleted	Cronbach's Alpha	Highest Alpha if item deleted
.763	.763	.736	.730	.808	.808	.736	.736

Table 8.48: **Scale statistics for scale of teachers' most frequent practices for assessment of learners' reading performance**

Merged benchmarks	EAL 175- 325	EFL 175- 325	EFL 400	EFL 475- 550
Mean	10.61	10.77	11.43	11.75
Variance	9.943	7.272	8.484	9.146
Standard deviation	3.153	2.697	2.913	3.024

8.7.3 Summary and discussion of homework and assessment

Opportunity-To-Learn is clearly related to the use of homework as this expands available learning time (Reynolds, 1998). It is evident that learners in classes with averages at the lowest benchmarks had far less homework for reading assigned than their peers in classes with average performance levels at the PIRLS international benchmarks. With the exception of learners at EFL 175 and EFL 550, most of the learners at the other benchmarks were in classes with a teacher that indicated that, in general, when reading homework was assigned for any subject, there was a *16-30 minute* time allocation.

Teachers were asked about the amount of emphasis they placed on selected sources to monitor their learners progress in reading. Key monitoring sources at each of the class average benchmarks were teachers' use of their own professional judgement and classroom tests. Teachers' strong reliance on use of their own professional judgement and self-constructed classroom tests without other monitoring sources could be problematic

especially if they are not able to judge the appropriate developmental level at which to set tests or are unable to determine whether learners are experiencing reading difficulties. Diagnostic testing was less prominent but still received some emphasis for high percentages of learners at each of the class average benchmarks. The use of national or regional achievement tests did not feature as a monitoring source for most learners across the benchmarks. Perhaps this is an area in need of investigation given the possibility of teachers' misperceptions of their learners' reading abilities.

The factor analysis of frequency of assessment practices for learners' reading performance revealed two main foci across the benchmarks. Verbal assessment activities comprising listening to reading aloud, oral questioning, oral reports on reading and discussion with learners were the central focus for reading assessment at most of the benchmarks with lesser emphasis given to written assessment tasks. This trend was reversed at EAL 175-325 where written assessment tasks were a key factor and verbal assessment tasks were secondary. However, as verbal assessment tasks were a main factor for most, perhaps learners did not have enough exposure to written assessment activities.

8.8   CONCLUDING COMMENTS

This chapter has presented findings for the phase one secondary analysis of the PIRLS 2006 teacher questionnaire data to partially address research sub-question 2 for the study. The backgrounds of teachers were described and class composition and reading specialist availability considered. Access to and use of reading resources by teachers in their classrooms were outlined followed by discussion of time allocation for instruction. Reported classroom reading instructional activities and comprehension development practices were reviewed and reports about homework and assessment activities were discussed.

To complement and extend the results of this secondary analysis of the PIRLS 2006 teacher questionnaire data, the micro level classroom environments of selected Grade 4 teachers, the teachers' characteristics, their classes and teaching practices for the development of reading literacy are described in the next chapter.

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