# 7. MFL Oracy and Literacy Simultaneously – The Results

This chapter will present the quantitative and qualitative results obtained from the test batteries (described in Section 6.7 and Section 6.8) and the qualitative data outlined in Section 6.5.1, in relation to the three research questions.

## 7.1 What are the Effects, for Younger Children, of Learning the Spoken and Written Word Simultaneously?

In order to fully examine the effects of learning L2 oracy and literacy together, this section will report scores from tests conducted once before the intervention started (pre-test) and twice after the instruction finished (post-test and delayed post-test). Firstly (Subsections 7.1.1-2) pre- and post-test data will be compared in order to establish what progress was made over the period of the intervention in both L2 literacy and L2 general proficiency. Afterwards (Subsections 7.1.3-4), post-test and delayed post-test data will be explored to establish whether the learning which emerged was long-lasting and the scope of attrition over time. Subsection 7.1.5 provides additional qualitative evidence of the learning process for achievers of all levels, drawn from classroom writing tasks. To complete the answer to Research Question 1, Subsection 7.1.6 provides participant evaluations of the instructional programme.

### 7.1.1 Comparing L2 Literacy at Pre- and Post-Test

The results across the two L2 literacy constructs, as measured in the reading aloud test and the reading comprehension test, are presented in Table 7.1. The figures in italics show the mean score as a percentage of the maximum possible score.

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| Measure: (n=45) | Pre-Test | | | | | Post-Test | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | s.d. | Min | max | Range | Mean | s.d. | Min | Max | range |
| L2 read aloud (max 10) | 2.64 26.4% | 1.525 | 0 | 6 | 6 | 3.67 36.7% | 1.871 | 0 | 7 | 7 |
| L2 reading comprehension (max 8) | 2.20 27.5% | 1.387 | 0.5 | 5.5 | 5 | 3.07 38.4% | 1.282 | 0.5 | 6 | 5.5 |

**Table 7.1: Pre- and post-test results across L2 literacy measures**

Figures 7.1 and 7.2 provide further details on the distribution of test scores.



**Figure 7.1: Histogram – Whole sample pre-test L2 reading aloud (text) scores**

Figure 7.1 shows the distribution of scores achieved across the sample at pre-test for the L2 reading aloud task. A perfect score for this task would have been achieved by target-like production of 10 grapheme/phoneme correspondences (including final silent letters) according to prescribed criteria (see test description, Section 6.7 and Appendix 42). Results show a mean score of 2.64 correct productions (sd=1.525, range=6, min=0, max=6). The distribution was positively skewed

(skewness value .196) with scores clustered at the lower end of the scale.  Negative

kurtosis values (–.272) indicated a relatively flat distribution across the sample.
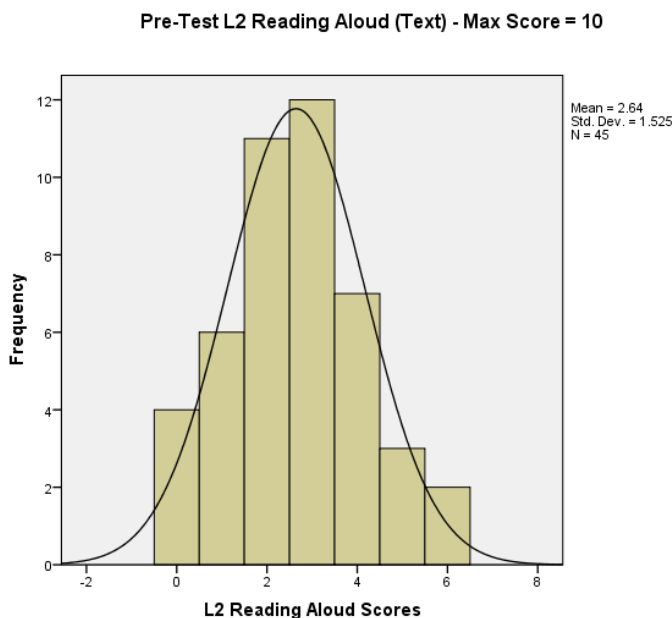


**Figure 7.2:  Histogram – Whole sample post–test reading aloud (text) scores**

Figure 7.2 shows the distribution of scores achieved across the sample at post–

test for the same L2 reading aloud task.  Results show a mean score of 3.67 correct

productions (sd=1.871, range=7, min=0, max=7).  The distribution was negatively

skewed (skewness value –.252) with scores clustered at the upper end of the scale.

Negative kurtosis values (–.768) indicated a relatively flat distribution across the

sample.

A paired–samples t–test was conducted to evaluate the extent of improvement in

students' scores on reading aloud.  There was a statistically significant increase from

pre–test (m=2.64, sd=1.525) to post–test (m=3.67, sd=1.871), t(44)=–3.886,

p=<.0005.  The eta squared statistic (.25) indicates a small effect size.

**Figure 7.3:  Histogram – Whole sample pre-test L2 reading comprehension scores**

Figure 7.3 shows the distribution of scores achieved across the sample at pre-test for the L2 reading comprehension task (for details of this task see Section 6.7).  A perfect score for this task would have been 8 correct answers.  Results show a mean score of 2.211 correct answers (sd=1.3796, range=5, min=0.5, max=5.5).  The distribution was positively skewed (skewness value .767) with scores clustered at the lower end of the scale.  Negative kurtosis values (-.237) indicated a relatively flat distribution across the sample.
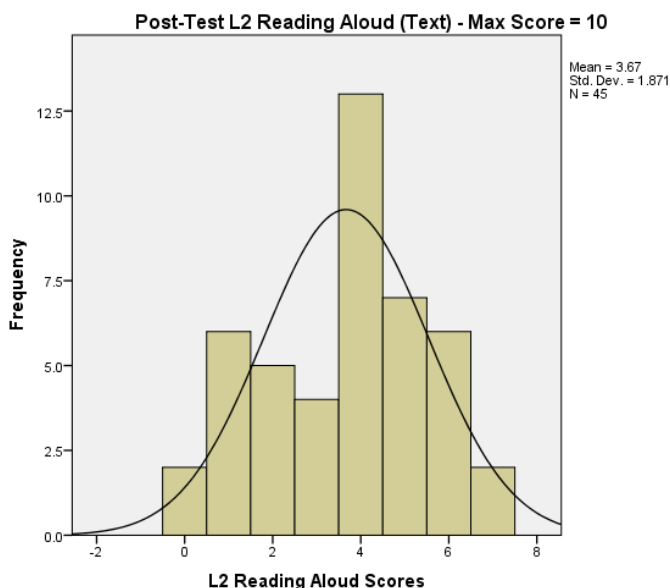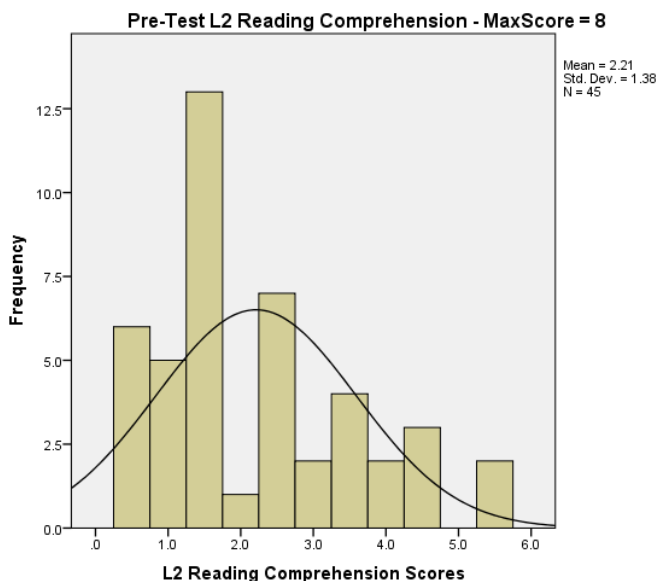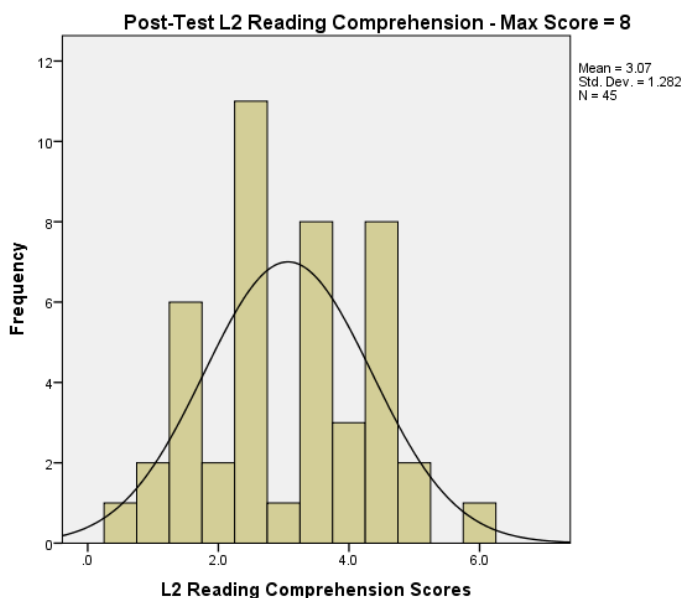


**Figure 7.4:  Histogram – Whole sample post-test L2 reading comprehension scores**

Figure 7.4 shows the distribution of scores achieved across the sample at post-test for the same L2 reading comprehension task.   Results show a mean score of 3.067 (sd=1.2819, range=5.5, min=0.5, max=6).  The distribution was positively skewed (skewness value .048) with scores clustered at the lower end of the scale. Negative kurtosis values (–.726) indicated a relatively flat distribution across the sample

A paired-samples t-test was conducted to evaluate the improvement in students' scores on reading comprehension.  There was again a statistically significant increase from pre-test (m=2.211, sd=1.3796) to post-test (m=3.067, sd=1.2819), t(44)=–3.840, p=<.0005.  The eta squared statistic (.25) again indicates a small effect size.

### 7.1.2 Comparing L2 General Proficiency at Pre- and Post-Test

The overall results of the two L2 general proficiency tests are presented in Table 7.2. The figures in italics show the mean score as a percentage of the maximum possible score.

| Measure: (n=45) | Pre-Test | | | | | Post-Test | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | s.d. | Min | max | Range | Mean | s.d. | Min | Max | range |
| L2 elicited imitation (max 48) | 21.09 *43.9%* | 7.642 | 2 | 42 | 40 | 25.22 *52.5%* | 8.393 | 6 | 42 | 36 |
| L2 receptive vocab (max 29) | 18.64 *64.3%* | 3.220 | 12 | 27 | 15 | 19.64 *67.7%* | 3.880 | 10 | 27 | 17 |

**Table 7.2:  Pre- and Post-Test Results across L2 General Proficiency Measures**

Figure 7.5 shows the distribution of scores achieved across the sample at pre-test for the L2 elicited imitation task.  A perfect score for this task would have been production of target language syllables within 12 L2 utterances (total possible score 48:  see Section 6.7 for details of the test).  Results show a mean score of 21.09 correct productions (sd=7.642, range=40, min=2, max=42).  The distribution was negatively skewed (skewness value –.235) with scores clustered at the higher end of

the scale.  Positive kurtosis values (1.179) indicated a rather peaked distribution clustered around the centre of the scale.



**Figure 7.5:  Histogram –  Whole sample pre–test  L2 elicited imitation scores**

Figure 7.6 shows the distribution of scores achieved across the sample at post–test for the same L2 elicited imitation task.  Results show a mean score of 25.22 correct productions (sd=8.393, range=36, min=6, max=42).  The distribution was negatively skewed (skewness value –.275) with scores clustered at the higher end of the scale.  Negative kurtosis values (–.238) indicated a flatter distribution across the scale.



**Figure 7.6:  Histogram – Whole sample post–test L2 elicited imitation scores**

A paired-samples t-test was conducted to evaluate the change in students'
scores on elicited imitation.  There was a statistically significant increase in elicited
imitation scores from pre-test (m=21.09, sd=7.642) to post-test (m=25.22,
sd=8.393), t(44)=-5.464, p=<.0005.  The eta squared statistic (.40) indicates a
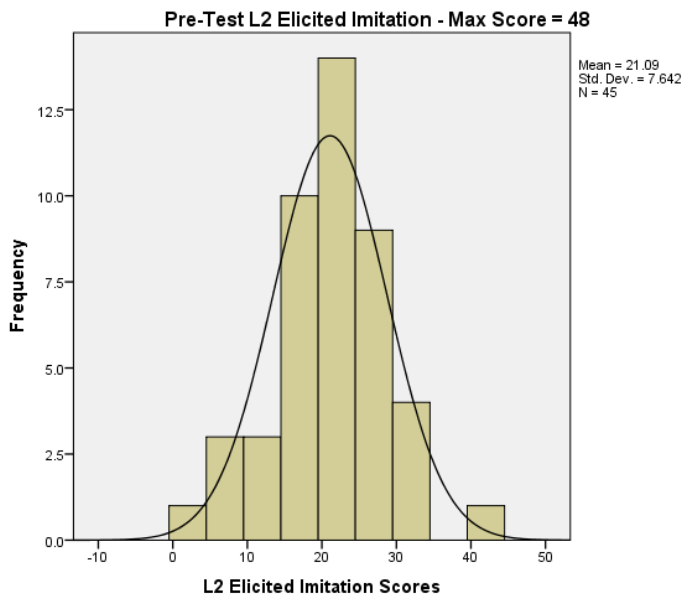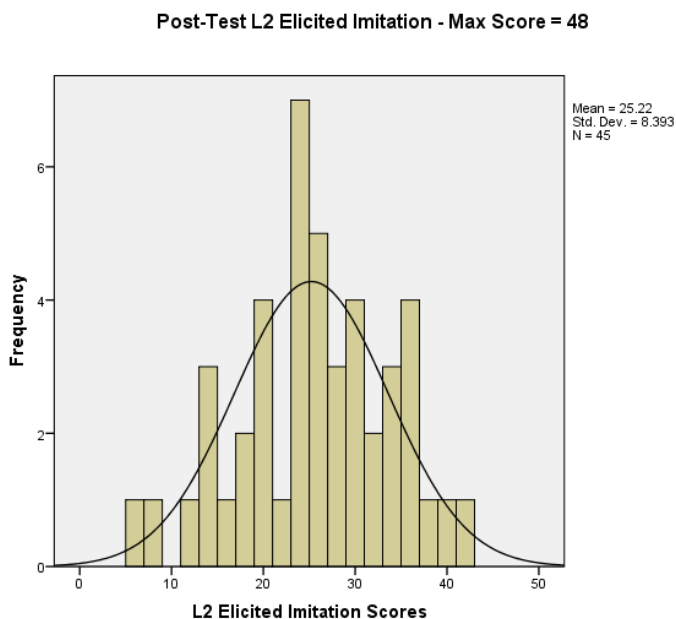moderate effect size.
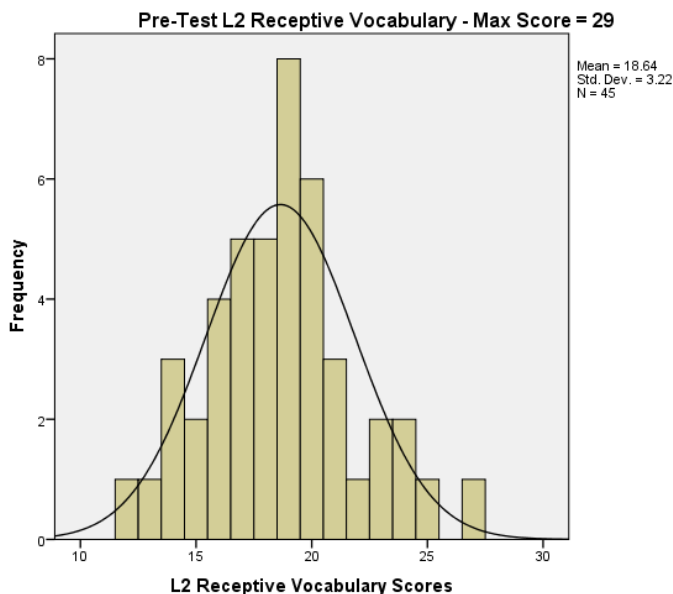


**Figure 7.7:  Histogram – Whole sample pre-test L2 receptive vocabulary scores**

Figure 7.7  shows the distribution of scores achieved across the sample at pre-
test for the L2 receptive vocabulary task.  A perfect score for this task would have been
recognition of 29 target language items (lexical items and sentences:  for details of
this task see Section 6.7).  Results show a mean score of 18.64 correct items
(sd=3.220, range=15, min=12, max=27).  The distribution was positively skewed
(skewness value .311) with scores clustered at the lower end of the scale.  Positive
kurtosis values (.189) indicated a distribution clustered around the central point.

Figure 7.8 shows the distribution of scores achieved across the sample at post-
test for a developed version of the L2 receptive vocabulary task.  A perfect score for
this task would have been recognition of 35 target language items (lexical items and
sentences).  The additional items represented additional vocabulary instructed since
the pre-tests and had aimed to compensate for possible attrition.  In practice,
however, there appeared to be little language loss and, therefore, rather than replacing
old lexical items with new (which had the potential to skew test results) the decision

was taken to scale the post-test results (35 items) to a 29 point scale so that they could be compared directly with pre-test scores.  Results show a mean score of 19.64 correct items (sd=3.880, range=17, min=10, max=27).  The distribution was negatively skewed (skewness value -.397) with scores clustered at the higher end of the scale.  Negative kurtosis values (-.451) indicated a flatter distribution across the sample.



**Figure 7.8:  Histogram – Whole sample post-test L2 receptive vocabulary scores**

A paired-samples t-test was conducted to evaluate the impact of this intervention on students' scores on receptive vocabulary.  There was a statistically significant increase in receptive vocabulary scores from pre-test (m=18.64, sd=3.220) to post-test (m=19.64, sd=3.880), t(44)=-2.570, p=.014.  However, the eta squared statistic (.13) indicates a small effect size.

To summarise test performance which relates to learning that occurred during the teaching intervention, all L2 constructs (both literacy and general proficiency) demonstrated significant increase between pre-test and post-test scores.  The next section examines post-test and delayed post-test scores in order to explore attrition effects once the teaching intervention had ceased.

### 7.1.3 Comparing L2 Literacy at Post– and Delayed Post–Test

The results across the post–test and delayed post–test administrations of the two L2 literacy tests are presented in Table 7.3. The figures in italics show the mean score as a percentage of the maximum possible score.

| Measure: (n=45) | Post–Test | | | | | Delayed Post–Test | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | s.d. | Min | Max | Range | Mean | s.d. | min | max | Range |
| L2 read aloud (max 10) | 3.67 *36.7%* | 1.871 | 0 | 7 | 7 | 3.09 *30.9%* | 1.781 | 0 | 7 | 7 |
| L2 reading comprehension (max 8) | 3.07 *38.4%* | 1.282 | 0.5 | 6 | 5.5 | 2.86 *35.8%* | 1.330 | 0.5 | 5.5 | 5 |

**Table 7.3: Post–test and delayed post–test results across L2 literacy measures**

Figure 7.9 shows the distribution of scores achieved across the sample at delayed post–test for the same L2 reading aloud task. Results show a mean score of 3.09 target–like productions (sd=1.781, range=7, min=0, max=7). The distribution was positively skewed (skewness value .112) with scores clustered at the lower end of the scale. Negative kurtosis values (–.639) indicated a relatively flat distribution across the sample.
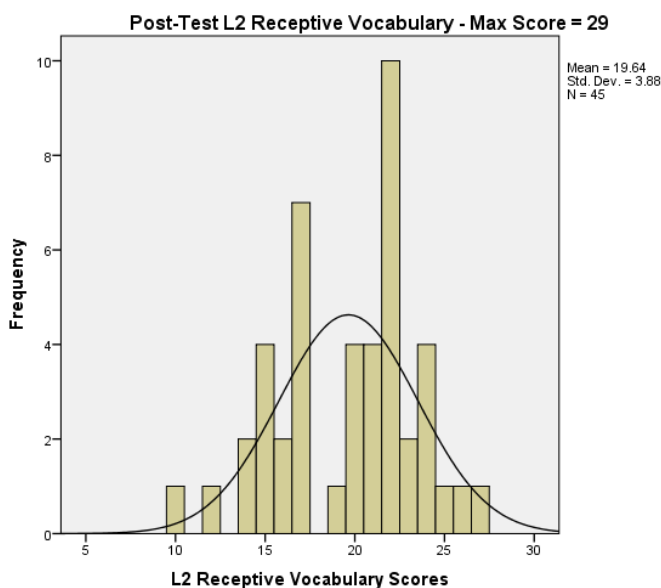
Figure 7.9:  Histogram – whole sample delayed post–test L2 reading aloud (text) scores

A paired–samples t–test was conducted to evaluate the impact of attrition on students' scores on reading aloud.  There was a statistically significant decrease in reading aloud scores from post–test (m=3.67, sd=1.871) to delayed post–test (m=3.09, sd=1.781), t(44)=2.357, p=.023.  Effect size (using eta squared) is calculated at .11 and therefore small.
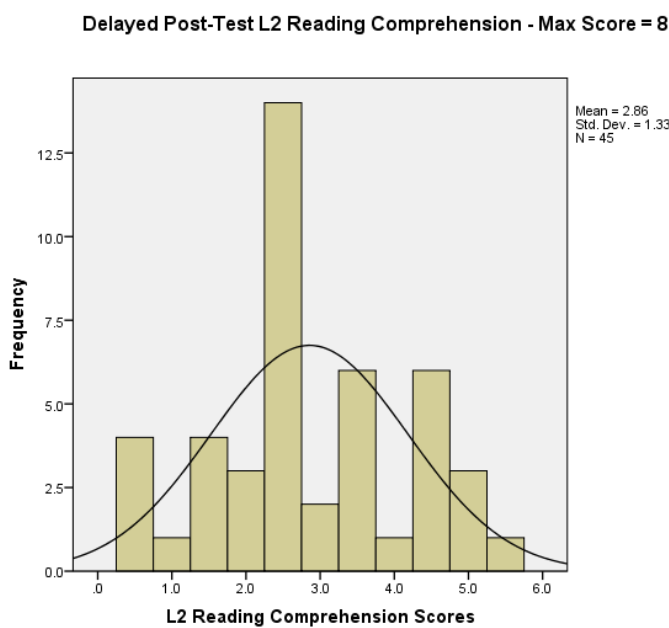


Figure 7.10:  Histogram – Whole sample delayed post–test L2 reading comprehension scores

Figure 7.10 shows the distribution of scores achieved across the sample at delayed post-test for the L2 reading comprehension task. Results show a mean score of 2.86 correct productions (sd=1.330, range=5, min=0.5, max=5.5). The distribution was positively skewed (skewness value .068) with scores clustered at the lower end of the scale. Negative kurtosis values (-.639) indicated a relatively flat distribution across the sample.
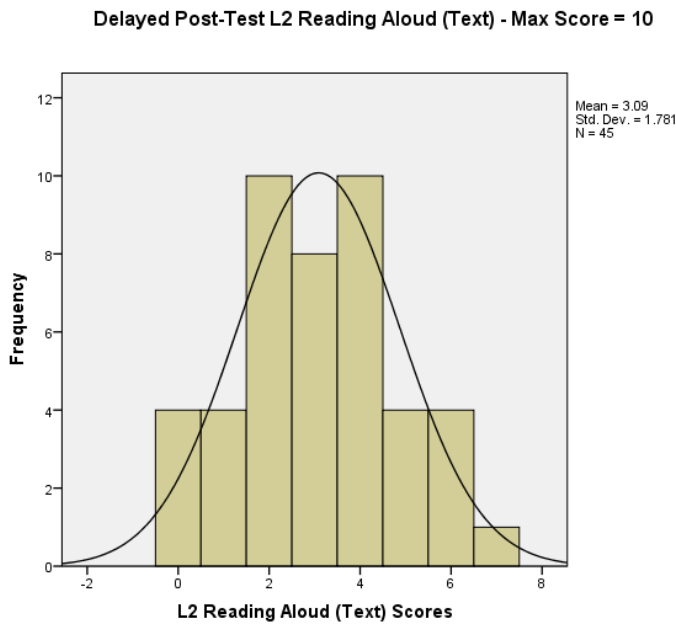
A paired-samples t-test was conducted to evaluate the impact of attrition on students' scores on reading comprehension. The decrease in reading comprehension scores from post-test (m=3.07, sd=1.282) to delayed post-test (m=2.86, sd=1.330), was statistically non-significant: t(44)=1.125, p=.267.

### 7.1.4 Comparing L2 General Proficiency at Post- and Delayed Post-Test

The results across the two L2 general proficiency constructs are presented in Table 7.4. The figures in italics show the mean score as a percentage of the maximum possible score.

| Measure: (n=45) | Post-Test | | | | | Delayed Post-Test | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | s.d. | Min | max | Range | Mean | s.d. | min | max | Range |
| L2 elicited imitation (max 48) | 25.22 *52.5%* | 8.393 | 6 | 42 | 36 | 26.31 *54.8%* | 8.586 | 4 | 43 | 39 |
| L2 receptive vocab (max 29) | 19.64 *67.7%* | 3.880 | 10 | 27 | 17 | 19.87 *68.5%* | 3.539 | 10 | 27 | 17 |

**Table 7.4: Post-test and delayed post-test scores across L2 general proficiency measures**

Figure 7.11 shows the distribution of scores achieved across the sample at delayed post-test for the L2 elicited imitation task. Results show a mean score of 26.31 correct productions (sd=8.586, range=39, min=4, max=43). The distribution was negatively skewed (skewness value -.453) with scores clustered at the higher end

of the scale.  Negative kurtosis values (–.042) indicated flatter distribution of scores

across the sample.
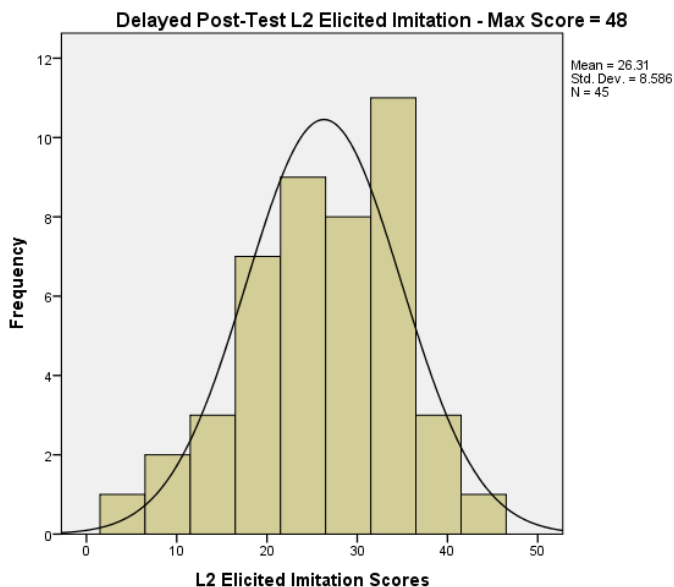


**Figure 7.11:  Histogram – whole sample delayed post–test L2 elicited imitation scores**

A paired–samples t–test was conducted to evaluate the potential impact of

attrition on students' scores on elicited imitation.  Surprisingly, comparison of means

showed an increase on this measure between test times.  However, the increase in

elicited imitation scores from post–test (m=25.22, sd=8.393) to delayed post–test

(m=26.31, sd=8.586), was non–significant t(44)=–1.529, p=.133.

Figure 7.12 shows the distribution of scores achieved across the sample at

delayed post–test for the receptive vocabulary task.  Results show a mean score of

19.87 correct productions (sd=3.539, range=17, min=10, max=27).  The distribution

was negatively skewed (skewness value –.596) with scores clustered at the higher end

of the scale.  Positive kurtosis values (.682) indicated a rather peaked distribution

clustered around the upper quartile of the scale.
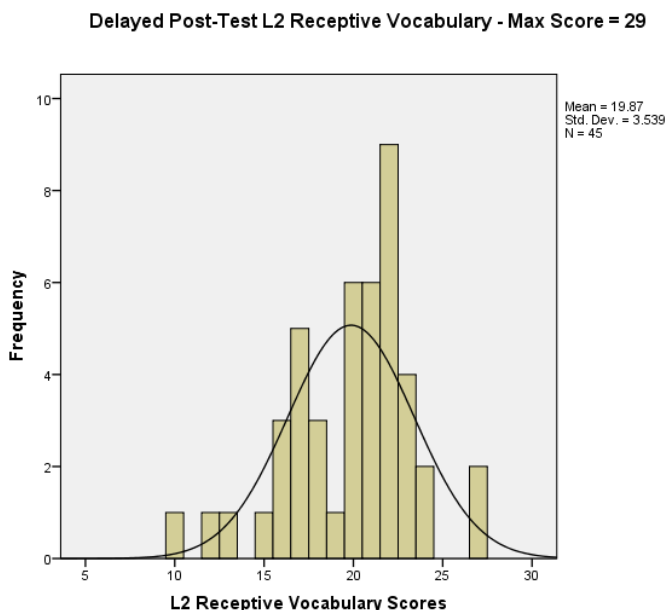
**Figure 7.12:  Histogram – whole sample delayed post–test L2 receptive vocabulary scores**

A paired–samples t–test was conducted to evaluate the potential impact of attrition on students' scores on receptive vocabulary.  Again, comparison of means showed an increase on this measure between test times.  However, the increase in receptive vocabulary scores from post–test (m=19.64, sd=3.880) to delayed post–test (m=19.87, sd=3.539), was also non–significant t(44)=−.639, p=.526.

To summarise, between post–test and delayed post–test, L2 reading aloud was the only construct which showed significant attrition.  This could mean that, in general, the learning could be considered long–term.  However, it is important to note that both L2 general proficiency constructs showed increases between both test times (although these increases were not statistically significant).  It is suggested that these small increases reflect a level of engagement between the students and the test tasks, rather than any tangible fluctuation in ability levels between this period.  This could be due to the test timing: the post–test was at the end of the Spring term, whilst the delayed post–test occurred at the end of May 2012 (just before half–term).

In terms of relationships between L2 constructs, analysis of quantitative data showed a moderate, positive correlation between both L2 general proficiency measures (see Figure 7.13, r = .464; p = .001).  This demonstrated that, by the end of the teaching intervention, participants with better interlanguage as measured by the EI test tended to have higher receptive vocabulary scores.  Shared variance shows that L2 elicited imitation ability accounted for 21.5% of the variation in L2 receptive vocabulary scores.

Post-Test Relationship between L2 General Proficiency Constructs:L2 Elicited Imitation and L2 Receptive Vocabulary

$R^2$ Linear = 0.215
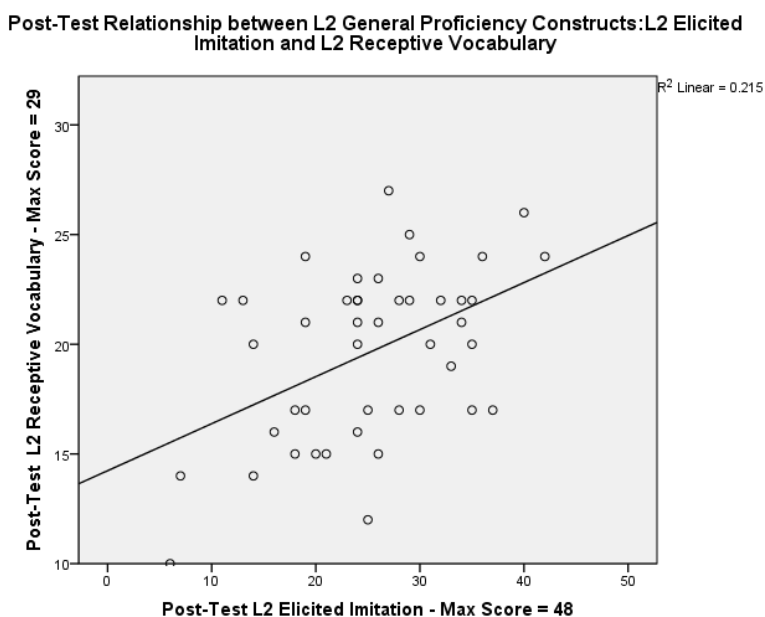
**Figure 7.13:  Scatterplot – relationship between L2 general proficiency measures at post-test**

Further correlational statistics also showed that both measures of L2 general proficiency correlated positively  with each measure of L2 reading at post-test.  In other words, children with good French general proficiency, were more likely to read French successfully at post-test.  The table below shows the strength of these correlations and particularly that L2 receptive vocabulary correlated strongly and positively with L2 reading comprehension.  All other correlations were, using Cohen's d (1988), moderate and positive at post-test.  Similarly, at pre-test both L2 spoken measures correlated significantly with L2 literacy measures.  Overall, whilst the

influence of spoken measures might have changed slightly over the course of the

teaching intervention, a significant relationship between L2 general proficiency

measures and L2 literacy measures was noticeable both before and after the teaching.

These findings will be discussed and interpreted in Chapter 8.

| Relationship between L2 constructs (n=45) | L2 Read Aloud Post-Test | | | L2 Reading Comp Post-Test | | |
|---|---|---|---|---|---|---|
| | r | sig. | %var | R | sig. | %var |
| L2 Elicited Imitation Post-Test | .383 | .009 | 14.7 | .421 | .004 | 17.7 |
| L2 Receptive Vocab Post-Test | .321 | .031 | 10.3 | .633 | <.0005 | 40.1 |

Table 7.5: Correlations at post-test between L2 general proficiency measures and L2
literacy measures

One of the perceived strengths of this study, is the opportunity to explore

"beyond the numbers"; supporting findings derived from quantitative data with rich,

qualitative evidence.  Section 7.1.5 will portray the kind of learning activities the

teaching intervention offered and how some of the participants engaged with these

tasks.  Specific pairs/groups of children have been chosen and their spoken and

written lesson-derived data has been examined in order to give a holistic view of the

learning and to document aspects of the L2 learning process for learners across the

ability range.  Participants have, therefore, been selected by L2 achievement scores in

order to reflect the nature of learning which relates to different test scores.  The

presentation of data in pairs reflects an aspect of the teaching programme (pairwork

and groupwork was a regular feature), but this also offers an opportunity to portray

and examine how children of varying abilities learn together.

### 7.1.5 Learning Oracy and Literacy Simultaneously

A key detailing explanations of acronyms is repeated (see Definitions and

Abbreviations) to assist with the presentation of the qualitative data.

Key:  **L1RAge**    =    L1 reading age
      **L2RA**     =    L2 reading aloud (text)
      **L2RC**     =    L2 reading comprehension
      **L2EI**     =    L2 elicited imitation
      **L2RV**     =    L2 receptive vocabulary

**Pair 1:  Participant 19 and Participant 34.**  Table 7.6 gives a detailed insight into both

participants' performances at every test time across all L2 constructs measured by the

formal test battery.  At pre-test, these participants were evenly matched in terms of

test scores and had similar L1 reading ages (participant 19 was a year 6 child,

participant 34 a year 5 child).  By post-test, participant 19 fares better at L2RA but

participant 34 scores higher for L2EI and L2RV (i.e. both L2 general proficiency

constructs), although it is important to note that, by delayed post-test, the L2RV

scores are the same.  Interestingly, participant 34's L2 reading aloud (text) scores

decrease over the period of teaching (pre-test = 3, post-test = 2, delayed post-test =

0).  Only five participants scored zero at delayed post-test on this measure and four of

these participants fell within the lower L1 reading age sub-group (participants 8, 20,

22, 23).  In other words, the score for participant 34 is particularly unusual across the

sample, bearing in mind also that this child's reading age was well above the sample

mean ( sample mean L1RAge = 11.32 years).  At delayed post-test reading aloud (word

card), this participant scored 4 (below the sample mean of 5.122).  Closer examination

of the performance showed that three of the marks were obtained by successfully

recognizing final silent letters (i.e. omission rather than GPC production).  At post-test

L2 reading aloud (word card), this participant scored only two marks, whilst in a mid-

intervention informal test, this participant scored zero on PGC knowledge (a task which

involved recoding teacher-produced phonemes into their respective L2 graphemes).

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Considered together these data perhaps signify that this participant had particular but unusual (in the context of L1 reading age) issues with learning and applying L2 sound/spelling links.

| | | Pre-Test Scores | | | | Post-Test Scores | | | | Delayed Post-Test Scores | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L1RAge | L2RA | L2RC | L2EI | L2RV | L2RA | L2RC | L2EI | L2RV | L2RA | L2RC | L2EI | L2RV |
| P19 | 12.03 | 4 | 0.5 | 26 | 17 | 4 | 4.5 | 28 | 17 | 4 | 2.5 | 25 | 21 |
| P34 | 13.06 | 3 | 1.5 | 24 | 16 | 2 | 3.5 | 35 | 20 | 0 | 2.5 | 33 | 21 |

Table 7.6:  Participants 19 and 34 – performance at all test times

The first transcript (Transcript 1) shows the interview that these participants prepared and performed for their planned t.v. documentary, videorecorded in the second half of the teaching intervention. Each group of participants could devise their own presentation format and this pair chose a question and answer session between an interviewer and an animal puppet.  They received no formal teacher guidance but instead, prepared questions and answers, based on their written book chapters (see Section 5.2 for details).  The children were able to refer to their books during the recording session (as a prompt).  Both activities were guided by the lexical items and structures included as part of the intervention (negation was an instructional focus for this part of the intervention) but the children were free to include whatever additional vocabulary or structures they required.  The speech tiers marked "T" refer to teacher direct questioning.  This was unplanned but introduced in an attempt to elicit as much spontaneous spoken data as possible and in order to combat performance-related nerves observed in earlier documentary video sessions.


**Transcript 1 – 1ˢᵗ March 2012:**

**Key:**  xxx  =      unintelligible utterance

( )  =      intended word

T  =      teacher

P**  =      participant

P19:  Est-ce qu'elle a xxx griffes?

P34 : Je n'ai pas des griffes.

P19 : Est-ce qu'elle a des porpis (paupières) ?

P34 : Oui elle a des porpis.

T :     Est-ce que la fourmi court ?

P34 : Oui la fourmi court.

T :     Est-ce qu'elle nage ?

P34 : Je ne pas nage.

T :     Est-ce que la fourmi ondule ? P19 ?..ondule..slither

P19:   Non elle ne.. ondule pas.

T :     Well done P19..est-ce que la fourmi palpe..P36 ?

P36 : Je ne pas les palpe.

T :     Ah..la fourmi ne palpe pas ?  C'est vrai ?

P36 : Oui!

T:      Ah..OK..ça va..très bien.


Interestingly, whilst P34 orally produces target-like negation from the prepared answers, once the teacher attempts to elicit more spontaneous spoken data, non target-like yet systematic forms are realised "je ne pas nage" and (from P36) "je ne pas les palpe".  Whilst this is not a focus of the current study, these data appear to conform to acquisition order of L2 negation noted as a cross-linguistic phenomenon where, after sentence initial negation (i.e. external negation), the negative particles are placed between the subject and the verb  (internal negation) (e.g. Kwon & Han, 2008: 304).

The main participants in this interview also each produced an individually written and illustrated book chapter.  This was presented as an entirely creative, imaginative and independent activity.  The children were encouraged to use their vocabulary books (from weekly lessons) as a resource and the class whiteboard was also used as a central resource where requested vocabulary was posted.  In general, the second book chapter which concerned animal/insect behaviour and was planned to stimulate production of verbs and adverbs (rather than the previous chapter which related more

to description and use of nouns/adjectives), tended to involve more "formulaic" contributions.



**Figure 7.14:  Participant 19 – independent writing – finished second book chapter – 29.2.12**

Participant 19 chose to add some description to the animal behaviour work.  In terms of length of written work, this range (3 sentences) was one of the lowest provided by the sample.  Other observations include a tendency for this child to apply L1-based word order with respect to the positioning of adverbs "aussi" and adjectives "détrempé", even though adjectival agreements and positioning formed part of the core instructional foci for this teaching intervention (in the scheme of work – Appendix 2).  This participant's spoken data reflects similar limitations in the form of possibly memorized formulaic utterances.  In the TV interview, Participant 19 was only able to ask two questions before the teacher intervened to generate some more language.  Furthermore, the substitution of "porpis" for "paupières" shows that this lexical item (part of the core vocabulary) was not learned orally and, if the written work was used

as a support, sight of the written form did not trigger successful word recognition or target-like decoding.

On the other hand, participant 34 (Figure 7.15) produced a formulaic yet lengthy piece of written work.  It is important to remember that these written phrases were not copied, but nevertheless, the learner seems to have used one example as a kind of writing frame (Martin, 2008: 52).   Negation had been taught, through the use of "negation sandwiches" and core verbs (all of which are listed in the participant's book chapter) but the generation of these sentences are the child's own work.  Comparison of the spoken and written data for this participant shows inconsistency and that, as expected, negation is emerging.  The written forms reveal negation produced in a target-like manner but in spontaneous speech negation appears between subject and verb.
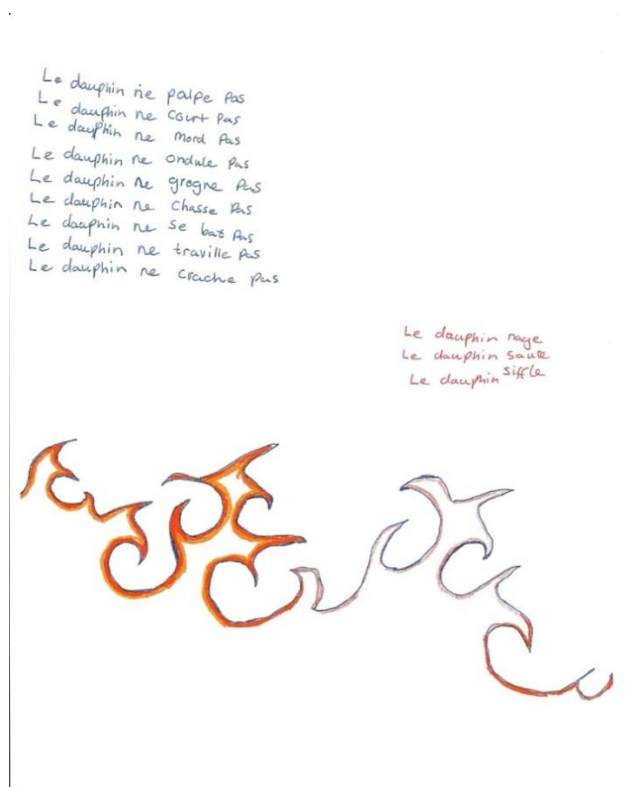


**Figure 7.15: Participant 34 – independent writing – finished second book chapter – 29.2.12**

Nevertheless, the accuracy (target-like nature) of the written work is high.  This, it is suggested, is principally due to the instructed nature of each verb and possibly, the change in teaching activity (Section 5.2 ) which involved a move from recalling sound/spelling links or whole word forms ("écrivez") to recognition ("corrigez").

**Pair 2 – Participant 8 and Participant 28.** This pair is interesting as the participants score at opposite ends of the sample range for L2 and L1 measures. Table 7.7 details the data for each child. The difference between the children's scores at all test times is large but both show some signs of progression between pre- and post-test across most measures. Furthermore, the L2 literacy scores appear more systematic (i.e. gains at post-test followed by some attrition at delayed post-test) than those for L2 receptive vocabulary (P8 – dips at post-test) and L2 elicited imitation (P8 and P34 scores are highest at delayed post-test). It it also useful to note that this participant had recently arrived in school, and had lower attainment scores right across the curriculum. Furthermore, despite a particularly low L1 reading age, this participant obtained the maximum verbal working memory score (28). Of course, disparities of this nature are also evident in both written and spoken FL work which is also presented.

|  |  | Pre-Test Scores | | | | Post-Test Scores | | | | Delayed Post-Test Scores | | | |
|------|--------|------|------|------|------|------|------|------|------|------|------|------|------|
|  | L1RAge | L2RA | L2RC | L2EI | L2RV | L2RA | L2RC | L2EI | L2RV | L2RA | L2RC | L2EI | L2RV |
| P8 | 7.00 | 0 | 1 | 16 | 19 | 1 | 2 | 18 | 15 | 0 | 2 | 20 | 17 |
| P28 | 13.02 | 5 | 4.5 | 30 | 27 | 7 | 6 | 27 | 27 | 7 | 5.5 | 34 | 27 |

Table 7.7:  Participants 8 and 28 – performance at all test times

Transcript 2 – 1st March 2012

**Key:** xxx   =   unintelligible utterance

( )   =   intended word

T   =   teacher

P**   =   participant

P28:  xxx le serpent ondule rapidement.  P8 do you want to say your sentence ?

P8:   Le serpent n'est court.

P28 : Le serpent ne court rapidement pas.

P28 : Est-ce que le serpent avoir grands et pointus crochets ?

P28 : Oui le serpent avoir grands et pointus crochets.

T :     Très bien. P8 can you give me your sentence and make the snake act it ?

P8     Le serpent crache (makes snake spit).

T:      Brilliant..can you think of anything else, P8?  What's slither?

        (the child hesitates)

T:      Le serpent on…

        (the child still hesitates)

T:      Le serpent ond..d..d..

P8:     Le serpent ondule.

T:      Très bien..what about the snake can't swim?

P8:     Le serpent nage.

T:      Build your sandwich..first slice of bread..ne

P8:     Le serpent ne..

T:       verb..

P8 :    Le serpent (ne) nage pas.

T :      Super !  (directs attention to P28)..hello! (child waves shyly and laughing).

T:       P28 how do you say the snake slithers but it doesn't jump?

P28:    Can I use my book?

T:       Of course. (child picks up book then puts it down)..try to remember.

T:       Le serpent..

P28:    Le serpent ondule..

T :      but.

P28 :   Le serpent ondule mais ne saute pas.

T :      Bravo, P28 !


        The spoken data extract shows that participant 8 requires extensive scaffolding
to elicit utterances whilst, participant 28 is able to produce an extended sentence with
conjunctions, adverbs and negation (with written support).  Instructional time had been

spent on the formation of adverbs which the teacher/researcher believed might
encourage more creativity and imagination in the written work, though this was not
eventually the case.

The written data below (Figure 7.16) explores the first book chapter from
participant 8.  This child was absent from school when the second chapter was
produced.
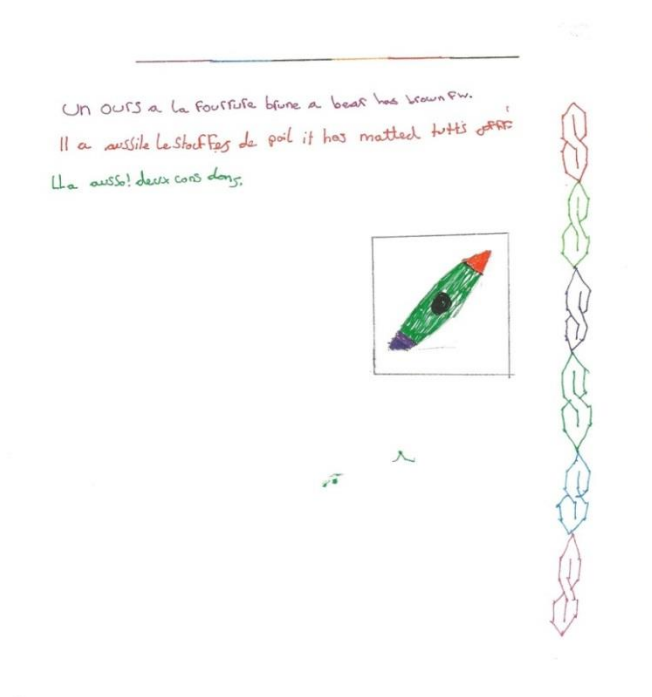


**Figure 7.16:  Participant 8 – independent writing – finished first book chapter –
30.11.11**

As anticipated, participant 8's work is limited in length and linguistic complexity.
It seems that this child, in particular, has possibly engaged less with the task as the
illustrations are not representative of the brief to produce a book chapter about an
animal (bear).  Nevertheless, there is a small amount of written French which is
produced in a largely target-like manner.

Le Serpent

L'étal et on le court, le serpent vous cherche. plein, de muscles et férocément venimoux crochets, ne le font pas mêler avec il. Il ondule discrètement dans le maquis, le serpent repose sur embuscade. Avant-dernière nous avoir, le mi-long fourché langue, annulée avec boderies malgré être inoffensif. Le serpent ne nage pourramment pas quoique.
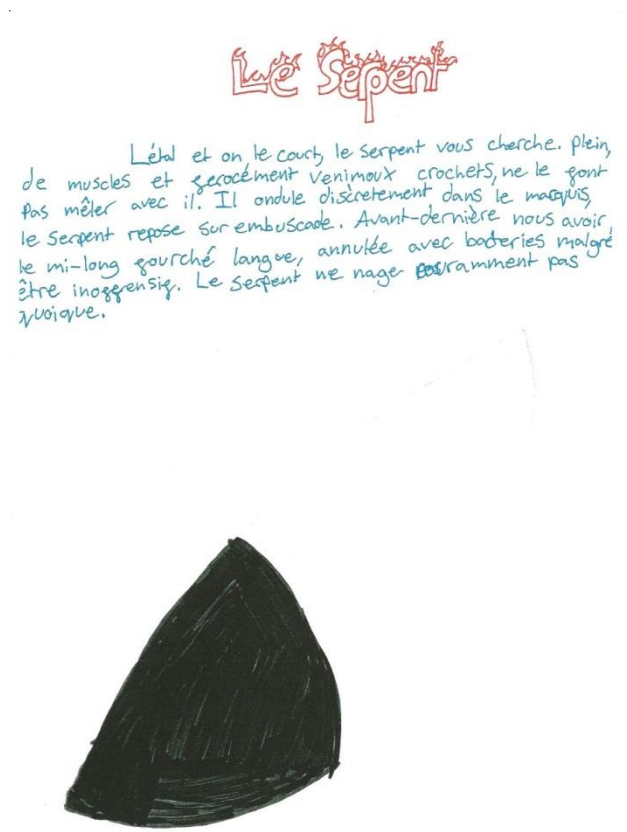
**Figure 7.17: Participant 28 – independent writing – finished second book chapter – 29.2.12**

Participant 28 showed considerable development of both L2 oracy and literacy. Whilst one of the more able children, this participant was also a highly motivated and resourceful learner across the curriculum with a reading age ranked 10th in the sample overall.  The level of complexity in the French written work shows engagement with the task, but also suggests that this child was attempting to write a piece of work similar to that which might have been produced in the first language.  In this way, L2  was mediated through the first language and new vocabulary was obtained principally using a dictionary or the teacher.  The role of the L1 is again evident in the positioning of adjectives and lack of adjectival agreements (both of which had been taught earlier in the intervention).  Nevertheless, the highly creative and imaginative nature of the written work might justify the "sacrifice" of L2 accuracy, in what was one of the most independently creative pieces of work in the sample.

**Group 3 – Participant 9, Participant 21 and Participant 33.** Table 7.8 details the data for each child. For L2RA, participant 21 is consistently better at most test times, but at most other tasks the three children perform similarly. Nevertheless, participant 9 shows a big increase in elicited imitation scores at post–test and also doubles L2RA scores at this time. Scores across test, times and participants once again show slightly unsystematic tendencies. L2RC and L2 RV improves for both P9 and P33 at delayed post–test whilst P21 (the highest performing in this sub–sample) shows reduced L2RA scores at post–test and increased L2EI scores by delayed post–test.

| | | Pre–Test Scores | | | | Post–Test Scores | | | | Delayed Post–Test Scores | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L1RAge | L2RA | L2RC | L2EI | L2RV | L2RA | L2RC | L2EI | L2RV | L2RA | L2RC | L2EI | L2RV |
| **P9** | 12.03 | 2 | 1.5 | 20 | 18 | 4 | 1.5 | 33 | 19 | 3 | 3.5 | 29 | 22 |
| **P21** | 15.00 | 6 | 2.5 | 31 | 21 | 5 | 5 | 36 | 24 | 4 | 5 | 43 | 24 |
| **P33** | 11.00 | 2 | 2.5 | 20 | 20 | 2 | 2.5 | 24 | 22 | 1 | 5 | 21 | 23 |

**Table 7.8: Participants 9, 21 and 33 – performance at all test times**

**Transcript 3 – 28th February 2012:**

**Key:** xxx    =    unintelligible utterance

( )    =    intended word

T    =    teacher

P**    =    participant

P9:    La serpent fantastique.

P33:    Est–ce qu'il se bat pas?

P9:    Non il se bat pas.

T:    Très bien.

P9:    Le serpent mord?

P33:    Oui..oui il mord.

T:      Super.

P9:     Est-ce qu'il xxx? Est'ce qu'il siffle le serpent ?

P33:    Non il ne siffle pas.

P9:     Est-ce qu'il nage?

P33 :   Non il n'est nage pas.

P21 :   Le serpent ondule...Le serpent crache.. (miming the snake attacking P9)

T :     Qu'est-ce qu'il fait le serpent?

P21 :   Le serpent se bat...se bat..

T :     Oh là là!  Quel horreur!


The transcript shows that these participants have successfully incorporated asking and answering questions into their t.v. documentary.  Different forms of negation are used by the same participant ("il ne siffle pas" "il n'est nage pas"). Furthermore, the performance was imaginative and engaging as the snake puppet was involved in knocking participant 9 to the ground and "attacking" him.  However, unlike the spoken and written data for other case study pairs, there are no attempts at introducing new verbs.  Instead the focus remains on instructed vocabulary. Nevertheless, the written work to some extent reflects use of extended sentences incorporating conjunctions (Figures 7.18, 7.19 and 7.20).
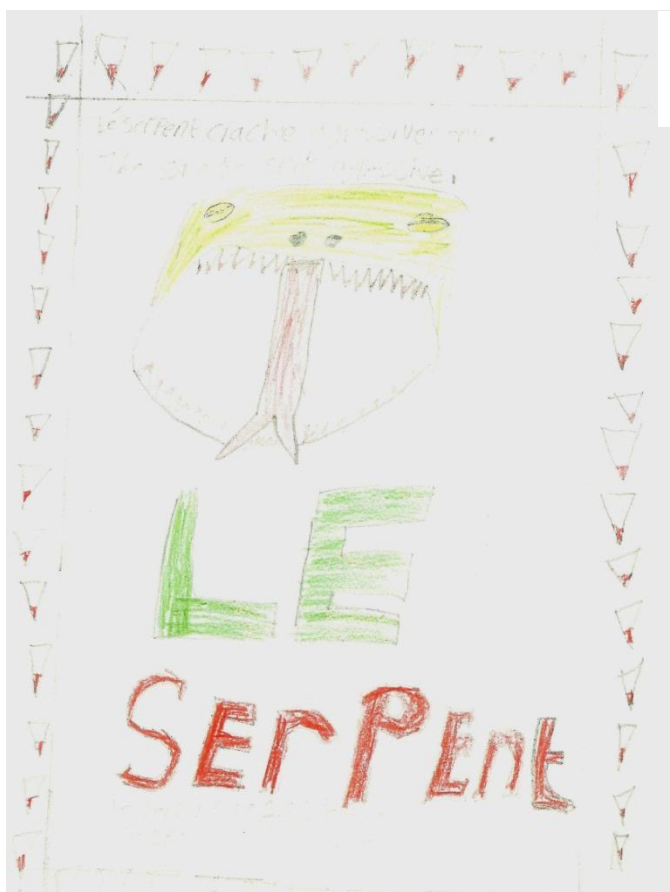
*"Le serpent crache agressivement. Le serpent ne siffle pas."*

**Figure 7.18:  Participant 33 – independent writing – finished second book chapter – 1.3.12**

Figure 7.18 by participant 33 shows two sentences:  "le serpent crache agressivement" (*the snake spits agressively*) and "le serpent ne siffle pas" *(the snake does not whistle).*  Both are slightly formulaic when compared to other data extracts yet are written in a target-like manner with translations offered underneath. Participant 21 shows a slightly more creative use of the language by supplementing verbs with adverbs and extending sentences with conjunctions (Figure 7.19).  Once again, however, only instructed verbs are chosen, so that, accuracy is privileged over imaginative and creative engagement with the task.

**Figure 7.19:  Participant 21 – independent writing – finished second book chapter – 1.3.12**


Participant 9 and participant 21 have clearly worked together on their chapters as these pieces of work are identical in terms of linguistic complexity and length.
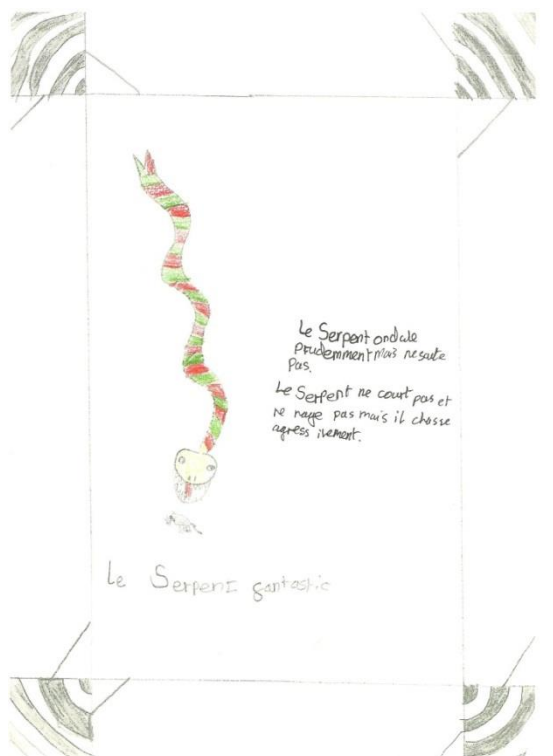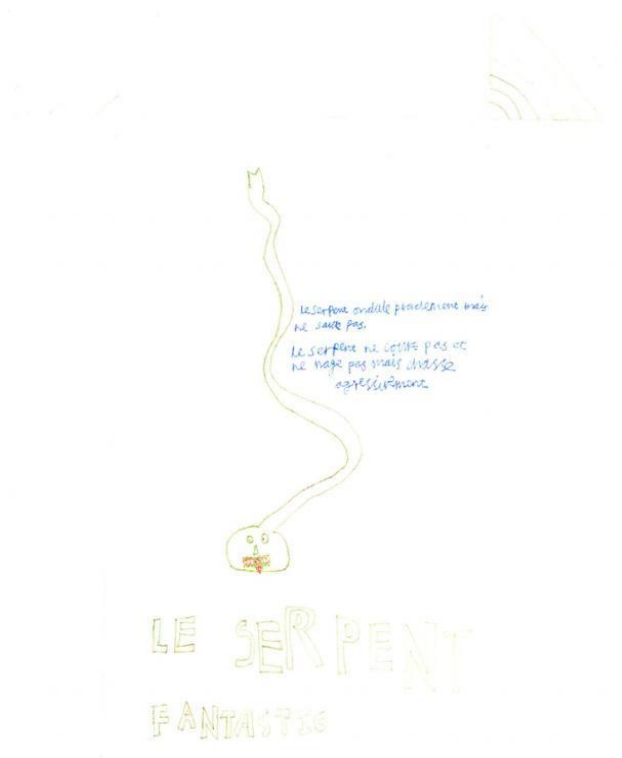


**Figure 7.20:  Participant 9 – independent writing – finished second book chapter – 1.3.12**

As mixed-ability teaching is a regular feature of English state primary education, it is important to present and examine a range of performances in order to present a balanced argument for this novel teaching approach. To complement the previous analysis of small groups of childen who scored across the ability range for both L2 formal test battery scores and L1 reading ages, the results will now explore longitudinal quantitative and qualitative data from participants at either end of the L2 fomal test score range. This is intended to provide a detailed account of how successful and less successful L2 learners participated in the teaching and learning. The analysis will focus on participant 21 with high L2 test scores (reading age 15.00 years, spelling age 16.07 years) and participant 17 who obtained lower L2 test scores (reading age 9.08 years, spelling age 7.08 years). Each participant's results at pre-, post- and delayed post-test are shown in Table 7.9.

| | Pre-Test | | | | Post-Test | | | | Delayed Post-Test | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L2RA | L2RC | L2EI | L2RV | L2RA | L2RC | L2EI | L2RV | L2RA | L2RC | L2EI | L2RV |
| P17 | 1 | 1.5 | 6 | 17 | 4 | 2.5 | 16 | 16 | 2 | 2.5 | 13 | 16 |
| P21 | 6 | 2.5 | 31 | 21 | 5 | 5 | 36 | 24 | 4 | 5 | 43 | 24 |

**Table 7.9: Scores for P17 and P21 across all L2 constructs at all test times**

Analysis of test scores shows that while both learners made progress on most measures of L2 proficiency, P21 consistently out-performed P17 on all measures at all test sessions. Between pre- and post-test the gap between these high and low scorers narrowed considerably for L2 read aloud (L2RA - from 5 points' difference to 1) and for L2 elicited imitation (L2EI - 25 points to 20). However, on other measures, L2 reading comprehension (L2RC) and L2 receptive vocabulary (L2RV) the gap widens.

The first piece of written work to be examined here was elicited through an activity called "écrivez" (see Section 5.2) where the children attempted to recreate written words seen, heard and spoken several times previously (within the same

lesson) but, this time, from memory.  The first column of words represents those that the participants recreated from memory, the second column shows representations which were copied once the target-like form had been revealed.
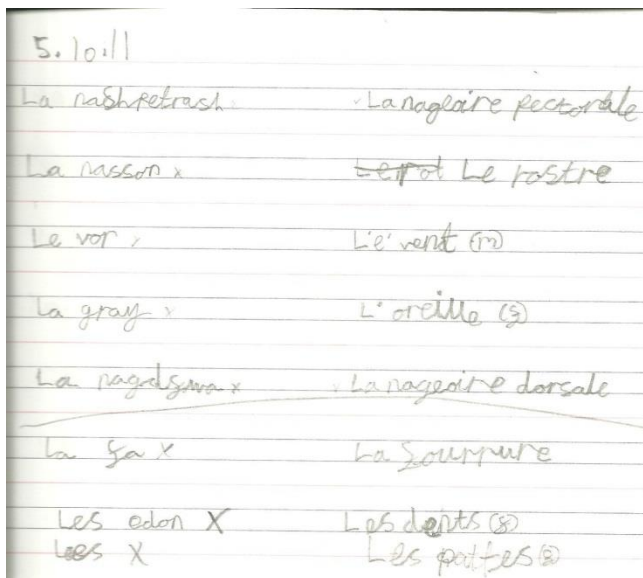


**Figure 7.21:  Participant 17 – core vocabulary – "écrivez" task – 5.10.11**
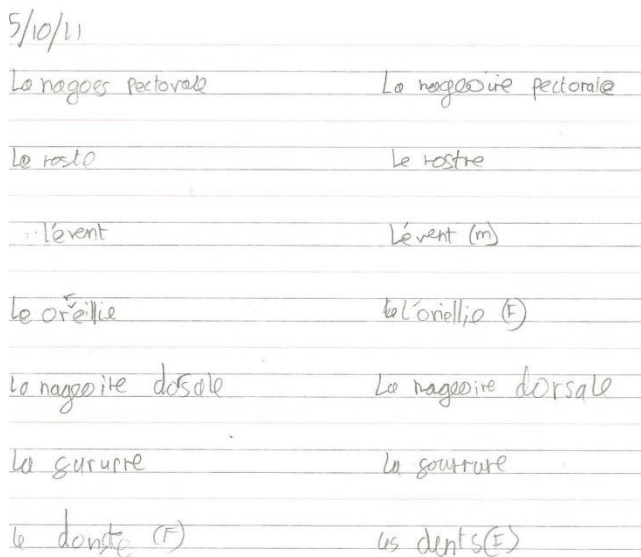


**Figure 7.22:  Participant 21 – core vocabulary – "écrivez" task – 5.10.11**

These data (Figures 7.21 and 7.22) show that, early on in the teaching intervention, Participant 21 is better able to recall from memory whole written words and phrases, in a target-like or near target-like manner, including relatively complex examples such as "la nageoire pectorale".  Approximately one month later, the same

activity focusing on different nouns reflects similar differences but, interestingly here, it seems as though Participant 17 (Figure 7.23) is nevertheless developing an ability to reproduce the new target language lexical items.
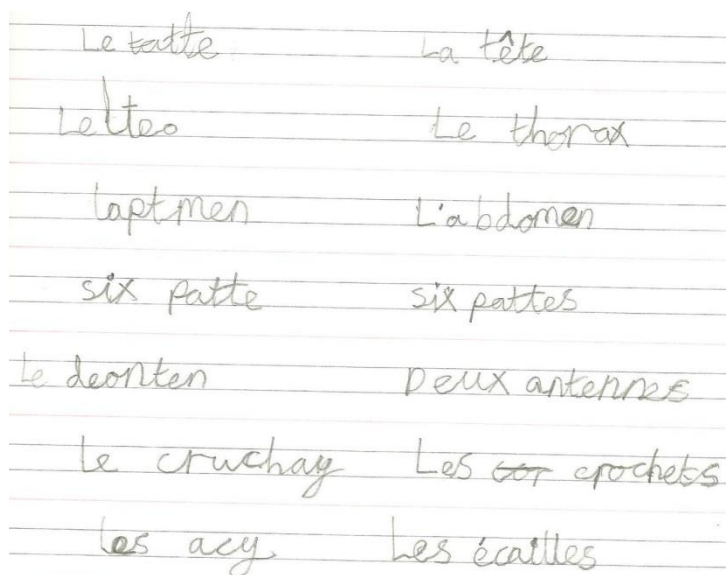


**Figure 7.23:** Participant 17 – core vocabulary – "écrivez" task – 2.11.11
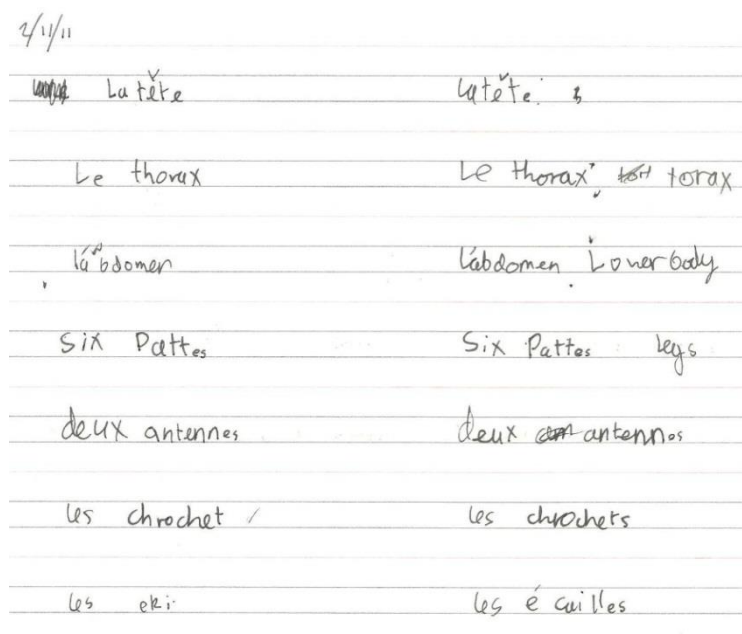


**Figure 7.24:** Participant 21 –  core vocabulary – "écrivez" task – 2.11.11

Participant 21 (Figure 7.24) still has the advantage in terms of target–like reproductions but note how both children struggle to reproduce "les écailles" for example.  Generally, this child is better at remembering final, silent letters yet both represent the final silent "e" of "la tête".

The draft, first book chapters by these children provide another source of contrastive data.  The extract from the work of Participant 17 (Figure 7.25) shows occasional omission of copular verbs ("la plupart des ours [sont] bruns" – *most bears [are] brown*) and main verbs ("combine de pattes [a] un ours?" – *how many paws [has] a bear [got]?*) yet includes adjectives with targetlike inflections for plurality and noun gender.   Occasional written forms "girss" for "les griffes" reflect properties of this participant's earlier written work.  In other words, in the absence of recollection of whole word forms, this participant, in previous work, tended to use "wild" (unsystematic) representations which did not resemble L1 sound/spelling links and perhaps showed scant recollection and/or processing of the phonological word forms.  Nevertheless, the majority of this draft book chapter is written using highly target-like forms.  Or course, it is important to remember that this work was conducted in small groups and, therefore, could have been supported by peers.  However, it is suggested that this is a benefit of mixed-ability group work – whilst the individual contribution of each participant is unknown, this has been a worthwhile learning exercise as collaboration, creativity and imagination have, at the very least, allowed this child an opportunity to use, experience, copy and produce words and sentences which may been new to him/her.
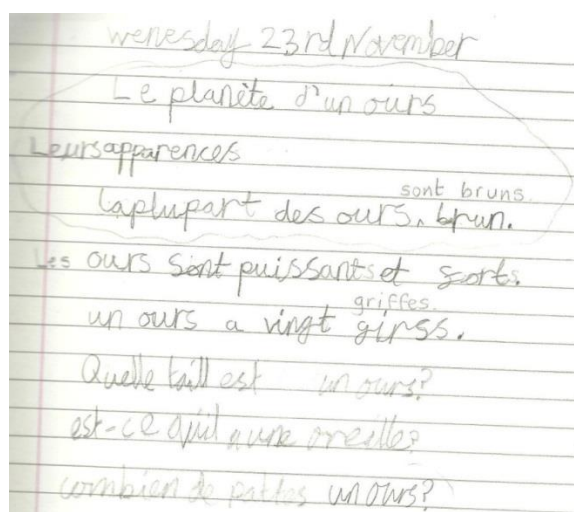


**Figure 7.25:  Participant 17– independent work – draft first book chapter – 23.11.11**

Participant 21 (Figure 7.26) produces slightly more formulaic work, yet also occasionally omits main verbs and determiners and often neglects to apply gender and number marking. This could show that, through careful structuring of L2 literacy-related activities (i.e. a balance of learning and practice opportunities) coupled with opportunities for creativity, independence and group work, learners with differing L2 abilities (evidence through a range of L2 test scores) can participate meaningfully in L2 literacy. Importantly, the evidence so far also shows that developmental errors are a normal and natural part of the L2 learning process in learners across the ability range.
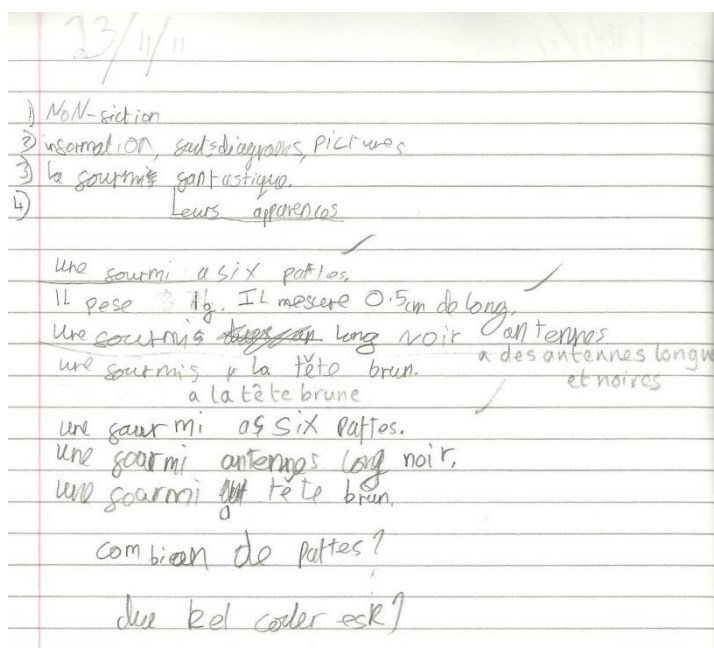


**Figure 7.26: Participant 21 – independent work – draft first book chapter – 23.11.11**

Figures 7.27 and 7.28 present both participants' performance at a mid-intervention test which was set to examine progress against some of the teaching intervention's learning objectives – L6.1 read and understand the main points and some detail from a short, written passage (DfES, 2005: 59). The design of the test is described in Section 6.8.3. These extracts are included to illustrate the development of L2 reading (alongside L2 writing portrayed in Figures 7.25 and 7.26) and also, as examples of each individual working alone under test conditions (and not as part of a group).

La fourmi noire a six pattes longues et deux antennes courtes.     7/8
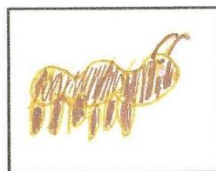
Le singe rose a deux petits yeux noirs et une grande bouche orange.     6/9

Le léopard rouge a des taches noires. Il a quatres grandes pattes avec des griffes pointues.     4/9

Le serpent vert ouvre sa bouche pour montrer ses deux grands crochets gris. Il a une langue violette et fourchée.     4/12

21/38

**Figure 7.27:  Participant 17 – mid-intervention reading comprehension test – 14.12.11**

Comparison of these data shows that, in this test which used primarily familiar, taught language, participant 17 (Figure 7.27) scored 21/38 (55.3%) whilst participant 21 scored 29/38 (76.3%).  Of course, there are test-related issues which impact on the scoring.  For example, the monkey's mouth could have been added by chance rather than as a result of understanding the text.  Nevertheless, this task does appear to show that both participants can participate in the activity and can understand (to varying degrees) short, written passages.  Participant 21 (Figure 7.28) is able to engage more with the detail of the text and seems to make clearer attempts to represent understanding e.g. the four big paws of the leopard with pointed claws.

La fourmi noire a six pattes longues et deux antennes courtes. 8/8

Le singe rose a deux petits yeux noirs et une grande bouche orange. 8/9

Le léopard rouge a des taches noires. Il a quatres grandes pattes avec des griffes pointues. 7/9
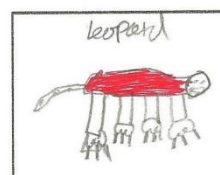
Le serpent vert ouvre sa bouche pour montrer ses deux grands crochets gris. Il a une langue violette et fourchée. 6/12
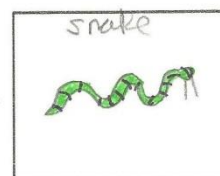
29/38

**Figure 7.28: Participant 21 – mid–intervention reading comprehension test – 14.12.11**

Approximately four months into the teaching intervention, at the start of the second scheme of work which involved learning about animal behaviours (principally verbs), participant 17 appeared to be developing target–like production of learned verbs. Figure 7.29 shows attempts at recognizing and selecting written forms.
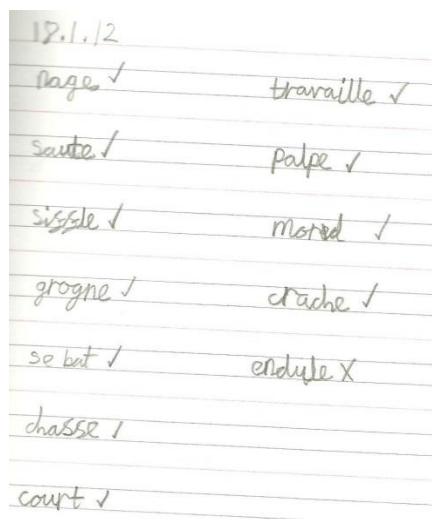
**Figure 7.29:  Participant 17 – core verbs – "écrivez" task – 18.1.12**

This participant has historically struggled with single word forms and yet reproduces most of these verbs in a target-like manner.  The only exception is "endule" which interestingly chooses "en" in the place of "on", thus giving rise to the possibility that L2 sound/spelling links are emerging but that distinguishing between novel L2 phonemes is problematic.  Meanwhile, in a previous task ("écrivez"), although Participant 21 reproduces verbs less successfully, these representations appear generated from memorization of whole word forms (Figure 7.30).  This premise is supported by scant evidence of L1-derived links through sounding out (e.g. cashe changed to cache and soute) and more evidence of target-like yet misplaced graphemes (e.g. gronge; cord/courd, travaillion and cache).  It is, however, important to note the appearance of "ondûle" which could have been derived from application of L2 phonics "rules" e.g. U/Û = /y/.
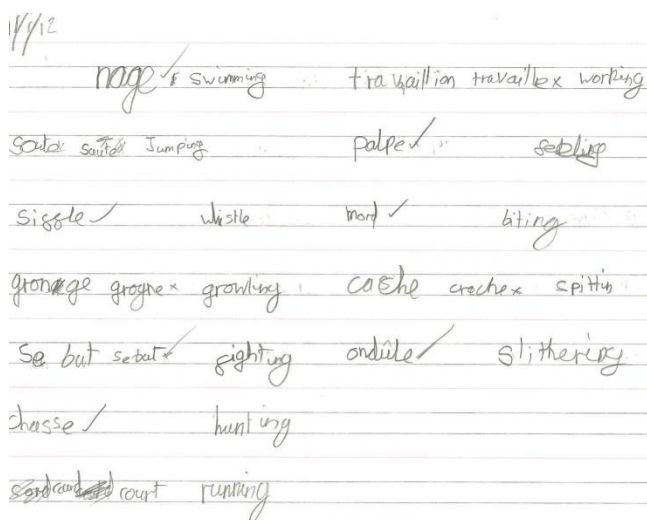
**Figure 7.30: Participant 21 – core verbs – "corrigez" task – 18.1.12**

Towards the end of the intervention, participant 17 (Figure 7.31) is starting to write the second book chapter using whole, complex sentences with increasingly target-like language including negation. Interestingly, this participant has a tendency to invert spellings in English ("figth" for fight) and also in French ("girss" for griffes – *claws*) which could indicate a degree of dyslexia. At the time of the study, there was no statement of educational needs or individual education plan in place for this child but a younger sibling had received a statement (dyslexia related) which meant that he/she was legally entitled to a programme of support.

As previously noted, whilst the independent written work varies substantially in length from that of participant 21, this child is nevertheless learning an L2. Weekly written word representations appear to be improving and whilst the success with verbs (Figure 7.29) may be principally linked to the change in learning activity (the move from écrivez to corrigez), there is still evidence that this learner is successfully processing whole word written forms and can accurately recognise target-like written representations.
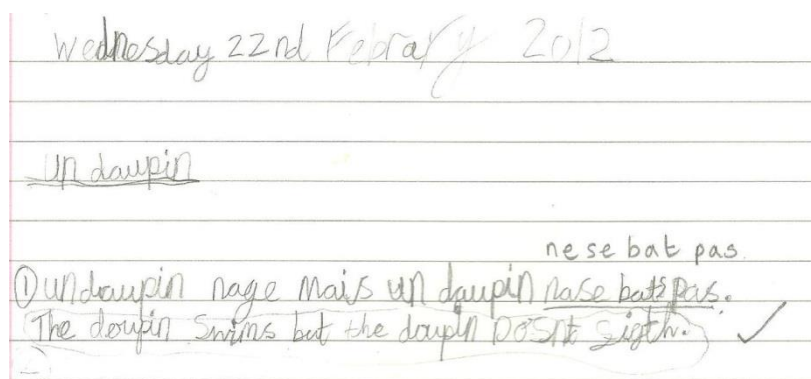
**Figure 7.31: Participant 17 – independent work – draft second book chapter – 22.2.12**

Participant 21 (Figure 7.32) is writing sentences with a range of linguistic complexity, using, with some degree of confidence, conjunctions, adverbs and negation to express animal behaviours.
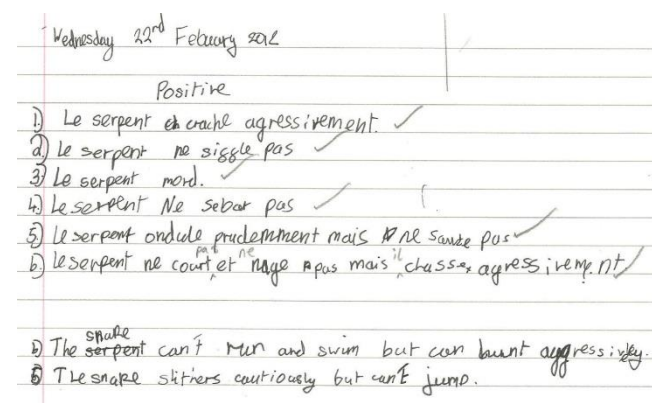


**Figure 7.32: Participant 21 – independent work – draft second book chapter – 22.2.12**

This subsection has examined some of written work of a high L2 and low L2 scorer at post test in an attempt to explore the relationship of lower test achievement scores with weekly lesson data. This study suggests, through examination of quantitative and qualitative data, that even participants with low L2 post-test scores were able to engage meaningfully with primary MFL literacy and oracy and demonstrated a degree of progression.  Whilst is is also evident that the higher L2 scorer showed clear advantages in target-like reproduction of written forms, it is suggested that non target-like forms are an inherent feature of the learning process for both learners.

This is further evidenced by Table 7.10 which extends interpretation of the mid-intervention reading comprehension test scores across the sample. These scores represent performance at a literacy-related activity that was not conducted in a formal test situation and which also was aimed at eliciting and assessing performance against instructed vocabulary.  High scorers are circled in red whilst lower scorers are circled in blue and are contrasted with L1RAge.  All the L2 top five scorers had L1 reading ages higher than both the sample mean and participant age.  However, four out of six lowest L2 scorers also had higher reading ages than the sample mean age (9.98 years) and than their respective chronological ages.  This could suggest that whilst successful L2 learners tended to be more proficient L1 readers, readers with high reading ages may also find aspects of L2 learning challenging.

| Participant No: | Mid Test Reading Comprehension (max score = 38) | L1 Reading Age |
|---|---|---|
| 1 | 27 | 12.05 yrs |
| 2 | 25 | 15.00 yrs |
| 3 | 24 | 12.08 yrs |
| 4 | 21 | 15.00 yrs |
| 5 | 9 | 13.02 yrs |
| 6 | 13 | 13.02  yrs |
| 7 | 17 | 12.07 yrs |
| 8 | 10 | 7.00 yrs |
| 9 | 20 | 12.03 yrs |
| 10 | 23 | 11.11 yrs |
| 11 | 21 | 11.00 yrs |
| 12 | 31 | 12.07 yrs |
| 13 | 24 | 11.00 yrs |
| 14 | 17 | 14.03 yrs |
| 15 | 21 | 11.00 yrs |
| 16 | 27 | 11.11 yrs |
| 17 | 21 | 9.08 yrs |

| 18 | | 17 | 8.03 yrs |
| 19 | | 13 | 12.03 yrs |
| 20 | | 20 | 6.08 yrs |
| 21 | | 29 | 15.00 yrs |
| 22 | | 21 | 8.80 yrs |
| 23 | | 18 | 6.10 yrs |
| 24 | Absent | | 9.04 yrs |
| 25 | | 14 | 11.00 yrs |
| 26 | | 14 | 8.03 yrs |
| 27 | | 28 | 11.06 yrs |
| 28 | | 32 | 13.02 yrs |
| 29 | | 6 | 8.08 yrs |
| 30 | | 26 | 13.11 yrs |
| 31 | | 28 | 13.06 yrs |
| 32 | | 31 | 11.00 yrs |
| 33 | | 14 | 13.06 yrs |
| 34 | | 15 | 13.06 yrs |
| 35 | | 4 | 10.08 yrs |
| 36 | | 19 | 11.06 yrs |
| 37 | | 16 | 11.00 yrs |
| 38 | | 21 | 13.02 yrs |
| 39 | | 16 | 9.00 yrs |
| 40 | | 22 | 11.00  yrs |
| 41 | | 21 | 13.06 yrs |
| 42 | | 22 | 13.02 yrs |
| 43 | | 19 | 15.00 yrs |
| 44 | | 23 | 15.00 yrs |
| 45 | | 23 | 12.07 yrs |

Table 7.10:  Whole sample performance at mid-intervention L2 reading comprehension – 14.12.11 & 15.12.11

So far, the results presented in Section 7.1 have attempted to answer research question 1 concerning the processes and outcomes of teaching oracy and literacy simultaneously with younger, beginner learners, by examining some spoken and written work produced by groups of participants alongside quantitative data which shows learning measured against L2 proficiency constucts.  However, in order to fully explore this research question, it will also be necessary to examine the effects of the teaching and learning intervention, considering both pupil and teacher evaluations of the process.  Section 7.1.6 will further triangulate data by reporting and exploring qualitative data relating to these perceptions which will contribute to validity in data analysis and add weight to the interpretations offered thus far.

### 7.1.6 Pupil Perception of the Teaching Intervention

Both incidental and planned learner reflection were deemed an essential facet of this teaching intervention and have already been linked to the idea of the "autonomous classroom" (Dam, 1995; Little, 2007).  Data reflecting on the intervention were collected in several ways.  Informal questionnaires (see Section 6.5.1.5) were distributed at pre- and post-test, ad-hoc discussions took place during the teaching (e.g. discussion  concerning presentation of noun gender and adjectival agreements in colours) and at mid-intervention participants were asked to rank teaching activities in order of preference.  The results for two of the intervention questionnaire items are illustrated below (Table 7.11).  The questions were worded in an attempt to avoid appearing overtly negative and therefore to minimize influencing responses bearing in mind the power relationships inevitable in teacher-led research.

|  | How many French words can you say? (n=45) | | |
| --- | --- | --- | --- |
|  | A lot | Quite a bit | Not many |
| Pre-Test | 3 (6.4%) | 26 (55.3%) | 16 (34%) |
| Post-Test | 15 (31.9%) | 21 (44.7%) | 9 (19.1%) |

Table 7.11:  Pre-test and post-test participant responses to a questionnaire item

These data appear to show that, at pre-test, most participants felt fairly confident about their knowledge of spoken French words but few responded that they knew plenty of spoken French words.  34% of the sample seemed slightly negative about their learning of French speech (in terms of numbers of words).

By post-test, these responses had changed quite dramatically with most participants identifying that they knew "quite a few" or "a lot" of spoken words (44.7% and 31.9% respectively).  Nevertheless, there remained a small proportion of participants who seemed to feel they had made little "spoken" progress (9/45 or 19.1%).

It is important to remember that the children in this study had had French instruction before the teaching intervention commenced.  Children in School 1 had received approximately two years' learning (with this teacher/researcher) whilst children in School 2 had learned French for three years prior to the study's commencement (plus every summer term in Key Stage 1).   In other words, these participants were not starting the intervention as complete beginners with little target language instruction or knowledge.  These responses show that the participants were increasingly confident about their knowledge of French and could, when triangulated with quantitative evidence, contribute to this study's claim that the simultaneous instruction of L2 literacy did not jeopardise the development of speech.

The following questionnaire item was designed to investigate the children's perception of their learning of written MFL words.

|  | How many French words can you write? (n=45) | | |
|---|---|---|---|
|  | A lot | Quite a bit | Not many |
| Pre-Test | 0 | 7 (14.9%) | 38 (80.9%) |
| Post-Test | 8 (17%) | 27 (57.4%) | 10 (21.3%) |

Table 7.12:  Pre-test and post-test participant responses to a questionnaire item

Table 7.12 shows that at pre-test most participants felt they could write few French words.  This could be linked with, the former teaching approach which

presented text at intervals yet did not systematically and explicitly involve literacy instruction including the learning of single, written words.  80.9% of the sample felt their knowledge of French written words was minimal.

By post-test over half the sample felt that they knew how to write a reasonable amount of French words (57.4%) with a few (17%) who felt that they knew many French written words.  This questionnaire was not re-administered at delayed post-test so there is no measure for pupil's assessment of attrition.

To summarise, from the children's perspective, these data appeared to show increasing confidence in both L2 oracy and literacy.  This is, of course, reflected in the study's quantitative data on development across the four key L2 constructs and when considered together present a positive outlook for the potential of combining oracy and literacy in a primary MFL classroom.  Whilst there are, naturally, limitations to the inferences that might be drawn from the children's self-reports; it is interesting nevertheless to note the "symmetry" with the study's  quantitative data.

Alongside the participants' self-evaluation of achievement, it is also important to explore (as a means of validating the novel teaching approach), their reactions to particular tasks within the intervention.  An intervention evaluation task was completed approximately three months into the study (see Section 6.5.1.6).  The children were given colour-coded cards which represented a variety of activities undertaken (red – reading, yellow – speech, green – writing, blue – listening, purple – planning and information gathering).  They were asked to work in small groups (3-4 participants) and to rank these cards (out of 20) in order of preference, starting at the top with "I really liked this" and at the bottom "I didn't like this so much".   Where the same preference applied to several activities, they were asked to place these cards alongside each other.  It was envisaged that this activity would elicit information about preferred learning activities but also whether, for example, oracy-based activities were preferred over reading or writing.  The data garnered from this activity was, however, remarkably varied between schools and groups.  The data presented in figure 7.33 shows the top five preferred activities (from a selection of 20 tasks).

**GROUP 1:**
1. Listening to myself speaking French!
2. Practising French sounds in the hot/cold game.
3. Talking about my animal or insect for the documentary.
4. Planning our group's t.v. documentary.
5. Reading other groups' fact files in French.


**GROUP 2:**
1. Reading French words & sentences aloud.            Finding out about animals and insects.
2. Practising French sounds by reading to a partner.            Reading other groups' fact files in French.
3. Matching French words and pictures.                Practising French sounds in the hot/cold game.
4. Contributing my written work to the class French fact file.        Using gestures to learn French sounds.
5. Planning our group's t.v. documentary.


**GROUP 3:**
1. Listening to other groups' t.v. documentaries.Talking about my animal or insect for the documentary. Writing my own fact file in French.
2. Trying to write French words by sounding out, then checking them (écrivez and verifiez). Contributing my written work to the class French fact file.
3. Listening to myself speaking French!                        Finding out about animals and insects.
4. Using gestures to learn French sounds.
5. Matching French words and pictures.                        Reading other groups' fact files in French.


**GROUP 4 :**
1. Practising French sounds in the hot/cold game.
2. Reading French words & sentences aloud.
3. Reading other groups' fact files in French.
4. Practising French sounds by reading to a partner.
5. Learning about French phonics.


**GROUP 5 :**
1. Practising French sounds in the hot/cold game.
2. Planning what to write in a group for our book.
3. Writing my own fact file in French.
4. Using gestures to learn French sounds.
5. Making sentences in French with word cards (e.g. un ours brun).


**GROUP 6:**
1. Practising French sounds in the hot/cold game.
2. Finding out about animals and insects.
3. Writing my own fact file in French.
4. Listening to a French story.
5. Finishing French questions.


**GROUP 7:**
1. Listening to other groups' t.v. documentaries.
2. Practising French sounds in the hot/cold game.
3. Finding out about animals and insects.    Matching French words and pictures.

4.   Listening to a French story.
5.   Planning what to write in a group for our book. Finishing French questions. Planning our group's t.v. documentary.

## GROUP 8:

1.   Finding out about animals and insects.      Making sentences in French with word cards (e.g. un ours brun).
2.   Using gestures to learn French sounds. Listening to a French story. Practising French sounds by reading to a partner.
3.   Practising French sounds in the hot/cold game. Listening to other groups' t.v. documentaries.
4.   Planning what to write in a group for our book.
5.   Listening to myself speaking French!  Contributing my written work to the class French fact file. Learning to say French verbs using actions.

## GROUP 9:

1.   Talking about my animal or insect for the documentary.  Practising French sounds in the hot/cold game. Listening to other groups' t.v. documentaries.  Learning to say French verbs using actions.
2.   Making sentences in French with word cards (e.g. un ours brun).
3.   Planning our group's t.v. documentary.  Matching French words and pictures. Listening to a French story.
4.   Learning about French phonics.  Listening to myself speaking French!  Planning what to write in a group for our book.
5.   Writing my own fact file in French.  Contributing my written work to the class French fact file. Trying to write French words by sounding out, then checking them (écrivez and verifiez).

## GROUP 10:

1.   Practising French sounds in the hot/cold game.
2.   Listening to other groups' t.v. documentaries.
3.   Listening to myself speaking French!
4.   Listening to a French story.
5.   Talking about my animal or insect for the documentary.

## GROUP 11:

1.   Listening to other groups' t.v. documentaries.  Listening to a French story.
2.   Practising French sounds in the hot/cold game. Finding out about animals and insects.         Planning our group's t.v. documentary.
3.   Using gestures to learn French sounds.  Trying to write French words by sounding out, then checking them (écrivez and verifiez).  Matching French words and pictures.
4.   Learning to say French verbs using actions.
5.   Planning what to write in a group for our book.

## GROUP 12:

1.   Practising French sounds in the hot/cold game.
2.   Listening to other groups' t.v. documentaries.
3.   Learning to say French verbs using actions.
4.   Matching French words and pictures.
5.   Finishing French questions.

## GROUP 13:

1.   Listening to other groups' t.v. documentaries.
2.   Practising French sounds in the hot/cold game.

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3.   Listening to a French story.
4.   Planning our group's t.v. documentary.
5.   Finding out about animals and insects.

**GROUP 14:**
1.   Listening to other groups' t.v. documentaries.  Practising French sounds in the hot/cold game.
2.   Talking about my animal or insect for the documentary.
3.   Making sentences in French with word cards (e.g. un ours brun).  Planning our group's t.v. documentary.
4.   Finding out about animals and insects.
5.   Learning about French phonics.

**Figure 7.33:  Group ordering of intervention learning activities**

It is particularly hard to note any consistent narrative which emerges from all the groups.  Oracy-based (productive) activities appear in every group's top 5 and listening tasks in the top 5 of 13 out of 14 reports; the favourite, productive oracy activities often related to the phonics instruction.  Rather than the phonics being enjoyed in its own right, however, it appears more likely that the children preferred the games element of this part of the instructional programme (described in Section 5.3, Table 5.3).

As the aim of this section is to explore a role for literacy in the primary MFL classroom, responses to writing-led activities will be examined in more detail.  These are rated highly by 9 out of 14 groups whilst reading features in 11/14 preferred activity reports.  Of the 9 groups who included written work in their top 5 tasks, only 3 referred directly to the dictation style exercise "écrivez" (NB:  the assessment of the intervention took place before a change in teaching to a "corrigez" (recognition) activity).  This perhaps mirrors teacher concerns relating to this activity which are explored in the next subsection.  The remaining groups' favourite literacy tasks mostly referred to independent written work activities.  The teacher diary, to some extent, corroborates the effectiveness of this style of task (see e.g. in Figure 7.35).

*23.11.11: School 2: written work was interesting – seemed mostly enjoyable. Had a big whiteboard full of words. Lots of questions and a fair amount of imagination. Some are still expecting me to spell and write known words. I tell them their vocab books are their resource. Lots of confusion (which I didn't expect) around "what's the word for "a" and "the"? Maybe this is the downside to coloured nouns – no attention being paid to the determiner!!?*

*24.11.11: School 1: the children seemed to really enjoy the puppets. They totally embraced the concept and understood the potential. They were determined to be as creative as possible and I was running to keep up with them! I wrote up words they requested on the board but only words in isolation, not complete sentences. Told them they had to build the sentences. Interestingly, in almost all cases, all the work on adjectival agreements went "out of the window", despite a written reminder on the board! They just can't apply it. Same issues as school 2 with le/la and un/une – don't know which is the/a or which is masculine/feminine (I expected the latter but not necessarily the former).*

**Figure 7.34:  Teacher diary extract – 23.11.11& 24.11.11**

It had been anticipated that the first attempt at chapter writing, planned to ressemble a "brainstorming" style exercise, might not be particularly successful. The effectiveness of the activity rested on participation and engagement with the task. These fears were unfounded though the lesson in school 2 seemed more dynamic than the lesson in school 1. This could be related to the possibility that the children in the second school were accustomed to independent writing activities (as this echoed the style of their class teacher) but also could relate to class size and dynamic. In school 2

this particular week's lesson was delivered twice, in smaller groups due to participation in an inter-school event (this is presented in the diary data below). Whilst the school 1 class teacher planned independent activities, the class dynamic meant that they often appeared reticent (this was also noted by their regular class teacher). However, as 11/14 groups decided that they enjoyed the planning and fact-finding aspect of the teaching intervention, this seems to support the idea that the nature of the independent learning tasks was agreeable.

*30.11.11: School 1: Catch up lesson for those at an event on 24th. Minor issues with group dynamics (participant 36 struggled not being at the helm in her group). Many of them (named) responded really well to the creativity and independence. It's going to be hard to manage this lot in a full class on my own as the ideas and questions are relentless! Fantastic though! Maybe this will get better as resources, language and confidence develop? All in all another really successful lesson. Participant 28 wanted to work alone (I let him) but was very protective about "his words" (!) – didn't want them up on the board as a class resource. Some of the work was so detailed, I doubt they'll be able to reproduce this in the t.v. documentary (time as much as anything else). About six children approached me after the lesson to say "that was the best French lesson ever!". Not bad!! And to think I postponed this by one week due to the Ofsted inspection!*

Figure 7.35:  Teacher diary extract – 30.11.11
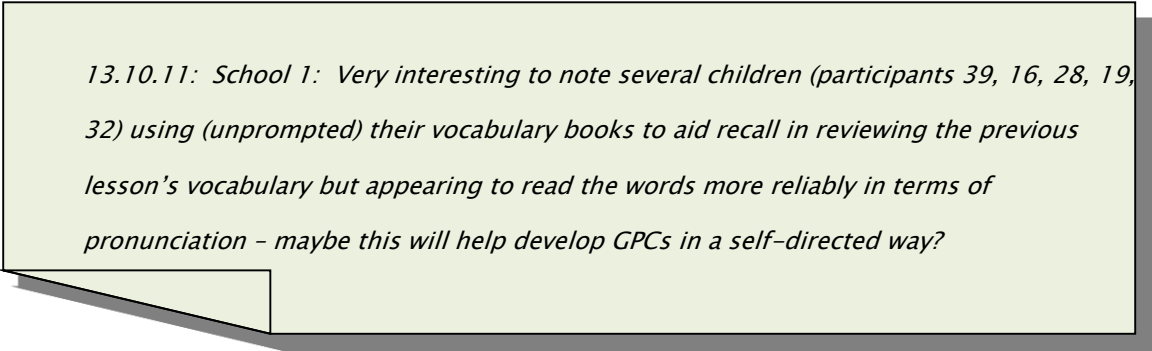
> *9.2.12:  School 1:  Second draft of first chapter.  Some of the work is absolutely beautiful. They're producing lots of verbs for the second chapter (including negation) but I mustn't get too excited about this.  I don't think for a moment that they're supplying verbs where others of this age and in this context haven't (e.g. DCSF, 2010: 122) – is it more that here the verbs are carrying the semantic weight of the utterance whereas it's most likely children in previous studies have been trying to write either formulaic utterances, auxiliary verbs or sentences where there is an object which conveys most of the meaning (e.g. je joue au foot; j'ai un frère; j'ai dix ans)?*

**Figure 7.36:  Teacher diary extract – 9.2.12**

The diary extracts in Figures 7.35 and 7.36 lend weight to the feasibility of introducing independent literacy activities with beginner learners.  However, there is also teacher diary evidence (Figures 7.37 and 7.38) which supports the idea that written work can support learning more broadly (both oracy and literacy) by acting as a record of progress and a resource (Little, 2011; Little, 2007: 24).

> *12.10.11:     School 2:  After phonics swatting, showed the words with meanings.  I told the children that the vocabulary books are "their language resource" for developing the French words they know.  They should choose at least three words from this list that might be useful for future independent writing (i.e. for the book chapters).  Praised participant 9 for referring back to his vocabulary book in oral work and another child for using cognates to access word meaning.*

**Figure 7.37:  Teacher diary extract – 12.10.11**

> *13.10.11: School 1: Very interesting to note several children (participants 39, 16, 28, 19, 32) using (unprompted) their vocabulary books to aid recall in reviewing the previous lesson's vocabulary but appearing to read the words more reliably in terms of pronunciation – maybe this will help develop GPCs in a self-directed way?*

**Figure 7.38: Teacher diary extract – 13.10.11**

### 7.1.7 Conclusion

Section 7.1 has presented data arising from mixed-ability groupwork whose participants scored across the range of L2 constructs.  This has been supplemented by examination of a high and low L2 scoring participants and detailed reporting and evaluation of both teacher and pupil perspectives relating to a teaching intervention which combines oracy and literacy simultaneously.  Overall the analysis supported the premise that whilst high L2 scoring children undoubtedly have an advantage in literacy (and to some extent oracy) activities, less successful learners can and do participate actively in teaching and learning activities.  There is evidence that participants across the ability range find aspects of L2 learning challenging and that non target-like spoken and written forms are a regular feature of language learning progression.  Finally, it was noted that, in one activity (mid-intervention reading comprehension) higher scorers tended to have higher L1 reading ages and that this related directly to the study's second research question concerning individual differences.  Section 7.2 will now explore the performance of specific participants at each end of the reading age spectrum, in order address Research Question 2, i.e. to further evaluate the influence of L1 reading age and in particular whether learners with low L1 reading ages are disadvantaged by the introduction of an MFL teaching approach which incorporates explicit and systematic L2 literacy instruction.

## 7.2 Individual Differences – L1 Reading Age

This section and the next will present findings which will respond to the second research question which asks whether there are individual differences which influence L2 development.  This was formulated from previous empirical studies, primarily presented in Chapters 4 and 5 which support the idea that learners will bring already developed L1 literacy skills and aptitudes to the MFL classroom and that these may influence the development of second language learning.  The effects of both L1 reading age (Section 7.2) and verbal working memory (Section 7.3) will be examined, across all the core test battery constructs at all test times and supplemented by qualitative data to provide a richer portrayal of individual differences.

### 7.2.1 The Role of L1 Reading Age at All Test Times

First language reading age (measured by NGRT see Section 6.7.5) was demonstrated to be influential across both L2 literacy constructs and L2 general proficiency constructs at all test times.  Table 7.13 illustrates these relationships and those showing strong, positive correlations are circled in red.  Scatterplots for strong positive relationships are also included (Figures 7.39 to 7.46).

| | L1 Reading Age (L1RAge) | | | | | | | | |
| | Pre-Test | | | Post-Test | | | Delayed Post-Test | | |
| | PC | Sig. | % Var | PC | Sig. | % Var | PC | Sig. | % Var |
| **L2RA** | .737 | <.0005 | 54.0 | .493 | .001 | 24.3 | .654 | <.0005 | 42.7 |
| **L2RC** | .398 | .007 | 15.8 | .642 | <.0005 | 41.0 | .426 | <.0005 | 18.2 |
| **L2RV** | .453 | .002 | 20.5 | .563 | <.0005 | 31.7 | .558 | <.0005 | 31.1 |
| **L2EI** | .560 | <.0005 | 31.3 | .690 | <.0005 | 47.6 | .617 | <.0005 | 38.1 |

Table 7.13:  Table summarizing the influence of L1 reading age across all L2 constructs at all test times

**Figure 7.39: Scatterplot – Relationship between L1 reading age and L2 pre-test reading aloud (text) performance**

The relationship between pre-test L2 read aloud scores and L1 reading age was investigated using Pearson product-moment correlation coefficient.  The scatterplot (Figure 7.39) shows a strong, positive correlation between these two variables (r=.737, n=45, p=<.0005), with high L1 reading age associated with high L2 read aloud performance.  Calculation using the $r^2$ statistic showed that L1 reading age accounted for 54% of the variance in L2 read aloud results.

The relationship between pre-test L2 elicited imitation scores and L1 reading age was investigated using Pearson product-moment correlation coefficient.  The scatterplot (Figure 7.40) shows a strong, positive correlation between these two variables (r=.560, n=45, p=<.0005), with high L1 reading age associated with high L2 elicited imitation performance.  Calculation using the $r^2$ statistic showed that L1 reading age accounted for 31.3% of the variance in L2 elicited imitation results.

**Figure 7.40: Scatterplot – Relationship between L1 reading age and L2 pre-test elicited imitation performance**

To summarise these findings: at pre-test L1 reading age was most influential for both L2 reading aloud and L2 elicited imitation scores. Whilst this measure was also statistically significant for the other core constructs (L2 reading comprehension and L2 receptive vocabulary), this influence was less marked (i.e. explaining 15.8% and 20.5% shared variance respectively). Nevertheless, at this point, the results show that more able first language readers are most likely to fare better at L2 learning across both literacy and general proficiency measures.
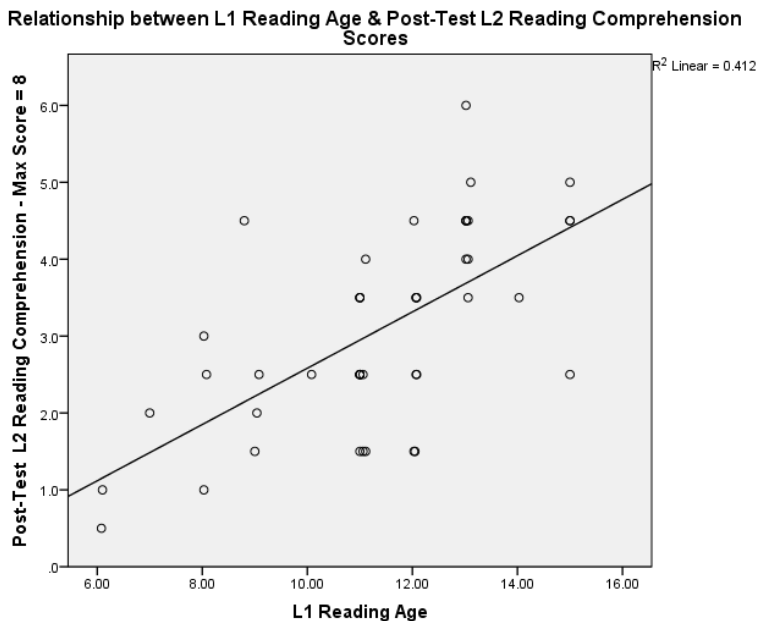
**Figure 7.41: Scatterplot – Relationship between L1 reading age and L2 post-test reading comprehension performance**

The relationship between post-test L2 reading comprehension scores and L1 reading age was investigated using Pearson product-moment correlation coefficient. The scatterplot (Figure 7.41) shows a strong, positive correlation between these two variables (r=.642, n=45, p=<.0005), with high L1 reading age associated with high L2 reading comprehension performance. Calculation using the $r^2$ statistic showed that L1 reading age accounted for 41% of the variance in L2 reading comprehension results.

The relationship between post-test L2 receptive vocabulary scores and L1 reading age was investigated using Pearson product-moment correlation coefficient. The scatterplot (Figure 7.42) shows a strong, positive correlation between these two variables (r=.563, n=45, p=<.0005), with high L1 reading age associated with high L2 receptive vocabulary performance. Calculation using the $r^2$ statistic showed that L1 reading age accounted for 31.7% of the variance in L2 receptive vocabulary results.
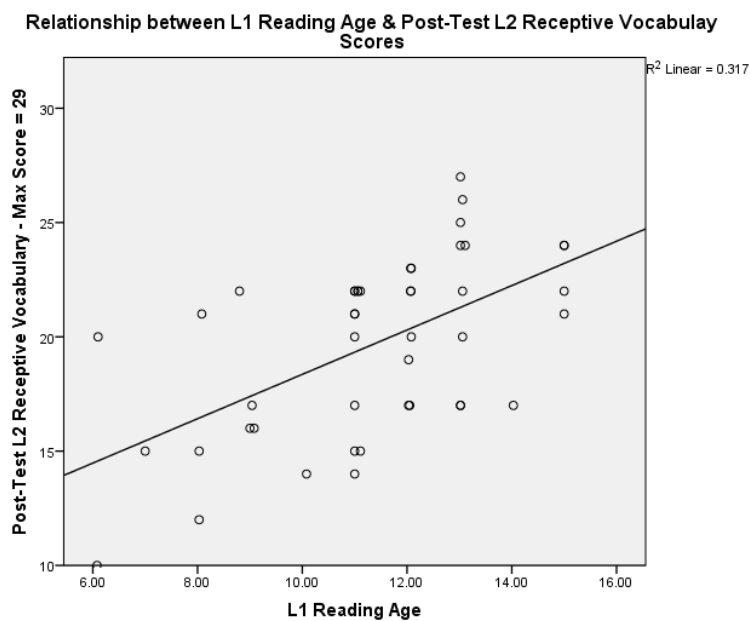
**Figure 7.42: Scatterplot – Relationship between L1 reading age and L2 post–test receptive vocabulary performance**

The relationship between post–test L2 elicited imitation scores and L1 reading age was investigated using Pearson product–moment correlation coefficient. The scatterplot (Figure 7.43) shows a strong, positive correlation between these two variables (r=.690, n=45, p=<.0005), with high L1 reading age associated with high L2 elicited imitation performance. Calculation using the $r^2$ statistic showed that L1 reading age accounted for 47.6% of the variance in L2 elicited imitation results.

Relationship between L1 Reading Age & Post-Test L2 Elicited Imitation Scores
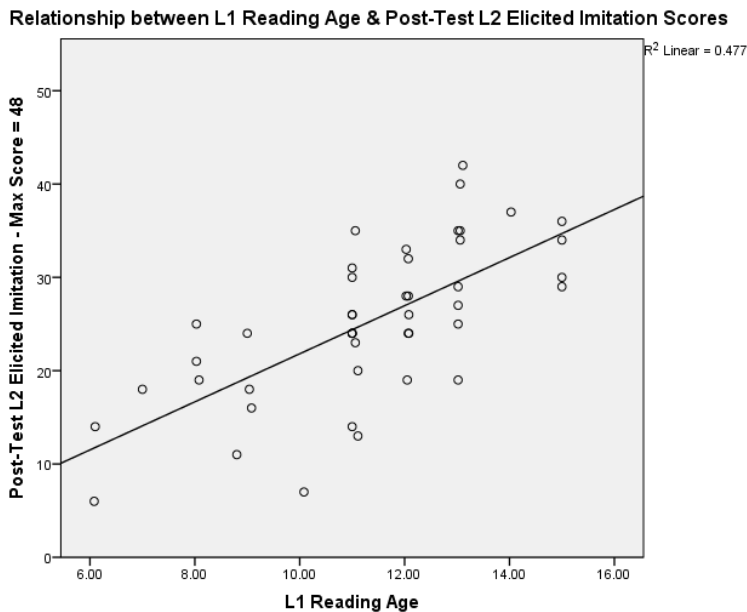


**Figure 7.43: Scatterplot – Relationship between L1 reading age and L2 post–test elicited imitation performance**

In other words, the relationship between post–test L2 scores and L1 reading age increased across most measures between pre– and post–test.  Only one measure at post–test (L2 reading aloud) reported a moderate correlation (although it should be noted that with a PC value of .493 this result was just .007 below the threshold deemed to demonstrate strong correlation – Cohen 1988).

The relationship between delayed post–test L2 read aloud scores and L1 reading age was investigated using Pearson product–moment correlation coefficient.  The scatterplot (Figure 7.44) shows a strong, positive correlation between these two variables (r=.654, n=45, p=<.0005), with high L1 reading age associated with high L2 read aloud performance.  Calculation using the $r^2$ statistic showed that L1 reading age accounted for 42.7% of the variance in post–test L2 read aloud results.

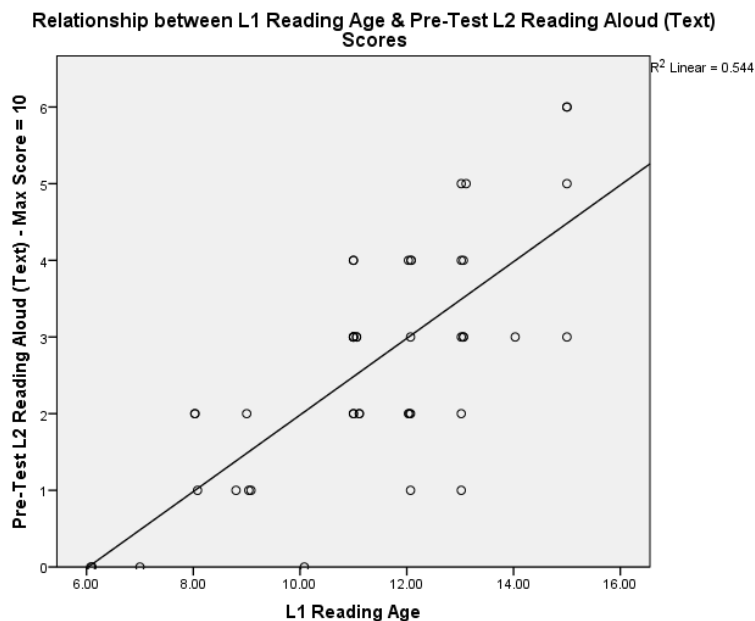Relationship between L1 Reading Age & Delayed Post-Test L2 Reading Aloud (Text) Scores
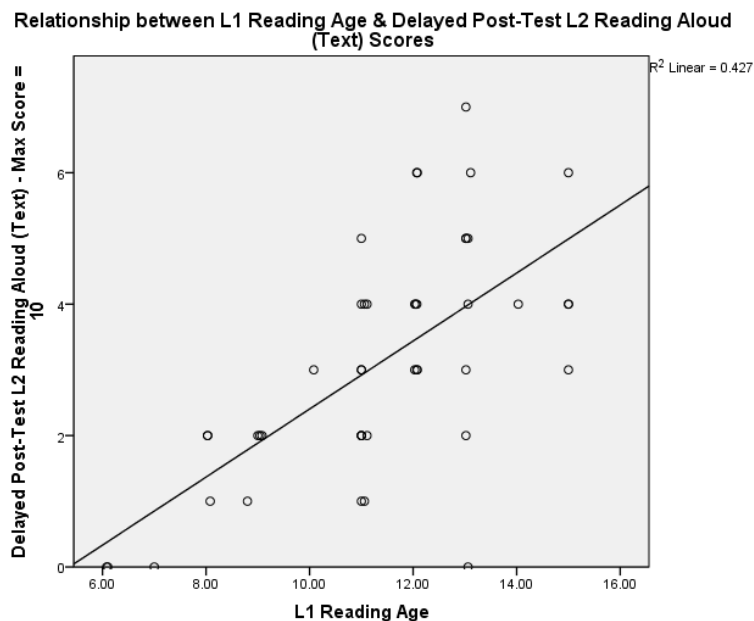


**Figure 7.44:  Scatterplot – Relationship between L1 reading age and L2 delayed post-test reading aloud (text) performance**

The relationship between post-test L2 receptive vocabulary scores and L1 reading age was investigated using Pearson product-moment correlation coefficient. The scatterplot (Figure 7.45) shows a strong, positive correlation between these two variables ($r=.558$, $n=45$, $p=<.0005$), with high L1 reading age associated with high L2 receptive vocabulary performance.  Calculation using the $r^2$ statistic showed that L1 reading age accounted for 31.1% of the variance in L2 receptive vocabulary results.

Figure 7.45:  Scatterplot – Relationship between L1 reading age and L2 delayed post-test receptive vocabulary performance

The relationship between post-test L2 elicited imitation scores and L1 reading age was investigated using Pearson product-moment correlation coefficient.  The scatterplot (Figure 7.46) shows a strong, positive correlation between these two variables (r=.617, n=45, p=<.0005), with high L1 reading age associated with high L2 elicited imitation performance.  Calculation using the $r^2$ statistic showed that L1 reading age accounted for 38.1% of the variance in L2 elicited imitation results.
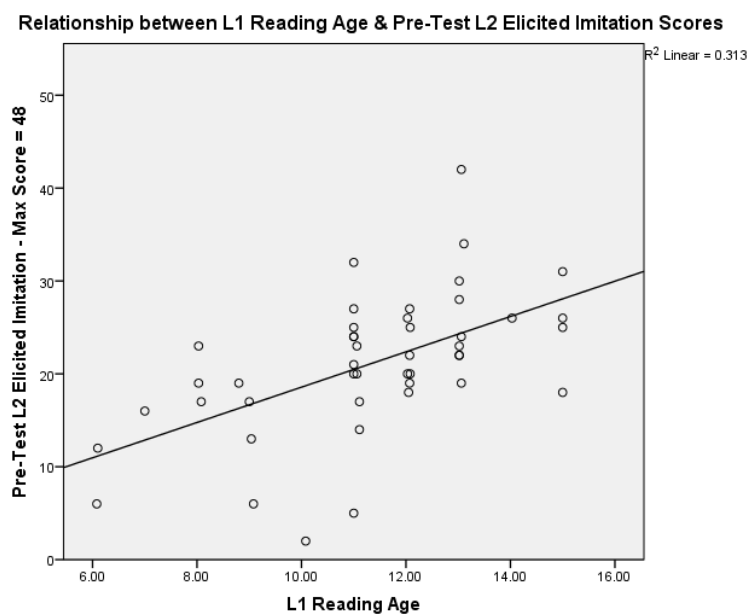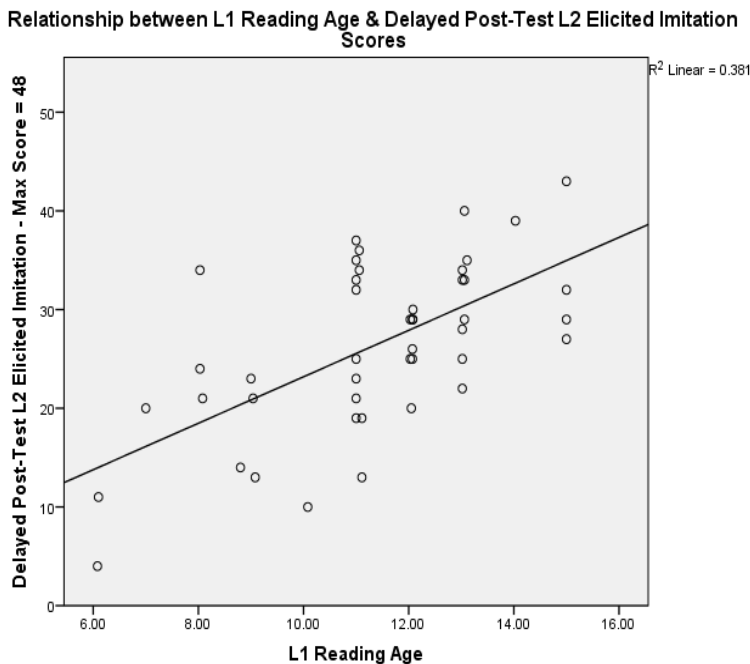
Figure 7.46: Scatterplot – Relationship between L1 reading age and L2 delayed post-test elicited imitation performance

Description of the formal test battery (Section 6.7.5) has already noted that the test used to assess L1 reading age is focused on specific L1 skills. In order to more rigorously assert an influence for L1 reading ability in the development of L2 proficiencies, it was decided to statistically evaluate formal test battery scores against teacher-assessment of L1 literacy derived from National Curriculum levels (and sub-levels) for reading and writing. The relationships which emerged from analysis of these data are reported in Tables 7.14 and 7.15 and show that both National Curriculum measures correlated significantly with all L2 measures at pre-, post- and delayed post-test. Here we will focus in particular on the post-test results and their relationship with NC reading levels.

| | National Curriculum Reading Level | | | | | |
|---|---|---|---|---|---|---|
| | Pre–Test | | Post–Test | | Delayed Post–Test | |
| | PC | Sig. | PC | Sig. | PC | Sig. |
| L2 Read Aloud | .688 | <.0005 | .568 | <.0005 | .718 | <.0005 |
| L2 Read Comprehension | .459 | .002 | .740 | <.0005 | .511 | <.0005 |
| L2 Receptive Vocabulary | .594 | <.0005 | .716 | <.0005 | .743 | <.0005 |
| L2 Elicited Imitation | .568 | <.0005 | . 589 | <.0005 | .603 | <.0005 |

Table 7.14: Summary of the relationship between NC reading levels and L2 constructs at all test times

| | National Curriculum Writing Level | | | | | |
|---|---|---|---|---|---|---|
| | Pre–Test | | Post–Test | | Delayed Post–Test | |
| | PC | Sig. | PC | Sig. | PC | Sig. |
| L2 Read Aloud | .671 | <.0005 | .560 | <.0005 | .693 | <.0005 |
| L2 Read Comprehension | .394 | .007 | .554 | <.0005 | .464 | .001 |
| L2 Receptive Vocabulary | .655 | <.0005 | .652 | <.0005 | .674 | <.0005 |
| L2 Elicited Imitation | .455 | .002 | .494 | .001 | .580 | <.0005 |

Table 7.15: Summary of the relationship between NC writing levels and L2 construct all test times
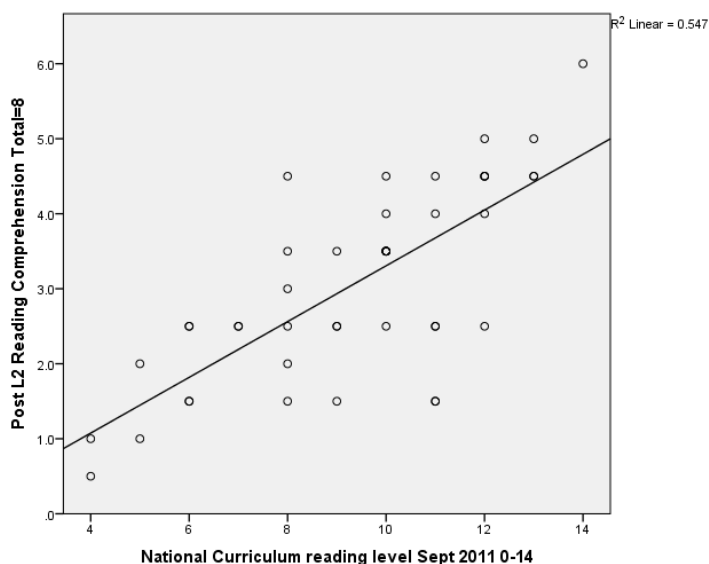
**Figure 7.47: Scatterplot showing the relationship between NC reading levels and post-test L2 reading comprehension**

At post-test National Curriculum reading levels have the strongest, positive relationship with L2 reading comprehension (accounting for 54.7% shared variance – Figure 7.47) and L2 receptive vocabulary (accounting for 51.2% shared variance – Figure 7.48) at post-test.
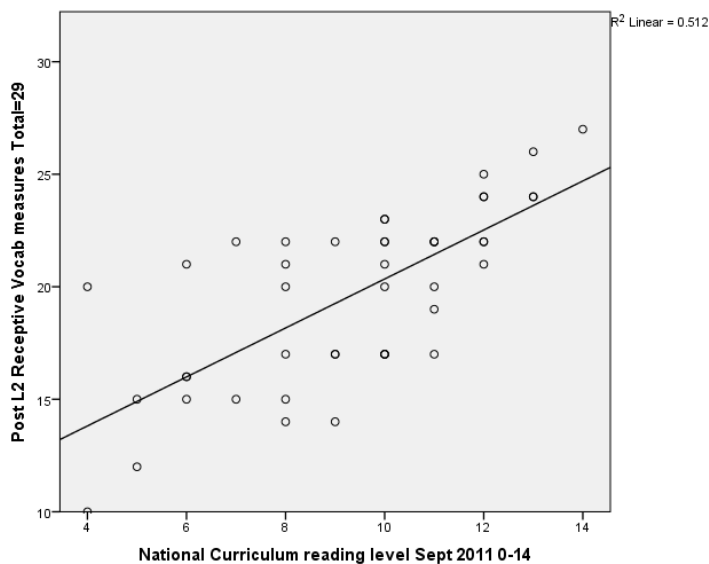


**Figure  7.48:  Scatterplot showing the relationship between NC reading levels and post-test L2 receptive vocabulary**

On the other hand, at post-test, one of the weakest correlations shown below in Figure 7.49 (though still statistically significant) is between National Curriculum reading levels and L2 reading aloud (32.3% shared variance). Interestingly, this mirrors the earlier L1 reading age evidence which showed less influence for L1 reading age on L2 reading aloud at post-test.
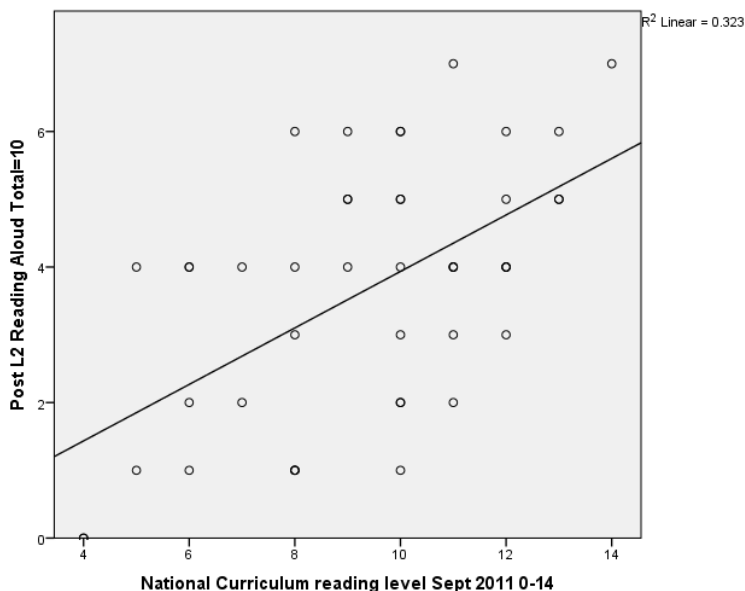


**Figure 7.49: Scatterplot showing the relationship between NC reading levels and post-test L2 reading aloud (text)**

Whilst the scatterplots above show particularly strong influence for L1 NC reading levels in L2 reading comprehension and L2 receptive vocabulary at post-test, it should be recalled that *all* measures correlate significantly with L1 NC reading at *all* test times (as seen in Table 7.14). When combined with the previously noted L1 reading age correlations, these findings offer convincing evidence that L1 literacy-related aptitudes are highly influential in the development of both spoken and written L2 constructs. In other words, the children who are more proficient at L1 literacy are more likely to succeed at all aspects of L2 learning.

These quantitative data show that L1 reading age was either moderately or highly influential across all L2 measures, at all phases of the study. In other words, the effect of L1 reading age on L2 literacy and L2 general proficiency measures was too strong to be countered by this teaching intervention. Nevertheless, this study

demonstrates that most learners, regardless of L1 reading age, made progress across all the L2 constructs measured. In order to better illustrate the influence of L1 reading age and at the same time bolster claims that, despite its influence, learners across this ability range can make tangible progress in MFL learning (including L2 literacy), the following section will present and explore qualitative data.

### 7.2.2 Lower L1 Reading Age Participants

The five lowest scoring L1 reading age participants are listed in Table 7.16 alongside their respective L2 core construct scores at all test times. The data show that both L2 oracy and literacy is particularly challenging for these lower L1 reading age participants and that they make slow progress across all L2 constructs between pre- and post-test.

| Participant No: | | 23 (female) | 8 (male) | 18 (female) | 26 (male) | 22 (female) |
|---|---|---|---|---|---|---|
| L1 Reading Age: | | 6.10 yrs | 7.00 yrs | 8.03 yrs | 8.03 yrs | 8.80 yrs |
| Pre-Test: | L2RA | 0/10 | 0/10 | 2/10 | 2/10 | 1/10 |
| | L2RC | 1/8 | 1/8 | 2/8 | 1.5/8 | 1.5/8 |
| | L2RV | 15/29 | 19/29 | 14/29 | 15/29 | 17/29 |
| | L2EI | 12/48 | 16/48 | 19/48 | 23/48 | 19/48 |
| Post-Test: | L2RA | 0/10 | 1/10 | 4/10 | 3/10 | 1/10 |
| | L2RC | 1/8 | 2/8 | 1/8 | 3/8 | 4.5/8 |
| | L2RV | 20/29 | 15/29 | 12/29 | 15/29 | 22/29 |
| | L2EI | 14/48 | 18/48 | 25/48 | 21/48 | 11/48 |
| Delayed P-T: | L2RA | 0/10 | 0/10 | 2/10 | 2/10 | 1/10 |
| | L2RC | 0.5/8 | 2/8 | 4.5/8 | 3/8 | 3.5/8 |
| | L2RV | 18/29 | 17/29 | 12/29 | 17/29 | 17/29 |
| | L2EI | 11/48 | 20/48 | 24/48 | 34/48 | 14/48 |

Table 7.16: L2 proficiency profiles of bottom five L1 reading age participants

The two highlighted participants' work will be explored in more detail in order to reflect how these lower L1 reading age children engage with and participate in L2 literacy related activities.  The data presented in Figures 7.50 and 7.51 show written output from one of the first "écrivez" activities where learners try to recall and/or reformulate whole word written forms (after several rounds of presentation).  There appears to be a degree of systematicity in the written data which has been analysed into three kinds of responses:  target-like representations (coded blue), L1-derived (including use of L1 "translations": red) and those written forms which are unsystematic or "wild" (green) conforming neither to the L2 or the L1.  Participant 22 (Figure 7.50) shows no target-like representations at this attempt and a predominance of "wild" (green) forms.  Two words are reminiscent of L1 lexical items:  "earge" for "l'oreille" (ear) and "pater" for "les pattes" (possibly patter).
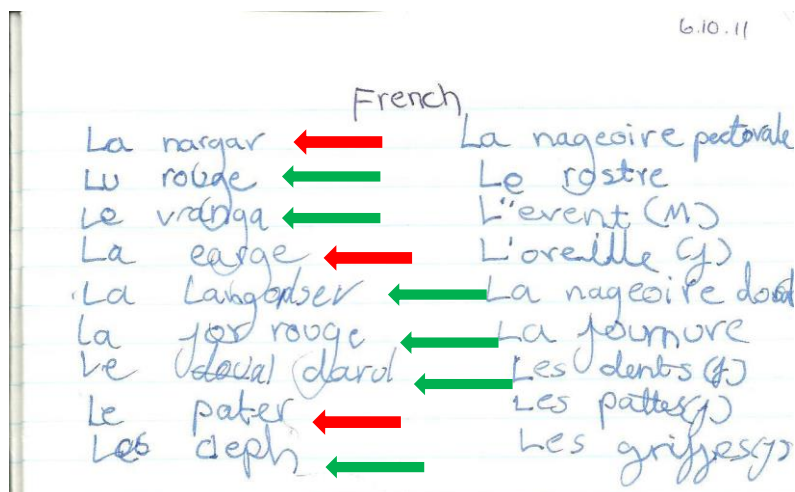


**Figure 7.50:  Participant 22 – core vocabulary – "écrivez" task – 6.10.11**
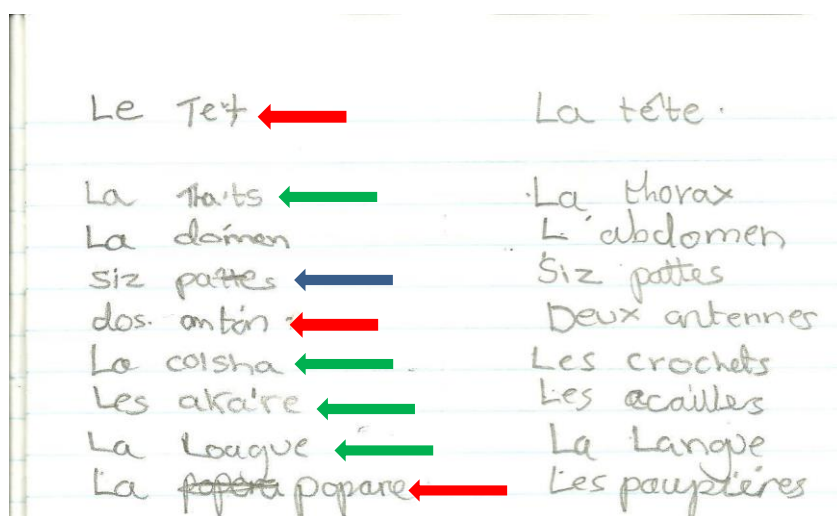


**Figure 7.51:  Participant 22 – core vocabulary – "écrivez" task – 10.11.11**

Figure 7.51 shows how participant 22 is starting to represent L2 sound and spelling one month later.  These data show similar application of L1-related skills but a slight preference remains for "wild" representations.    Interestingly, this participant's written word reflects the syllabic length of the oral utterances and some silent final letters are included (pattes, lougue).

The data explored above shows that this L2 learner with a lower L1 reading age found the generation of written forms from memory particularly problematic. As a result of teaching and learning concerns (explored in Section 5.3), the presentation of sound and print together was changed slightly.  Whilst this changed the nature of data collected (i.e. did not allow for the detailed portrayal of sound/spelling links) it showed that learners of all L1 reading ages were able to successfully process L2 print.

The following workbook extracts show how the lower reading age participant (no. 22) coped with the change in teaching to corrigez (Section 5.2).
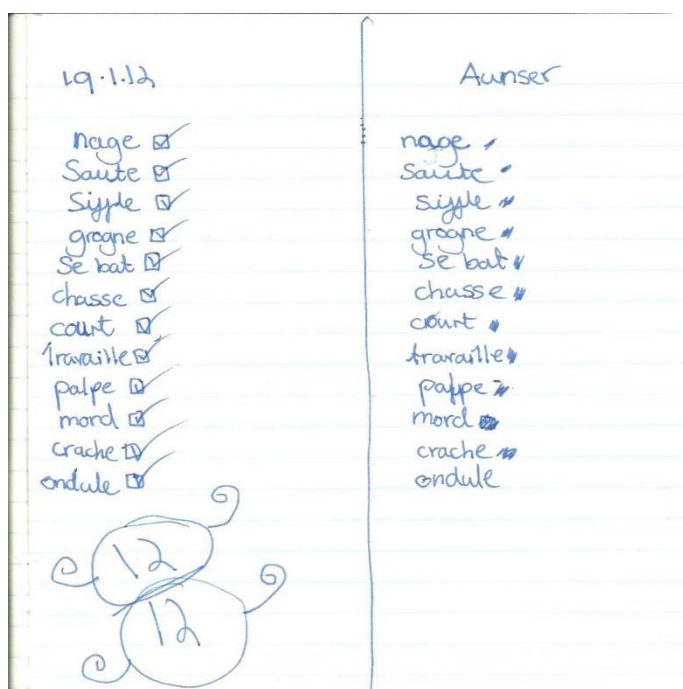


**Figure 7.52:  Participant 22 – core verbs – "corrigez"  task – 19.1.12**
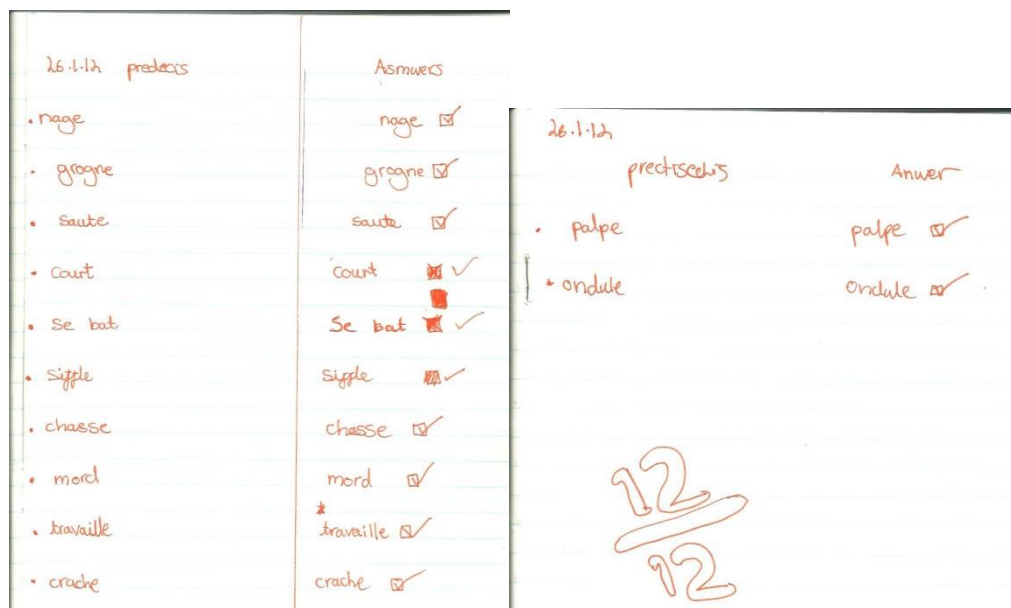
**Figure 7.53:  Participant 22 – core verbs – "corrigez" task – 26.1.12**

The above data (Figures 7.52 and 7.53) show entirely target-like representations of written words.  Bearing in mind the relatively small difference between options (illustrated in Appendix 50), it seems clear that this learner has processed the whole visual form of each word as it is recognised successfully.  However, it may be that they are relying on whole word memorization rather than developing sub-lexical analysis and therefore utilizing sound/spelling links.  The data in Figure 7.54 shows that this success rate was replicated over a few weeks.
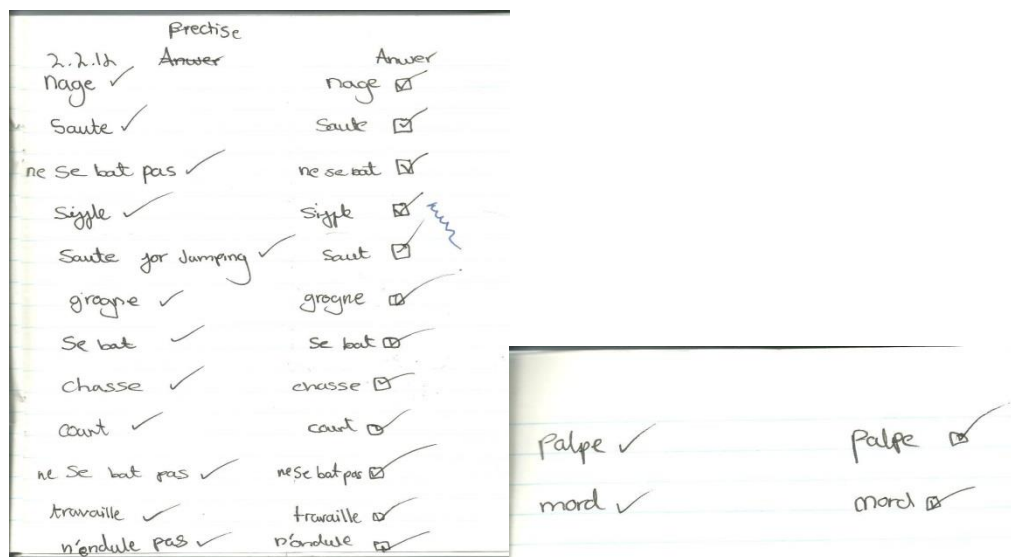


**Figure 7.54:   Participant 22 – core verbs – "corrigez" task – 2.2.12**

Examination of qualitative data will now turn to participant 23 (Figure 7.55), also one of the lowest ability L1 readers in the sample (reading age 6.10 years).  With the exception of some, most likely copied items, most written representations do not extend past two syllables.  For example, la fourrure is contracted to "la foot" and les crochets "la csha".  Whilst "les donts" possibly shows the start of L2 sound/spelling links (or L1 influence), "la greeg" (les griffes), "la csha" (les crochets) and "l toal" (le thorax) remain distant from target-like and L1-based written forms.  Nevertheless, in all cases the initial letters are accurately reproduced.
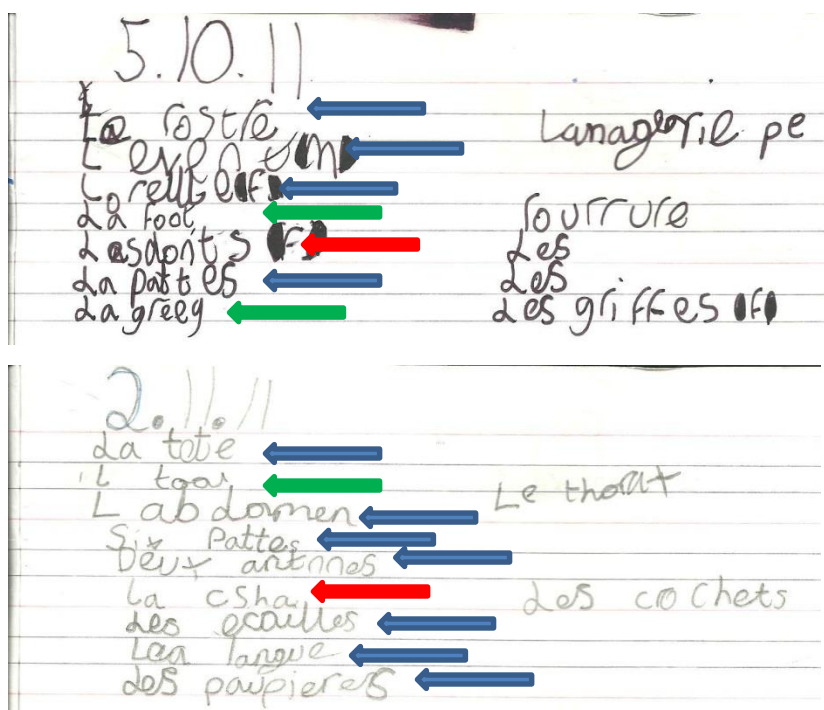


**Figure 7.55:  Participant 23 – core vocabulary – "écrivez" task – 5.10.11 and 2.11.11**

The introduction of corrigez seems to have a similar effect on this participant's written work.  In other words, despite the lack of target-like properties for independently generated whole word forms, a change in the teaching seems to show that this participant also is recognizing and, therefore, processing whole word written forms.  The first extract (Figure 7.56) dated 18th January consists of an entirely target-like choice of written verbs.
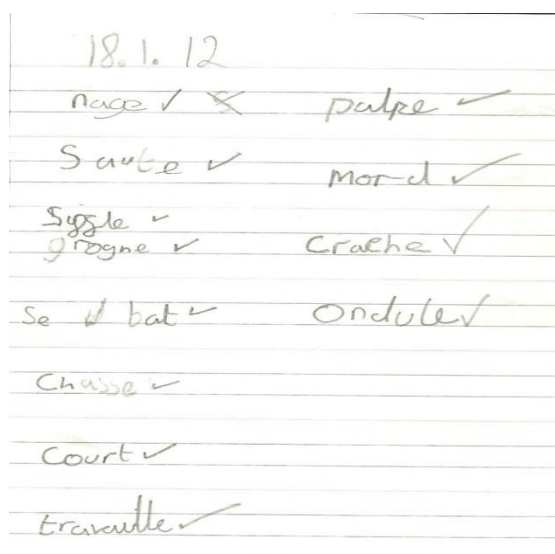
**Figure 7.56:  Participant 23 – core vocabulary – "corrigez" task – 18.1.12**

Two weeks later, most written representations of core verbs are still chosen correctly (Figure 7.57).  The non target-like "ne se bpa"  and "se bpa" are not easily explained, as they were not an option in the presentation.  Possibly, this participant had missed this particular stage and was relying on memory which, as this evidence suggests, is  not grounded in L2 phonology ("bat" = /ba/) but rather the memorization of letter strings.  Alternatively, it seems possible that this participant is hearing a lack of voicing in the consonant /b/ and is struggling to distinguish between this /b/ and the unvoiced L1 phoneme /p/.  More specifically, through co-articulatory phenomena, the proximity of an unvoiced /s/ had led to an unvoiced /b/ which is therefore heard (and reproduced in this case) as /p/.
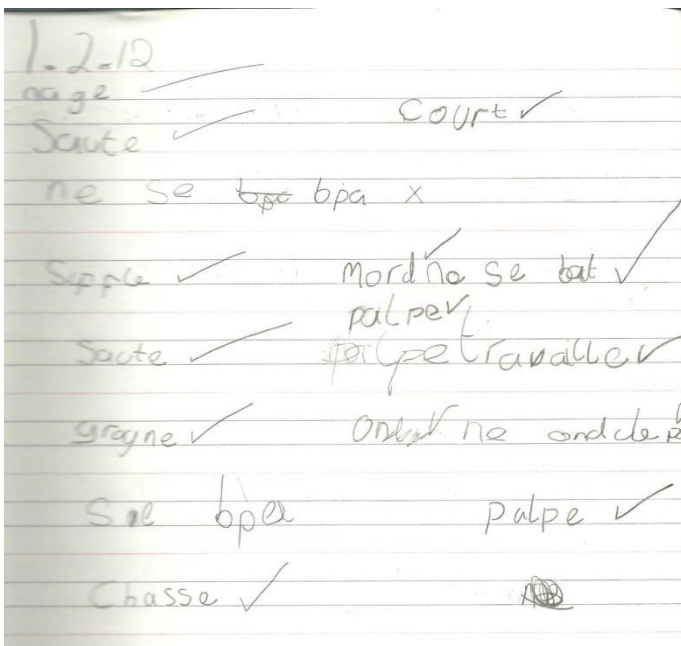
**Figure 7.57:  Participant 23 – core verbs – "corrigez" task – 1.2.12**

In terms of text-based work, both participant 22 and participant 23 produced independent work successfully.
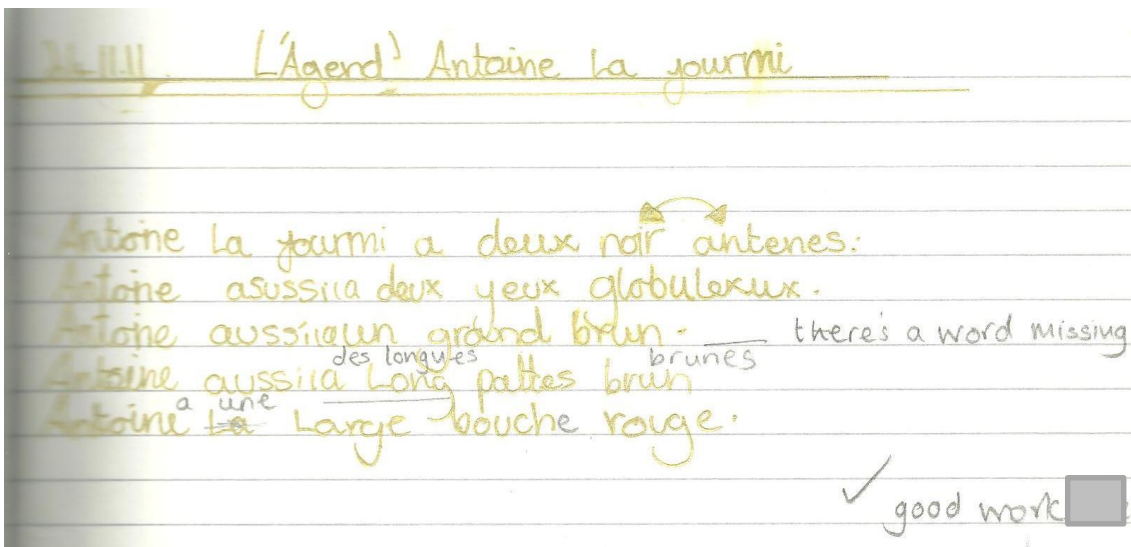


**Figure 7.58:   Participant 22 – independent work – draft first book chapter – 24.11.11**

Figure 7.58 shows participant 22 working at sentence level and some developing awareness of NP + ADJ L2 word order, (this class had also explored the idea that some French adjectives can appear before the noun).  Note that, despite explicit instruction, gender and number marking in adjectives is largely absent.  Whilst some sentences are slightly formulaic, the use of "yeux globuleux" (bulging eyes) shows creativity and imagination.  Participant 23 (below – Figure 7.59) is producing NP + VP and negation

sentences quite reliably, although these are, with the exception of "visqueux", forms which had been practised in class.  Nevertheless, the written representations of words learned orally and in writing are extremely accurate.  It is interesting to note the use of both definite and indefinite determiners.  For this participant the draft first chapter was not fully developed and has, therefore, not been included as evidence.
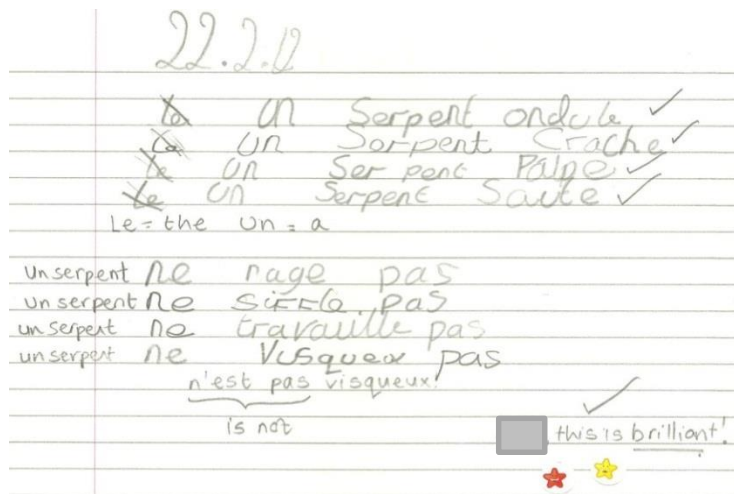


**Figure 7.59:  Participant 23 – independent work – draft second book chapter – 22.2.12**

These draft "chapters" were then re-worked and  illustrated to  form part of the class book.



**Figure 7.60:  Participant 23 – independent work – finished first book chapter –7.12.11**

Participant 23 (Figure 7.60) successfully completes the description chapter with short, descriptive sentences.  The work is accurate (although it has been corrected) but

it is principally length and complexity which differentiates this from the higher reading age participants' work which will be presented later in this section.
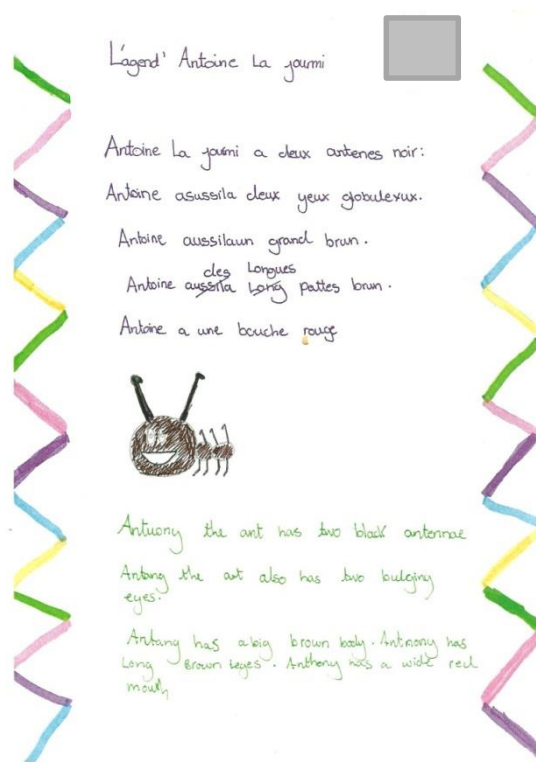


**Figure 7.61:  Participant 22 – independent work – finished first book chapter –8.12.11**

Participant 22 (Figure 7.61) has produced similarly accurate work in terms of spellings.  Whilst it appears to be slightly more creative than the previous participants' work, it is still quite "formulaic" in nature.  Furthermore, due to the inclusion of "aussi" (also), the verb "a" (has) has disappeared.

The scores for L2 general proficiency proficiency (Table 7.16 for elicited imitation and receptive vocabulary) for these learners is also at the lower end of the sample. In terms of elicited imitation (i.e. developing inter-language) all the lower reading age participants scores increase from pre- to post-test with the exception of participant 22 whose scores drop slightly.  This could show that even lower L1 reading age participants improve in their ability to process and temporarily store spoken language and/or that their interlanguage develops.  Their receptive vocabulary measures are more inconsistent with two participants whose scores fall at post-test.   As this measure is generally stable, these results are a little surprising.  However, most of the receptive vocabulary tested (with the exception of an additional six items) related to

lexical items taught in previous years rather than the core vocabulary for this specific intervention.  Scores for the mid-intervention vocabulary test which examined some of the core vocabulary from the first scheme of work are shown in Table 7.17 for each participant.

| Participant No: | 23 (female) | 8 (male) | 18 (female) | 26 (male) | 22 (female) |
|---|---|---|---|---|---|
| L1 Reading Age: | 6.10 yrs | 7.00 yrs | 8.03 yrs | 8.03 yrs | 8.80 yrs |
| Mid Vocabulary Test | 1/20 | 0/20 | 0/20 | 1/20 | 3/20 |
| Reading Comp | 18/38 | 10/38 | 17/38 | 14/38 | 21/38 |

**Table 7.17:  Mid-intervention scores – lower L1 reading age participants**

The mean score for the receptive vocabulary test across the sample was 4.80, so most of these lower L1 reading age children are not demonstrating meaningful achievement on this construct.  However, the mid-intervention reading comprehension test showed scores, for this sub-group, much closer to the sample mean of 20.07.  Observationally speaking, these children were less likely to participate regularly in spoken classroom activities:  three children were extremely shy (participant 18 had arrived towards the end of the previous academic year and was therefore relatively new in school) so oral classroom data is limited.  In addition, two of the five participants had been designated as special educational needs, whilst a further two were identified as requiring IEPs (individual education plans).  All were taken out of regular morning lessons at various points in the week to have specialist one-to-one support, for example with L1 reading and numeracy.

Clearly, these data support the idea that these lower L1 reading age children find all aspects of L2 learning less easy than more proficient readers, which could suggest that an oracy based approach will be just as problematic for them.  However, the written data examples (presented in Figures 7.50-7.61) shows that lower L1 reading age learners can engage meaningfully in literacy work. These data appear, to some

extent, to contradict claims that introducing written French adversely affects attitudes and achievement and could have a "catastrophic effect" on L2 pronunciation and motivation to participate in L2 activities (Burstall, 1970: 81)

Of course, it is important to note here that the nature of literacy activities are a key factor in making L2 literacy accessible.  Writing the book chapters allowed for differentiation i.e. for less proficient learners to focus on simple sentences and occasionally word level work whilst the higher ability participants occasionally opted for complex sentences using conjunctions and a greater variety of descriptive phrases. However, similar input in support of writing was available for all.  Alongside taught, core vocabulary, during the writing up sessions, the class whiteboard became a whole class resource.  Groups "brainstormed" ideas and vocabulary for their chapters and useful vocabulary was written for the whole class to view and use at their discretion.  It was hoped that, in this way, each learner had the same access to language resources and that the learners could self-select thereby setting their own "limits".

### 7.2.3 Higher L1 Reading Age Participants

In order to provide a contrastive picture against which claims about lower ability L1 readers may be examined, the following section will examine data relating to more able L1 readers.  The five highest L1 reading age participants and their respective L2 scores across all constructs and all test times are listed in Table 7.18.  Again the two highlighted columns relate to participants whose written work will be explored in more depth.

| Participant No: | | 2 (female) | 4  (female) | 44 (female) | 21(male) | 14 (male) |
|---|---|---|---|---|---|---|
| L1 Reading Age: | | 15.00 yrs | 15.00 yrs | 15.00 yrs | 15.00 yrs | 14.03 yrs |
| Pre–Test: | L2RA | 3/10 | 6/10 | 5/10 | 6/10 | 3/10 |
| | L2RC | 5.5/8 | 4/8 | 1.5/8 | 2.5/8 | 3.5/8 |
| | L2RV | 17/29 | 20/29 | 25/29 | 21/29 | 16/29 |
| | L2EI | 25/48 | 26/48 | 18/48 | 31/48 | 26/48 |
| Post–Test: | L2RA | 5/10 | 6/10 | 2/10 | 5/10 | 3/10 |
| | L2RC | 4.5/8 | 4.5/8 | 2.5/8 | 5/8 | 3.5/8 |
| | L2RV | 24/29 | 21/29 | 22/29 | 24/29 | 17/29 |
| | L2EI | 30/48 | 34/48 | 29/48 | 36/48 | 37/48 |
| Delayed P–T: | L2RA | 3/10 | 6/10 | 4/10 | 4/10 | 4/10 |
| | L2RC | 5/8 | 2.5/8 | 4.5/8 | 5/8 | 2.5/8 |
| | L2RV | 23/29 | 22/29 | 21/29 | 24/29 | 20/29 |
| | L2EI | 32/48 | 27/48 | 29/48 | 43/48 | 39/48 |

**Table 7.18: L2 proficiency profiles of top five L1 reading age participants**

Figure 7.62  shows how Participant 2, one of the highest L1 reading age participants, is starting to memorize written whole word forms.
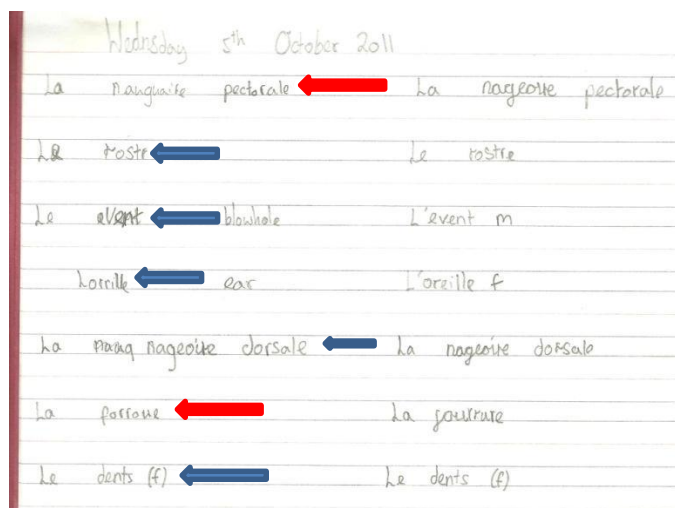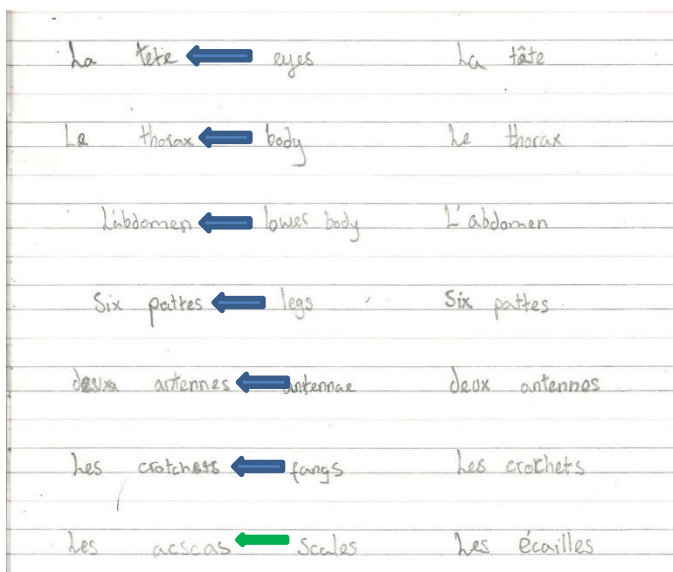
**Figure 7.62:  Participant 2 – core vocabulary – "écrivez" task – 5.10.11 & 2.11.11**

These data appear to show a generally successful, initial memorization of global written word representations (blue arrows).  Interestingly, when memorisation fails, both L1 representations (red arrow) and "wild" (green) forms are produced.  This suggests that this learner can process and, therefore, memorize targetlike written forms faster than lower reading age participants.    However, when memorisation (and/or processing) fails, this participant applies the same strategies as other, less high scoring children.  As target-like forms tended to be reproduced more reliably, the introduction of "corrigez" had a less noticeable effect on this learner's written work (Figure 7.63).
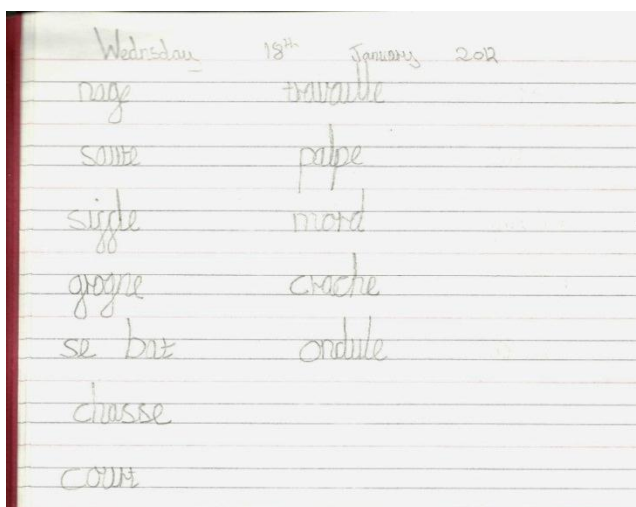


**Figure 7.63: Participant 2 – core verbs – "corrigez" task – 18.1.12**

Participant 14, also a higher L1 reading age participant is, however, much less successful in the "écrivez" activity (Figure 7.64).
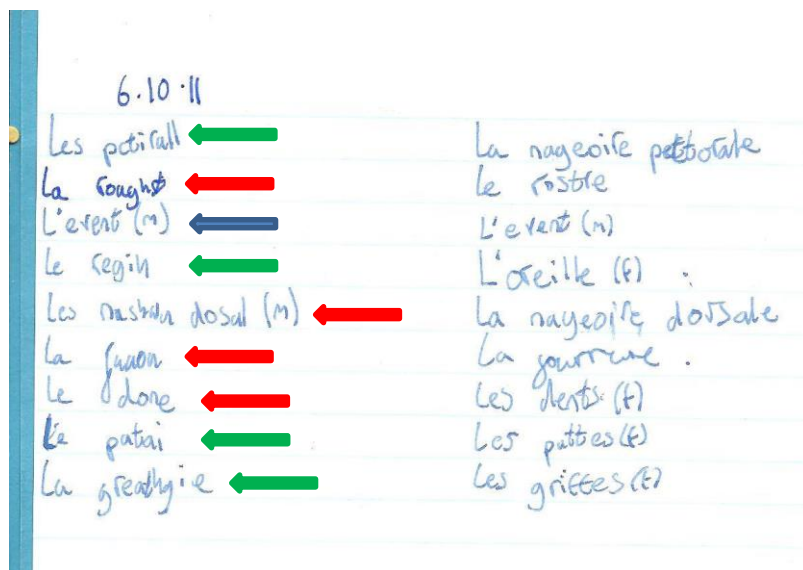


**Figure 7.64:  Participant 14 – core vocabulary – "écrivez" task – 6.10.11**

Figure 7.64 shows that only one written representation has been memorised and that, like lower ability readers, when memory fails the strategies to recode (from sound to print) alternate between L1-related links and "wild" forms.  Here, though, there appears to be some systematicity in untarget-like responses.  It seems possible that unfamiliar L2 phonology provokes "wild" forms.  More specifically, words like:  le rostre, la nageoire dorsale, la fourrure and les dents all involve novel L2 phonology.  For example the back /r/ phoneme in rostre, the /ʒ/ and /wa/ in nageoire and the /ã/ in dents.  Written representations of these novel phonemes produced across the sample are presented in Appendix 51.

The data for this learner from the later "ecrivez" activity (Figure 7.65) shows less recourse to "wild" forms and more evidence of L1 influence.  Whilst these words comprise less novel L2 phonology, this could be because L2 phonology is developing – /ã/ for langue was reproduced as "la langh" and /ã/ for antennes is also reproduced, however, production of the grapheme 'an' in antennes could also be an effect of the cognate-type properties of this word.
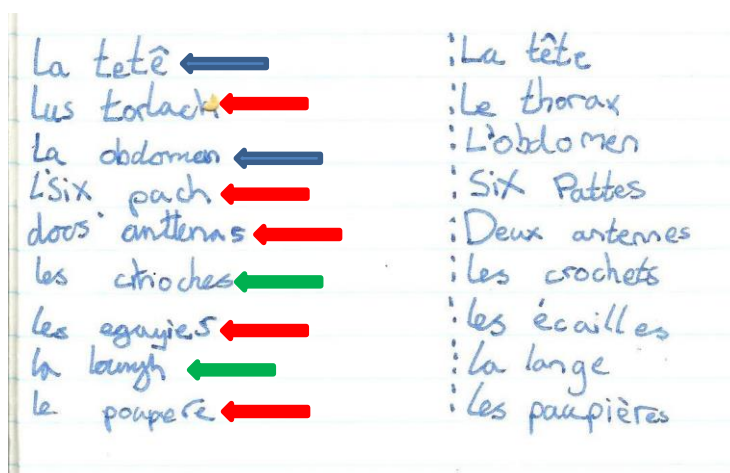
**Figure 7.65:  Participant 14 – core vocabulary – "écrivez" task – 10.11.11**

Participant 14 (despite high L1 reading scores) seems, occasionally, to produce written output reminiscent of the lower L1 reading age participants.  Nevertheless, the introduction of "corrigez" also had a positive, if less marked, effect for this participant.
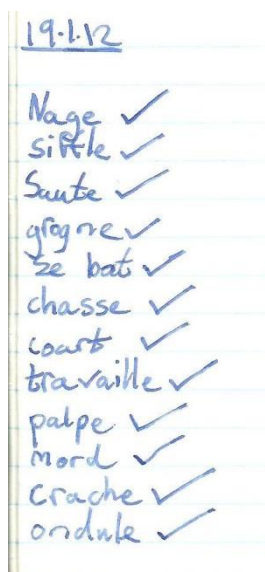


**Figure 7.66:  Participant 14 – core verbs – "corrigez" task – 19.1.12**

In terms of text level work, participant 2 writes at length, using complex sentences involving conjunctions, verbs, negation, adverbs (Figure 7.67 shows this learner's second draft book chapter).  Furthermore, there is evidence of a degree of creativity:  "l'ours…..ne mord un papillon pas" – "the bear…..doesn't bite butterflies"

though when this is introduced, there is an effect on formation of L2 negation ("ne

mord un papillon pas" instead of "ne mord pas un papillon").
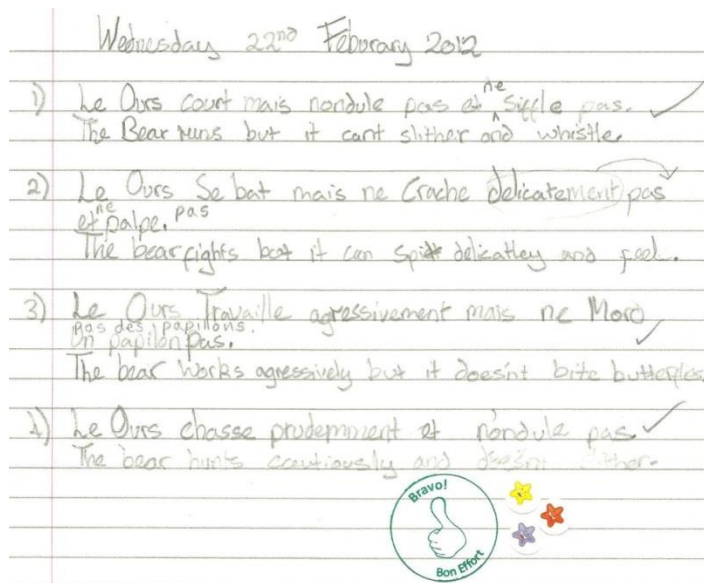


**Figure 7.67: Participant 2 – independent work – draft second book chapter – 22.2.12**


Participant 14 (Figure 7.68), on the other hand, writes in occasional complex

sentence , using conjunctions ("aussi": also), and adverbs ("de plus": in addition), and

also uses plenty of nouns and adjectives.  Once again, despite explicit instruction,

gender and number adjectival agreements are not applied.   Interestingly, word order

also reflects the L1 rather than the L2 "jaune et vert les écailles", "pointu crochets" and

"noir langhe".

**Figure 7.68:  Participant 14 – independent work – draft first book chapter – 30.11.11**

The draft chapters resulted in corrected and illustrated work which, again, formed part of the class book – see Figure 7.69 for the completed work of Participant 14.  The children were asked to include English translations of their work so that the class books could be understood by parents and teachers who did not speak French.

*bobbo est très timide et a un corps long. Aussi il a les yeux bruns et les écailles Janneset vertes. bobbo mésure 22 centinze tres long. Il a les crochets pointus et une langue noires. De plus il est un beau serpant.* Donc FaiLes Att Ention

English

*bobbo is very shy and has a long body. He also has brown eyes and yellow Scale/. bobbo is 22 cm long. He has sharp Fangs and a black tongne. in addition, he is a beautiful snake. So be careful.*

**Figure 7.69:  Participant 14 – independent work – finished first book chapter – 8.12.11**

The book chapters presented in this section (from both higher and lower ability L1 readers, see also work of participant 2 in Figure 7.70) appear to show that whilst there are differences between the pieces (e.g. sentence length, linguistic complexity) and possibly that the higher ability readers are more adventurous with their selection of language.  It seems however that both ends of the reading age spectrum are able to participate in L2 literacy-related activities and that, by introducing independence into literacy work, the children set their own "boundaries".  In this way, differentiation is, on this occasion, "self-selected" rather than pre-determined by the teacher.
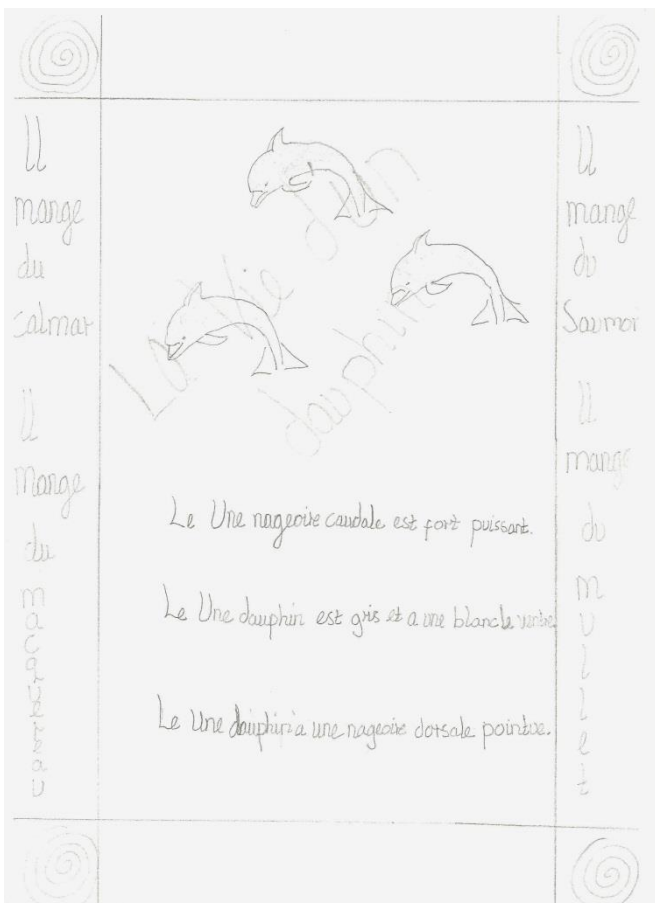
**Figure 7.70:  Participant 2 – independent work – finished first book chapter – 7.12.11**

In terms of the study's formal test battery (Section 6.7), it is clear that the higher L1 reading age participants show progress across L2 elicited imitation and L2 receptive vocabulary.  Meanwhile the lower L1 reading age participants show limited progress across the same measures.

Table 7.19 shows the scores for these five higher L1 reading age participants scored as follows in the mid-intervention tests.  In terms of receptive vocabulary, the scores shown are generally higher than those for lower L1 reading age participants (Table 7.17) – the mean score for this test being 4.80.  Most reading comprehension scores are above the sample mean for this test of 20.07.  In other words, approximately 10 weeks into the teaching intervention, the higher ability L1 readers are already showing clear advantage.  Nevertheless, there are anomalies – participant 14, whose work has been explored above, obtains noticeably lower overall L2 reading comprehension scores than the other children.

| Participant No: | 2 (female) | 4 (female) | 44 (female) | 21(male) | 14 (male) |
|---|---|---|---|---|---|
| L1 Reading Age: | 15.00 yrs | 15.00 yrs | 15.00 yrs | 15.00 yrs | 14.03 yrs |
| Mid Vocabulary Test | 12/20 | 8/20 | 4/20 | 10/20 | 3/20 |
| Reading Comp | 25/38 | 21/38 | 23/38 | 29/38 | 17/38 |

Table 7.19: Mid-intervention scores – higher L1 reading age participants

In order to further explore the idea of developing advantage for high L1RAge participants, the table below (Table 7.20) shows mean scores for both sub-groups of lower and higher ability L1 readers at each test time

| Test | Construct | High L1RA (n=5) | Low L1RA (n=5) |
|---|---|---|---|
| Pre-Test | L2 Reading Aloud (max 10) | 4.6 | 1 |
| | L2 Reading Comprehension (max 8) | 3.4 | 1.4 |
| | L2 Receptive Vocabulary (max 29) | 19.8 | 16 |
| | L2 Elicited Imitation (max 48) | 25.2 | 17.8 |
| Post-Test | L2 Reading Aloud | 4.2 | 1.8 |
| | L2 Reading Comprehension | 4 | 2.3 |
| | L2 Receptive Vocabulary | 21.6 | 16.8 |
| | L2 Elicited Imitation | 33.2 | 17.8 |
| Delayed P-T | L2 Reading Aloud | 4.2 | 1 |
| | L2 Reading Comprehension | 3.9 | 2.7 |
| | L2 Receptive Vocabulary | 22 | 16.2 |
| | L2 Elicited Imitation | 34 | 20.6 |

Table 7.20: Comparison of scores across all constructs at all test times between highest and lowest L1 reading age sub-groups

These data show that the gap between high L1RAge and low L1RAge (in terms of mean scores) is already wide across the range of measures at pre-test. In other words, prior to commencement of instruction, the higher ability first language readers start with a distinct advantage across all L2 measures. Comparison of means at post-test shows that, with respect to L2 literacy measures the gap narrows slightly (L2RA = 4.2 (high L1RAge); 1.8 (low L1RAge) L2RC = 4 (high L1RAge); 2.3 (low L1RAge) but this does require careful examination. For example, the L2RA post-test mean for lower proficiency readers increases by 0.8; the reduced differential is also caused by a slight (0.4) reduction in the read aloud mean for more able readers. For L2 reading comprehension, the evidence is more systematic, although by delayed post-test the lower ability readers score a higher mean than at post-test. With respect to this sub-sample's performance on L2 literacy measures, higher L1 reading age participants make better but reasonably slow progress than those with lower L1 RAge scores. The data relating to L2 general proficiency measures presents a similar picture. The higher L1RAge sub-sample do better between pre- and post-test with the best gains occurring in L2 elicited imitation.

To summarise the evidence so far, it is suggested that both lower and higher L1RAge children can participate in L2 oracy and literacy classroom activities provided these are sensitively structured and planned. Furthermore, mixed-ability group work has shown meaningful learning. In terms of attainment, lower L1RAge participants can and do acquire L2 proficiency (both oracy and literacy related) but this learning develops slowly under classroom conditions. Whilst higher L1RAge participants have been shown to have a distinct advantage in L2 learning, it is evident that, under similar classroom conditions, these learners too show relatively slow signs of progression. Finally, the role of L1 reading age in second language learning could potentially be linked to a more underlying aptitude – verbal working memory which will be explored in Section 7.3.

## 7.3 Individual Differences – Verbal Working Memory

Verbal working memory was measured by a non-word repetition test (Gathercole & Baddelely, 1996: see Section 6.7.3). This section explores the relationship of working memory scores with L2 literacy constructs and L2 general proficiency constructs, in order to complete the analyses relevant to answering Research Question 2.

### 7.3.1. The Role of Verbal Working Memory at All Test Times

Table 7.21 illustrates the strength of relationships between working memory and L2 constructs, and those showing strong, positive correlations are circled in red. Scatterplots for strong, positive relationships are also included (Figures 7.71 to 7.74). To summarise these findings: verbal working memory was found to be highly influential (strong, positive correlations) for elicited imitation scores at all test times and for L2 reading aloud at pre-test only. Where other significant relationships were found, they were only moderately important for the remaining three L2 constructs (reading aloud, reading comprehension and receptive vocabulary).

| | Verbal Working Memory | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Pre-Test | | | Post-Test | | | Delayed Post-Test | | |
| | PC | Sig. | %Var | PC | Sig. | %Var | PC | Sig. | %Var |
| L2 RA | .565 | <.0005 | 31.9 | .469 | .001 | 22 | .368 | .013 | 13.6 |
| L2 RC | .187 | .218 | 3.5 | .358 | .016 | 12.8 | .253 | .094 | 6.4 |
| L2 RV | .438 | .003 | 19.2 | .338 | .023 | 11.4 | .352 | .018 | 12.4 |
| L2 EI | .593 | <.0005 | 35.2 | .638 | <.0005 | 40.7 | .720 | <.0005 | 51.9 |

Table 7.21: Table summarising the influence of verbal working memory across all L2 constructs at all test times

The relationship between pre-test L2 read aloud scores and verbal working memory was investigated using Pearson product-moment correlation coefficient. The scatterplot (Figure 7.71) shows a strong, positive correlation between these two variables (r=.565, n=45, p=<.0005), with verbal working memory associated with high

L2 read aloud performance.  Calculation using the $r^2$ statistic showed that verbal

working memory accounted for 31.9% of the variance in L2 read aloud results.
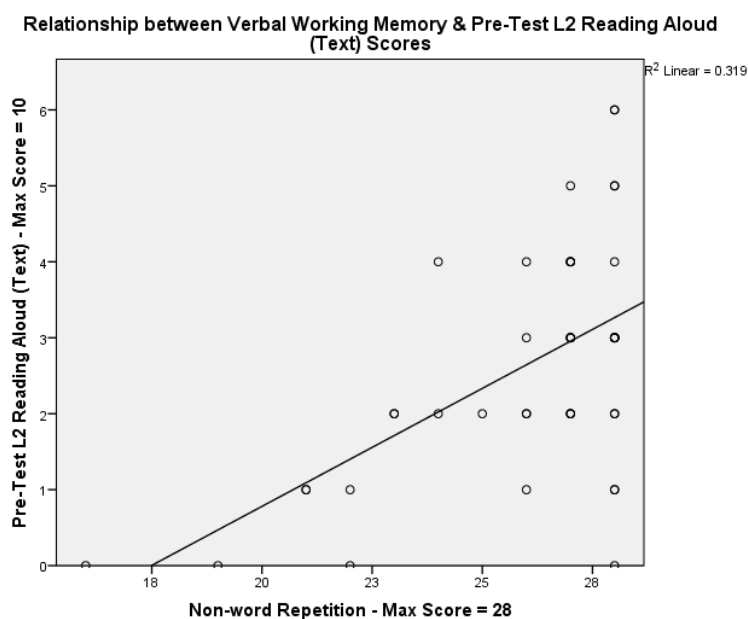


**Figure 7.71:  Scatterplot – Relationship between verbal working memory and L2 pre-test reading aloud (text) performance**


The relationship between pre-test L2 elicited imitation scores and verbal working memory was investigated using Pearson product-moment correlation coefficient.  The scatterplot (Figure 7.72) shows a strong, positive correlation between these two variables (r=.593, n=45, p=<.0005), with verbal working memory associated with high L2 elicited imitation performance.  Calculation using the $r^2$ statistic showed that verbal working memory accounted for 35.2% of the variance in L2 elicited imitation results.
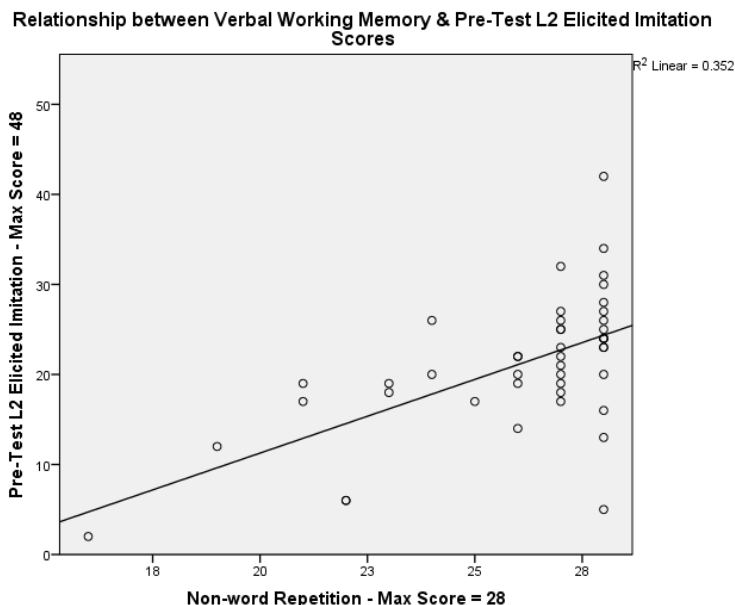
**Figure 7.72: Scatterplot – Relationship between verbal working memory and L2 pre-test elicited imitation performance**

The relationship between post-test L2 elicited imitation scores and verbal working memory was investigated using a Pearson product-moment correlation coefficient. The scatterplot (Figure 7.73) shows a strong, positive correlation between these two variables (r=.638, n=45, p=<.0005), with verbal working memory associated with high L2 elicited imitation performance. Calculation using the $r^2$ statistic showed that verbal working memory accounted for 40.7% of the variance in L2 elicited imitation results.
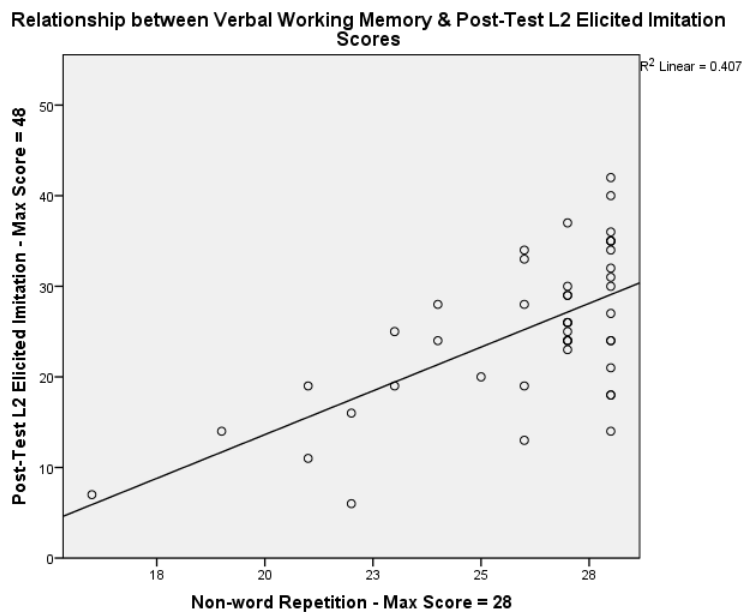
**Figure 7.73: Scatterplot – Relationship between verbal working memory and L2 post-test elicited imitation performance**

The relationship between delayed post-test L2 elicited imitation scores and verbal working memory was investigated using a Pearson product-moment correlation coefficient. The scatterplot (Figure 7.74) shows a strong, positive correlation between these two variables (r=.720, n=45, p=<.0005), with verbal working memory associated with high L2 elicited imitation performance. Calculation using the $r^2$ statistic showed that verbal working memory accounted for 51.9% of the variance in L2 elicited imitation results.

Relationship between Verbal Working Memory & Delayed Post-Test L2 Elicited
Imitation Scores
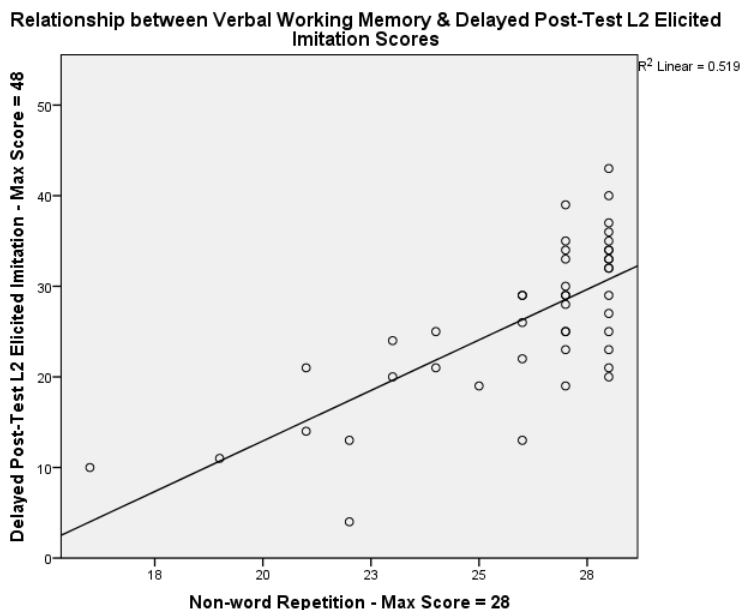


**Figure 7.74:  Scatterplot – Relationship between verbal working memory and L2 delayed post-test elicited imitation performance**

In order to better explore the influence of verbal working memory on L2 learning, the following section will attempt to analyse the written (and to a lesser extent, spoken) productions of some of the study's participants.  Tables 7.22 and 7.24 show the five highest and five lowest scoring verbal working memory participants and their scores across all L2 measures at pre-, post- and delayed post-test.  Interestingly, whilst L1 reading age correlated strongly overall with verbal working memory, some of the five participants identified with high VWM scores, did not have particularly high L1 reading ages.  This, it is suggested, might be reflective of the verbal working memory test used (non-word repetition, Gathercole & Baddeley, 1996).  Other research has found that, in order to isolate verbal working memory in its purest form, non-words should have low "wordlikeness" to the L1.  More specifically, due to an interactive relationship between phonological memory and long-term knowledge (e.g. vocabulary range), increasing L1 lexical knowledge supports non-word repetition scores when those words ressemble the phonotactic properties of the L1 (French, 2006: 118-121). Other studies have observed similar effects and included additional non-word repetition measures (one L1-derived the other L2-based – e.g. English NWR and Arabic

NWR with English/French learners – French, 2006).  In several cases, L1 derived non-word tests have, after the age of 5, shown ceiling effects (French, 2006; Service, 1992; Service & Kohonen, 1995).  In the present study, similarly, 17 of the 45 participants scored the highest possible score (28 marks) on the non-word repetition test with most scores ranging between 26-28 with a mean score of 26.

## 7.3.2 Higher Verbal Working Memory Participants

| Participant No: | | 2 | 4 | 5 | 8 | 11 | High VWM Sub-Group Mean (n=5) | Mean scores all participants (n=45) |
|---|---|---|---|---|---|---|---|---|
| VWM: | | 28 | 28 | 28 | 28 | 28 | 28 | 26 |
| Pre-Test: | L2RA | 3/10 | 6/10 | 2/10 | 0/10 | 3/10 | 2.8 | 2.64 |
| | L2RC | 5.5/8 | 4/8 | 0.5/8 | 1/8 | 1.5/8 | 2.5 | 2.20 |
| | L2RV | 17/29 | 20/29 | 17/29 | 19/29 | 16/29 | 17.8 | 18.64 |
| | L2EI | 25/48 | 26/48 | 28/48 | 16/48 | 5/48 | 20 | 21.09 |
| Post-Test: | L2RA | 5/10 | 6/10 | 2/10 | 1/10 | 5/10 | 3.8 | 3.67 |
| | L2RC | 4.5/8 | 4.5/8 | 4/8 | 2/8 | 2.5/8 | 3.5 | 3.07 |
| | L2RV | 24/29 | 21/29 | 17/29 | 15/29 | 14/29 | 18.2 | 19.64 |
| | L2EI | 30/48 | 34/48 | 35/48 | 18/48 | 14/48 | 26.2 | 25.22 |
| DP-T: | L2RA | 3/10 | 6/10 | 5/10 | 0/10 | 2/10 | 3.2 | 3.09 |
| | L2RC | 5/8 | 2.5/8 | 1.5/8 | 2/8 | 3.5/8 | 2.9 | 2.86 |
| | L2RV | 23/29 | 22/29 | 17/29 | 17/29 | 19/29 | 19.6 | 19.87 |
| | L2EI | 32/48 | 27/48 | 33/48 | 20/48 | 23/48 | 27 | 26.31 |

Table 7.22:  Test scores of five higher verbal working memory participants

In general, these high VWM children scored higher than the sample mean on most L2 measures (with the exception of L2 receptive vocabulary at pre- and post-test and L2 elicited imitation at pre-test).

In terms of L2 elicited imitation, the lack of effect for VWM at pre-test (for these participants), despite having previously been linked with this particular test design is suggested to relate to the difficulty of the test task.  Many learners, regardless of aptitude, struggled to repeat or reformulate L2 utterances at pre-test, even those within conventional digit span ranges (i.e. utterances with 4 syllables or less).  Post-tests reported general increases in L2 elicited imitation and an advantage then emerged for these higher working memory participants.

Whilst means (for higher VWM participants) were generally above sample means at all test times, it is important to note that especially in L2 reading aloud, it was perfectly possible for a participant with a high VWM score to obtain a low score (e.g. participant 5 and participant 8 at pre- and post-test).  To some extent this might illustrate concerns regarding ceiling effects for the NWR test adopted. Nevertheless, in terms of VWM scores, the reverse was never found.  In other words, participants with low VWM scores never obtained high L2RA scores.  Overall, whilst high VWM scores did not always indicate L2 reading aloud success, high VWM participants were more likely to be successful at L2 read aloud.   At delayed post-test, however, both the whole sample and sub-sample mean scores show some evidence of attrition across this measure.

Closer examination of this study's qualitative data will allow for a more detailed exploration of the effect of verbal working memory on language learning.   The written representations in Table 7.23 show how high VWM participants recorded written words from aural/oral responses.  This occurred in the écrivez activities which, as previously explained (Section 5.3) involved representation from memory of the written word after several visual and aural/oral presentations.

|  | P2 (WM28) | P4 (WM28) | P5 (WM28) | P8 (WM 28) | P11 (WM28) |
|---|---|---|---|---|---|
| **La nageoire pectoral** | La naugwaire pectoral | La nausuge patterall | La nashwar nectoran | La nashwash | La naghwa |
| **Le rostre** | Le rostr | Le rossell | La rost | Lor cthost | Lu roghst |
| **L'évent** | Le event | Le voul | Le von | Lir von | Le vuegh |
| **L'oreille** | Lorrille | Le rossell | Lorray | Loth hey | Le ghour |
| **La nageoire dorsale** | La nageoire dosale | La nageoire dosell | La nagwasher dosal | Llnw dosall | La dougsh dausa |
| **La fourrure** | La forroue | La furree | La forough | La fhowe | La foughour |
| **Les dents** | Le dents | La dune | Le done | Le dang | L'dou |
| **Les pattes** | Le pattes | La pattee | Le pat | Ler pattey | Les putair |
| **Les griffes** | Le grifes | La grief | Le greef | Les gref | Le greef |
| **Timide** | Timide | Timid | Temede | Timede | Timide |
| **Pointu** | Pointu | Pointue | Pwunto | Puatow | Qwatqe |
| **Seule** | Seul | Soule | Sewl | Sere | Suel |
| **Intelligent** | Intelligent | Untelijen | Intelligent | Untellyson | Intellegent |
| **Social** | Social | Social | Soceal | Soseall | Soseal |
| **La tête** | La tete | La tete | Le tete | La tete | La tête |
| **Le thorax** | La thorax | Le throex | Le thorax | Le tothaks | Le torthaxe |
| **L'abdomen** | L'abdomen | La abdomen | La domen | Labdoromen | La abdomen |
| **Six pattes** | Six pattes | Cis pate | Six patts | Six patte | L'seeece pas |

| Deux antennes | Deus antennes | Dus antene | Des onten | Ders onten | Deux antennes |
|---|---|---|---|---|---|
| Les crochets | Les crotchets | Les crochets | Le croshay | Le croseh | Les koughe |
| Les écailles | Les acscas | Les ecailles | Leyeskiky | Les acuys | Les ecair |
| La langue | La langue | La longe | La long | La lungue | La langue |
| Les paupières | Les paupiéres | La popire | Le popeare | Le popayer | Les pupuar |
| TOTALS n=23 | 2    1    20 | 7    8    9 | 17    –    6 | 13    7    3 | 6    10    7 |

Table 7.23: High verbal working memory participants – core vocabulary – "écrivez" task – 19.10.11, 20,10.11, 9.11.11 & 10.11.11

Whilst a particular participant (no 2) manages highly target-like written representations, most of the others' work shows strong L1 influence (marked red) and "wild" transcriptions (marked green); even cognates are unreliably reproduced by three participants (intelligent; social).  Written representations produced by participant 2  (L1 reading age 15.00 years) are extraordinarily successful when compared to the other high VWM cases.  This could be linked this child's L1 spelling age which was particularly high (17.04 years).  Nevertheless, the data from these five higher working memory participants shows that most have occasional difficulty transposing L2 sound to print and that, regardless of L1 reading age or L2 read aloud success, they tend to alternate between "wild" (non target-like representations) or L1 mediated reproductions where there is clear evidence of L1-derived sound/spelling links. There was, however, an unusual performance from participant 5, who wrote no "wild" written representations.  This child obtained an above mean L1 reading age (13.02) yet had one of the lowest L1 spelling ages in the sample (8.06 years), whilst participant 4 almost equally produced L1 derived, target-like and wild forms (reading age, 15.00

years; spelling age, 11.08 years). Reservations have already been expressed that the non-word repetition test did not wholly successfully differentiate between participants (in terms of a ceiling effect for VWM). However, weekly written data confirm that some higher VWM participants find transposing sound to print (written data) and print to sound (L2 read aloud data) problematic.

### 7.3.3 Lower Verbal Working Memory Participants

| Participant No: | | 35 | 23 | 29 | 22 | 17 | Low VWM Mean | Sample Mean |
|---|---|---|---|---|---|---|---|---|
| VWM: | | 16 | 19 | 21 | 21 | 22 | 19.8 | 26 |
| Pre-Test: | L2RA | 0/10 | 0/10 | 1/10 | 1/10 | 1/10 | 0.6 | 2.64 |
| | L2RC | 1/8 | 1/8 | 4.5/8 | 1.5/8 | 1.5/8 | 1.9 | 2.20 |
| | L2RV | 13/29 | 15/29 | 19/29 | 17/29 | 17/29 | 16.2 | 18.64 |
| | L2EI | 2/48 | 12/48 | 17/48 | 19/48 | 6/48 | 11.2 | 21.09 |
| Post-Test: | L2RA | 1/10 | 0/10 | 1/10 | 1/10 | 4/10 | 1.4 | 3.67 |
| | L2RC | 2.5/8 | 1/8 | 2.5/8 | 4.5/8 | 2.5/8 | 2.6 | 3.07 |
| | L2RV | 16/29 | 20/29 | 21/29 | 22/29 | 16/29 | 19 | 19.64 |
| | L2EI | 7/48 | 14/48 | 19/48 | 11/48 | 16/48 | 13.4 | 25.22 |
| DP-T: | L2RA | 3/10 | 0/10 | 1/10 | 1/10 | 2/10 | 1.4 | 3.09 |
| | L2RC | 2/8 | 0.5/8 | 2.5/8 | 3.5/8 | 2.5/8 | 2.2 | 2.86 |
| | L2RV | 16/29 | 18/29 | 20/29 | 17/29 | 16/29 | 17.4 | 19.87 |
| | L2EI | 10/48 | 11/48 | 21/48 | 14/48 | 13/48 | 13.8 | 26.31 |

Table 7.24:  Test scores of five lower verbal working memory participants

Table 7.24 provides an overview of performance for the five participants with lowest VWM scores.  These data show that at all test times and across all L2 constructs, mean scores for this sub-group were noticeably below whole sample means.  At pre-test, the mean differences are largest for L2 read aloud and L2 elicited imitation.  On the other hand the difference for L2 reading comprehension is relatively small.  This, it is believed exposes test-based issues already explored rather than the role of working memory in reading comprehension.  By post-test, the differences between this sub-sample's mean and the sample mean, for L2 read aloud and L2 elicited imitation remains approximately the same as at pre-test.  In other words, this could offer evidence that, for lower verbal working memory participants, progress is slower than for children with higher verbal working memory scores.  However, differences across the remaining L2 constructs (L2 reading comprehension and L2 receptive vocabulary) have reduced and this could show some advantage for introducing the written word as an additional support for learners who experience processing-related issues.  Interestingly, in these learners, at delayed post-test both problematic constructs (L2RA and L2EI) remain relatively stable, showing no real attrition, while there is some evidence for attrition of L2RA in the whole sample at this time.

The qualitative weekly écrivez data, presented in Table 7.25 offers some insight into the classroom performance of lower working memory participants.

| | P35 (WM16) | P23 (WM19) | P29 (WM21) | P22 (WM 21) | P17 (WM22) |
|---|---|---|---|---|---|
| **La nageoire pectoral** | La ungrapichurel | La nageorie pe | Langen dereefnr | La nargar | La nashpetrash |
| **Le rostre** | La gnarth | Le rostre | Lo rost | Lu rouge | La nasson |
| **L'évent** | La von | L'évent | Le vor | Le vranga | Le vor |
| **L'oreille** | Le ghray | Lorellle | Rehay | | La  gray |
| **La nageoire dorsale** | La nashrauashurel | -- | Lnageolgze | La langonser | La nagdfwa |

| | | | | | |
|---|---|---|---|---|---|
| **La fourrure** | La fougral | La foot | La fouert | La for rouge | La fa |
| **Les dents** | La domn | Les donts | Ledon | Le dard | Les odon |
| **Les pattes** | La pat | La pattes | La pattes | Le pater | Les |
| **Les griffes** | Lu greath | La greeg | Le griff | Les deph | La gres |
| **Timide** | Timed | Timibe | Timead | Tinmde | Timed |
| **Pointu** | Pountu | Pointu | Puatoe | Pramto | Puato |
| **Seule** | Surl | Soul | Sellu | Sual | Seul |
| **Intelligent** | Ateleshon | Intelligeent | Itelllgat | Une talshon | Atellochon |
| **Social** | Soseyal | Social | Sunle | Suvalue | Sualle |
| **La tête** | La tet | La tete | -- | La tha'ts | Le tatte |
| **Le thorax** | La torags | L toal | -- | | Le lteo |
| **L'abdomen** | La demen | L abdomen | -- | La do´men | Laptmen |
| **Six pattes** | Six pates | Six pattes | -- | Siz pattes | Six patte |
| **Deux antennes** | Dus ondane | Deux antnnes | -- | Dos ontón | Le deonton |
| **Les crochets** | La croshae | La csha | -- | La colsha | Le cruchay |
| **Les écailles** | Lez akice | Les ecailles | -- | Les aka're | Les acy |
| **La langue** | La longe | Lea langue | -- | La lougue | La langs |
| **Les paupières** | La popeyer | Les paupieres | -- | La popare | La pupuere |
| **TOTALS n=23** | 19    4 | 4   2   16 | 5   7   2 | 8   12   1 | 10   9   3 |

Table 7.25:  Low working memory participants – core vocabulary – "écrivez" task –
19.10.11, 20.10.11, 9.11.11 & 10.11.11

These data appear to show that lower working memory participants are less likely to produced target-like written representations (in the short term). The apparently successful performance of participant 23 is more than likely due to copying the written form retrospectively in the classroom.  L1 derived representations appear more preferred, amongst these participants, than "wild" forms.  Comparison of mean scores across all three categories of written representations (L1-based, wild, target-like) showed that higher verbal working memory participants were more likely to produce target-like written representations (Table 7.26).  Cognates prove equally problematic (intelligent and social).  Interestingly, though, most of the written representations respect the syllabic structure of the target language vocabulary.

|                    | L1-based | Wild | Target-like |
|--------------------|----------|------|-------------|
| Highest VWM (n=5)  | 8.6      | 5.4  | 9.2         |
| Lowest VWM (n=5)   | 9.2      | 6.8  | 4.4         |

**Table 7.26:  Comparison of type of written representations between higher verbal working memory and lower verbal working memory sub-groups from "écrivez" task – 19.10.11, 20.10.11, 9.11.11 & 10.11.11**

Whilst it is important to note that there is an incomplete data set for participant 29 (which would have affected means), Table 7.26 shows little difference in working memory capacity between the two groups for the likelihood that written representations were grounded in either the L1 or were wild.  That is,  when higher or lower working memory children were unable to remember the full written representation, they resorted similarly to L1 sound/spelling links or "wild" forms.  However, participants with highest working memory scores were more than twice as likely to be able to recall the whole, written word from the presentation sequence (59.78% increase).  This finding could be deemed to accord with widely accepted claims about both L1 and L2 acquisition, that learners with higher WM scores are likely

to learn more due to greater ability to process form and meaning simultaneously (VanPatten, 2004).

Table 7.27 brings together the written representations of a particular, instructed L2 GPC (AN/EN = /ã/) produced by higher and lower working memory participants. Interestingly, these representations show that participants have identfied two separate words in all instances from the uninterrupted speech stream (and it seems possible that the written word form will have supported them in doing this).   This could provide evidence that learners are noticing regularities in the written input and that these are then overgeneralized and applied in all contexts.  In other words, the full definite article "le" or "la" is often produced even when it appeared in the presented, written and phonological forms as l'évent = /levã/.  Even wild attempts (green print) show that learners tend to separate the phonological input into two distinct words. Furthermore, the most common substitute grapheme for /ã/ in the L1-influenced attempts was ON which might also show that these learners lacked L2 phonological discrimination. In other words, that the effect of an unrounded nasal vowel sound was not distinguished or processed enough by learners at either end of the working memory score spectrum to make a distinction between the novel L2 phonology /ɔ̃/ or /ã/ (or possibly suppress the L1 phonology) and the closest L1 phonemes /ɒ/ and /n/.

|              | P2 (WM28)     | P4 (WM28)   | P5 (WM28)  | P8 (WM 28) | P11 (WM28)    |
|--------------|---------------|-------------|------------|------------|---------------|
| L'évent      | Le event      | Le voul     | Le von     | Lir von    | Le vuegh      |
| Les dents    | Le dents      | La dune     | Le done    | Le dang    | L'dou         |
| Deux antennes | Deus antennes | Dus antene | Des onten  | Ders onten | Deux antennes |
| La langue    | La langue     | La longe    | La long    | La lungue  | La langue     |
|              | P35 (WM16)    | P23 (WM19)  | P29 (WM21) | P22 (WM 21)| P17 (WM22)    |
| L'évent      | La von        | L'évent     | Le vor     | Le vranga  | Le vor        |

| Les dents | La domn | Les donts | Ledon | Le dard | Les odon |
| Deux antennes | Dus ondane | Deux antnnes | | Dos ontón | Le deonton |
| La langue | La longe | Lea langue | | La lougue | La langs |

**Table 7.27:  Written representations of AN/EN = /ã/ in higher and lower verbal working memory participants – core vocabulary – "écrivez" task – 5.10.11, 6.10.11, 9.11.11 & 10.11.11**

In terms of implications for instructional techniques, this study has noted that whilst learners with higher working memory scores appear more likely to reproduce target-like written representations (possibly due to freed-up attentional resources); when this processing and/or memory fails, they tend to rely on the same techniques as lower working memory learners.  In order to support this assertion, the written representation of a particularly challenging lexical item "les écailles" will be explored.

| High VWM: | P2 (WM28) | P4 (WM28) | P5 (WM28) | P8 (WM28) | P11 (WM28) |
| Les écailles | Les acscas | Les ecailles | Leyeskiky | Les acuys | Les ecair |
| Low VWM: | P35 (WM16) | P23 (WM19) | P29 (WM21) | P22 (WM21) | P17 (WM22) |
| Les écailles | Lez akice | Les ecailles | -- | Les aka're | Les acy |

**Table 7.28:  Written representations of "les écailles" (*the scales*) in higher and lower verbal working memory participants – core vocabulary – "écrivez" task – 9.10.11 & 10.11.11**

The Table (7.28) shows representations of "les écailles" which was particularly problematic for all learners, presumably due to its combination of:  novel L2 phonotactics /ekɑj/, novel grapheme – é, final, silent letters -es and adapted L2 gpc

/j/ = LL.  Despite working memory differences, there are only two participants with near target-like representations.  This evidence shows limited difference between learners when faced with an extremely challenging task to write (from memory or by applying sound/spelling links) an orally elicited word with a range of novel phonological characteristics. It should be noted that the target-like performance of Participant 23 – was likely due to copying once the written word was revealed, (based on analysis of participant's other written work, L1 reading age and L1 spelling age). Nevertheless, copied or not, this particular learner had practice at reproducing the correct written form and, to some extent, this was a learning/practice opportunity (albeit rather a formulaic one which the teacher/researcher had endeavoured to avoid!).

Overall it seems that, in these learners, the introduction of print has, at least, facilitated segmentation of the speech stream into words; it is unclear whether this might have happened with an oral only approach.  In addition, learners are starting to recall memorized whole words which may help by acting as exemplars against which L2 sound/spellings links can be modeled (i.e. learnt as analogies).   To summarise, learners with higher VWM scores were more likely to obtain higher test scores across all L2 constructs.  However, the qualitative data also showed that, whilst these participants were more likely to produce target-like written work, when this proved challenging, they resorted to strategies practised by other higher and lower verbal working memory participants (e.g. L1-related links or "wild" forms).

## 7.4 How successfully are specific L2 grapheme/phoneme links learned?

This section presents findings collected from two sources in order to address this study's final research question concerning the teaching and learning of L2 sound/spelling links.  Firstly, the pre-, post- and delayed post-test data made it possible to track the acquisition of specific L2 PGCs through performance on the reading aloud test which documented word reading when words were presented in text

and the emphasis was intended to be both on decoding and reading for meaning.  The
second relevant dataset derives from a subsidiary test which was devised mid-way
through the teaching intervention and involved reading aloud of single L2 words on
cards.  In this test, each target L2 GPC was tracked both in familiar contexts (i.e. the
words used to teach the GPCs through systematic phonics instruction) and unfamiliar
contexts (i.e. the same graphemes but in unknown words).

### 7.4.1 L2 Grapheme/Phoneme Links in L2 Reading Aloud (Text) at All Test Times

Figure 7.75 below illustrates performance for seven L2 PGCs and three final silent
letters across each test occasion, when each grapheme appeared in a sentence which
was read as a complete utterance supported by visuals.
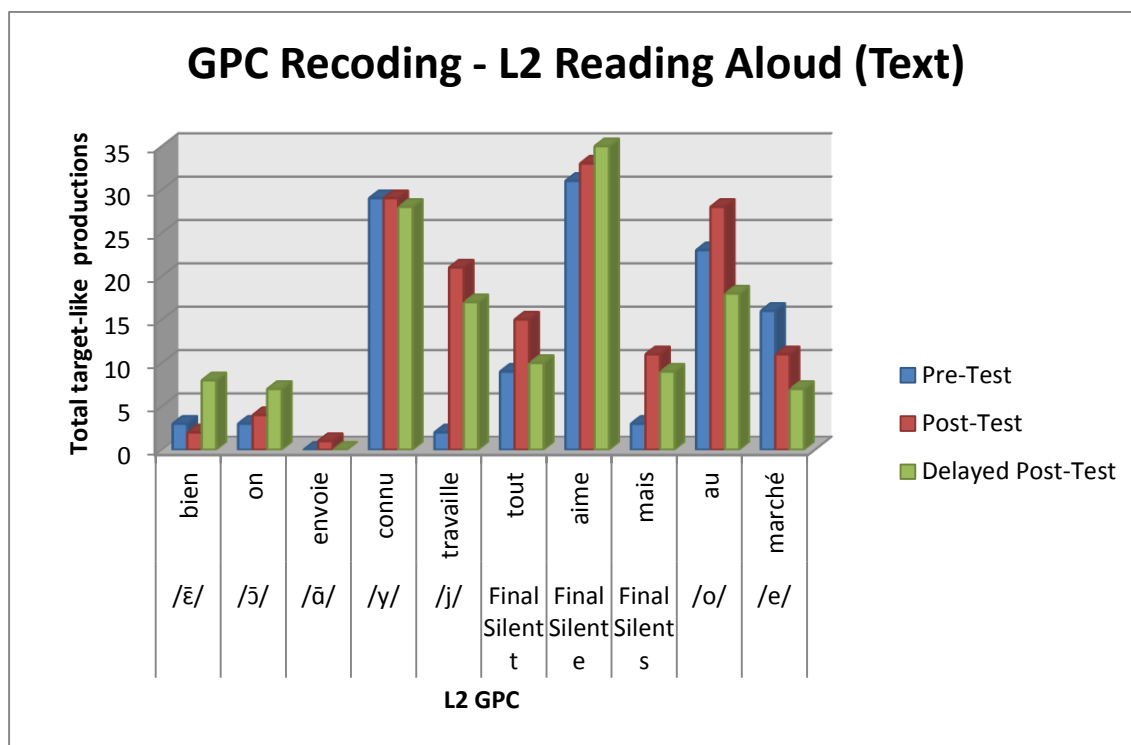


Figure 7.75:  Bar chart - target-like GPC recoding - L2 reading aloud (text)
performance at all test times

| | /ɛ̃/ | /ɔ̃/ | /ã/ | /y/ | /j/ | *FS t | *FS e | *FS s | /o/ | /e/ |
|---|---|---|---|---|---|---|---|---|---|---|
| Pre | 3 | 3 | 0 | 29 | 2 | 9 | 31 | 3 | 23 | 16 |
| Post | 2 | 4 | 1 | 29 | 21 | 15 | 33 | 11 | 28 | 11 |
| DPT | 8 | 7 | 0 | 28 | 17 | 10 | 35 | 9 | 18 | 7 |

Table 7.29:  Table showing totals across L2 read aloud (text) at all test times (*FS = final, silent letters)

The seven PGCs and three final silent letters had been introduced in a staged manner as follows (see Appendices 2–28 for detailed teaching plans):

Week 1:              Final silent letters –t, –e and –s (also –p)

Week 4:              ON = /ɔ̃/, U, Û = /y/ and LL = /j/

Week 8:              AN, EN = /ã/ and IN, AIN, IEN, EIN = /ɛ̃/

Week 15:             AU, O, Ô, EAU = /o/ and É, ER, EZ = /e/.

Figure 7.76 and Table 7.29 illustrate variable performance across all GPCs at different test times.  The three highest scoring GPCs (excluding final silent letters) immediately after the teaching intervention were: U, Û = /y/ – 29 out of 45 (64.4%), AU, O, Ô, EAU = /o/ – 28 out of 45 (62.2%) and LL = /j/ – 21 out of 45 (46.6%), with LL = /j/ marking the biggest improvement between pre– and post-test.  It is important to note, though, that the highest scoring GPCs were not necessarily learned through the phonics instruction; U, Û = /y/ and AU, O, Ô, EAU = /o/, for example, were often successfully reproduced at pre-test (i.e. before the teaching started).  The three least successfully learned GPCs (excluding final silent letters) were:  AN, EN = /ã/ – 1/45 (2.2%), IN, AIN, IEN, EIN = /ɛ̃/ – 2/45 (4.4%) and ON = /ɔ̃/ – 4/45 (8.8%).

### 7.4.2 GPC Recoding:  L2 Reading Aloud (Text), Pre– and Post-Test Performance

Paired-samples t-tests were conducted to evaluate the acquisition of specific L2 GPCs when reading text aloud.  The following table illustrates those GPCs and final silent

letters which demonstrated significant improvement between pre- and post-test.  This
is the subset of GPCs that might be considered best learned as a result of the explicit
and systematic phonics instruction.

| | Pre-Test Mean | Post-Test Mean | s.d. | t | sig. (2 tailed) | Df | Eta sq |
|---|---|---|---|---|---|---|---|
| ON = /ɔ/ recoding | .07 | .31 | .484 | -3.387 | .001 | 44 | .20 small |
| LL = /j/ recoding | .04 | .47 | .499 | -5.670 | <.0005 | 44 | .42 mod |
| Final silent S recoding | .07 | .24 | .387 | -3.084 | .004 | 44 | .18 small |

**Table 7.30:  Table showing t-test scores for selected L2 GPCs at pre- and post-test**

There was a statistically significant gain between pre- and post-test for ON = /ɔ/
(pre-test m=.07, sd=.252) (post-test m=.31, sd=.468), t(44)=-3.387, p=.001.  LL =
/j/ also showed an increase with moderate effect size (pre-test m=.04, sd=.208)
(post-test m=.47, sd=.505), t(44)=-5.670, p=<.0005.  These data would appear to
show that the grapheme/phoneme links which demonstrated the most improvement
between pre- and post-test are a) the most consistent (e.g. /ɔ/ which has one, and
only one, graphemic representation) and b) the phoneme which already exists in the L1
and therefore requires adaptation rather than new learning (e.g. /j/ adapted to link to
LL).  This finding with respect to instructed GPCs will be explored in more detail in
Chapter 8.

**7.4.3 GPC Recoding:  L2 Reading Aloud (Text), Post- and Delayed Post-Test
Performance**

Paired-samples t-tests were also conducted to evaluate the longer-term retention of
GPC knowledge between post- and delayed post-test.  Performance only for AU = /o/
demonstrated a statistically significant reduction between post- and delayed post-test

(mean .62, mean .40; s.d. .517; t=2.881; asymp. sig. .006; df=44; eta sq = .16 small). As significant attrition took place for one PGC only, it seems that reading aloud (recoding grapheme/phoneme links) between post- and delayed post-test is relatively stable. In other words, the learning that was achieved immediately after the intervention across all five L2 GPCs did not show significant attrition approximately seven weeks after the teaching ceased.

To summarise L2 read aloud performance assessed through this study's test battery, focusing on selected L2 GPCs, the systematic phonics instruction appeared to be particularly successful for the graphemes ON and LL which, it has already been noted are highly consistent (one to one mappings), yet respectively involve both creation of novel phonology /ɔ̃/ and adaptation of existing phonology /j/. Furthermore, it appears that results obtained through this test are stable and show limited effects of attrition, with the exception of /o/, which is a highly inconsistent PGC with several graphemic mappings relating to one sound (and also was one of the last GPCs to be learned).

### 7.4.4 GPC and Silent Letters Recoding: L2 Reading Aloud (Word Card) at Post- and Delayed Post-Test

This test, implemented across half the sample at a mid-intervention point and across the whole sample at post- and delayed post-test allowed for further exploration of GPC performance but in a different context (i.e. isolated words illustrated with pictures rather than text). This facilitated comparison of GPC production in both familiar and unfamiliar words, giving insight into how well developing L2 GPC knowledge was applied in novel contexts. These word cards did not include the GPCs AU, O, Ô, EAU = /o/ and É, ER, EZ = /e/ as at the time this test was designed, consideration was being given to excluding the last two GPCs from the teaching programme bearing in mind the apparently slow nature of sound/spelling link development.

The bar chart presented in figure 7.76 shows scores for both post- and delayed post-test. It is immediately evident that, at post-test, participants were far more likely to recode (in a target-like manner) GPCs in familiar words than unfamiliar words. The

only exception to this finding is the phoneme /ã/ represented by "enfant" as a familiar word and "grand" or "gant" as unfamiliar contexts.  Whilst not part of the intervention's core instructed vocabulary, "grand" was nevertheless present in the children's independent writing and some of the stories.  This realisation at mid-intervention led to the addition of "gant" as an unfamiliar word at post-test and delayed post-test.  It could also be possible that "enfant" and "grand" produced unexpected scores due to their cognate-like properties.  This was, to some extent, unavoidable as enfant was chosen to represent /ã/ in accordance with Le Manuel Phonique (Molzan & Lloyd, 2001).
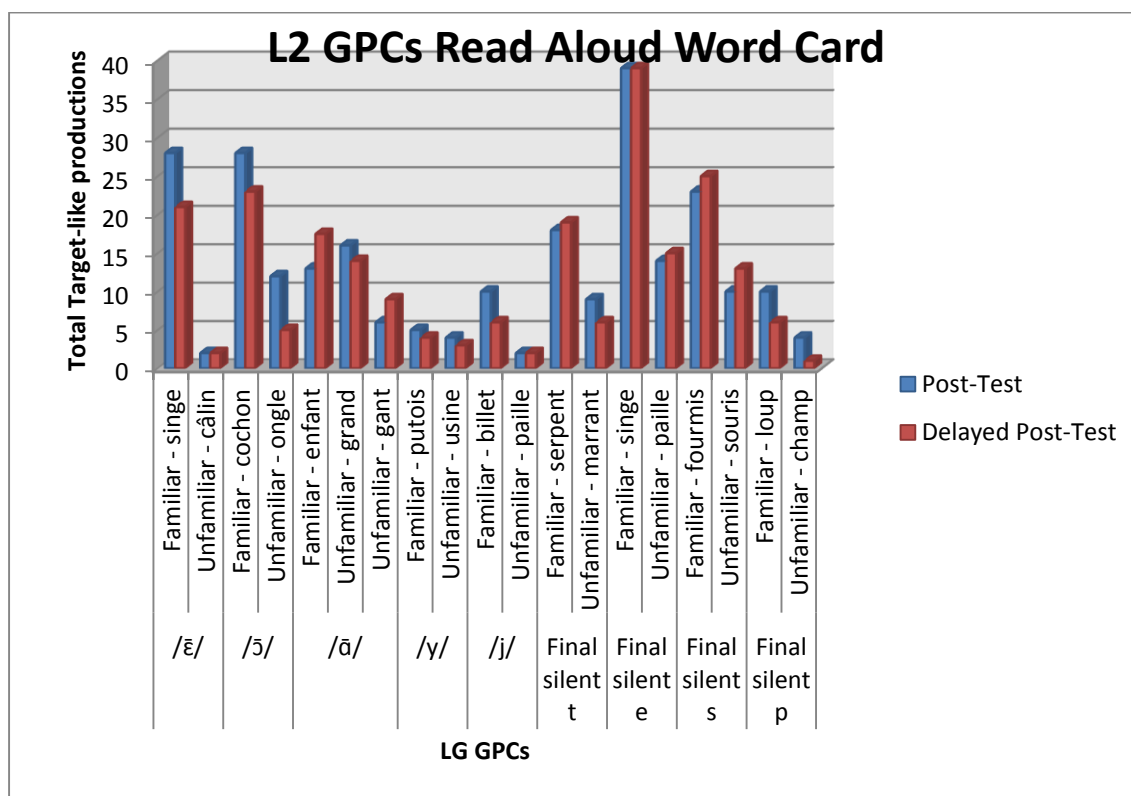


**Figure 7.76:  Bar chart showing L2 read aloud (word card) performance between post- and delayed post-test**

Figure 7.76 illustrates slight variation in performance at post-test across some GPCs (/ɛ̃/ and /ɔ̃/ are noticeably more successful than the other L2 sound/spelling

links).  In addition, nine GPCs (in both familiar and unfamiliar words) show evidence of attrition between post- and delayed post-test.

The rank order of accurate performance for **GPCs in familiar words** (excluding final silent letters) at post-test was as follows: IN = /ɛ̃/ (singe) – 28/45 (62.2%), ON = /ɔ̃/ (cochon) – 28/45 (62.2%), AN, EN = /ɑ̃/ (enfant) – 13/45 (28.9%), LL = /j/ (billet) – 10/45 (22.2%) and U = /y/ (putois) – 5/45 (11.1%). Final, silent letters scored particularly well, with FS e, s and t in order of success.

The rank order of accurate performance for **GPCs in unfamiliar words** at post-test was:  AN = /ɑ̃/ (grand) – 16/45 (35.6%), ON = /ɔ̃/ (ongle) – 12/45 (26.7%), U = /y/ (usine) – 4/45 (8.9%), IN = /ɛ̃/ (câlin) – 2/45 (4.4%) and LL = /j/ – 2/45 (4.4%). Final, silent letters in unfamiliar words were less successful but kept the same ranking as those in familiar words.

These data appear to show that GPC recoding performance was highly dependent on context and that participants were far more likely to successfully recode a GPC within a known word, despite the systematic and explicit phonics instruction. However, it also appears that familiar and unfamiliar performance varied between sound/spelling links.  Whilst graphemes ON and AN were relatively successful in both known and unknown words, the performance level for IN at post-test in familiar words was not repeated at post-test in unfamiliar words (câlin). This will be explored further in Chapter 8..

Table 7.31 shows the percentage difference for accurate GPC production in familiar and unfamiliar words at post-test and delayed post-test.

| L2 Phoneme | Familiar/ Unfamiliar | Post–Test | | % diff Fam/Unfam | DPT | | % diff Fam/Unfam |
|---|---|---|---|---|---|---|---|
| | | Fam | Unfam | | Fam | Unfam | |
| /ɛ̃/ | Singe/Câlin | 28 | 2 | 92.9% | 21 | 2 | 90.5% |
| /ɔ̃/ | Cochon/Ongle | 28 | 12 | 57.1% | 23 | 5 | 78.3% |
| /ɑ̃/ | Enfant/Grand/Gant | 13 | 16/6 | –23.1% 53.8% | 7.5 | 4/9 | 46.7% –0.4% |
| /y/ | Putois/Usine | 5 | 4 | 20% | 4 | 3 | 25% |
| /j/ | Billet/Paille | 10 | 2 | 80% | 6 | 2 | 66.7% |
| Silent t | Serpent/Marrant | 18 | 9 | 50% | 19 | 6 | 68.4% |
| Silent e | Singe/Paille | 39 | 14 | 64.1% | 39 | 15 | 61.5% |
| Silent s | Fourmis/Souris | 23 | 10 | 56.5% | 25 | 13 | 48% |
| Silent p | Loup | 10 | 6 | 60% | 4 | 1 | 83.3% |

Table 7.31:  Table showing differences between post– and delayed post–test for L2 read aloud (word card) test

As is illustrated, at post–test performance on familiar words was at least 50% better than performance in unfamiliar words, with the exception of /y/ putois/usine. This preference for familiar words is still marked at delayed post–test (again with the exception of /y/ and also final silent s which scored just below 50%).  Due to a lack of pre–test data, it is impossible to explore how successfully GPCs were recoded as a result of the systematic phonics instruction.  Nevertheless, it is possible to investigate within–test differences between familiar and unfamiliar words and effects of attrition between post– and delayed post–test for both types of context.

Paired–samples t–tests were therefore conducted to evaluate the difference in performance for specific L2 GPCs when reading familiar and unfamiliar words.  The

following Table (7.32) illustrates those GPCs and final silent letters which demonstrated significant differences between familiar/unfamiliar contexts at post-test.

| | Post-Test Familiar | Post-Test Unfamiliar | s.d. | t | sig. (2 tailed) | df | Eta sq |
|---|---|---|---|---|---|---|---|
| | Mean | Mean | | | | | |
| IN = /ɛ̃/ recoding | .62 | .04 | .543 | 7.137 | <.0005 | 44 | .54 large |
| ON = /ɔ̃/ recoding | .62 | .27 | .529 | 4.509 | <.0005 | 44 | .32 mod |
| AN/EN = /ã/ recoding | .29 | .13 | .437 | 2.387 | .021 | 44 | .11 small |
| LL = /j/ recoding | .22 | .04 | .442 | 2.701 | .010 | 44 | .14 small |
| Final silent T recoding | .40 | .20 | .505 | 2.659 | .011 | 44 | .14 small |
| Final silent E recoding | .87 | .31 | .503 | 7.416 | <.0005 | 44 | .56 large |
| Final silent S recoding | .07 | .24 | .387 | −3.084 | .004 | 44 | .18 small |

**Table 7.32: Comparison of performance on GPCs within familiar/unfamiliar words at post-test (word card test: significant results only)**

Most of the instructed GPCs (including final, silent letters) demonstrated significant advantage at post-test for successful recoding in familiar rather than unfamiliar contexts.  In fact, only one instructed L2 GPC – /y/ U or û – was not significantly different at this time.  This could show that knowledge of  L2 sound/spelling links is highly context-specific.

Paired-samples t-tests were also conducted to compare production of specific L2 GPCs in both familiar and unfamiliar words at post-test and delayed post-test and significant results are presented in Table 7.33.

| | Post–Test | DPT | s.d. | t | sig. | df | Eta sq |
|---|---|---|---|---|---|---|---|
| | Mean | Mean | | | (2 tailed) | | |
| IN = /ɛ̃/ recoding Familiar | .62 | .47 | .475 | 2.199 | .033 | 44 | 0.10 Small |
| ON = /ɔ̃/ recoding Unfamiliar | .27 | .11 | .424 | 2.461 | .018 | 44 | 0.12 Small |
| AN/EN = /ã/ recoding Familiar | .29 | .39* | .294 | −2.283 | .027 | 44 | 0.11 Small |

**Table 7.33: Comparison between GPC performance on word card test (all items) at post–test and delayed post–test (significant results only)**

Table 7.33 shows only two sound/spelling links showed a significant decline in production 7 weeks after teaching had ceased, thus suggesting that developing L2 GPC knowledge is relatively long-term and stable.  No final, silent letters demonstrated significant attrition.  One GPC (IN) related to familiar context recoding whilst the other (ON) referred to recoding in unfamiliar contexts.  Recoding of AN/EN was significantly more accurate at delayed post-test than at post-test.

Performance relating to the learning of GPCs examined through the word card tests is summarised as follows.  For familiar words at post-test the three highest scoring L2 GPCs were:  IN = /ɛ̃/, ON = /ɔ̃/ and AN,EN = /ã/ (with final silent letters e, s and t ranked 1st, 3rd and 4th overall).  The worst performing L2 GPC at this time, in this context was U = /y/.  All except U = /y/ showed significant difference depending on context (familiar or unfamiliar word).  For unfamiliar words at post-test, the three highest scoring L2 GPCs were:  AN, EN = /ã/, ON  = /ɔ̃/ and U = /y/ (with final silent letters e, s and t ranked 2nd, 4th and 5th overall).

Performance relating to attrition of GPCs (and therefore how stable or long-term the learning was) measured through delayed post-test data can be summarised as follows.  For familiar words at delayed post test, the three highest scoring GPCs

were ON = /ɔ̃/, IN = /ɛ̃/ and AN, EN = /ã/ (with final silent e, s and t ranked 1st, 2nd and 5th overall respectively).  The worst performing L2 GPC at this time in a familiar word was U = /y.  For unfamiliar words at delayed post-test, the three highest scoring L2 GPCs were:  ON = /ɔ̃/, AN, EN = /ã/ and U = /y/ (with final silent e, s and t ranked 1st, 2nd and 3rd respectively.   Whilst rank order changed slightly from post to delayed post-test, it appears that final, silent letters were especially stable and that learned GPCs demonstrated relatively long-term learning, with the only exceptions of ON = /ɔ̃/ in unfamiliar words and IN = /ɛ̃/ in familiar words showing statistically significant attrition.  However, it should be noted that, for both significantly attrited GPCs, the effect size was small.

In conclusion, a comparison of performance across both reading aloud tasks, suggests that results appear to vary depending on the test situation.  For example, the best learned GPCs at post-test text recoding (which could be deemed unfamiliar words as they were not generally viewed/learned during the course of the intervention) were ON = /ɔ̃/ and LL = /j/.  On the other hand, performance with unfamiliar word cards at the same test time favoured AN, EN = /ã/ and ON = /ɔ̃/ with LL = /j/ appearing least well learned.  Meanwhile, the GPCs which appeared to show worst attrition at delayed post-test for the word card test (ON – unfamiliar; IN – familiar) did not demonstrate significant attrition at delayed post-test text recoding.  It appears, then, that developing GPC knowledge could be context-specific in several ways.  Firstly successful recoding seems dependent on whether the word is familiar or unfamiliar.  Secondly, recoding could be affected by a more precise view of context i.e. the exact orthographic composition of each word and how this respects L1 graphemic representations.  Finally, performance could also be task-specific (related to the nature of the decoding activity) and whether participants are focusing on production of isolated words or reading for meaning.

Nevertheless, regardless of inconsistencies in performance across test conditions, it is important to revisit overarching sample performance.  Whilst rank performances show us, to some extent, which L2 GPCs and final silent letters developed best in these learners, and that delayed post-test scores indicate that this

learning was relatively stable, it must also be acknowledged that the learning was slow. After over 20 weeks of instruction which alternated between a phonics focus and review activity (so that every lesson incorporated an element of explicit phonics instruction and practice), the best learned L2 GPC at word card (ON = /ɔ̃/) was reproduced by 28/45 participants and then only in a familiar, practised word.  Equally when reading aloud in text at post-test, the best learned (i.e. significant difference between pre-and post-test) L2 GPCs were U = /y/ (29/45), LL = /j/ (21/45) and ON = /ɔ̃/ (4/45).  In other words, the most successful performance in either context was dependent on how much the exact word had been viewed and practised and, even then, led to success for just over half the sample.  Section 7.3.5 will present qualitative data which will explore the nature of L2 GPC development and which illustrates the slow and context-dependent nature of this learning.

### 7.4.5 Learning L2 Sound/Spelling Links – Qualitative Data

Extracts from the teacher diary which relate to phonics instruction would appear to value explicit and systematic phonics instruction but note that the development of L2 GPC appears problematic.  By week 6, the teacher observations note that many of the GPC links are being recalled and that the use of gestures as retrieval cues seems to help.

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**WEEK 4:**

*5.10.11:      School 2:  The phonics focus worked well – a bit of light relief trying to make the new L2 sounds!  They remembered the three links – LL/ON/U or Û quite easily but I'll check first thing next week to see how much they've retained.*

*6.10.11:      School 1:  The phonics focus seemed to go down well – although they're not starting to read at all accurately.  I don't think they'll "naturally"*
*make the leap from phonics instruction to applying that knowledge when they read text.*

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**WEEK 5:**

*9.11.11:    School 2:  The phonics worked well and they seem  to respond well to the gestures used to memorise the sounds.  Text work also went well – plenty of volunteers for reading aloud.*

*10.11.11:    School 1:  Responded really well to the phonics gestures with sounds.  Of course I have to teach them the example words as they don't know these either (e.g. putois – polecat).  Some are reluctant to do the moves in this class – worried about looking "cool" (at this age).  Nevertheless, the gestures do seem to aid recall.  The playdough grapheme modelling went OK.  Had to jump on them to make sure they stayed on task.  I thought, in general, the lesson was OK, possibly too teacher centred.  The governor observer thought it was great!!  Or at least she said it was great.  She mentioned it was the first time she had seen every child "even the ones at the back" involved in the learning in any afternoon lesson.  Interesting.*

**WEEK 6:**

*16.11.11:    School 2:  Phonics review went well – the gestures seem to help in recalling the sounds.  The hot/cold game was enjoyed by all*

*17.11.11:    School 1:  Participant 1 and Participant 28 played the hot/cold game.  Particpant 1 was more able to distinguish phonemes and identify the correct graphemes than Participant 28 and was guiding him in the decision-making.  Quelle surprise!  Rather refreshing too!*

**Figure 7.77:  Teacher diary extracts: 5.10.11, 6.10.11, 9.11.11, 10.11.11, 16.11.11 & 17.11.11**

It seems that, from a classroom observation perspective, the learning of L2 GPC/PGCs appeared to be progressing relatively well, although it is important to remember that the diary evidence was based on informal examination of learning in a whole class context.  Nevertheless, there is a teacher observation (6.10.11) which expresses concern that the children may not be able to apply sound/spelling links

when working with text.  By week 14 (mid-intervention), a formal test was designed to assess the individual learning of PGCs – more specifically, to track how the declarative knowledge (i.e. "knowing that") was developing (see Section 6.8.5).  Individual L2 phonemes were modelled by the teacher and the children were requested to write the corresponding letters – "what letters make this sound?"  Furthermore, each answer had the requisite amount of blank boxes for the children to complete.  This, it was hoped, might act in some way as a retrieval cue and, therefore, this informal test would attempt to optimise the chance of responding thereby eliciting all and any PGC knowledge.  The results (listed in Table 7.34) show a different account of individual progress after approximately 12 weeks of phonics instruction.

| No: | /ɔ̃/ | /ã/ | | /ɛ̃/ | | | /y/ | | /j/ | Total target-like |
|-----|------|-----|-----|------|-----|--------|-----|-----|-----|-------------------|
| | ON | AN | EN | AIN | IN | EIN/IEN | U | Û | LL | Max=9 |
| 1 | on | au | aru | au | Û | u | Oh | ouh | ll | 2 |
| 2 | on | an | o | ain | in | ein | Ou | oo | ll | 6 |
| 3 | llˆ | u | air | a | air | or | Ou | u | ll | 2 |
| 4 | ou | au | ea | au | ae | ua | Oo | ou | ll | 1 |
| 5 | ug | ue | eu | ue | – | – | – | – | ll | 1 |
| 6 | ua | au | oa | la | ui | eia | Oo | uo | u û | 0 |
| 7 | ou | ae | u | au | ea | – | Eu | oo | ll | 1 |
| 8 | oa | ar | ar | aa | are | ae | Oo | oe | y | 0 |
| 9 | on | ein | ain | an | en | – | U | û | ll | 4 |
| 10 | – | – | – | – | – | – | – | – | – | 0 |
| 11 | – | – | – | ein | ein | ein | Ou | ou | gu | 1 |
| 12 | on | un | – | in | ain | ein | U | û | ll | 7 |
| 13 | ou | oue | – | au | aw | aû | Aa | oe | ll | 1 |

| 14 | ou | uor | our | ua | an | Au | | e | ou | Ll | 1 |
| 15 | ou | ow | – | aw | au | Ar | | oa | ow | Ll | 1 |
| 16 | – | – | – | ai | ao | Ai | | oa | oi | Yu | 0 |
| 17 | ou | uan | ua | an | un | – | | oa | oo | Ll | 1 |
| 18 | ua | au | oa | ar | au | Ae | | ou | io | Yu | 0 |
| 19 | oa | or | ar | aa | ae | Ea | | oo | oe | Y | 0 |
| 20 | – | – | – | – | – | – | | – | – | – | 0 |
| 21 | on | un | an | ein | ain | In | | u | û | Ll | 8 |
| 22 | llˆ | oi | ou | aî | aiû | Iê | | oû | oô | llˆ | 0 |
| 23 | on | uu | uiu | an | ao | In | | un | uu | Yy | 2 |
| 24 | ← | | | | absent | | | | | → | |
| 25 | on | oo | oh | yy | ea | ll | | oo | oh | Ll | 2 |
| 26 | ue | un | – | aa | – | – | | ou | – | Ll | 1 |
| 27 | oo | u | û | in | ain | ein | | u | û | Ll | 6 |
| 28 | on | uu | un | – | – | – | | – | – | – | 1 |
| 29 | ue | en | un | on | – | – | | u | – | Ll | 3 |
| 30 | on | an | en | ain | – | – | | au | uu | Ll | 5 |
| 31 | on | en | an | in | ain | ein | | ue | éê | Ll | 7 |
| 32 | ou | uû | oi | ai | ai | ie | | uo | oo | Ll | 1 |
| 33 | uo | en | an | ein | ain | in | | ou | wa | Ll | 6 |
| 34 | ooo | yyy | uuu | aaa | uuu | ooo | | aaa | uuu | Lll | 0 |
| 35 | on | un | an | – | – | – | | on | ue | Yu | 2 |

| 36 | un | ui | ie | an | on | un | ull | ou | uy | 0 |
|----|----|----|----|----|----|----|-----|----|----|---|
| 37 | un | on | au | ab | aun | oun | une | un | yu | 0 |
| 38 | ou | au | eu | ae | ue | ua | ou | oa | ll | 1 |
| 39 | oo | on | an | ain | ein | in | oo | oo | ll | 5 |
| 40 | – | ah | uon | ah | eg | au | uh | oo | ll | 1 |
| 41 | oh | r | rh | a | ah | ai | oo | ooh | y | 0 |
| 42 | on | an | en | in | ine | ina | ou | oua | ll | 5 |
| 43 | on | ou | – | or | ou | oun | ou | one | y | 1 |
| 44 | ow | ou | oo | ein | ain | in | ou | oo | ll | 4 |
| 45 | on | ain | ein | an | en | – | ou | – | ll | 2 |
| Score | 14/45 | 13/90 | 28/135 | | | | 10/90 | | 27/45 | 92/405 |
| %total | 31.1% | 14.4% | 20.7% | | | | 9% | | 60% | 22.7% |

**Table 7.34: Developing PGC knowledge at mid-intervention**

Interestingly, the above data shows a more mixed representation, certainly of the learning of PGCs (links moving from sound to spelling). The children who had best developed this declarative knowledge were participants: 2, 12, 21, 27, 31 and 33; three of these participants (2, 21 and 31) had the highest reading ages in the sample (15.00, 15,00 and 13.06 years respectively). Participants with the lowest reading ages (Participants 8, 20 and 23) scored in the lower ranges; the first two particpants scored 0 whilst participant 23 scored 2). In general, lower reading age participants were less likely to have memorised core PGCs – none scored in the upper ranges. In other words, the previously noted advantage for L2 learners with high L1 reading ages (Section 7.2) extends, in this study, to memorisation of PGCs. This could, however, be linked to an L1 reading issue (i.e. the ability to correctly distinguish phonemes –

phonemic awareness) rather than a more general cognitive learning mechanism (e.g. better memorisation).

Progress converting L2 sounds into target-like graphemic representations (i.e. reproduction of isolated graphemes from a phonological cue) appears to be developing slowly with 22.7% targetlike responses from the whole sample (n=45) across the PGC range (nine graphemes/five phonemes). The most successfully learned PGC at this mid-intervention stage is LL /j/ which scores 27/45 (60%) written representations. This is followed by ON = /ɔ̃/ at 31.1% and IN/AIN/IEN/EIN = /ɛ̃/ at a success rate of 20.7%. Interestingly, many graphemes, produced in response to oral production of an L2 phoneme, are wild in nature, bearing no resemblance either to L2 target-like links or L1 similar links. This echoes whole word written data explored in the previous sections which show regular recourse, amongst both higher and lower L1 reading age participants, to unsystematic and untarget-like forms (Section 7.2). Interestingly, this developing PGC knowledge is only partially reflected in the end-intervention test data where, for text recoding, LL was particularly successful and for familiar word card recoding both ON and AN/EN scored in the top three GPCs.

It is important to remember, though, that, due to time constraints, only half the sample were tested for grapheme to phoneme conversion at mid-intervention. This test was designed to elicit L2 recoding at word level but also to assess application of learned GPCs in unfamiliar contexts and the data gathered will be explored in more detail  later in the discussion section. Table 7.35 shows sub-sample performance for recoding from print to sound at mid-intervention.

| L2 Phoneme | Familiar/Unfamiliar | Mid-Intervention | % difference familiar/unfamiliar |
|---|---|---|---|
| /ɛ̃/ | Singe | 13 | 100% |
|  | Câlin | 0 |  |
| /ɔ̃/ | Cochon | 7 | 71.4% |
|  | Ongle | 2 |  |
| /ɑ̃/ | Enfant | 2 | 33.3% |
|  | Grand | 3 |  |
| /y/ | Putois | 3 | 66.6% |
|  | Usine | 1 |  |
| /j/ | Billet | 1 | 0% |
|  | Paille | 1 |  |
| Silent t | Serpent | 8 | 75% |
|  | Marrant | 2 |  |
| Silent e | Singe | 18 | 5.55% |
|  | Paille | 17 |  |
| Silent s | Fourmis | 7 | 57.1% |
|  | Souris | 3 |  |
| Silent p | Loup | 3 | 100% |
|  | Champ | 0 |  |

Table 7.35: Sub-sample GPC recoding at mid-intervention (n = 23)

Examination of these data shows that IN as /ɛ̃/ is most successfully recoded with 13/23 (56.5%) targetlike productions whilst /ɔ̃/ = ON is next at a success rate of 7/23 (30.4%). At this time (unlike at post-test text recoding) /j/ = LL, the most successfully recoded at PGC, was the least well recoded familiar GPC at 1/23 (4.4%).

Closer examination of sound to print and print to sound data show that for PGCs (sound to spelling), after the same amount of instructional time (fourteen weeks into the teaching), both ON and LL are emerging most reliably with IN/AIN/IEN/EIN following. On the other hand, for GPCs (spelling to sound), IN is recoded most reliably with ON following but LL seems particularly weak. When recalling sound to print links, the two best learned PGCs (ON and LL) are also the most consistent; one grapheme (or digraph) always equals one phoneme and therefore one sound only has to trigger one grapheme. This could explain the problematic nature of /ɛ̃/ at PGC which has to trigger four potential mappings, whereas only correct elicitation of one was required at GPC recoding (sINge). It seems possible that if the recoding of IN, AIN, IEN and EIN had been attempted, this GPC might have had a much lower success rate overall. Reading acquisition research has shown that, in learning sound/spelling links, consistency appears to outweigh frequency and therefore effects of this nature in this learning context should not be considered surprising. Furthermore, connectionist frequency based models of learning note a negative effect for inconsistent GPCs but a positive effect for consistent GPCs (see Section 2.5). In other words, multiple graphemic possibilities for one sound (or vice versa) have a subtractive effect on original mappings and therefore take longer to emerge. Presumably, if mappings are created for IN = /ɛ̃/, every time another grapheme is encountered which links to the same sound, a positive weighting emerges for the new link which in turn decreases the weighting for the original link. Additional qualitative data shows that, despite the problematic nature of inconsistent GPCs, even consistent GPCS seem also to develop slowly. This is exemplified in the following classroom transcripts which show, for example, that the phonemic representation of ON (e.g. /ɔ̃/) was occasionally problematic to elicit.

**Classroom Transcript 4 – 12th /13th October 2011**

Lesson 3 – School 2

| | |
|---|---|
| TEAE: | chair legs on the ground P41..last sound.. |
| P28: | well...I know how to spell it |
| TEAE: | you know how to spell it..that's OK..mm? |
| P28: | TT |
| TEAE: | not TT..P38 |
| P38: | /y/ |
| TEAE: | not quite..don't call out..please put your hand up..P36 |
| P36: | /juː/? |
| TEAE: | not /ju/..P38? |
| P38: | /o/ |
| TEAE: | you're getting closer..P32? |
| P32: | xxx |
| TEAE: | do you know how to spell it...go on then. |
| P32: | is it ON |
| TEAE: | it's ON..well done |
| %act: | teacher writes ON on board |
| TEAF: | comment ça se prononce..P8 |
| P8 : | /y/ |
| TEAF : | non..pas ça.. |
| P ?: | xxx |
| TEAE: | not /o/ but quite close..round lips, tongue back. |
| %act: | teacher pointing to nose |
| TEAE: | P28? |
| P28: | /ɔ̃/ |
| TEAF: | /ɔ̃/ |
| %gpx: | teacher raises right hand to right ear |
| CLASS | /ɔ̃/ |
| TEAF: | /ɔ̃/ |
| %gpx: | teacher raises right hand to right ear |
| CLASS | /ɔ̃/ |
| JTEAF: | /ɔ̃/ |
| %gpx: | teacher raises right hand to right ear |
| CLASS | /ɔ̃/ |
| TEAE: | right..un deux trois silence |

The teacher is attempting to elicit /ɔ̃/ using visual cues and gesture.

Eliciting /ɔ̃/ is problematic.

Grapheme ON elicited first.

Several cues to elicit /ɔ̃/.

Plenty of phoneme practice as it was so hard to elicit /ɔ̃/.

The teacher is attempting to elicit /ɔ̃/ using visual cues and gesture.

Lesson 3 – School 2 – 12.10.11

| | |
|---|---|
| TEAE: | what was the last sound we did..what was that last sound..P7? |
| P7: | a double u? |
| TEAE: | no..the last sound../y/.. is this one. |

%act:        teacher goes to board, adds the grapheme U and points to both graphemes
             on the board
%com:        various children experimenting with sounds
TEAE:        P26..you're nearly there..P45 thank you for putting your hand up.
P26:         is it an o?
TEAE:        how do you make the sound first of all?
P26:         xxx.
TEAE:        ok..tell me the letters.
P26:         O and N.
TEAE:        ON..how do we make that sound?  P*?..just a minute (to another child).
P*:          /ɔ̃/.
TEAE:        well done..it's round lips, tongue back and use your nose isn't it?
CLASS:       /ɔ̃/ /ɔ̃/ /ɔ̃/ /ɔ̃/ /ɔ̃/ /ɔ̃/ .
%com:        class start to produce increasingly untarget-like sounds
TEAE:        OK..right..who am I going to choose..actually?
%com:        ongoing production of /ɔ̃/

> Eliciting /ɔ̃/ is problematic so teacher decides to use the grapheme.

The children appear, at this stage, to focus on the letters rather than retrieving the sound.  This could be because the sound is novel and therefore less well established than the grapheme ON.  Remember, at this stage, the desired learning involves attempts to establish declarative knowledge (i.e. knowing that the sound /ɔ̃/ = ON and vice versa).  Whilst the teacher diary data appears largely positive, the individual progress is far less conclusive.  Target-like representations are more successfully elicited from some able L1 readers but equally, wild type PGC links are prevalent across the sample.  At mid-intervention, the development of declarative PGC/GPC knowledge primarily from phonics type instruction appears to be slowly emerging and both written and spoken recoding evidence supports the idea that the development of these links follows a "slow" (Cable et al., 2010: 117) and "complex trajectory" (Woore, 2011).

Slow development appears partly linked to an issue highlighted in the teacher diary (Figure 7.78).  This observation, made early in the teaching intervention (week 4), concerns the potentially problematic move to applying declarative knowledge GPC in "real-time" reading.  The data below supports the idea that, whilst developing the declarative knowledge takes time, these learners also find it particularly challenging to apply this new, declarative knowledge to reading tasks (i.e. proceduralisation is equally

problematic).  The extracts focus on the development of ON = /ɔ̃/ as this was one of

the best performing L2 GPCs across most test times and conditions.


**Classroom Transcript 5 – 24ᵗʰ November 2011**

Lesson 8 – School 1

| | |
|---|---|
| %act: | teacher displays powerpoint with picture of pig |
| *TEAF: | 0[=! gesture] . |
| %gpx: | left forearm vertical palm closed index finger vertical pushed against tip of nose |
| *CLASS: | /u/ /u/ /u/ /o/. |
| *TEAF: | nearly . |
| *TEAF: | 0[=! gesture] . |
| %gpx: | left forearm vertical palm closed index finger vertical pushed against tip of nose |
| *TEAF: | can't you remember it? |
| *TEAF: | </ɔ̃//ɔ̃//ɔ̃/>[=! gesture] . |
| %gpx: | left forearm vertical palm closed index finger vertical pushed against tip of nose |
| *CLASS: | /o/ /o/ /o/ . |
| *TEAF: | nice round lips . |
| *TEAF: | </ɔ̃//ɔ̃//ɔ̃/>[=! gesture] . |
| %gpx: | left forearm vertical palm closed index finger vertical pushed against tip of nose |
| *CLASS: | /ɔ̃//ɔ̃//ɔ̃/. |
| *TEAF: | </ɔ̃//ɔ̃/>[=! gesture]  . |
| %gpx: | left forearm vertical palm closed index finger vertical pushed against tip of nose |
| *TEAF: | </ɔ̃//ɔ̃/ /ɔ̃//ɔ̃/ /ɔ̃/ /ɔ̃/ /ɔ̃/>[=! gesture]  . |
| %gpx: | left forearm vertical palm closed index finger vertical pushed against tip of nose |
| %com: | singing |
| *CLASS: | </ɔ̃//ɔ̃/ /ɔ̃//ɔ̃/ /ɔ̃/ /ɔ̃/ /ɔ̃/> |
| %com: | singing |
| *TEAF: | how did you write that sound </ɔ̃/>[=! gesture] . |
| %gpx: | left forearm vertical palm closed index finger vertical pushed against tip of nose |
| *P1E: | is it ON? |
| *TEAE: | make the sound for me please participant 1 . |
| *P1E: | /ɔ̃/ . |
| *TEAE: | make the sound for me please participant 45 . |
| *TEAE: | /ɔ̃/ . |
| P45E: | /ɔ̃/. |

Teacher has to provide the phoneme.

Phoneme practice as it was difficult to elicit.

The correct answer but teacher is too busy focusing on the phoneme.

*TEAE:       not bad .

*TEAE:       participant 42.

*P42E:       **** .

*TEAE:       sorry[=! gesture] .

%gpx:        left forearm vertical palm flat and facing away fingers extended resting against left ear

*P42E:       /ɔ̃/ .

*TEAE:       well done .

*TEAE:       well done participant 42 .

*TEAE:       participant 4 [=! gesture].

%gpx:        left forearm vertical palm flat and facing away fingers extended resting against left ear

*P4E:        /ɔ̃/.

*TEAE:       not bad .

*TEAE:       participant 46 </ɔ̃/>[=! gesture]   .

%gpx:        left forearm vertical palm closed index finger vertical pushed against tip of nose

*TEAE:       <lovely>[=! gesture] nice using your nose nice nasal sound .

*TEAE:       participant 1 what letters did you say?        Finally returns to the grapheme.

*P1E:        ON.

*TEAF:       let's see if he's right .

*TEAE        wow  ON </ɔ̃/>[=! gesture]   .

%gpx:        left forearm vertical palm closed index finger vertical pushed against tip of nose

*CLASS:      /ɔ̃/

*TEAE:       who want's a go at reading that French word?

*TEAE:       participant 1 what a superstar .

*P1F:        /kɒʃɒn/.

*TEAF:       /ko/…

*P1F:        /koʃɔ̃/.        Despite the intensive work, still no target-like GPC recoding.

*TEAF:       /koʃɔ̃/ that was what I call beautiful French reading .

*TEAE:       did participant 1 say /kɒʃɒn/?

*TEAE:       no..he said /ko/…/ʃɔ̃/  </koʃɔ̃/>[=! gesture] .

%gpx:        left forearm vertical palm flat and facing away fingers vertical beside left ear

*CLASS:      /koʃɔ̃/.

*24.11.11:  The phonics was OK.  They couldn't remember all the sounds or their corresponding graphemes but were, I think, slightly more reliable at reading the words aloud.  I got individual children to model the phonemes several times and maybe this helped?  Probably I will transcribe both parts of these lessons to contrast the phonology and the read aloud accuracy e.g. participant 45 – "putois" – "U" sounded like /u:/ but "OIS" recoded as /wa/.  Maybe it depends on where the phoneme is in the word – salience?  Could check this out.*

**Figure 7.78:  Teacher diary extract – 24.11.11**

**Classroom Transcript 6 – 23rd November 2011**

Lesson 8 – School 2

| | |
|---|---|
| %act: | teacher displays powerpoint with picture of pig |
| *TEAF: | 0[=! gesture] . |
| %gpx: | left forearm vertical palm closed index finger vertical pushed against tip of nose |
| *CLASS: | /ɔ̃/. |
| *TEAF: | well done . |
| *TEAF: | </ɔ̃//ɔ̃//ɔ̃/>[=! gesture] . |
| %gpx: | left forearm vertical palm closed index finger vertical pushed against tip of nose |
| *TEAF: | how did you write that sound </ɔ̃/>[=! gesture] . |
| %gpx: | left forearm vertical palm closed index finger vertical pushed against tip of nose |
| *TEAE: | that French sound </ɔ̃/> . |
| *TEAE: | how did you..what letters did you we use to write that . |
| *TEAE: | participant 47 . |
| *P47E: | ON . |
| *TEAE: | let's see if you're right participant 47 . |
| %act: | teacher reveals grapheme ON and word cochon on powerpoint . |
| *TEAE: | well done . |
| *TEAE: | who wants a go at reading that word at the bottom of the screen. |
| *TEAE: | participant 5  . |
| *P5F: | /kɒʃɒn/ . |
| *TEAF: | /koʃɔ̃/ très bien . |
| *TEAE: | remember that </ɔ̃//ɔ̃//ɔ̃/>[=! gesture] . |

%gpx:        left forearm vertical palm closed index finger vertical pushed against tip of
             nose
*CLASS:      /ɔ̃//ɔ̃//ɔ̃/.

> *23.11.11:  Interesting!  Gestures still helping.  They see the graphemes and can produce the sound (phonics spotting last week).  They make the sound and quite often remember which letters make the corresponding grapheme.  Yet when I asked someone to read the word "cochon" (able pupil) and they have heard and seen this word before, they revert back to L1 GPC.  Need to think about practicing synthetic style phonics – i.e. step by step decoding at phoneme level.  Or by syllable co – chon to isolate the ON grapheme.*

**Figure 7.79:  Teacher diary extract – 23.11.11**

Weekly workbook, teacher diary and classroom transcript data combined with two types of quantitative data present a rich picture of how the learning emerged over the course of the teaching.  In terms of developing declarative GPC/PGC knowledge, extracts of classroom data combined with mid-intervention test results show that this emerged slowly and, at times, involved "wild" representations of sound/spelling links which respected neither L1 nor L2 graphemic conventions.  In addition, procedural GPC/PGC knowledge, examined by application of sound/spelling links and evidenced in both classroom and test (reading aloud text and word card) data showed that context (familiar/unfamiliar, task type and possibly L1 graphemic conventions) were particularly influential.  The following sections will aim to further elucidate the slow and complex developmental process by profiling the performance of individual learners across three L2 GPCs.  GPCs have been carefully chosen to contrast factors which, it was anticipated, might influence learning.  Firstly ON = /ɔ̃/ will be explored as it was relatively successful across most test conditions and is a highly regular, 1:1 mapping.  Next LL = /j/ will be presented as an example of a GPC which requires adaptation only (i.e. both grapheme and phoneme exist in the L1) and this was also the most improved GPC at post-test reading aloud (text).  Finally IN, AIN, IEN, EIN = /ɛ̃/

will be included as this is a highly inconsistent GPC with varied levels of success across test times and contexts.  To evaluate performance in more detail, a sub-sample of participants (n = 6) has then been selected to "profile" the nature of successful and less successful L2 GPC recoders at mid-intervention (i.e. those who had made relatively early progress with L2 GPC learning and those who had had made a slower start).

### 7.4.6 The L2 Sound/Spelling Acquisition Process ON = /ɔ̃/

The table below (Table 7.36) presents the qualitative and quantitative data from both GPC and PGC tests at mid-intervention for the GPC ON = /ɔ̃/ over half the sample (participants selected from each quartile of the pre-test L2 reading aloud (text) scores).

| Participant No: | GPC recoded | Target-like? | PGC recoded | Target-like? |
|---|---|---|---|---|
| 2 | /koʃɔ̃/ | Yes | ON | Yes |
| 30 | /koʃɔ̃/ | Yes | ON | Yes |
| 9 | /koʃɔ̃/ | Yes | ON | Yes |
| 3 | /tʃɒtʃɒn/ | No | LL^ | No |
| 1 | /kɒtʃɒn/ | No | ON | Yes |
| 28 | /koʃɔ̃/ | Yes | ON | Yes |
| 39 | /kɒʃɒn/ | No | OO | No |
| 45 | -- | -- | ON | Yes |
| 7 | /koʃɔ̃/ | Yes | OU | No |
| 11 | /koʃɒn/ | No | -- | -- |
| 14 | /tʃɒtʃɒn/ | No | OU | No |
| 44 | /kɒhɒn/ | No | OW | No |
| 21 | /koʃɔ̃/ | Yes | ON | Yes |

| 42 | /kɒtʃɔ̃/ | Yes | ON | Yes |
|---|---|---|---|---|
| 15 | /kɒkɒn/ | No | OU | No |
| 10 | /kɒkɒn/ | No | -- | -- |
| 38 | /koʃɔ̃/ | Yes | OO | No |
| 33 | /kuʃan/ | No | UO | No |
| 36 | /tʃɒtʃɒn/ | No | ON | Yes |
| 6 | /kɒntʃɒn/ | No | UA | No |
| 43 | /katʃɒn/ | No | ON | Yes |
| 37 | /kokjun/ | No | UN | No |
| 17 | /koʃɒn/ | No | OU | No |
| **Total target-like (n=23)** | | 8 | **Total (n=23)** | 10 |

**Table 7.36: GPC and PGC recoding at mid-intervention for ON = /ɔ̃/**

Eight participants recoded ON as /ɔ̃/ at this time whilst ten recoded /ɔ̃/ as the grapheme ON.  As previously mentioned, target-like recoding involved reproduction of ON /ɔ̃/ rather than the other graphemes in each word.  The majority of successful participants were able to recode from grapheme to phoneme and vice versa. Successful recoders (n=6) could recode from GPC and PGC successfully; only two participants (7 and 39) successfully recoded from GPC without being able to recode from phoneme to grapheme (at this same test time).   In addition, two participants (1, 36) successfully recoded the PGC (i.e. /ɔ̃/ to ON) without recoding the L2 GPC  (i.e. cochon /koʃɔ̃/).  When recoding from the written word, as might be expected, most non target-like representations respected L1 sound/spelling links (i.e. /ɒn/ for "ON"). As illustrated, in most of the unsuccessful recodings, the grapheme to phoneme and phoneme to grapheme representations were non-systematic .   For example, participant 44 recoded the written word "cochon" as /kɔhon/ but identified /ɔ̃/ as the

grapheme "OW".  To summarise, whilst this mid-intervention, sub-sample data showed that GPC and PGC knowledge generally tended to co-occur within participants, on occasion it was possible that one was elicited without the other.

Again, as might be expected, reading age influenced performance on both tasks. The participants who managed both GPC and PGC recoding successfully, participants 2, 30, 9, 28, 21 & 42, had relatively high L1 reading ages (15.00, 13.11, 12.03, 13.02, 15.00, 13.02 respectively).  The least successful recoders generally had L1 reading ages at or below their ages (participant 37 = 11.00, participant 17 = 9.08, participant 6 =11.00), participant 33, however, had a reading age of 13.02.

Of course, these data represent only half the sample and how their developing sound/spelling knowledge is applied in test situations.  Next, we explore how the whole sample develops written representations of the ON /ɔ̃/ GPC in their weekly work. Table 7.37 tracks how children recode the sound /ɔ̃/ when it appears in a word which forms part of the teaching intervention's core vocabulary.  In this case the verb "ondule" (slither) was taught to exemplify snake "behaviour".  It is, however, important to re-iterate several observations before analysing this data.  Firstly, the instructional technique (4 stage questioning) had shown the written form several times alongside the spoken form.  The spoken form was practised orally and the written was seen three times.  It is possible, therefore, that the children had memorized to some extent the written representations for all the core vocabulary.  It was, however, expected that when the children could not recall the whole word form; they would resort to sound/spelling links to try to recreate the written representation.  Furthermore, it was anticipated that even memorisation of whole word forms might help in the learning of sound/spelling links either by forming exemplars or by the potential for their use as analogies when encountering the same letters in new words.

Most representations of ondule were target-like across all 45 participants each week, with the exception of the participants listed in Table 7.37:

| Participant No: | Written Representation: | Activity: | Date: |
|---|---|---|---|
| 6 | Endule | "Corrigez" | 18.1.12 |
| 18 | Aund | "Écrivez" | 11.1.12 |
| 17 | Endule | "Corrigez" | 18.1.12 |
| 11 | Odule | "Écrivez" | 12.1.12 |
| 28 | Endule | "Corrigez" | 19.1.12 |
| 32 | Endule | "Corrigez" | 19.1.12 |
| 14 | Odulle | "Écrivez" | 12.1.12 |

Table 7.37:  Non target-like representations of ON /ɔ̃/ – "écrivez" & "corrigez" task – 11.1.12, 12.1.12, 18.1.12 & 19.1.12

When the children referred to their developing sound/spelling links (or had just memorised whole words incorrectly), in the "écrivez" activity, the chosen forms were "aund", "odule" and "odulle".  The first "aund" appears to apply a wild type PGCs to accommodate the novel, nasal /ɔ̃/.  Interestingly though, the change in the teaching to corrigez (where the forms endule/ondule were presented and the children had to choose the correct one) shows that four children who succeeded at "écrivez" (generating the written form from memory), chose the incorrect form of "endule" at a later date.  Perhaps this data shows evidence of emerging L2 GPC awareness and problems distinguishing between nasal vowels /ɑ̃/ and /ɔ̃/.   Furthermore, whilst reproduction of the PGC ON for /ɔ̃/ in the mid-intervention test (in mid-December) was variable, the weekly written data (just over one month later) above appeared to be remarkably target-like.  This could support the idea that, at this stage in the learning, the written work principally invokes whole word memorisation strategies rather than application of sub-lexical L2 sound/spelling links.

The spelling of some of the intervention's core vocabulary (and therefore some of the taught GPCs) was also tested at the end of the teaching intervention.  It was envisaged this would offer an opportunity to evaluate the teaching rather than forming part of the study's test battery.  Written recoding of "ondule" from the spoken word was attempted across the sample at post-test and delayed post-test.  All attempts at writing "ondule" from the spoken word /ɔ̃dyl/ are listed in Table 7.38.

| Participant No | Post-Test | Delayed Post-Test |
|---|---|---|
| 1 | Onduel | Undule |
| 2 | Ondule | Ondule |
| 3 | Ondule | Ondule |
| 4 | Ondule | Ondule |
| 5 | Ondule | Ondule |
| 6 | Ondule | Ondule |
| 7 | Ondule | – |
| 8 | – | Ondole |
| 9 | – | Ondule |
| 10 | Ondule | Ondule |
| 11 | Ondule | Ondule |
| 12 | Ondule | – |
| 13 | Ondule | Ondule |
| 14 | Ondule | Ondule |
| 15 | Ondule | Ondul |
| 16 | Ondule | Ondule |

| 17 | Ondule | Ondle |
| 18 | – | – |
| 19 | Ondull | Ondol |
| 20 | – | – |
| 21 | Ondule | Ondule |
| 22 | On doul | On doul |
| 23 | – | – |
| 24 | Ondule | Ondule |
| 25 | Ondule | Ondule |
| 26 | Ondlul | Ondullie |
| 27 | Ondule | – |
| 28 | Ondule | Ondule |
| 29 | Ondul | Ondul |
| 30 | Ondule | Ondule |
| 31 | Ondule | Ondule |
| 32 | Le ondyl | Ondule |
| 33 | Ondule | Ondule |
| 34 | Ondule | Ondule |
| 35 | Ondule | Ondule |
| 36 | Ondule | Ondule |
| 37 | Oudou | En doune |
| 38 | Order | Ondule |

| 39 | Onde | On do |
|----|------|-------|
| 40 | Ondule | Ondule |
| 41 | Ondule | Ondule |
| 42 | Ondule | Ondule |
| 43 | Ondule | Ondul |
| 44 | – | Ondule |
| 45 | Ondule | Ondule |
| TOTAL | 30 | 28 |

**Table 7.38: Spelling ondule at post-test and delayed post-test**

Table 7.38 shows that performance across the sample is high 30/45 participants successfully recoded (or memorised) the word at post-test, and that the learning is potentially stable with 28/45 still successfully reproducing /ɔdyl/ at delayed post-test. Interestingly, four participants (participant 9, 32, 38, 44) performed better at delayed post-test than post-test. The remaining 11 participants who did not recode successfully at post-test were still unsuccessful at delayed post-test. Four recodings (at either post-test or delayed post-test) show "ondule" segemented into two; it is suggested that these children may have noticed the determiner/noun presentation of earlier vocabulary and have attempted to apply this to other words (e.g. verbs) or, more likely, that through developed L1 phonological awareness, they have discerned the bisyllabic nature of this lexical item, perhaps making links with the graphemically identical L1 preposition "on".

Table 7.39 shows the performance for ON /ɔ/ for sub-groups of higher and lower achievers (at recoding). A profiling key is included below which shows how this information was collected.

Recoding:                    Familiar and unfamiliar words at mid-intervention

T/L:                         Target-like

Recoding PGC:                PGC declarative knowledge at mid-intervention

L2 phonology:                Post-test elicited imitation data

Written work:                Weekly written data (écrivez)

Written PT and DPT:          Post-test and delayed post-test spelling (memory)

L1RAge:                      L1 reading age

L1SAge:                      L1 spelling age

NCR/W:                       National curriculum reading and writing levels

NWR:                         Verbal working memory scores

| Mid-Intervention:  Successful learners of ON=/ɔ̃/ | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No | Familiar Recoding | T/L | Unfamiliar Recoding | T/L | Recoding PGC | T/L | L2 phonology in speech? | T/L | /õ/ in written Work | Ondule (PT & DPT) | L1RAge | L1SAge | NCR/W | NWR |
| 2 | /koʃɔ̃/ | Y | /ɒnglɪː/ | N | On | Y | /mɔ̃/x2 | Y | Ondule | Ondule x2 | 15 | 17.04 | 13/12 | 28 |
| 28 | /koʃɔ̃/ | Y | /ɔ̃gal/ | Y | On | Y | /mɔ̃/x1 | Y | Endule x 1 | Ondule x2 | 13.02 | 12.00 | 14/13 | 28 |
| 21 | /koʃɔ̃/ | Y | /ɔ̃glə/ | Y | On | Y | /mɔ̃/x1 | Y | Ondule | Ondule x2 | 15 | 16.07 | 13/12 | 28 |
| Mid-Intervention:  Less successful learners on ON=/õ/ | | | | | | | | | | | | | | |
| 3 | /tʃɒtʃɒn/ | N | /ɒnglɪː/ | N | llˆ | N | /mon/x2 | N | Ondule | Ondule x2 | 12.08 | 11.02 | 10/10 | 27 |
| 36 | /tʃɒtʃɒn/ | N | /ɒndʒʌl/ | N | Un | N | -- | N | Ondule | Ondule x2 | 11.06 | 8.01 | 10/10 | 27 |
| 17 | /koʃɒn/ | N | /ɔːrgʌl/ | N | Ou | N | /mɔ̃/x1 | Y | Endule x 1 | Ondule/Ondle | 9.08 | 7.08 | 6/5 | 22 |

| Post-Test Text | | | Delayed Post Test Text | |
|---|---|---|---|---|
| No: | Recoding ON | T/Like | Recoding ON | T/Like |
| 2 | /ɔ̃/ | Y | /ɒn/ | N |
| 28 | /ɒn/ | N | /ɒn/ | N |

| 21 | /ɒn/ | N | /ɒn/ | N |
|----|------|---|------|---|
| 3  | /ɒn/ | N | /ɔ/  | Y |
| 37 | /ɒn/ | N | /ɒn/ | N |
| 17 | /ɔ/  | Y | /ɒn/ | N |

Table 7.40: Exploring difference – profiling successful and less successful learners acquiring ON = /ɔ/

Perhaps one of the most striking findings is that all the successful ON = /ɔ̃/ recoders, also demonstrated some evidence of the phoneme /ɔ̃/ in their spoken data (elicited imitation performance).

In addition, successful recoders seemed far more likely to be able to generate the target-like grapheme from a sound (e.g. ON from /ɔ̃/) whereas the less successful GPC recoders exhibited difficulties also recoding from phoneme to grapheme. Furthermore, two of the three graphemes produced could be deemed "wild" and unrelated to L1 sound/spelling links. As previously shown (Tables 7.34, 7.36, 7.37 & 7.38), these wild PGCs and L1 related GPC conversion did not, in these instances, appear in the whole word spellings from the spoken word cue (either in test situations or weekly lessons). Performance across both extremes of the decoding range was identical. This could lend weight to the idea, already expressed, that the spelling of vocabulary relates more to the memorisation of whole word forms rather than the direct application of sound/spelling links and might possibly be derived from current practice for teaching L1 spellings: look, cover, write and check. The higher spelling age participants tended to reproduce "ondule" correctly from memory whilst the participant with the most non target-like spellings had the lowest L1 spelling age. Nevertheless, this was not a universal picture - another participant spelled reliably yet had a relatively low L1 spelling age (participant 36, spelling age 8.01).

Finally, the recoding of ON = /ɔ̃/ in text (i.e. situtated in a sentence where the focus was intended to be meaning-making) showed a more complex set of results. At post-test only two participants successfully recoded one from each end of the performance spectrum. At delayed post-test, only one of the lower performing participants successfully recoded "on" (participant 3). Nevertheless this was a participant with a higher reading age than chronological age and could, therefore, be considered a successful L1 reader. Performance on this task almost matches performance on unfamiliar words cards where two (rather than one) higher achieving participants successfully recoded "ongle" (participants 28 and 21).

To summarise: successful recoding of ON = /ɔ̃/ was mostly related to L1 reading age (and indeed, national curriculum reading and writing levels). Able

recoders from grapheme to phoneme tended to generate the L2 phonological representation in repetition of spoken sentences and were also more likely to generate the exact graphemic representation (from a given, isolated L2 phoneme at mid-intervention).  However, successful reproduction of the desired PGC in a written word did not seem to directly reflect decoding ability and therefore could exemplify whole word memorisation rather than the application of sound/spelling links.  It is evident that, unsurprisingly, successful recoders of familiar words were more likely to recode unfamiliar words.  Finally, reading aloud (text) recoding was less able to differentiate those learners who could recode successfully.  This could be indicative of test design issues (to be explored in Chapter 8) and/or task demands already explored.

### 7.4.7 The L2 Sound/Spelling Acquisition Process LL = /j/

The acquisition of the GPC LL = /j/ (requiring adaptation) is explored below through similar data presented.   The GPC/PGC recoding performance of half the sample at mid-intervention is presented in Table 7.40.

| Participant No: | GPC recoding: | Target-like? | PGC recoding | Target-like? |
|---|---|---|---|---|
| 2 | /bijø/ | Yes | LL | Yes |
| 30 | /bilet/ | No | LL | Yes |
| 9 | /baliː/ | No | LL | Yes |
| 3 | /bilit/ | No | LL | Yes |
| 1 | /belit/ | No | LL | Yes |
| 28 | /bilet/ | No | -- | No |
| 39 | /biliː/ | No | LL | Yes |
| 45 | /betʊl/ | No | LL | Yes |
| 7 | /bilet/ | No | LL | Yes |

| 11 | /bilet/ | No | GU | No |
|---|---|---|---|---|
| 14 | /bilet/ | No | LL | Yes |
| 44 | /bilit/ | No | LL | Yes |
| 21 | /bije/ | Yes | LL | Yes |
| 42 | /bilət/ | No | LL | Yes |
| 15 | -- | -- | LL | Yes |
| 10 | /bilet/ | No | -- | No |
| 38 | /bilet/ | No | LL | Yes |
| 33 | /bilet/ | No | LL | Yes |
| 36 | /bilət/ | No | UY | No |
| 6 | /biljet/ | No | U, Û | No |
| 43 | /bilet/ | No | Y | No |
| 37 | /bilet/ | No | YU | No |
| 17 | /bilet/ | No | LL | Yes |
| **Total target-like (n=23)** | | 2 | **Total t-like (n=23)** | 16 |

**Table 7.40: GPC and PGC recoding at mid-intervention for LL = /j/**

This L2 GPC shows weaker overall performance at mid-intervention tests (and indeed at post-test) that the previous instructed sound/spelling link ON = /ɔ̃/. Only 2 out of 23 participants recoded the exemplar "billet" /bije/ in a target-like manner and these two participants were generally high scoring recoders. Nevertheless a high proportion of participants including most of the previously high scoring participants (except participant 28 who did not answer the PGC question) identified the target-like L2 grapheme from the corresponding phonemic cue /j/ = LL. Indeed, PGC recoding

was particularly successful for this PGC –16 out of 23 learners produced the correct L2 grapheme from the given sound /j/. It is important to note, of course, that LL = /j/ is (like ON = /ɔ̃/) a consistent, one-to-one GPC/PGC mapping and this may have helped recall. The marked discrepancy between GPC and PGC recoding may, to some extent, be reflected in the phonics exemplar word "billet" which is also an L1 lexical item. Its apparent respect for L1 written conventions may have made it harder for the learners to suppress the application of existing L1 mappings. This could be another consideration for devising phonics instruction. Problems have already been noted for cognates and it is suggested that exemplar words, wherever possible, could reflect more distinctive spelling patterns (e.g. ondule) which could be less likely to trigger L1 mappings.

Table 7.41 is generated from the "écrivez" activity with core vocabulary, in which children attempted to represent whole words from memory and, to some extent, by applying L2 sound/spelling links.

| No. | /j/ = LL | | |
|-----|-----------|----------------|-----------|
|     | L'oreille | Les écailles   | Travaille |
| 1   | Le ray    | Les ecicy      | Travle    |
| 2   | Lorrille  | Les acscas     | Travaille |
| 3   | Lor ray   | Les aci        | Traville  |
| 4   | Le rossell| Les écailles   | Travaille |
| 5   | Loray     | Leyesikiy      | Travi     |
| 6   | La lorillie | Las akie     | Trabbive  |
| 7   | La hray   | Les akie       | Traville  |
| 8   | Loth hey  | Les acuys      | Travaille |
| 9   | L'oreille | Les escailles  | Travielle |

| 10 | -- | Les écailles | Tavi |
| 11 | Le ghour | Les ecair | Traviegh |
| 12 | L'eorie | Les excalle | Trieville |
| 13 | La harhe | Les akye | Travaile |
| 14 | Le regin | Les egayies | Traivie |
| 15 | La ray | Les aky | Travi |
| 16 | L norreile | Les aci | Traville |
| 17 | La gray | Les acy | Travaille |
| 18 | -- | Les ecailles | Travaille |
| 19 | L'orea | Les aciy | Travaille |
| 20 | Scribe | Scribe | Scribe |
| 21 | Le orreillie | Les eki | Travaillion |
| 22 | La earge | Les akare | Traville |
| 23 | Lorellle | Écailles | Travaille |
| 24 | La raye | Les akieyesant | Traville |
| 25 | Le rough | -- | Travaille |
| 26 | -- | Les ecailles | Travaille |
| 27 | Loroy | Les ecailles | Traville |
| 28 | Lorey | Lese caiciii | Travaille |
| 29 | Leraye | -- | Travi:ll |
| 30 | Le rail | Les aki | Travaille |
| 31 | L'orelle | Les écilles | Travaille |

| 32 | Les rary | Les acaies | Travaille |
| 33 | La lorre | -- | Travaiville |
| 34 | -- | -- | |
| 35 | La ghray | La croshae | Trvelle |
| 36 | Le regni | Les acies | Travi |
| 37 | Le hreigh | Les acare | Travaill |
| 38 | La roughie | Les eleaires | Traville |
| 39 | La nae | Les si | -- |
| 40 | -- | Les aciles | Travil |
| 41 | La reir | Les ecillire | Traville |
| 42 | Le oriale | Le siciy | Travaille |
| 43 | La reread | -- | Travaill |
| 44 | Lo'rielle | Les akaies | Travaille |
| 45 | L'oreille | Les acsi | Tavi |
| TOTAL | 2 | 5 | 15 |

**Table 7.41: Written representations of LL = /j/ – "écrivez" task – 5.10.11, 6.10.11, 2.11.11, 3.11.11, 11.1.12 and 12.1.12**

Performance on "l'oreille" was particularly weak with only 2 target-like representations across the sample.  The evidence relating to "l'oreille" shows that the children appear sensitive to the DET + NOUN structure presented in most other nouns and choose to produce a determiner "le" or "la" rather than the elided l' supplied for vowel initial nouns.  Possibly this was not helped by the colour coding of nouns as a reminder of noun gender.  Nevertheless 10 of the representations respected the

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representation of "l'oreille" as one word (visually).  Despite the phonics instruction, learners appeared often to select "ey" or "ay" to represent the /j/ sound and were therefore resorting to L1-related sound/spelling links.  On the other hand the /j/ in "écailles" was less systematic with learners choosing "ies", "i", "iy" or "y".  Only 4 participants used an "é" for /e/ with many either choosing "e" or a more L1 derived "a".  Écailles was reproduced more successfully (n=5) than l'oreille.  Travaille (at 15 out of 45 representations) is much more successful.  It is suggested that this might be due to the fact that there is only one word to process rather than a DET + NOUN construction.  It is, however, just as likely that reproduction/recoding of "travaille" is aided by the fact that the first four letters respect L1 sound/spelling links and therefore that the learner can free up resources to focus on the word final syllable which is highly unusual in L1 terms and therefore, possibly more salient.  Of course, it is also important to note that, by the time the children were attempting to write "travaille" from memory (at the beginning of January 2012), they had received more phonics instruction than the previous attempts which were made in October and November of the preceding year.  Improvements, therefore, might reflect the increased input in terms of systematic and explicit phonics instruction.  Finally, it should be noted that this written work shows additional examples of representations which are close to target-like (e.g. representations containing LL):  "l'oreille" (+6), "les écailles" (+5) and "travaille" (+16).  Consideration of these would have increased overall scores markedly.

No data was collected at post or delayed post-test for the spelling of words including /j/=LL so Table 7.42 will explore the acquisition data from the most and least successful learners at mid-intervention.

| No | Familiar Recoding | T/L | Unfamiliar Recoding | T/L | Recoding PGC | T/L | L2 phonology in speech? | T/L | /j/ in written Work | L1RA | L1SA | NCR/W | NWR |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| **Mid-Intervention: Successful learners of LL=/j/** | | | | | | | | | | | | | |
| 2 | /bijø/ | Y | /peɪjl/ | Y | LL | Y | /travaij/ | Y | Lorrille Les acscas Travaille | 15 | 17.04 | 13/12 | 28 |
| 28 | /bilet/ | Y | /pɑːl/ | N | -- | N | /--/ | N | Lorey Lese caiciii Travaille | 13.02 | 12.00 | 14/13 | 28 |
| 21 | /bije/ | Y | /peiji:/ | Y | LL | Y | /travaij/ | Y | Le orreillie Les eki Travaillion | 15 | 16.07 | 13/12 | 28 |
| **Mid-Intervention: Less successful learners of LL=/j/** | | | | | | | | | | | | | |
| 3 | /bilit/ | N | /palei/ | N | LL | Y | /--/ | N | Lor ray Les aci Traville | 12.08 | 11.02 | 10/10 | 27 |
| 36 | /bilət/ | N | /peil/ | N | Uy | N | /--/ | N | Le regni | 11.06 | 8.01 | 10/10 | 27 |

| | | | | | | | | | Les acies Travi | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | /bilet/ | N | /--/ | N | LL | Y | /--/ | N | La gray Les acy Travaille | 9.08 | 7.08 | 6/5 | 22 |

| Post-Test Text | | | Delayed Post Test Text | |
|---|---|---|---|---|
| 2 | /travaij/ | Y | /travaij/ | Y |
| 28 | /travaij/ | Y | /travaij/ | Y |
| 21 | /travaij/ | Y | /travaij/ | Y |
| 3 | /--/ | N | /travaij/ | Y |
| 37 | /--/ | N | /--/ | N |
| 17 | /--/ | N | /--/ | N |

**Table 7.42:  Exploring difference – profiling successful and less successful learners LL = /j/**

Like ON /ɔ̃/, L2 phonology appeared important for the GPC recoding of LL /j/.  The data presented show that the two participants who successfully recoded the /j/ in /bije/ also showed evidence of this L2 phoneme in the elicited imitation data, in the utterance "elle ne travaille pas à l'école".  None of the less successful GPC recoders produced this L2 phoneme in their spoken data, despite "travaille" being part of the intervention's core vocabulary.

The PGC recoding data differentiated less between successful participants than ON = /ɔ̃/:  unsuccessful learners were just as likely (n=2) to recode the grapheme from a given phoneme as successful learners (n=2).  There was also conflicting data relating to the declarative knowledge of LL = /j/ and the spelling of whole words with LL /j/.  Of the 3 most successful participants, one did not suggest a grapheme for the produced phoneme and yet wrote "travaille" successfully from memory at the end of the intervention,  whilst another participant successfully recoded from PGC yet did not produce a target-like representation of "travaille".  On the other hand, from the less successful recoders, one who produced an unsystematic PGC "Uy" produced the whole word "travi" whilst the remaining poor GPC recoders (who had already identified the PGC LL = /j/) wrote the whole word with the target-like grapheme even if the entire written representation was not completely accurate.  Overall, whilst not all the participants successfully reproduced the whole written word "travaille", most (5 out of 6) successfully recoded /j/ as LL within the word (including the more successful recoder who had not previously identified the declarative PGC knowledge).  Again, such conflicting evidence could support the idea that these "spellings" are memorised as whole words and not analysed for sound/spelling links at this stage but also more importantly that the declarative PGC (sound to spelling) knowledge does not necessarily guarantee successful recoding of the GPC (spelling to sound) link.  Furthermore, both working memory and L1 reading age again appeared to have a role in the learning.  Only the two participants with the highest L1 reading ages (15.00 years) and working memory scores (28) successfully recoded at PGC and GPC level.

Finally, the recoding of LL /j/ in text differed noticeably from the previous L2 GPC.  All three successful participants recoded in a target-like manner at both post-

and delayed post-test. Of the three less successful recoders, only one (participant 3) successfully recoded GPC at delayed post-test. These data appear to contradict the previous suggestion that text-based recoding involves particularly challenging cognitive loading and therefore might impair performance. However, it should be noted that, unintentionally, the LL word in the sentence recoding was "travaille" and this had formed part of the study's core vocabulary. It had, therefore, been practised in spoken and written form many times. Naturally, this will have improved performance on this task, for this word which, in this instance, should be treated as a familiar, learned word but it could also signal limitations for explicit, systematic phonics instruction, as these learners may have a tendency to access L2 words as whole, written forms (i.e. direct access) rather than sub-lexical decoding.

In summary, successful recoding on LL = /j/ could be linked to L1 reading age, National Curriculum reading/writing levels and verbal working memory. Able recoders were again more likely to generate/repeat the L2 phonology in spoken utterances but, unlike the previous GPC, a link between GPC recoding and production of PGCs was less obvious. When attempting to write whole words using LL /j/, the data was more conflicting and a link between whole written word production and recoding ability (GPC) was less evident. This possibly reflects a shift in the teaching (already explored in the previous sections) where "travaille" had been practised in writing using presentation and recognition based techniques. Despite the success of recoding LL in text form, it is important to remember that, overall, at mid-intervention performance at recoding "billet" was less successful than the other L2 GPCs examined so far. Alongside typology related concerns already noted, it is suggested that it might be more problematic to adapt an existing mapping (where both sound and print already exist in the learner's repertoire). This could be due to the particularly change-resistant nature of already automatised knowledge and its inaccessibility to the learner for adaptation and examination (Mitchell, Myles & Marsden, 2013: 140).

### 7.4.8 The L2 Sound/Spelling Acquisition Process IN/AIN/IEN/EIN = /ɛ̃/

The final GPC to be explored is the highly inconsistent mapping, IN/AIN/IEN/EIN = /ɛ̃/. Data relating to its acquisition is presented in Table 7.43.

| Participant No: | GPC Recoding: | Target–like? | PGC Recoding: | | | Target–like? |
|---|---|---|---|---|---|---|
| 2 | /sinʤ/ | No | Ain | In | Ein | Yes |
| 30 | /sōʤ/ | No | Ain | –– | –– | Yes |
| 9 | /sɛ̃ʤ/ | Yes | An | En | –– | No |
| 3 | /sinʤ/ | No | A | Air | Or | No |
| 1 | /sɛ̃ʤ/ | Yes | Au | Û | U | No |
| 28 | /sɛ̃ʒ/ | Yes | –– | –– | –– | –– |
| 39 | /sɒng/ | No | Ain | Ein | In | Yes |
| 45 | /sinʤi:/ | No | An | En | –– | No |
| 7 | /sɛ̃ʤ/ | Yes | Au | Ea | –– | No |
| 11 | /sinʤ/ | No | Ein | Ein | Ein | Yes |
| 14 | /sɛ̃ʒ/ | Yes | Ua | An | Au | No |
| 44 | /sɛ̃ʒ/ | Yes | Ein | Ain | In | Yes |
| 21 | /sɛ̃ʒ/ | Yes | Ein | Ain | In | Yes |
| 42 | /sɛ̃ʒ/ | Yes | In | Ine | Ina | No |
| 15 | /sɛ̃ʤ/ | Yes | Aw | Au | Ar | No |
| 10 | /sīnʤ/ | No | –– | –– | –– | –– |
| 38 | /sɛ̃ʒ/ | Yes | Ain | Ein | In | Yes |
| 33 | /sɛ̃ʤ/ | Yes | Ain | Ein | In | Yes |

| 36 | /singə/ | No | An | On | Un | No |
|---|---|---|---|---|---|---|
| 6 | /sɛ̃ʒ/ | Yes | La | Ui | Eia | No |
| 43 | /sindʒ/ | No | Or | Ou | Oun | No |
| 37 | /sing/ | No | Ab | Aun | Oun | No |
| 17 | /sɛ̃dʒ/ | Yes | An | Un | -- | No |
| Total target-like (n=23) | | 13 | Total target-like | | 8 | |

**Table 7.43: GPC and PGC recoding at mid-intervention for IN/AIN/IEN/EIN = /ɛ̃/**

Bearing in mind previous arguments concerning consistency (Section 2.5), it could be expected that this particular grapheme would be particularly poorly learned. In other words, that the multiple possible L2 graphemic representations of the phoneme /ɛ̃/ would, in counteract/counterbalance each other and, as a result, take longer to learn.  However, mid-intervention examples of GPC recoding appeared relatively successful with 13/23 (56.5%) target-like recodings of "singe".  To clarify this did not necessarily mean that singe /sɛ̃ʒ/ had been decoded as such but rather that the grapheme IN had been recoded into /ɛ̃/.

On the other hand, unlike ON = /ɔ̃/ and LL = /j/, PGC recoding was less successful with only 8 participants scoring at least one target-like grapheme for the phoneme produced.  Interestingly, though, six out of those eight participants identified all three L2 graphemes.  This, it is suggested, could be due to one grapheme acting as a retrieval cue for the other two.  Four participants recoded the GPCs successfully (17, 6, 15 and 42) without target-like PGC production.  Only two participants (21 and 44) recoded GPC and PGC in a target-like manner and two participants (2 and 30) recoded the PGC without successfully realising GPCs.  The four participants who recoded the GPC in a target-like manner (17, 6, 15 & 42) all produced highly irregular and unsystematic PGC correspondences which perhaps again indicates that some children were using direct lexical access to reach pronunciation rather than

sub-lexical sounding out routes.  It is important to note here that data from the "corrigez" activity seemed to show that the children did actually notice sub-lexically the print presented to them.  In other words, they could often distinguish slight differences in print (e.g. "siffle" or "siffl"?  "ondoule" or "ondule"?).  However, whilst processing might, to some extent, have taken place sub-lexically, the data above appear to suggest that, when reading aloud, words are often accessed via a direct route.  This could be supported by the idea that declarative knowledge of PGC correspondences often does not match GPC recoding performance and the finding that GPC knowledge can be context-specific and not applied to unfamiliar words.  L1 reading age, National Curriculum reading/writing and verbal working memory scores were again to some extent influential.

The data below (Table 7.44) show how children attempted to apply L2 sound/spelling links to work in their weekly classes.  Again, the words shown were all elicited from the écrivez activity.  Interestingly, singe was taught initially, but did not form part of the study's core vocabulary yet was reasonably accurately recoded in the following data.

| No. | /ɛ̃/ = IN, AIN, IEN, EIN | | |
|---|---|---|---|
| | Un singe | Un dauphin | Intelligent |
| 1 | Un sange | Un dolphin | Intelligent |
| 2 | Un seinge | Un dauphin | Intelligent |
| 3 | -- | -- | Untellition |
| 4 | Un sarge | Un dauphin | Untelijen |
| 5 | Un sage | Un dolfan | Intelgante |
| 6 | Un saise | Un dolphin | Antellicho |
| 7 | Un sarge | Un dolphin | Inngellt |

| 8  | --        | --          | Untellyson  |
|----|-----------|-------------|-------------|
| 9  | Un singe  | Un dauphin  | Intelligent |
| 10 | Un sange  | Un dauphin  | --          |
| 11 | Un seign  | Un duphoir  | Intellegent |
| 12 | Un sange  | Un dophin   | Oinellesion |
| 13 | Un saige  | Un doulphan | Inntelliso  |
| 14 | Un sange  | Une dolfain | Intelggen   |
| 15 | Un sang   | Un douphin  | --          |
| 16 | Un singe  | Un dauphin  | Intellegint |
| 17 | Un saing  | Un dofan    | Atellochon  |
| 18 | Un singe  | Uo dolphin  | Intelshon   |
| 19 | Un sarge  | Un dofan    | --          |
| 20 | Un singe  | --          | Antelishon  |
| 21 | Un songe  | Un dalphin  | Intelligent |
| 22 | Une soind | Un duinhal  | Une talshon |
| 23 | Un sish   | Un dofin    | Intellignte |
| 24 | Un sanes  | Un dolphin  | Intellione  |
| 25 | Une sage  | Un dauphin  | Intelegent  |
| 26 | Un sage   | Un doifa    | Intellish   |
| 27 | Un singe  | Un dolphin  | Ittilegiont |
| 28 | Un singe  | Un dauphin  | Autelligan  |
| 29 | Un sage   | Un dovone   | Itelligat   |

| 30 | Un saige | Un dauphin | Indelligent |
|----|----------|------------|-------------|
| 31 | Un singe | Un dauphin | Intellignie |
| 32 | On sage | Un donfon | Intelggunt |
| 33 | Un singe | Un dalphin | Intelligent |
| 34 | -- | -- | -- |
| 35 | Un sagng | Un dulphine | Ateleshon |
| 36 | Un sang | Un dufan | Tanlishgatt |
| 37 | Un singe | Un duphan | Intelligent |
| 38 | Un saige | Un dophin | Intellagant |
| 39 | Un sanshe | Un daphin | Illlelitant |
| 40 | Un singe | Un douphan | Intalligore |
| 41 | Un singe | Un duphan | Intelligent |
| 42 | Un singe | Un dolphin | Intelligent |
| 43 | Un saigh | Un dophalian | Illelegion |
| 44 | Une saige | Une douphain | Intelligent |
| 45 | Un sancis | Un dolphin | Unttellgu |
| TOTAL | 12 | 9 | 9 |

Table 7.44: Written representations of IN, AIN, IEN, EIN = /ɛ̃/– "écrivez" task –
28.9.11, 29.9.11, 19.10.11 and 20.10.11


"Singe" is reproduced quite effectively, 12 children out of 45 wrote a target-like form.  Other attempts occasionally use "AI/N or AN to represent the nasal vowel /ɛ̃/.  It is unlikely that these suggestions relate to the phonics instruction as this had not

commenced at the time of writing.  Several forms are wild "sagng", "saigh", "sancis", "sish" and despite frequently viewed written examples, the use of the indefinite determiner (un/une) varies.  The lexical item "un dauphin" is successfully recoded on 9 out of 45 occasions.  Although the GPC "IN" appears in word final position regularly, this is probably due to L1 influence (e.g. dolphin) and transfer of metalinguistic awareness (i.e. cognate awareness) rather than acquisition of IN through phonics instruction, especially as this GPC was introduced slightly later in the teaching programme.  In fact, there is further evidence of application of L1 resources through the use of "dol" in word initial position.  "Intelligent" also provides interesting data.  This word was, again, viewed several times in writing and yet performance is relatively weak (9 out of 45 reproductions).  Bearing in mind that it is a cognate, the children appear not to have notice the similarities, or rather it seems that they noticed the different L2 phonology and attempted to generate their own written representations.  On occasions these attempts following L1 sound/spelling mappings (ateleshon, antelishon) but on others they respected neither L2 nor L1 conventions (Unttellgu, tanlishgatt).  One participant shows the previously identified tendency to separate the phonological form into a determiner/noun construction (Une talshon – participant 22).  This participant had one of the lowest reading ages in the sample (8.80 years).

The spelling of intervention core vocabulary shows the recoding of "le dauphin" from memory at post-test and delayed post-test (Table 7.45).  Interestingly, these data show 16 out of 45 target-like representations at post-test (with an allowance made for an incorrect determiner).  The learning appears reasonably stable (11 out of 45 correct reproductions at delayed post-test) but on two occasions the participants fare better at delayed post-test than post-test.  It is interesting to note the unsystematic development of masculine/feminine determiners, despite the regular, written input.  This could be examined alongside weekly written data to discern whether one type of determiner is decided on early in the learning process (intra-individual) or whether each participant chooses definite/indefinite articles in a randomised manner.

| Participant No | Post-Test | Delayed Post-Test |
| --- | --- | --- |
| 1 | La dauphin | La dauphin |
| 2 | Le dauphin | Le dauphin |
| 3 | La dauphin | Le dauphin |
| 4 | Le dauphin | La dauphin |
| 5 | Le dophan | Le dophan |
| 6 | La daulfan | Lu daulphin |
| 7 | – | – |
| 8 | Lu dulfan | Londalfn |
| 9 | – | La dauphin |
| 10 | La douphan | La dofan |
| 11 | Le douphan | Ll douphan |
| 12 | Le dauphin | Le dolphin |
| 13 | Le dauphin | Le dofan |
| 14 | Le douphan | La douphan |
| 15 | La dolphin | La dolphin |
| 16 | La dauphin | La dauphin |
| 17 | Le dopain | La dapurle |
| 18 | – | – |
| 19 | Le dolfan | Lo dalfin |
| 20 | Lo dofan | – |
| 21 | La dauphin | La daulphan |

| 22 | La dorpin | La dorpin |
| 23 | – | – |
| 24 | Le narshas dosal | Le dolpan |
| 25 | La dauphin | La dauphin |
| 26 | La dolphin | La dofa |
| 27 | La daulphin | – |
| 28 | La dauphin | Le dauphin |
| 29 | Lo dolfon | Le dofan |
| 30 | La dauphin | Le dolphin |
| 31 | La dauphin | La dauphin |
| 32 | La dofan | La dolfian |
| 33 | Le dolphin | Le douphan |
| 34 | Le daufaun | La doufain |
| 35 | La daphan | La dophan |
| 36 | Lu doufan | La dofan |
| 37 | Lu duefawth | La dophan |
| 38 | La dauphin | La doplaphin |
| 39 | Lu daphin | Lu dophin |
| 40 | La dauphin | La dauphin |
| 41 | Lo dauphin | Le douphan |
| 42 | La dauphin | La douphin |
| 43 | Le dolpin | Le daulphin |

| 44 | – | Le dauphin |
| 45 | Le dolphin | Le dolphin |
| **TOTAL (n=45)** | **16** | **11** |

**Table 7.45:  Spelling "le dauphin" at post-test and delayed post-test**


Unfortunately, there was no elicited imitation data for the /ɛ̃/ phoneme so a comparison between successful GPC recoders and the existence of L2 phonology in each participant's spoken data was not possible.  However, like ON /ɔ̃/, successful recoders at GPC were far more likely to generate the target-like PGC than less successful recoders (apart from participant 17 who recoded "singe" in a target-like manner).  As previously mentioned, successful PGC recoding often elicited all three representations leading to the possibility that one PGC acted as a retrieval cue for the others (as they had all been learned at the same time).  The less successful recoders, on the other hand, occasionally opted for "wild" PGCs (AR, AIR, OR) but also for existing L2 PGCs (just wrongly selected) – AN/ON/UN.  It appears that these learners, rather than a simplistic explanation of not having learned the declarative knowledge that relates to sound/spelling links, instead had difficulty distinguishing between L2 nasal vowels (which are all novel to L1 English speakers).  In terms of weekly written word and post-/delayed post-test data, the most successful participant from the sub-sample had the highest reading age but even the more successful GPC recoders still had difficulty representing some words "autelligan" and "une songe".  The less successful recoders clearly found representing the sound/spelling links in writing even more challenging.  Whole words attempted from memory or through using sound/spelling links were either "wild" or appeared to have been mediated through the use of L1 sound/spelling links ("un dofan").  Participant 3 remembered the whole word "dauphin" quite successfully at both post- and delayed post-test but this was not replicated in the weekly written work.

Recoding in text (post- and delayed post-test) data showed a poor outcome (no one successfully recoded GPC at post-test) but this, it is suggested, might be related to the choice of GPC. Whilst word card recoding examined IN = /ɛ̃/, text examined IEN = /ɛ̃/. Whilst all four representations were routinely taught as part of the systematic phonics instruction, the exemplar word for the phoneme /ɛ̃/ was "singe" and the IN grapheme had, therefore, been viewed and practised more frequently than the other representations.  This potentially has bearings on devising systematic and explicit phonics instruction programmes (for MFL) which will be explored in Chapter 8.

To briefly summarise performance for this GPC:  successful GPC recoders were equally successful at recalling the PGC as declarative knowledge, however, sadly there was no information to establish the possibility that the L2 phonology had been created to some extent.  The written data was less coherent.  Generally, better GPC recoders tended to write more accurately but occasionally less able recoders fared well and more able recoders found aspects of writing this GPC particularly difficult.  It is suggested this might be grounded partially in the inconsistency of /ɛ̃/ which has four possible graphemic representations most of which are non-existent in the L1.  Other problematic areas highlighted include the potential for distinguishing between the multiple and novel L2 nasal sounds (especially for lower ability recoders).  Finally, once again, application of GPC knowledge appeared to be task-dependent.  Performance recoding this GPC in text was distinctly lower than in other tasks (although there are reservations which apply to this observation, already noted).

| No | Familiar Recoding | T/L | Unfamiliar Recoding | T/L | Recoding PGC | T/L | L2 phonology in speech? | T/L | /ɛ̃/ in written Work | Le dauphin (PT & DPT) | L1RA | L1SA | NCR/W | NWR |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| **Mid-Intervention: Successful learners of IN/AIN/IEN/EIN = /ɛ̃/** | | | | | | | | | | | | | | |
| 2 | /sinʤ/ | N | /kalin/ | N | AIN/IN/EIN | Y | n/a | – | Un seinge Un dauphin Intelligent | Le dauphin Le dauphin | 15 | 17.04 | 13/12 | 28 |
| 28 | /sɛ̃ʒ/ | Y | /kalin/ | N | –– | N | n/a | – | Un singe Un dauphin Autelligan | La dauphin Le dauphin | 13.02 | 12.00 | 14/13 | 28 |
| 21 | /sɛ̃ʒ/ | Y | /kali:jn/ | N | EIN/AIN/IN | Y | n/a | – | Une songe Un dalphin Intelligent | La dauphin La daulphan | 15 | 16.07 | 13/12 | 28 |
| **Mid-Intervention: Less successful learners of IN/AIN/IEN/EIN = /ɛ̃/** | | | | | | | | | | | | | | |
| 3 | /sinʤ/ | N | /kalin/ | N | A/AIR/OR | N | n/a | – | –– –– Untellition | La dauphin Le dauphan | 12.08 | 11.02 | 10/10 | 27 |
| 36 | /singə/ | N | /kalin/ | N | AN/ON/UN | N | n/a | – | Un sang | Lu doufan | 11.06 | 8.01 | 10/10 | 27 |

| | | | | | | | | | | Un dufan<br><br>Tanlishgatt | La dofan | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | /sɛ̃dʒ/ | Y | /kalin/ | N | AN/UN | N | n/a | | – | Un saing<br><br>Un dofan<br><br>Atellochon | Le dopain<br><br>La dapurle | 9.08 | 7.08 | 6/5 | 22 |

| Post–Test Text | | | Delayed Post Test Text | |
|---|---|---|---|---|
| **No:** | **Recoding /ɛ̃/** | | **Recoding / ɛ̃/** | |
| 2 | /bijen/ | N | /bijen | N |
| 28 | /bijen/ | N | /bjɛ̃/ | Y |
| 21 | /bijen/ | N | /bijen/ | N |
| 3 | /bijen/ | N | /bjɛ̃/ | Y |
| 37 | /bijen/ | N | /bijen/ | N |
| 17 | /bijen/ | N | /bijen/ | N |

**Table 7.45: Exploring difference – profiling successful and less successful learners IN/AIN/IEN/EIN = /ɛ̃/**

These GPC-specific data have examined a small subsection of the sample. However, by comparing familiar word card performance between this small sample and the whole sample at the end of the teaching intervention (post-test and delayed post-test) for rank order (excluding final silent letters) it is possible to show that the success of familiar learned GPCs (word card) at mid-intervention is almost identical to the performance of word-card derived GPC recoding at intervention end (see Table 7.46).

| Target-like GPC recoding (familiar word card) | Rank | | |
| --- | --- | --- | --- |
| | Mid-Intervention | Post-Test | Delayed Post-Test |
| IN/AIN/IEN/EIN = /ɛ̃/ | 13 (56.5%) | Joint 1st | 2nd |
| ON = /ɔ̃/ | 8 (34.8%) | Joint 1st | 1st |
| AN/EN = /ã/ | 5 (21.7%) | 2nd | 3rd |
| U/Û = /y/ | 3 (13.0%) | 4th | 5th |
| LL = /J/ | 2 (8.7%) | 3rd | 4th |

Table 7.46:  Rankings of familiar GPC recoding at mid-intervention, post-test and delayed post-test

At post-test, only /y/ and /j/ differ in their ranked positions from mid intervention. At mid-intervention, /y/ is 3rd and /j/ is 5th (although the difference at this time is 1 mark).  By delayed post-test /ɔ̃/ is favoured slightly more than /ɛ̃/ but again the differences are minimal.  In other words, the nature of learning explored through mid-intervention and intra-intervention data seems to replicate patterns of achievement obtained by the wider sample at post-test and delayed post-test.  In turn, this could imply that the successes and weaknesses examined in this section of the study potentially exemplify learning and teaching issues for other participants within the sample.

## 7.5 Conclusion

Chapter 7 has explored this study's results in relation to the proposed research questions. The data has shown that introducing MFL literacy into a beginner, primary school classroom allows for both oracy and literacy to develop simultaneously. Findings also suggest that learners bring aptitudes or differences to the classroom which have distinct implications for second language learning: both L1 reading age and verbal working memory have been shown to be influential, at all times, for the development of both L2 oracy and L2 literacy. Finally, examination of the development of L2 sound/spelling links through systematic and explicit phonics instruction and meaning-centred activities lends weight to the idea that learning L2 GPCs is both context-specific (i.e. familiar L2 lexical items and L1 word-likeness) as well as possibly task-dependent. Clearly, findings across the three research questions have distinct implications for MFL teaching and learning in primary schools. Chapter 8 will consider how these results might be attributed to the pedagogical principles and practice that this teaching intervention adopted (rather than merely reflecting learner development). It will also present what these findings could mean for the nature of MFL instruction in English primary schools and implications for the future for MFL in mixed-ability classrooms. Finally, the study's limitations will be presented and discussed.

# 8. MFL Oracy and Literacy Simultaneously –

# Discussion

Chapter 8 will evaluate both quantitative and qualitative results in order to consider the implications of this study.  The answers to each research question will be formally re-stated.  Findings and recommendations will be compared with relevant research (already presented in Chapters 1-5) and the contribution of this teaching intervention to advancing knowledge in this field will be explored.  Finally this chapter will present and discuss some of the limitations of the study.

## 8.1 What are the Effects, for Younger Children, of Learning the Spoken and Written Word Simultaneously?

This section will explore the implications of the fundamental research finding that sound and print can be learned simultaneously in younger, beginner learners.  This outcome will then be linked to the recommendation to deliver such an approach in mixed-ability, state school, primary classrooms,  thus informing the debate surrounding the nature of primary school MFL instruction and, more specifically, possibilities for incorporating oracy and literacy activities into a holistic, integrated approach.  Finally, the wider implications of some of this study's findings for the national, policy-related context will be presented.

### 8.1.1 The Effects of the Intervention: An Overview

This thesis argues that it is possible for younger, beginner learners in English primary school settings to learn both the spoken and written MFL simultaneously.  The bar chart (figure 8.1) summarizes the mean scores at all test times across all L2 constructs showing improvements between pre- and post-test which, in turn,  supports the premise that the integration of oracy and literacy did not disrupt L2 learning.  Furthermore, as minimal attrition is evidenced by the small difference between post-

test and delayed post-test mean scores, this adds weight to the finding that the learning appears relatively stable and therefore long-term.

However, before considering any wider implications of this finding, it is important to evaluate its validity and reliability. Futhermore, as this action research study involved no control group, attributing the effects noted to the teaching intervention (rather than merely developmental change, for example) is potentially challenging.

The Methodology Section (6.2) has presented evidence concerning validity and reliability relating both to intervention design and data analysis. Validity was addressed by a holistic portrayal of learning supported by multiple source of evidences. The study, which involved prolonged engagement and triangulation of evidence, aimed to be as credible as possible. In terms of analysis, quantitative data either adopted a dichotomous marking scheme or adhered to specific, formal marking criteria (e.g. for L2 read aloud). Key questions were asked of the qualitative data and linked back to existing research and theory, wherever possible, Again, multiple sources of data were combined to add rigour to interpretation and "resonance" remained at the root of the inquiry (Burns, 2013).

It should also be re-stated that this study's design, as action research, did not focus primarily on causality in relation to a particular teaching approach. Rather than identify a discrete set of variables which could then be tested empirically (e.g. Woore, 2011), this research aimed to design a complete instructional programme in order to examine how literacy could be approached with younger, beginner learners. The effects of this would then be monitored both quantitatively and qualitatively in order to evaluate what kind of learning emerged and how the learning process developed. This type of inquiry was deemed both important and useful as so little empirical evidence is available regarding instructional learners in these settings.

The methodological literature concerning qualitative inquiry and causality tends to focus on broader epistemological concerns. For example asserting that causal predictions are impossible in all research methods; instead the best that researchers can hope for is that one event might succeed another "with regularity" (Sanger, 1996:

163) and so researchers are encouraged to "develop scenarios" which present options and "likely consequences" rather than "causal reasoning" (Byrne, Olsen & Duggan, 2009: 9, 10).  "Tentative solutions" may then result in "giving shape and new direction" to educational theory and research (Mertler, 2014: 22, 24).  These  arguments give even greater resonance to Mitchell's concern that action research tends to involve "rediscovery of already established theoretical perspectives" (Mitchell, 2011 695).  It appears that current methodological literature has not yet found a definitive solution to this aspect of qualititative inquiry.

Whilst causality will undoubtedly remain elusive, as this study recommends adopting a simultaneous oracy/literacy approach with younger learners, it is important to demonstrate that the learning portrayed can be related to the pedagogic principles and practice adopted.  Firstly the emergent learning will be interpreted as "likely consequences" of the teaching and learning scenarios depicted rather than direct causality.  This premise has been bolstered in a variety of ways. Firstly, "polyangulation" of data (Mertler, 2014: 24) along with the valid and reliable data analysis techniques ensure that the results presented and their subsequent analysis and interpretation are robust as possible.  Next, wherever possible, these findings have been compared and contrasted with existing (albeit limited) research involving learners of a similar age in comparable settings.  It is also believed that the qualitative data facilitates linking particular learning outcomes with specific classroom activities. Finally, as the entire instructional package is detailed with schemes of work and lesson plans, it is believed that this study can be extended across a larger sample.

Figure 8.1:  Overview performance on all L2 constructs at all test times

Table 8.1 summarizes differences in test scores across all four L2 constructs at pre-and post-test showing that both literacy and oracy constructs show significant gains.

| L2 constructs at pre and post (n=45) | Pre-Test Mean | Post-Test Mean | s.d. | t | sig. (2 tailed) | Df | Eta sq |
|---|---|---|---|---|---|---|---|
| L2 reading aloud (max score 10) | 2.64 | 3.67 | 1.764 | −3.886 | <.0005 | 44 | .25 small |
| L2 reading comprehension (max score 8) | 2.211 | 3.067 | 1.4948 | −3.840 | <.0005 | 44 | .25 small |
| L2 receptive vocabulary (max score 29) | 18.64 | 19.64 | 2.611 | −2.569 | .014 | 44 | .13 small |
| L2 elicited imitation (max score 48) | 21.09 | 25.22 | 5.075 | −5.464 | <.0005 | 44 | .40 mod |

Table 8.1: Summary of paired sample t-test results at pre- and post-test for all L2 constructs

These data appear to support the idea that oracy and literacy can develop simultaneously in beginner learners.  However, it is important to note that despite statistical significance, mean increases for many of the L2 constucts are relatively small, from a low starting point.  Nevertheless, whilst progress is slow and takes time, there is statistically significant evidence of longer-term learning across literacy constructs.  Previous research highlighted limited attainment and progression in MFL literacy particularly (Cable et al., 2010; Erler, 2003; Erler 2004; Macaro & Erler, 2008; Mutton & Bartley, 2006; Woore, 2007; Woore, 2009).  Cable et al., (2010) found little progress across successive years of primary school cohorts, yet the current study's learning emerged over part of an academic year (September-March).  With a similar amount of time it seems likely that the learning portrayed in this study may have increased exponentially.  Whilst Cable et al. (2010) noted that most primary schools favoured an oracy-centred approach, it was also evident that particular schools performed better than others and it may be possible that higher L2 literacy scores occurred in schools which practised a more balanced MFL instructional programme. The findings of Cable et al. (2010) together with those of Woore's study (2007) which tracked year 7 learners for one instructional year and noted no increase in GPC knowledge (without explicit instruction), show that literacy is unlikely to develop successfully without some kind of systematic teaching.

In terms of attempting to develop likely "outcomes to scenarios" (Byrne, Olsen & Duggan, 2009: 9), it is also important to note that both groups of learners in this study, had prior experience of L2 learning and could not be considered ab initio. School 2 had two years of MFL oracy-focused instruction with the teacher/researcher and school 1 had been taught for one year by the teacher/researcher and prior to that, had occasional MFL instruction from a variety of teaching professionals.  Chi-square tests conducted after pre-test showed no significant difference between both school's performance across any L2 measure.  Nevertheless, it is possible that, following the teaching intervention, the increase in the overall amount of hours spent learning French may have been a factor supporting L2 literacy attainment.

### 8.1.2 L2 Reading Aloud:  Comparison with Other Studies

The very weak L2 pre-test reading aloud findings concur with other research in the field which states e.g. that secondary school learners made no progress in learning sound/spelling links after one year of a  conventional, oracy-focused approach to MFL instruction (Woore, 2007), and that primary school MFL learners showed "limited knowledge of sound/spelling links" (Cable et al., 2010: 115). As mentioned previously, in these settings, active L2 decoding is either neglected or ignored (Erler, 2004; Woore, 2009) and a oracy-based approach is privileged (Cable et al., 2010). In addition, the small but statistically significant increase shown by the L2 RA data at post-test (2.64 to 3.67/10) at post-test concurs with an albeit limited range of prior research which indicates sound/spelling link teaching and learning is problematic and slow (Cable et al., 2010: 115-124; Woore, 2011) with French PGCs causing most difficulties (Cable et al., 2010: 117).  Indeed, progression in French sound/spelling links could be even slower than prior research has suggested as the Cable et al. (2010) results for developing GPC knowledge could have been bolstered by ratings examining GPC acquisition in orthographically shallow languages (e.g. Spanish). This is not an unknown effect, and is indeed one of the caveats with the Sparks et al. study (2009) which stated that orthographic considerations had not been factored out and, therefore, the role of L1 reading ability in L2 learning could have been supported by better performance in orthographically regular languages (e.g. Spanish and German). Research has consistently identified that readers of orthographically shallow languages tend to favour sub-lexical word recognition processes (Ellis et al., 2004; Ellis & Hooper, 2001).

### 8.1.3 L2 Reading Comprehension:  Comparison with Other Studies

L2 reading comprehension scores are also weak in this study with a pre-test mean of 2.21 and post-test mean of 3.07 (out of a maximum score of 8).  Whilst this shows statistically significant improvement in reading comprehension, again the learning appeared slow.  This finding differs from previous research which indicated that across two years of cohorts, half or more of the groups tested showed good proficiency in an

L2 reading comprehension test (i.e. rated at level 3 which related to the ability to answer a range of questions on a simple FL text) (Cable et al., 2010; 119-120).  This suggests that, in this instance,  success in L2 reading comprehension was not related closely to L2 decoding ability but instead could have been supported by increasing familiarity with primarily oral target language coupled with utilisation of existing L1 skills (e.g. cognates) for accessing meaning from L2 text.  On the other hand, Macaro & Mutton (2009) noted that explicit and systematic inferencing strategy instruction led to statistically significant gains for inferencing ability and learning function words. So, whilst a teaching approach which explicitly involves L2 literacy could assist reading comprehension performance, it seems possible that an oracy-based approach can deliver good L2 comprehension performance in primary school learners.  It is nevertheless possible to discern underlying patterns.  It seems feasible that, regardless of literacy approach, learners have a tendency to utilise existing L1 skills (inferencing skills, text identification, knowledge of genre and cognates) to access meaning in L2 text and it is, in the early days of language learning, these skills which support them. Of course, this relies on the text in question being familiar (in terms of genre) and containing enough context including cognates and syntax patterns, for example,  to facilitate access through L1 skills.  Finally, there is a critique of this study's reading comprehension test in Section 8.5.1 which addresses problematic design issues which may have adversely affected performance for this test.  The possibility that L2RC performance in this study was affected by test design could be supported by results from a mid-intervention reading comprehension test that involved an alternative design and recently learned vocabulary which showed a sample mean of 20.07 against a maximum score of 38 marks.

### 8.1.4 L2 Receptive Vocabulary:  Comparison with Other Studies

L2 receptive vocabulary showed a small yet statistically significant gain between pre and post-test (means 18.64 to 19.64), where the vocabulary tested consisted principally of lexical items (and occasional formulaic chunks) learned in previous years. Following a teaching intervention which involved almost exclusively novel lexical items,

it was envisaged that this test might be problematic at post-test and therefore the test design was enhanced by 20% and scores scaled accordingly. Surprisingly, the receptive vocabulary measures proved particularly stable. Cable et al.'s study (2010) examined productive rather than receptive vocabulary and showed that most participants in years 5 and 6 controlled a set of TL lexical items (ranging from 20 to 50+ items). This study examined a smaller range of target-language lexical items and formulaic chunks but participants were similarly successful. In addition, it is interesting to note resistance to attrition as many lexical items had not been viewed, heard or practised for almost one year (e.g. food, clothes, hobbies were topic areas).

### 8.1.5 L2 Elicited Imitation: Comparison with Other Studies

Finally, L2 elicited imitation yielded interesting results. The tail evident at pre-test moved upwards slightly by post-test and more learners clustered around the top end of the marking scale; the sample mean showed the greatest increase from pre- to post-test (21.09 to 25.22). Despite reservations concerning whether this test was measuring interlanguage or working memory, these data show, at worst, a marked improvement in the ability to process spoken data. Only one other study has used this test with comparable younger learners (Myles & Mitchell, unpublished) so the validity of this test in these settings was relatively untested. There was a strong, positive relationship between L2 elicited imitation and L2 receptive vocabulary at post-test, suggesting that lexical recognition/comprehension was a facilitating factor for reformulation. On the other hand, performance on the elicited imitation test could be linked to the teaching intervention, which through using the written word alongside the spoken word had enabled the presentation and practice of longer stretches of target language and which had, as its goal, the written and oral production of TL sentences (see scheme of work, Appendix 2). This could reflect research findings that "the range of classroom experiences is likely to influence how the language develops" (Mitchell & Martin, 1997: 23).

**8.1.6 Attrition from Post-Test to Delayed Post-Test**

As seen in Figure 8.1, comparison of post-test and delayed post-test paired samples shows relative stability across all measures (with the exception of L2 read aloud) for at least 7 weeks after French instruction ceased, (see Methodology Section 6.3.2 for a fuller explanation of this interim period). This is deemed to evidence a small rate of attrition and therefore relatively stable and long-term learning (relevant t-test results are shown in Table 8.2).

| L2 constructs at post & dpt (n=45) | Post-Test | DPT | s.d. | t | sig. (2 tailed) | Df | Eta sq |
|---|---|---|---|---|---|---|---|
| | Mean | Mean | | | | | |
| L2 reading aloud (max score 10) | 3.67 | 3.09 | 1.644 | 2.357 | .023 | 44 | .11 |
| L2 reading comprehension (max score 8) | 3.067 | 2.856 | 1.259 | 1.125 | .267 | 44 | n/a |
| L2 receptive vocabulary (max score 29) | 19.64 | 19.87 | 2.334 | -.639 | .526 | 44 | n/a |
| L2 elicited imitation (max score 48) | 25.22 | 26.31 | 4.776 | -1.529 | .133 | 44 | n/a |

**Table 8.2: Summary of paired sample t-tests results at post- and delayed post-test for all L2 constructs**

Interestingly, the receptive vocabulary and elicited imitation scores increased after instruction had ended. Whilst it is possible that a seven week gap between post- and delayed post-test was insufficient, resulting in familiarity with test items, it can also be suggested that test timing was influential. The post-test was conducted just before the Easter holidays and this may have slightly depressed test performance. This is not an optimum test time due to tiredness and loss of concentration noticeable in younger children towards the end of a term. However, the constructs which demonstrate gains could require further investigation in their own right. The idea of longer-term learning is further reflected in comparison of performance at pre- and

delayed post-test; despite attrition, means were generally at a higher level at delayed post-test than they were at pre-test (see Table 8.3).

| L2 constructs at pre and dpt (n=45) | Pre-Test | DPT | s.d. | t | sig. | df | Eta sq |
|---|---|---|---|---|---|---|---|
| | Mean | Mean | | | (2 tailed) | | |
| L2 reading aloud | 2.64 | 3.09 | 1.501 | −1.987 | .053 | 44 | .08 |
| L2 reading comprehension | 2.211 | 2.856 | 1.421 | −3.043 | .004 | 44 | .17 small |
| L2 receptive vocabulary | 18.64 | 19.87 | 2.860 | −2.867 | .006 | 44 | .16 small |
| L2 elicited imitation | 21.09 | 26.31 | 5.720 | −6.124 | <.0005 | 44 | .46 mod |

**Table 8.3: Summary of paired sample t-test results at pre- and delayed post-test for all L2 constructs**

### 8.1.7 Review of Quantitative and Qualitative Findings

Thus far, test results for each of the L2 constructs in the formal battery have been evaluated and compared with research in comparable settings. The analysis will now turn to the qualitative data in order to first examine implications of the study for pedagogic practice and then to link specific L2 instructional practices with detailed outcomes.

Comparison of spoken and written outputs from a range of participants showed that children who were similarly matched at pre-test in terms of L1 reading age and L2 ability responded differently to aspects of the teaching (e.g. participant 34 had particular problems learning L2 GPC mappings yet produced meaningful and target-like spoken utterances as well as target-like (if formulaic) written data: Figure 7.15). Equally pairwork involving particpants at either end of the reading age range (participant 28 and 8 – Figures 7.16, 7.17 and Transcript 2) spectrum led to meaningful outputs for both despite strongly differing post-test scores. Finally, a group of three participants with a range of reading ages (participants 9, 21 and 33)

produced sophisticated spoken data and target-like written work. Interestingly, the participant who showed particularly creative use of the spoken target language (Transcript 3, participant 33), wrote the least adventurous book chapter (Figure 7.18). Overall then, whilst L2 general proficiency measures and L2 literacy measures were statistically related (Section 7.1.3), in the classroom this was not necessarily reflected in an individual child's work. There was, however, additional evidence of the relevance for spoken language proficiency for GPC recoding in the profiles of learners who, by mid-intervention, had made an early start to applying sound/spelling links. In two of the three mappings presented, (ON – /ɔ̃/, LL – /j/ and IN, AIN, IEN, EIN – /ɛ̃/), successful GPC recoders (using word cards at mid-test) were distinguished by their ability to produce target-like phonological representations during post-test elicited imitation. Whilst it is impossible to make substantive conclusions from a relatively small dataset, it seems likely that acquisition of L2 phonological representations plays a role in the development of L2 recoding skills.

Written work and spoken transcripts show that small groups of mixed ability learners can produce texts of varying length and complexity (often depending on L1 reading age). These selected data did suggest that learners are able to produce written language which exceeds their spoken performance in terms of linguistic complexity and utterance length. It seems that the introduction of literacy with these learners has allowed them to extend their language use beyond that in a predominantly oracy-led approach. This could be due, in part, to logistics - in relatively large classrooms, meaningful pairwork involving younger learners when both speakers share an L1 can be problematic and the opportunity for each person to speak independently can be challenging. In addition, longer spoken utterances rely on the ability to store and reproduce lengthy L2 phonological sequences. On the other hand, through literacy, the learner can create personalised, meaningful text and has the physical time and space to do so. In addition, these longer stretches of written language mean that children are producing the kind of language they associate with self-expression and meaningful communication which could exemplify the intrinsic language learning success and reward which Hawkins (1981: 47) notes is essential.

Qualitative, classroom data which detailed the move from "écrivez" to "corrigez" showed that whilst reproduction of whole word forms (from memory) is problematic for most learners (either invoking L1 representations, presumably due to "sounding out", or wild links), learners across the ability range were commonly able to select the target-like whole word form from a range of options. This shows that learners were processing written forms, even though "écrivez" data (with many untarget-like reproductions) might have implied the opposite. Furthermore, learning was often specifically traceable to items presented within the classroom. For example, L2 reading aloud data (text) at post-test showed particular advantage for "travaille", even though examination of GPC/PGC development showed this sound/spelling link to be problematic. However, "travaille", like other phonics exemplar words, was seen and practised regularly.

One of the key aims of this study (Section 1.3) was to challenge, through "in-situ" experimentation, existing teaching advice which often accords a secondary role for L2 print (Jones & Coffey, 2006: 46, 50; Martin, 2008: 51) and ideas concerning delaying the introduction of reading and writing in order to avoid "dire mispronunciations" and spelling errors (Hurrell, 1999: 80, 83). The data appear to contradict claims that introducing written French adversely affects attitudes and achievement and could have a "catastrophic effect" on L2 pronunciation and motivation to participate in L2 activities (Burstall, 1970: 81). Evidence presented throughout the study (Sections 7.1, 7.2 and 7.3) supports the idea that the L1 plays a role throughout the L2 learning process. This study suggests that the L1 has a mixed role in MFL teaching and learning, playing both a supportive and competitive role with a developing L2. For example, it is similarities between the L1 and the L2 (e.g. shared orthographies, cognates, syntactic patterning) that allow teachers in these instructional settings, to afford systematic literacy instruction second place in teaching as shared sound/spelling links will facilitate word access to some extent (e.g. the partial alphabetic phase of word reading – Ehri, 1999: 87). This is self-evident in teaching advice and practice which often focuses on familiar words and use of strategies (including strategy instruction) to overcome L2 obstacles. On the other hand, strategy

instruction has limitations and, at some stage, instructional time might be better spent actively teaching the knowledge that is not transferable from the L1.   Here, the L1 plays a more problematic role (to be explored in Section 8.3).  The influence of the L1 appears indeed "non-volitional" and "non-selective" (Koda, 2007) and, if connectionist learning theory is at the heart of developing L2 specific knowledge, what is needed most is consistent, systematic instruction and time (in the form of extent and frequency of input:  Little, 2013).  Bearing in mind that the L1 is ever-present and that L2 literacy constructs (particularly reading aloud) have been shown by this (and previous) studies to develop slowly, it is suggested that instruction should be commenced immediately because until reliable, competitive mappings have been established, the L1 will dominate.

Further triangulation of a variety of data supports this study's fundamental premise that there should be a role for systematic literacy instruction in primary MFL which allows for independence and exploration (Cable et al., 2010: 88) thereby embodying key aspects of the "autonomous classroom" (Dam, 1995; Little, 2007). Martin (2008: 62) suggests that differentiation can be offered through three mechanisms:  task (different tasks), support (scaffolding) or outcome (expectations). This study proposes that, by developing independent and creative opportunities for language production (both spoken and written), the potential for differentiation is extended to cover tasks, support and outcomes which are identified by the learner rather than purely teacher-led devices.  These suggestions are supported by data which show increased confidence in both spoken and written language use (participant questionnaires) and positive evaluations of literacy-based activities in the classroom (intervention assessment data).

Finally, the strong positive correlation noted between both L2 general proficiency measures and both L2 literacy constructs notes not only that it is possible for all four skills to develop concurrently but also that they may be mutually supportive.  The issue for current pedagogy and practice, then, concerns whether progression in language learning is being stifled by the current, assessment-related model of separating out skills and practising them individually.

# 8.2 Individual Differences and the Development of L2 Literacy:

# MFL Instruction Across the Ability Range

Findings which identify that L2 learning was supported by specific skills and aptitudes that individual learners brought to the classroom will now be explored.  The quantitative results show that L1 reading age and verbal working memory were strongly related to both L2 literacy and oracy constructs at most test times.  Such findings have distinct implications for teaching in mixed ability classrooms and warrant investigation in order to present a balanced argument for this novel teaching approach.

### 8.2.1 Review of Quantitative  Findings relating to Research Question 2

This study's quantitative findings support the view that L1 skills influence L2 development and, in particular, that L1 reading age is related to all the L2 constructs measured at all test times (Section 7.2).  Table 8.4 (previously reported in Section 7.2, Table 7.11) summarizes correlations between L1 reading age and these constructs.

| | L1 Reading Age (L1RAge) | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | Pre–Test | | | Post–Test | | | Delayed Post–Test | | |
| | PC | Sig. | % Var | PC | Sig. | % Var | PC | Sig. | % Var |
| L2RA | .737 | <.0005 | 54.0 | .493 | .001 | 24.3 | .654 | <.0005 | 42.7 |
| L2RC | .398 | .007 | 15.8 | .642 | <.0005 | 41.0 | .426 | <.0005 | 18.2 |
| L2RV | .453 | .002 | 20.5 | .563 | <.0005 | 31.7 | .558 | <.0005 | 31.1 |
| L2EI | .560 | <.0005 | 31.3 | .690 | <.0005 | 47.6 | .617 | <.0005 | 38.1 |

Table 8.4:  Influence of L1 reading age across all L2 constructs at all test times

Interestingly, though all the relationships between reading age and L2 ability were statistically significant, the weakest positive correlations (PC .398; PC .426) related to L2 reading comprehension at pre– and delayed post–test respectively.  It has

already been suggested that this weaker relationship reflects potential issues with the L2 reading comprehension test design.  In Section 8.1.3 it was also argued that L2 reading comprehension (depending on the task design) is more likely to invoke existing L1 reading strategies (e.g. cognates, inferencing skills).  In terms of test design, whilst the reading comprehension activity was designed to be as appealing and engaging as possible, the text was possibly too dense (137 words in total), contained a fairly high percentage of unknown words 8% (n=11) (6 of which were cognates) and was, therefore,  particularly challenging for all these learners.

For L2 reading aloud across the test times, whilst L1 reading age was significantly influential, percentages of shared variance dipped considerably at post-test.  This might show that the systematic and explicit phonics instruction had contributed to developing sound/spelling links among a wider range of participants and therefore target-like reading aloud of L2 lexical items increased across the sample.  It is important to note, though, that the advantage for L1 reading age related to this measure had returned by delayed post-test.  This is evidenced by an increased influence (42.7%) for L1 reading age in explaining variance in L2 delayed post-test reading aloud scores; it could be inferred that the systematic and explicit phonics instruction delivered only a short-term boost to participants with a variety of L1 reading ages.  This is supported by skewness values at post-test (-.252) which indicate scores clustered at the upper end of the mark scale.  Nevertheless, it is worth re-stating, that at all test times across this measure, contrast of mean scores shows relatively weak performance overall.

Meanwhile L2RC shows the opposite effect.  Here the role for L1 reading age increases by post-test and declines by delayed post-test almost to pre-test levels.  In other words by the time the teaching had finished, L1 reading age explained more of the variance in L2 reading comprehension performance than at any other time.  It is suggested this reflects test rather than learning issues.  Very low means at those test times (2.21 and 2.86 respectively, out of a possible total of 8) could show that the L2 reading comprehension test was too challenging for all learners and not even L1 reading age could facilitate meaning-making at pre- and delayed post-test.  By post-

test, the higher L1 reading age participants could complete the tasks but the lower L1 reading age participants still found this task particularly challenging.  This could link back to previously expounded ideas that the comprehension of L2 text can often invoke L1 strategies (e.g. cognates, inferencing – Cable et al., 2010; Macaro & Mutton, 2009).  By post-test, the more successful L1 readers were able to invoke such strategies as the task became less challenging.

   L2 elicited imitation was the only construct which demonstrated strong, positive correlations with L1 reading age at all test times.  In addition, $r^2$ values showed that L1 reading age was highly influential at all test times (31.3%, 47.6% and 38.1% respectively). This could relate to the actual construct measured, which as previously noted, could involve working memory rather than developing interlanguage.  L1 reading success has been noted by other research to relate to working memory scores (e.g. Baddeley, Gathercole & Papagno, 1998) and indeed, in this study, L1 reading age across the sample showed a strong, positive relationship with working memory scores measured through the non-word repetition test.  So whilst L1 reading age appears from these data to be significantly related to this aspect of L2 general proficiency, these scores may actually reflect an underlying relationship between reading proficiency generally and working memory.  Interestingly, mean scores increase across each test time for this construct.  Gains at post-test could, then, relate to the specific teaching practised throughout the intervention, but it is also possible that this reflects a developmental trend.  Alternatively as the difference between post-test and delayed post-test scores is not significant (p=.133), the slight increase at delayed post-test might reflect a test/marking issue.  In other words, it could be argued that working memory improved during the teaching intervention which was measured by learners being better able to process and repeat longer chunks of L2 oral data.  Again, the elicited imitation scores started from a relatively low position (mean score 21.09 out of a maximum of 48) which might reflect that learners of all abilities found this task particularly challenging and it is only when, as a result of instruction, they became better able to process L2 input that the advantage for L1 reading age was realised through more reliable measurement of a (verbal) working memory construct.

L2 receptive vocabulary showed particularly strong relationships with L1 reading age at post-test and delayed post-test. This construct again showed a very small increase at delayed post-test (+ 0.23) but this could be attributed to a minor fluctutation in a small number of individual performances rather than an underlying trend. Nevertheless, even if this increase is ignored, these data still show that L2 receptive vocabulary is a particularly stable measure. The influence of L1 reading age is to be expected, previous research having noted that L1 literacy skills are particularly important in L2 proficiency (e.g. Sparks et al., 2009).

### 8.2.2 Review of Qualitative Findings relating to Research Question 2

Qualitative analyses were conducted for particular participants at each end of the reading age spectrum alongside some whole sample data which together document the relationship between mixed-ability written work and L1 reading age. This has allowed for more detailed examination of the role of L1 reading age in the learning process and how less successful L1 readers might cope with the additional demands that L2 learning appears to place on them.

The Nuffield Foundation Pilot Scheme (1966) concluded that reading would be an "almost insuperable obstacle" to further progress (Burstall, 1970: 24; The Schools Council, 1966: 24; 48-9), that less able learners would be "flummoxed" by L2 reading (Burstall, Jamieson, Cohen & Hargreaves, 1974: 71), and that "lower achieving" students, who were noted to struggle with MFL learning generally, would find the introduction of reading and writing in a foreign language extremely challenging (Stern, Burstall & Harley, 1975: 30, 71). This accords with more recent experimental research which shows that the development of L2 literacy may rest, to some extent, on the mobilization of existing "universal" skills (i.e. metalinguistic awareness) but that activation of these competencies in L2 learning depends on whether they have been automatised in the L1 (Koda, 2007), that L2 proficiency depends most on L1 literacy-related skills (Sparks et al., 2009) and that aspects of metalinguistic awareness might be shared across languages (e.g. Section 4.4.1).

However, there is also research evidence which accords a more positive role for foreign language learning for lower ability learners. More specifically, teacher interview data has recorded perceptions that, for example, that children, for whom L1 literacy is challenging, appear "more assured" in L2 learning, that "confidence" results from "involvement in structured yet varied oral interaction" and that the L2 is acquired "much quicker" (Cable et al., 2010: 5, 48). Overall, the oracy dominant teaching approach for MFL in primary schools has been viewed as an inclusive "fresh start" for all learners marked by the absence of ability groupings (Cable et al., 2010: 48) and the appearance of "a level playing field" (Cable et al., 2010: 48) where learners of all abilities contribute on an equal basis.

Qualitative data presenting two learners with lower L1 reading ages showed that in representing sound/spelling links from memory, they tended to use occasional L1 representations but also "wild" links that appeared relatively unsystematic. On the other hand, higher L1 reading age participants were more likely to produce target-like forms from memory but nevertheless showed evidence of recourse to L1-derived sound/spelling links when memorisation failed. Whilst this seemed, certainly amongst lower L1 reading age participants, to promote the idea that the written forms were not noticed and that their presentation along with the oral form was therefore not particularly worthwhile, the "corrigez" activity demonstrated that all learners, including those with lower L1 reading ages, were able to successfully recognise target language written forms even when the differences between forms were slight.

It seems possible that all learners when they are unable to generate whole written word forms either resort to sounding out (which involves the use of L1 sound/spelling links in the absence of learned L2 GPCs) or production of wild forms, where individual target-like graphemes are apparent but situated in a word which bears scant resemblance to the L2 lexical item. Moving beyond word level, creative writing activities show that lower L1 reading ability children can produce target-like full sentences, and that the work produced is both meaningful and independent. L2 extended writing, for children across the L1 ability range, is accessible and shows resourceful learning which, over an extended period of time, might result in a more

autonomous approach to language learning.  When compared with higher L1 reading age participants, the key differentiating factors appeared to be length (of sentences and overall written work) and complexity both linguistic and expressive.  In other words, exactly the same kind of variation that might be expected in L1 literacy work.

It is important though not to underestimate the importance of L1 reading age and the advantage that it gave across the sample, despite the teaching intervention.  At pre-test, more able L1 readers already outperformed the less able across all L2 measures.  Mid-test and post-test data showed this advantage continued despite the teaching intervention which was not able to reduce the effects of L1 reading age. Nevertheless this study posits that with careful and sensitive planning, progression in both L2 literacy and general proficiency can be realised.  This is supported by evidence reflecting the transition from "écrivez" to "corrigez".  Firstly participant written data demonstrated that, when practice opportunities involved recognition rather than full recall of written L2 lexical items, learners across the ability range chose and reproduced highly target-like forms.  Next, teacher diary data reported a positive whole class dynamic that emerged from "corrigez" (i.e. the teacher had to try to present alternative written representations that were so close they would "trick" the children into producing the wrong form) which seemed to contribute to language learning motivation, in addition to a change in pace.  Suddenly, a task which had felt too complex and out of reach for some was replaced by one which was almost universally achievable and this potentially had huge implications for learner confidence.  Whilst this change "sacrificed" the provision of evidence of developing sound/spelling links, the move seemed a reasonable compromise,  in view of the ethical constraints of this study – namely that learning should be at the heart of each and every activity  alongside the positive effect on the class dynamic which included a sense of reward and achievement.  Furthermore, as "corrigez" involved recall of whole, written familiar words, it is argued that successful memorisation of whole written word forms could eventually form exemplars against which analogies for future sound/spelling links could be made and that practising written representations would present yet another opportunity for "noticing" the print.  Both possibilities potentially

invoke associative-cognitive learning mechanisms which allow for the "abstraction" of regularities from input through the production of exemplars which are then applied more universally (Mitchell, Myles & Marsden, 2013: 104).

Finally, it is important to note that the nature of literacy activities is a key factor in making L2 literacy accessible to learners with a variety of L1 reading ages.  It has already been proposed that writing the book chapters allowed for differentiation i.e. for less proficient learners to focus on simple sentences and occasionally word level work whilst the higher ability participants occasionally opted for complex sentences using conjunctions and a greater variety of descriptive phrases (Section 8.1). Alongside taught, core vocabulary, during the writing up sessions, the class whiteboard became a whole class resource.  Groups "brainstormed" ideas and vocabulary for their chapters and requested or searched for vocabulary was then written up for the whole class to view and use at their discretion.  It was hoped that, in this way, each learner had the same access to language resources and that the learners could self-select thereby setting their own "limits".

### 8.2.3 Working Memory

As already reported (Table 7.21), this study's data show that verbal working memory, measured through nonword repetition, is significantly influential for three core L2 consucts (L2 read aloud, L2 receptive vocabulary and L2 elicited imitation) at all test times. The most marked correlations were found between verbal working memory and L2 elicited imitation at all test times where shared variance was particularly high:  pre-test 35.2%; post-test 40.7%; and delayed post-test 51.8%.  This suggests that the majority of the participants were taking this test as a repetition type activity rather than the desired reconstruction (see discussion in Sections 8.1 and 8.5).

It is also suggested that the beginner-level proficiency of these learners accords a strong role for (verbal) working memory in most L2 constructs.  For example, in terms of L2 reading aloud, phonological mediation could implicate verbal working memory at some level, but also working memory through the ability to suppress competing L1-related cues (e.g. sound/spelling links) (Sunderman & Kroll, 2009).  In

addition, both "types" of memory have been shown to be relevant in L2 word learning through the ability to store novel phonological sequences and encode new information in long-term memory (Juffs & Harrington, 2011: 141). Whilst L2 reading comprehension does not tend to correlate with (verbal) working memory in this study, it seems likely that more proficient L1 readers are likely to bring a wider range of "transferable" cross-linguistic skills and aptitudes to the task of L2 reading which invoke verbal working memory, for example, the "lower level verbal processing mechanisms" which form part of the "fluent and automatic processing sytems for recognising, understanding and pronouncing printed words" (Koda, 1992: 52-57; Stuart, Masterson et al., 1999: 110). More specifically, these learners will have a highly developed range of sub-skills that together relate to phonological processing (phonological awareness, phonological recoding and verbal working memory) which are known to mediate the mapping of speech sounds to written symbols (McBride Chang & Ho, 2005: 119).

For both L2 read aloud and L2 receptive vocabulary, the influence of verbal working memory decreases progressively between pre-and post-test in this study. This probably exemplifies previously noted observations that L2 receptive vocabulary is a relatively stable measure but also that the construct measured in the formal test battery demonstrated less relationship with L1 reading age than other constructs. L2 reading aloud also shows a diminishing relationship with working memory by post-test Whilst it could be suggested that these decreases could illustrate increasing L2 proficiency, it seems unlikely that proficiency has increased to the level at which these learners are adopting alternative processing strategies (e.g. by referring to semantic and/or long-term knowledge rather than phonology – French, 2006: 125). It may, however, be possible that, in line with research findings, the study's approach which proposed the simultaneous presentation of sound and print supported the learning of participants with lower verbal working memory scores (French, 2006; Hummel & French, 2010) and raised their attainment levels as well as those of higher working memory participants. In addition, this could suggest that learners of all abilities prefer

to utilise whole word recognition (or at least map larger units of print to sound).  This idea will be explored more in Section 8.3.

The effect of working memory on reading comprehension between pre- and post-test increased slightly and became significant.  This could reflect the increasing relevance of L1 reading age to L2 reading comprehension and, more specifically, that this related to the increased accessibility of the test which at pre-test had been particularly difficult, even for more able readers.  Interestingly, the role of verbal working memory for the L2 elicited imitation measure remained consistently strong and is deemed to reflect test issues which relate to the actual construct being measured.  The strength of the link between verbal working memory and L2 literacy measures overall (read aloud and reading comprehension) decreased slightly between post- and delayed post-test, whilst the effect of verbal working memory on L2 general proficiency measures (receptive vocabulary and elicited imitation) increased.  Interestingly, the role of verbal working memory for the L2 elicited imitation measure was even stronger at delayed post-test than at other times which could reinforce this writer's reservations about the exact skill that this test measures with younger, beginner learners.

Examination of qualitative written data showed one exceptional participant (among the high VWM children) but that three others produced similar amounts of "wild" forms in their written work score range 7-11 out of 23 written forms).  It is hard to discern systematicity in participants who used minimal wild forms apart from L1 reading age  (e.g. participants 2 and 5 – 13.02 & 15 years L1RAge respectively).  However, participant 5, who had few target-like forms but no "wild" forms) had a low L1 spelling age (8.06 years).  It is suggested that the use of "wild" or L1-derived forms might relate directly to the strategy being used to generate the whole word written forms.  Wild forms may represent an attempt to recall the whole word whereas L1 influences relate to participants sounding out words.  Both approaches seemed independent of L1 reading age and verbal working memory scores. Comparison of the written forms of the other high VWM participants showed some tendencies (rather than systematicity).  For example the written forms which show most non target-like

reproductions (L1 derived or wild) tended to be those which involve both novel L2 phonology and/or L2-related graphemic representations (e.g. uvular r /r/ – le rostre; nasal /ɑ̃/ plus novel grapheme é – l'évent; L2 phonology glide /j/, front unrounded mid-vowel /ɛ/ plus uvular /r/ = /pjɛr/ plus the novel grapheme è – les paupières). Of this selection, both l'oreille, le rostre and les écailles triggered most wild representations. Table 7.28 indeed shows that representations of "les écailles" were particularly problematic for all learners, presumably due to its combination of: novel L2 phonotactics /ekɑj/, novel grapheme – é, final, silent letters -es and adapted L2 gpc /j/ = LL. In terms of lower verbal working memory participants, analysis showed that these learners were much less likely to produce L1 target-like forms instead resorting to L1-derived or wild links (like their higher VWM counterparts). This confirms limited difference between learners when faced with an extremely challenging task to write (from memory or by applying sound/spelling links) an orally elicited word with a range of novel phonological characteristics. It was also apparent that learners with a range of working memory scores apply the same techniques to reproduce memorized, written words when memory fails and that due to either phonological processing issues or difficulties with suppressing existing L1 sound/spelling mappings, this often involves recourse to L1 graphemic representations.

The importance of verbal working memory in L2 learning is not unexpected yet opinion differs concerning the exact role of verbal working memory in L2 reading. (Swanson, Saez & Gerber, 2006: 261-22) found that L1 verbal working memory was the best predictor (in 6 year old Spanish/English bilinguals) of performance and growth in L2 reading, though they also stated that this involved the monitoring capacity of working memory rather than phonological storage. On the other hand, Pae & Sevcik (2011) and Stone & Van Orden (1993) maintain that deep orthographies rely more on phonological working memory due to the importance of phonological mediation in reading whereas shallower orthographies (e.g. Korean) allow automatic and direct access to stored phonological and orthographic representations and are therefore less cognitively demanding.

Whilst learners of different aptitudes struggle with target-like representation of L2 lexical items, the evidence shows that the introduction of print has, at least, facilitated segmentation of the speech stream into words; it is unclear whether this might have happened with an oral only approach. In addition, through "corrigez", learners are starting to recall memorized whole words which may eventually help by acting as exemplars against which L2 sound/spellings links can be modeled (i.e. learnt as analogies). Importantly, though, if most learners across the verbal working memory and L1 reading age range find target-like written representations problematic, especially those involving novel L2 phonology and unusual graphemes, this could support the advantage of introducing print early, for it is only by repeated "exposure" and practice opportunities that these learners will learn new mappings and create competitive L2 GPC/PGC sound/spelling links. Again this study counters that, bearing in mind the influence of the L1, it is virtually impossible to do this without learner mistakes (for example, as the mappings grow incrementally in strength).

Second language teaching and learning could, therefore, take account of links between verbal working memory and L2 learning success. In terms of language teaching practice, Hummel & French (2010: 380-381) advocate reducing the amount of material to be remembered and encouraging the use of memory aids. As the importance of verbal working memory (i.e. processing in the phonological loop) has been noted in the development of efficient word recognition and word retrieval skills when the input is mainly oral (French, 2006), additional advice includes reducing this heavy processing load through the use of text to support oral input (i.e. written and visual support) and a "recourse to audio-lingual activities" (i.e. repetition and retrieval practice), presumably suggesting that repetition of patterns will support phonological processing. Adopting such techniques is anticipated to act as an aid for individuals with low verbal working memory capacity, who are disadvantaged by an oral-aural approach to learning, by off-setting the verbal processing burden (Hummel & French, 2010: 371). These researchers suggest that attentional resources can be manipulated and that multi-modal support (e.g. the use of multimedia learning tools) should be provided.

Furthermore, this study supports the use of print in language learning from a multi-modal perspective, where an "array" of input can only assist with explicit learning which invokes memory systems (Mitchell, Myles & Marsden, 2013: 130-159). In order to maximize recall input should be as modality rich as possible. This idea is supported by more general memorization theory which acknowledges that richer, multimodal input creates more durable and accessible memory traces (e.g. Quinn Allen, 1995).

### 8.2.4 Summary and Evaluation

One of the unresolved dilemmas for MFL instruction in the United Kingdom relates to the "twofold challenge" noted by Hawkins that between 1965-1975 teaching had shifted from "selected, able pupils" to *all* pupils often in mixed ability groups and also, that the emphasis of teaching had shifted from the written to the oral (1996: 84). This study has attempted to address some of these issues through designing alternative teaching and learning approaches and has, to some extent, shown that MFL teaching and learning which includes L2 literacy can be extended across the primary school ability range and still result in meaningful achievement for most children. Section 8.2 has shown that there are clear and distinct abilities (L1 reading age and verbal working memory) which often demonstrate strong, positive relationships with most aspects of L2 learning (oracy and literacy constructs). However, it has also demonstrated that whilst children with higher L1 reading ages and better VWM capacity have the advantage, all learners find aspects of L2 learning challenging and tend to exhibit a similar course of L2 literacy development (though the higher ability participants have a higher start point and may develop quicker). This study posits that, depending on sensitive planning (e.g. the introduction of "corrigez", independent work and learner autonomy), L2 literacy can be introduced at beginner level to learners of all abilities. It further suggests that, in view of the slow nature of L2 literacy development and the dominance of L1 sound/spelling links (for example), the early introduction of L2 literacy is essential and that independent and creative literacy activities (exemplified through the autonomous classroom – Dam, 1995) can provide a useful opportunity for

learner-centred differentiation. It is essential though, when recommending an early start to literacy, to reiterate that mistakes are an inevitable and unavoidable part of the L2 learning process and, that both lesson planning and curricula design should take account of such factors.

## 8.3 Learning L2 Sound/Spelling Links: Exploring Systematic L2 Phonics Instruction

The literature review has already presented the potential importance for decoding in L2 learning as an indicator of motivation to continue language learning in secondary school (Macaro & Erler, 2008), but that, to date, progression in developing L2 sound/spelling links is slow amongst both secondary and primary school age learners (Cable et al., 2010; Woore, 2009) and that learners often navigate an unsystematic path from nontarget-like to target-like GPCs (Woore, 2011). Concerns have been raised that learners do not appear to implicitly make links between sound and print with current teaching methods (Woore, 2007), yet empirical investigation exploring phonics and related instructional interventions have, to date, yielded only small though significant gains (Woore, 2007). In addition, government advice (DfES, 2005) explicitly advocates the teaching of sound/spelling links; yet offers no substantive information concerning practical application. This study was able to measure the effects of weekly systematic phonics instruction in two ways. Firstly, analysis of L2 read aloud test data allowed for quantitative exploration of the effect of the phonics instruction and secondly, the analysis of rich, qualitative data portrayed aspects of the acquisition process of specific L2 GPCs.

This study's formal test data showed that developing L2 sound/spelling links is indeed a "slow business" (Cable et al., 2010: 117). L2 reading aloud (text) data showed that following 23 weeks of systematic and explicit phonics instruction, only two L2 sound/spelling links demonstrated statistically significant improvement (ON and LL) although final, silent letters were more successful. This finding lends weight to Woore's argument that PGC/GPC instruction should be conducted over an extended

period of time (Woore, 2007).  Poor L2 GPC performance has been evident in other, longitudinal studies concerning similarly aged samples.  Cable et al. (2010: 115-124) found limited improvement in PGC knowledge; only 18% of groups showed good independent knowledge of sound/spelling links; French is particularly difficult as most schools for this language were rated zero for sound/spelling links.  In addition, Woore (2007) observed almost no improvement after a year of MFL instruction (which did not include systematic, explicit phonics instruction but a more conventional approach).  This led him to question the "tacit assumption" that learners will decode SL orthography after time and automatically without the need for explicit and systematic instruction (2007: 175-176).

There seemed an apparent advantage for consistent mappings with 1:1 correspondences (ON) and adapted mappings where the phonology existed in the L1 /j/ but merely required linking to a different L2 graphemic representation (LL). However, other factors may have influenced the relative success of these words in this test.  Firstly, the word "on" (in this instance – *people*) occurred in sentence initial (and task intial) position and could therefore be deemed relatively easy to process. Furthermore, this was the first sound/spelling link instructed and, along with U/Û and LL had therefore been taught/learned for the longest amount of time.

LL in the text-based task was particularly successful.  This, it is suggested is due to the particular word recoded ("travaille" – works) which was practised (read and written) many times during the second half of the teaching intervention as it formed part of the core vocabulary taught for the second scheme of work (e.g. La fourmi travaille – *The ant is working*). This appeared to benefit the performance for this particular lexical item (and recoding of LL - /j/) at post-test but raises some interesting observations.  Firstly, Woore (2007) noted effects for context.  His study reported that "moins" (*less*) was pronounced differently depending on where it was viewed.  This study shows that "travaille" was still recognised and recoded in slightly varying contexts, even when it was presented within a whole sentence ("Monsieur Laurent travaille au marché" – *Mr Laurent works on the market*).  However, it appears "travaille's" success could indicate that words are being recoded (print to sound)

through direct access rather than sub-lexical analysis and application of learned L2 GPC links. Research has already noted the consolidated alphabetic stage of word reading which involves "multi-letter units" as part of a "generalized knowledge of the spelling system" and also that the written word may be accessed directly (e.g. Ehri, 1992: 108) – see Sections 2.3–2.4).

It seems possible that the shared orthographies, which this study has already noted are often a great support to the learner, induce the learner to access words at this consolidated level when the majority of the graphemes are recognisable combinations in the L1. This, along with slow nature of sound/spelling link development bears huge consequences for teaching and learning and therefore warrants further examination.

### 8.3.1 Learning GPCs: Familiar and Unfamiliar Word Cards

The following section will analyse secondary, teaching related data which explored the recoding of sound/spelling links in single, familiar and unfamiliar words and which will also allow further consideration of the time (extent and frequency) L2 sound/spelling links take to develop.

L2 reading aloud (word card) data shows particular advantage for familiar words over unfamiliar words. In other words, instructed GPCs were 50% more successfully applied when participants were recoding the exemplar words which had been used to teach the sound/spelling link in the first place. Only U = /y/ demonstrated no significant difference at post-test between familiar and unfamiliar contexts. When comparing these data with the reading aloud (text) test, it seems that familiarity could be a factor in developing sound/spelling links. However, whilst whole word familiarity is an issue, it seems possible that the kind of practice phonics instruction involves might also be pertinent. This can be best illustrated by comparing the performance of the LL = /j/ GPC (in the L2 reading aloud text task) which demonstrated the best increase from pre- to post-test. In the L2 reading aloud word card task this GPC performed differently. Whilst, there was still an effect for familiarity, LL was ranked third out of four in familiar words (/ɛ/ and /ɔ/ came joint first) and joint fourth out of

four in unfamiliar words.  Its relatively poor performance, bearing in mind that the familiar word "billet" (ticket) was practised weekly (like travaille, mentioned previously) could imply intra-word contextual issues.  Perhaps for "billet" with its L1 word-likeness factors, it was more difficult to suppress L1 sound/spelling mappings, although "singe" (familiar word card) should present the same difficulty and yet performs well.  Alternatively, of course, this could reflect the possibility that words tend to be recoded as whole forms or larger (e.g. onset/rime) chunks of graphemes, and also that "travaille" in particular was regularly practised in writing too.  Whilst this might explain the ease with which this word was recoded when it appeared in an entirely different context, this does not explain the relatively large success in familiar word cards for IN = /ɛ̃/ and ON = /ɔ̃/ which both scored 28/45 at post-test.  These data also challenge ideas of consistency.  Whilst ON ("cochon") performs well at word card but not in text and is consistent, LL ("billet") does less well at word card but well in text and is equally consistent.  On the other hand IN ("singe") performs particularly well at word card but poorly in text and is highly inconsistent.  Another explanation could involve the method of phonics instruction where exemplar words were presented with gestures.  "Cochon" was practised alongside a gesture which involved pushing up the tip of the nose to form a sound and it seems possible this might have acted as a retrieval cue for the nasal type sound.  "Singe" was presented using a monkey-like gesture which, again, may have been particularly memorable.  Both print and gesture (either combined or separately) form part of a multimodal approach to teaching and learning which can be related to memorisation theory and the creation of richer, more durable and more accessible memory traces (Quinn Allen, 1995).

So far, whilst the phonics instruction exemplar words perform better than unfamiliar words, the evidence seems to suggest that learners might not consciously apply sub-lexical "sounding out" strategies.  The written data explored earlier (Sections 7.2.2. and 7.2.3) from the change in teaching to "corrigez" shows nevertheless that learners tend to notice the exact graphemic representation but that this does not necessarily imply sounding out and blending (either in an analytic or synthetic phonics style).  Instead, the whole word phonological form is processed and matched to a

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whole word written form.  Furthermore, whilst this study has asserted that whole word forms may eventually act as exemplars from which sound/spelling links are derived, it appears from the distinct advantage of familiar words over unfamiliar words that, due to time (extent and frequency) this has not yet developed in these learners. Nevertheless, there is evidence (Section 7.4.6-7.4.8) obtained through recoding profiles that familiar word recoding is linked to unfamiliar word recoding – the more successful recoders were more likely to read unfamiliar words in a target-like manner than the less successful ones.

Alongside familiarity issues, there is plenty of evidence to support the idea that learning L2 sound/spelling links is a slow process.  A mid-intervention test was designed to assess the development of the declarative sound/spelling link knowledge taught through the systematic phonics instruction.  Instead of decoding letters into sounds and sounds into letters, this task merely aimed to elicit "knowing that" for example, ON = /ʒ/.  The results Section (7.4) has reported how PGCs were represented by individual learners across the whole sample after approximately 14 weeks' phonics instruction and, whilst showing a slow learning process, also support Woore's suggestion that GPC development takes a complex trajectory rather than simply moving from incorrect to correct forms (2011).  Whilst this showed that LL = /j/ was developing best (60% success), many representations were untarget-like, wild and bore little resemblance to instructed graphemes.  Unsystematic development of this nature (for sounds to spellings) warranted consideration alongside evidence concerning how links between spellings and sounds were developing at the same time.  The PGC/GPC recoding of half the sample (n=23) is summarized in Table 8.5.

|                  | Targetlike GPC recoding (familiar) | Targetlike PGC recoding |
|------------------|-----------------------------------|-------------------------|
| ON               | 8 (34.8%)                         | 10 (43.5%)              |
| AN/EN            | 5 (21.7%)                         | 7 (30.4%)               |
| LL               | 2 (8.7%)                          | 16 (69.6%)              |
| U/Û              | 3 (13.0%)                         | 5 (21.7%)               |
| IN/AIN/IEN/EIN   | 13 (56.5%)                        | 8 (34.8%)               |

Table 8.5:  GPC and PGC knowledge at mid-intervention

These data show that, on the whole, PGCs were more readily identified than GPCs. This is also supported by snippets of classroom transcriptions which show, for example with ON = /ɔ̃/ that the grapheme is elicited before the sound.   Whilst research rightly identifies that learners will revert to L1 GPCs when writing and reading the L2 without systematic and explicit phonics instruction (Jones & Coffey, 2006: 51; Cable et al., 2010), some of the data (LL and IN/AIN/IEN/EIN) appears to suggest that consciously knowing the sound to spelling link does not necessarily lead to successful recoding from print to sound even in a familiar word.  The most successful GPC word card recoders tended to show accurate recall of PGC links.  Across the sample though, less evident links between GPC and PGC for LL and IN/AIN/IEN/EIN adds weight to the premise that learners might recognise whole words rather than actively decode but also shows that whilst the systematic and explicit phonics instruction undoubtedly helps sound/spelling link learning, developing both declarative and procedural knowledge takes time and practice.  In addition, as younger learners possibly have a tendency to use procedural memory more than adults (Mitchell, Myles & Marsden, 2013: 132), the ability to inhibit proceduralised L1 mappings in the face of words which appear L1-like (i.e. respect L1 orthographic conventions or are cognates) may be undeveloped.  This could explain the particularly poor results for a GPC which, in terms of consistency and phonology, should be less problematic to learn.

The next problematic GPC, ON = /ɔ̃/ seems to be similarly affected to LL = /j/. This GPC is again consistent but slightly different in that the sound does not already exist in the L1 phonological repertoire.  "Cochon" as an exemplar was one of the best learned familiar words and equally "ongle" as an unfamiliar word was the best recoded. Here, it could be argued, consistency might have some effect which could have been boosted by the realisation that /ɔ̃/ is a distinctive, novel L2 phonological representation and is therefore more easily accessible than an existing L1 phonological representation which requires adaptation (LL = /j/).  On the other hand, the overall success of ON ("cochon" and "ongle") could relate to the particularly memorable gesture alongside the unfamiliar word in which the grapheme ON appeared in word initial position.  When words are unfamiliar (i.e. decoding is more likely to be invoked), it seems possible that alongside other issues concerning novel phonology, time and consistency, the actual position of the grapheme within the word might affect performance.

Inconsistency of performance i.e., the possibility that regular sound/spelling links (LL = /j/) can prove as problematic as irregular GPCs (IN, AIN, IEN, EIN = /ɛ̃/), could also be grounded in the L1.  Having learned a highly irregular L1 orthography, these learners will be well aware that sounds can have several possible graphemic representations (and vice versa, that graphemes can relate to several sounds).  It is known that inconsistent typographies encourage the use of whole word or sight recognition rather than the application of sound/spelling links (Perfetti & Dunlap in Koda & Zehler, 2008: 26).  Indeed Goswami (2006: 463-4) posited a Psycholinguistic Grain-Size Theory which suggests that mappings for these types of orthographies necessite mappings onto larger sub-lexical units.  In other words, having learned a deep L1 orthography, these learners are less willing to trust the code and therefore favour alternative word recognition strategies.

## 8.4 Conclusion

This section summarises the implications of this study's results.  The formal test data showed that L2 literacy and oracy can emerge together.  Following a principled

teaching intervention which involved the systematic instruction of both sound and print simultaneously, sample scores were significantly different across all four literacy and oracy constructs.  Whilst these results were statistically meaningful, the gains were relatively small.  This showed that progression in MFL, with this amount of instructional time (50 minutes/week) is slow.  Nevertheless, delayed post-test data showed that, whilst learning was slow, only one construct (L2 reading aloud) showed significant attrition (small effect).  One L2 general proficiency construct (L2 elicited imitation) displayed an unusual tendency i.e. increases across all test times.  L2 receptive vocabulary performed particularly consistently and both L2 literacy constructs demonstrated expected performance (i.e. increases at post-test followed by slight attrition at delayed post-test). Performances across the L2 ability range supported the premise that, with sensitive planning, all participants could engage in all aspects of L2 learning but that, nevertheless, good L2 general proficiency tended to result in good L2 literacy achievement (and vice versa).

Qualitative and quantitative data were used in combination to argue that there are individual factors which underpin progression in L2 learning, with both L1 reading age and verbal working memory being particularly influential at all test times across all L2 constructs.  However, it was shown that learners with lower reading ages and verbal working memory scores can still produce meaningful and creative L2 written work and that all learners tended to produce longer and more complex utterances in written rather than spoken production.  It was shown that learners with higher reading ages were more likely to produce target-like written work at word level but also that, when whole word memorisation techniques failed, learners across the ability range used the same strategies to reproduce written forms (i.e. L1 derived or wild links).

Finally, it was shown that words with novel L2 phonology and unusual combinations of L2 graphemes were particularly problematic to reproduce.  Data which examined sound/spelling links showed that, despite systematic and explicit phonics instruction, the development of GPCs was quite unsystematic.  GPCs were far more likely to be successfully recoded in familiar than in unfamiliar words and the wider context of decoding (i.e. text or single words) produced different results for each GPC.

Final, silent letters were more routinely realised in a target-like manner than novel L2 GPCs.  L1 reading age and verbal working memory were potentially influential in successful recoding and better recoders were more likely to have shown evidence of having acquired target-like L2 phonological representations.  Declarative knowledge, in the form of consciously knowing particular PGCs did not necessarily result in proceduralisation (i.e. recoding GPCs) whether this related to familiar or unfamiliar words.  Consistency effects were hard to note and adapting mappings (e.g. LL = /j/) appeared just as problematic as new mappings (though as learners at GPC recoding were principally examined on one example of a mapping with several possibilities, it is hard to reach definitive conclusions).  Time, however, appeared particularly influential: the best recoded GPCs (from sound to print or print to sound - but only in specific, known words) tended to be those that were viewed and practised most regularly.  However, this did not result, over this period of time, in the formation of sound/spelling mappings which were then applied to novel contexts.  Appendix 52 shows the number of occurrences of each specific GPC (including final, silent letters) within both core, instructed vocabulary and incidental classroom print.

This has several wider implications for teaching and learning.  Firstly, bearing in mind the strength of the ever-present L1 and the importance of time (in both extent and frequency) it seems likely that a systematic, early start to L2 literacy is essential.  Mistakes are an essential part of this learning process (for all learners) and, therefore, the opportunity for independence including the opportunity to make, and recover from, mistakes is an integral part of the process.   This study has further argued that opportunities for independent, creative, imaginative work result, almost by default, in differentiation but that this is learner-managed and centred.  It seems apparent that systematic and explicit phonics instruction will help the development of sound/spelling mappings and that exemplar words are useful opportunities for practice and memorization: however, these are unlikely within this timescale to act as real exemplars against which sound/spelling links are abstracted and applied to novel contexts.  Firstly cognates have implications for phonics and should possibly be avoided, secondly the exact context could be relevant (i.e. that the graphemes which

surround the word might influence how well the visual form of the word is processed), and finally adapting existing mappings might be just as problematic (if not more) than creating novel L2 sounds and mapping these accordingly (e.g. nasal vowels).  Either way, time is at the heart of this learning process.  In view of the apparent tendency to recognise whole, familiar words rather than routinely apply sounding out strategies, which may in part be derived from having learned to read an inconsistent L1 orthography, plenty of opportunities should be created to encounter instructed graphemes in a variety of words, both single lexical items and within text, where the main purpose is meaning-related rather than phonics-specific.  Whilst phonics may boost performance for exemplar words, it appears that there is no shortcut to developing L2 sound/spelling links but equally that learners will not necessarily make these connections alone (i.e. implicitly) and therefore that explicit instruction should not be avoided and, in the wider sense, that L2 literacy should not be delayed.  This is supported by Ellis (2001) who notes that exemplars and explicit knowledge are insufficient to promote fluent use and also by the L1 reading acquisition process.  Children, when learning to read their first language, do not learn the alphabetic code in a vacuum (despite political exhortations for first, fast and only phonics).  Instead, most Reception class children are engaged in a variety of literacy-based activities every day (both in and out of school).

## 8.5 Limitations and Observations

When considering this study's findings and potential for impact, it is important to note limitations and issues which were encountered in order to note how these may have influenced results.  Whilst an effort has been made, throughout the work to highlight areas of concern about the study's methods and results, this section will attempt to group limitations by theme and then examine them discretely.

### 8.5.1 Test Issues

**Elicited Imitation Test.**  The Methodology Section (6.7.2) recognised that elicited imitation, as a technique, rested on verbal reconstruction of utterances that had been

processed for meaning in order to be a valid measure of developing interlanguage. The task, then, depends on initial processing for meaning and steps were employed to encourage this (as recommended by previous research): participants were asked to wait three seconds before reformulating the utterances and processing for meaning was encouraged through the use of pictures to contextualise the sentences and of comprehension questions (in the L1). Despite this, it is suggested that this study's elicited imitation test more accurately reflected verbal working memory ability. The elicited imitation scores correlated positively, strongly and significantly at all test times with verbal working memory results. Furthermore, whilst elicited imitation scores (if they tapped into developing interlanguage) might be expected to rise between pre- and post-test (thereby showing linguistic development), it is equally possible that verbal working memory (in the L2) could increase with improved L2 proficiency (Mitchell, Myles & Marsden, 2013: 156); this type of phenomenon has already been noted in the L1 with respect to increased vocabulary knowledge (French, 2006; Service, 1992; Service & Kohonen, 1995).

To address these issues, it is suggested that future test designs for this age of learner could more successfully manipulate processing of the verbal input for meaning. This might be achieved by asking an L1 meaning-related question at the end of each sentence (using this technique after a group of sentences was too demanding at this age and resulting correct answers to meaning questions were almost non-existent). Perhaps, also, the tester could direct the test taker's attention to specific aspects of the picture and then describe, for example, an item or an action in detail. Finally, perhaps puppets or objects could be used to enact meaning although it is important to consider implications for cognitive loading. Aspects of the  design were, however, deemed relatively successful. The pictures showed French schoolchildren and one involved the contents of a child's  school bag with a Harry Potter book translated into French. Many children commented that "they read Harry Potter in France too". Also, a decision was made to include some utterances that were only four syllables long. Whilst this did not push participants beyond the range of working memory (in the L1), these test items were included so that everyone could participate in some way, with the

proviso that, if performances were successful, these shorter utterances could be factored out of the data reporting.  Overall, though, performance was limited in this task, especially at pre-test and it was deemed that the inclusion of these 4 syllable test items at least allowed all the learners to attempt this task (the lowest score at pre-test was 2 out of 48 and at post-test 6 out of 48).

To conclude, whilst it seems unlikely that this EI task has sufficiently tapped developing interlanguage as the intended construct, an increase in the ability to process L2 verbal input is, nevertheless, meaningful.  Increased processing capacity may allow for better vocabulary learning, the improved temporary storage of units of phonology for further processing and, of course, the possibility that improved processing frees up attentional resources.  In other words, this elicited imitation measure may not reflect improved L2 proficiency but, as a "worst case scenario" shows an increased ability to temporarily store L2 verbal input, thereby improving the chances that this input is better processed and subsequently learned.  It should also be noted that, in the present study, 17 of the 45 participants scored the highest possible score on the non-word repetition test intended to measure verbal working memory, with most scores ranging between 26-28 with a mean score of 26.  The EI test complemented this test, as an alternative measure of VWM, and showed how the whole cohort were getting better at processing L2, and thus enhancing the language learning.

**Reading comprehension test.**  As the Methodology Section (6.7.4) has already noted, the test task was made as engaging and motivating as possible by contextualising the reading comprehension activity as a crime-solving opportunity – nevertheless, problems were experienced at pre-test with the density of the FL text.  The text length (137 words), which incorporated 11 unknown words 6 of which were cognates proved to be extremely challenging.  The decision was taken to conduct this test, at all test times, as a whole class activity by discussing where the information to answer each question might be located within the text.  In this way, the whole class were guided collaboratively to a particular paragraph and were then asked to work independently to work out the meaning and answer the questions.  It was envisaged that this would not

measure who was able to sift and retrieve information from a text (although this is, of course, a useful skill in reading) but more to examine if children could establish meaning from L2 sentences of varying length and complexity.

As a result, the mid-intervention teaching assessment comprised a different activity where individual sentences were displayed and the participant was required to draw the corresponding animal with appropriate colours.  It should be added that this too was not without problems, as it was deemed difficult to identify which participants had, for example, added a big mouth to a monkey's face due to reading and understanding or whether this representation had been included as a result of a general tendency to draw an animal with a face comprising eyes, nose and mouth.  A better test design, in this instance, may have involved drawing aliens but this would not necessarily have conformed to the target language use which was reading and understanding taught, core vocabulary.

**Non-word repetition test.**  A potential ceiling effect for this test has been noted in the Discussion Section (7.3).  This is evidenced by scores which are predominantly clustered at the upper end of the range and, whilst there is correlation (as expected) between L1 reading age and NWR, the latter's scores did not appear to successfully differentiate between reading ages across the spectrum.  Similar issues have occurred in earlier studies (French, 2006; Service, 1992) where VWM was supported by developing vocabulary knowledge and thus supported by access to longer-term knowledge rather than immediate processing of novel verbal input.  Both of these studies observed that, by the age of 5, participants had reached a ceiling for VWM test which involved repetition of words with high L1 wordlikeness.  To access VWM in its "purest form" these studies adopted an additional measure (Arabic NWR) which did not respect L1 wordlikeness and therefore was deemed to more accurately reflect the ability to initially process novel phonological input.

In retrospect, this study should have adopted the latter measure (Arabic NWR) which may have more accurately measured verbal working memory.  Furthermore, as these participants were older than those examined in both French's and Service's

studies it is suggested that the syllabic range of the non-words could be increased, thereby avoiding a ceiling effect.

**Reading Aloud Sentence and Word Card Tests.**  The read aloud sentence test which formed part of this study's formal test battery was reasonably successful.  Only 27% of the words were not known (n=15) and three of these unknown words were cognates. Each sentence appeared alongside a picture which was relevant to the sentence meaning.  However, as performance at each test time was relatively low, it could be deemed that the construct and also the task proved challenging for these participants. Possibly some of the sentences were too long and the marking procedure proved problematic (Appendices 42 & 49).  In reality the scoring of recoding in a targetlike L2 manner centred around meaning (i.e. whether the word would be understood by a native speaker) was almost impossible to judge.  Bearing in mind, that this construct was being measured to evaluate the effects of the systematic phonics instruction, the decision was taken to evaluate L2 recoding principally on how well instructed L2 phonemes were realised.  In practice, this involved factoring out L1 influence.  In other words, most nasals were judged on whether the final /n/ sound was audible whilst other L2 vowels /y/ and /e/ were assessed for a lack of diphthongization and possibly duration.  These concerns were also relevant for the mid-intervention reading aloud word card test.

For this test, it is suggested that  words chosen should show the same learned GPC (for inconsistent GPCs) as the phonics exemplar word and that this should also match the GPCs tracked in the reading aloud sentence task.  In other words, each selected GPC should have been consistently monitored.  Ideally, this test would have been part of the formal test battery and, therefore, administered at pre-test too. Finally, in both tests, cognates could be avoided as these may make competing and conflicting demands on the test takers.

Finally, it is proposed that the test battery could have included a more valid and reliable way of assessing and measuring L2 phonology.  The elicited imitation data was used as a source of evidence (albeit unintended) but this was not ideal and concerns

surrounding this have already been noted.  It would have been useful to support some of this study's findings with clearer ideas around the development of specific L2 phonological representations.  However, it is important to note that each child was tested invididually for approximately 15 minutes and that another individual test would have been too demanding for this PhD study.  Equally, collection of these kind of data in a whole class situation is problematic.   A suggestion for future studies could involve identifying, in advance, specific children to track.   Data from these children could then be collected on a weekly basis in class (i.e. repeating words, identifying sounds, producing sounds, discriminating sounds in the L2 and the L1) and more formally, at pre-, post- and delayed post-test.

### 8.5.2 Instructional Issues

**Systematic Phonics Instruction.**  This study has already noted concerns regarding the use of cognates in L2  phonics instruction and L2 read aloud test as these may increase the difficulty in suppressing automatised L1 mappings and therefore be unnecessarily confusing.  Overall, the planning of instructed L2 GPCs could have been considered more carefully.  As it seems possible that novel L2 phonology is influential in learning L2 GPCs, it is suggested that practising sounds and recording individual children articulating L2 phonology (and then playing it back) would be most useful.  It might also be useful to actively instruct fewer GPCs but to ensure that those focused on appear regularly in the core instructed vocabulary so that each GPC was regularly practised through reading and writing.  The manipulation of GPCs (similar to a technique used by Johnson & Tweedie, 2010) could also be important.  In this way children could physically experiment with moving the instructed GPCs (on word cards) to create new words.   Nevertheless, the overall framework of the systematic phonics instruction, in other words, the use of exemplar words complemented by gesture to aid retrieval appeared to be successful and the phonics-style games added a multi-modal layer to the teaching of GPCs.

**Reading Aloud.** The learning of sound/spelling links must, of course, be operationalized (i.e. reading aloud practice). This is problematic to achieve in a whole class situation so, whilst this teaching intervention shared L2 books (written especially for the study) as a whole class, practised reading sentences aloud collectively, and read in pairs with peer evaluation; reading aloud activities were hard to plan, manage and assess. Realistically, more opportunities were required at an individual level to read aloud short stories and sentences. One way this could have been achieved was through reading aloud at home. This would have had implications for the study in that the "input" would have varied more across children. Nevertheless, class stories were converted into powerpoint slide presentations and accompanied by "Vokis" (a talking character) which, when clicked, read the sentence aloud in French. It was envisaged that each child could practise reading and listening using the teacher-generated voki and then record their own performance with their own, bespoke voki. Sadly, this innovation was not introduced due to safeguarding concerns at one school which delayed approval and therefore uploading the content to the school's website for access. With this in mind, the decision was taken not to launch this task in the remaining school to ensure that the input in both settings remained consistent.

Finally, the post-test data showed that "travaille" performed particularly successfully and scored similarly to the phonics exemplar words tested through the word card read aloud test. Whilst "travaille" was learned (and viewed repeatedly as a whole written word), it was also practised weekly in writing. It is suggested that this weekly written practice of "travaille" supported its recoding, albeit as a whole word. Though phonics instruction is often discrete (explicitly encouraged by government advice), in reality, most primary school classrooms develop reading and writing simultaneously and these methods could interact in many ways. Bearing this in mind, and the small amount of evidence related to the recoding of "travaille", it seems possible that *regular* writing might have a role to play in developing L2 reading aloud skills (certainly research has noted a role for writing in the development of L1 phonemic awareness – Gough & Wren, 1999: 75) and this, therefore, could form part of an L2 literacy instructional package.

It is suggested that most of the limitations with respect to test design are an unfortunate but inevitable feature, bearing in mind the limited amount of evidence relating to testing younger language learners and the relatively novel research setting. Furthermore, the lack of opportunity to pilot this study's tests has already been noted (Section 6.7). This was principally due to timing – tests were being designed towards the end of the school Summer term and during the Summer holidays. In addition, all the tests specifically targeted language which had been taught in both schools. Therefore, piloting tests with children not involved in the study (i.e. in other settings) may have had confounding results as it would have been difficult to identify whether issues were test design related or language related.

## 8.6 Generalisability

This study (Section 6.4, Section 8.1.1) had already noted that there would be limitations to generalisability due to the action research methodology. It is nevertheless suggested that the study has led to "production of knowledge and educational change" and not only to "personal professional action and teacher growth" (Burns, 2005). It can be argued that the two school contexts where the study was conducted are representative of many primary school settings. In addition, whilst this work involves one teacher (researcher) and her relationship with each class, the teaching protocols, schemes of work, mid-range plans and lesson plans render this intervention replicable elsewhere. Nevertheless to bolster concerns relating to generalisation, care has been taken when using statistical terms and suggestions proposing causality have deliberately been avoided in favour of proposing "likelihoods" and "relationships". Data has been interpreted from multiple angles (i.e. teacher diary, workbook, test scores, spoken evidence). Rather than the formal testing of hypotheses which experimental research demands, the fundamental aim of this study was to challenge the under-developed role for literacy instruction in current MFL practice in English schools, to explore a programme for introducing literacy with younger, beginner learners and to monitor the effects of this teaching. This has allowed for

exploration of factors which affect MFL learning more generally (reading age and verbal working memory) as well as the process of learning L2 sound/spelling links.

Interestingly, this study could be deemed to exemplify an earlier phenomenon noted by Burstall (1975: 196) named as the "small, rural school effect".  Almost fifty years earlier, Burstall found superior MFL attainment in schools of this nature which she had attributed to the relative stability of teaching staff.  Equally, as this study's teacher/researcher had worked in one school for 7 years and the other for two years prior to teaching, it could be argued that pupil/teacher relationships were already established and that this positively affected attainment scores.  Burstall was unable to provide further/better explanations of her interpretation of this effect but it was deemed important, in this instance, to note the issue.

## 8.7 Important Observations

This thesis has been quite critical of some of Burstall's findings, for example, the premise that the introduction of  MFL literacy with lower ability learners would be too challenging (Burstall, 1970: 24, 1974: 71).  It is important, however, to note that Burstall's study was conducted in different times with a different agenda.   At the time of the Nuffield Pilot Study, an audiolingual approach to language learning was widely practised, theoretical views of language tended to centre around the structuralist viewpoint and, as a result,  language teaching favoured speech.  In addition, it seems possible that class sizes were bigger and also that different views of teaching and learning were adopted (i.e. teacher centred rather than learner orientated).  Furthermore, much of this study's theoretical framework was non-existent at the time of Burstall's review.  Finally, it is important to note that Burstall's study was driven by policy related questions rather than improving teaching and learning.  In this way, the rationale behind the Nuffield Pilot Study concerns whether MFL instruction could be extended beyond the grammar school and, as such, took on a broader social and political dimension.  Many others have commented that, due to this priority,  Burstall reported conclusions which followed a "profit and loss" account rather than examining the "conditions for success" (e.g. Jones & McLachlan, 2009: 9).

Overall, though, whilst this chapter has noted considerable limitations with respect to both the design of the intervention and the chosen methodology, it is suggested that many are reflective of the study's innovative nature.  More specifically, many aspects of this teaching intervention are entirely novel, there was scant research evidence upon which teaching activities and test design could be based, and even less which accurately reflected an English primary school setting and the nature of constructs this study set out to explore.  Chapter 9 will aim to bring together these findings and to propose directions for future research.

# 9. Conclusion

In view of the relatively novel nature of this study and its findings, rather than review results and limitations, this chapter will focus on future directions for both the research community and the classroom.  Firstly, in light of this study's findings, a research agenda will be proposed, followed by recommendations for developing the teaching (and learning) of MFL literacy in school classrooms in England.

## 9.1 This Study and Its Contribution to the Field

Inspired by both empirical and observation-based research conducted over the last decade which raised significant issues relating to the future of MFL in English schools, this study developed a novel, principled pedagogical approach and operationalised this in the classroom.  Particular limitations were noted with respect to both test design and instructional issues (see sections 8.5.1 and 8.5.2), but it is suggested that these were largely a product of the limited literature available which was directly related to the research setting.

## 9.2  A Future Research Agenda

Several future research questions have emerged from the findings of this principled and systematic attempt to teach MFL literacy through both explicit instruction and language use.

This study asserts that oracy and literacy can be successfully developed simultaneously in younger, beginner learners.  However, in order to address limitations with respect to generalisability (see Section 8.5), it is proposed that this study, with its detailed pedagogical principles and documented practical approach should be tried on a larger scale.  It is recommended that a similar study could be extended across a number of primary schools with different teachers participating (which could, in turn, minimise the teacher effect).  Recruitment of only five primary schools could achieve a sample of between 100–150 children, and specific participants could be identified

(possibly through L1 reading age and/or verbal working memory) to act as developmental case studies.  Bearing in mind the wealth of data the existing study generated, a mixed-methods approach would seem eminently suitable.  Section 8.1 has noted the small but statistically significant gains made by participants in this study across all measures could be related to its timescale (23 teaching weeks).  It is therefore suggested that future studies could involve more teaching hours (for example, one whole academic year, using a similar teaching protocol) which could provide a more realistic picture of possible learning outcomes.

It has further been suggested that L2 oracy and literacy interact and could be mutually supportive.  This could be investigated in more detail and documented better, firstly by collecting additional oracy-related data as part of the  formal test battery.  Whilst the elicited imitation test designed for this study was deemed to represent L2 verbal working memory, it is suggested that this measure should be included a part of L2 general proficiency as it represents the ability to process spoken input and could, therefore, be considered a key aptitude for language learning.   Additional L2 oracy-related measures could be considered, for example: pairwork or groupwork designed to elicit productive language and L2 productive vocabulary.  It would also be useful to include a better measure of developing L2 phonology (although the previous suggestions would also provide evidence of this).   Finally, other L2 literacy test data could be collected which related to target language written work.  Informal, class based tests should also be reviewed and their design altered.

In this study both L2 literacy ability and L2 general proficiency were shown to be related to L1 reading age and verbal working memory.  It was, however, noted that using the Gathercole & Baddeley (1996) nonword repetition test with learners in this age group, verbal working memory scores potentially reached a ceiling height.  In order to substantively differentiate between verbal working memory performances, it is suggested that the Gathercole and Baddeley test could be extended to incorporate nonwords over 5 syllables in length.  Alternatively, a test could be designed which is modelled on the repetition of e.g. Arabic nonwords thereby  providing potentially a purer form of verbal working memory which is not supported by accessing

phonological representations contained in long-term memory.  A more reliable indicator of differences in verbal working memory scores could perhaps help to explain some of the variations in L2 performance scores.

Systematic and explicit L2 phonics instruction noted particular effects for familiar words over unfamiliar words but less effect for consistency.  It is suggested that quasi-experimental studies could better inform these findings.  For example, characteristics of individual words (or exemplars) could be controlled for in a teaching programme and their effects monitored accordingly (e.g. familiarity or consistency).  This study has shown that, in designing this kind of experimentation using an instructional approach, it could be important to avoid cognates (in both teaching and testing) as these might involve greater difficulty in suppressing L1 mappings. In addition, the relative difficulty of adapting existing mappings versus creating novel ones could be investigated. Whilst this study discerned no particular patterns for either, more controlled experimental investigation could be useful.

Successful recoders (when reading words aloud) tended to be those who could more reliably produce distinctive L2 phonology (measured through the elicited imitation test).  Future research could better investigate the role of L2 phonology in learning to decode in a second language.  An experimental study could track the acquisition of phonemes and their related graphemes in a controlled experiment but also, a mixed-methods investigation (perhaps similar to this one) could adopt a systematic and explicit phonics instruction programme and track the development of both "sound" and "print" in detail by identifying case study participants from whom detailed data could be collected on a regular basis.  This would be particularly useful bearing in mind the problematic nature of designing tests for younger language learners and also noting (as this study's data has shown) that test results can be particularly variable and dependent on a wide range of factors such as timing in the school term, and school day.

## 9.3 A Proposal for Teaching and Learning MFL

As an action research study, it is imperative that this research offers insights into teaching-related possibilities which are directly related to classroom practice. The following paragraphs will present some suggestions for incorporating an oracy and literacy integrated teaching approach in MFL primary school classrooms.

Firstly, as a result of findings which show that MFL oracy and literacy can develop together in younger learners, this study recommends introducing MFL literacy as an integral part of an early start to language learning. However, it is essential that this is done sensitively as it is also evident that MFL literacy is challenging for *all* learners. Whilst children with higher L1 reading ages are likely to be more proficient in both L2 oracy and literacy, evidence of on-going L1 influence shows that the L2 literacy teaching and learning process is not a "blank canvas". All these beginner learners brought L1 skills and aptitudes (in varying forms) to L2 learning.

This study has confirmed that learners of all abilities find target-like reading and writing particularly challenging. Yet the evidence shows that they do process the written form (e.g. successful recognition of target-like lexical items – "corrigez") even though many cannot subsequently generate target-like written forms. Language learning with its incumbent developmental errors could be particularly disconcerting for learners who might be accustomed to avoiding mistakes at all costs. A sense of progression is always important but is even more relevant for younger MFL learners in English schools who arguably have less "instrumental" impetus for learning an MFL. "Corrigez", as a teaching technique which is based on memorization theory and the transition from recognition to recall, is proposed as a useful way of practising written forms with a high success rate for learners of all abilities. This allowed for practising written word forms without losing pace while maintaining positive learner affect. It is further suggested, in terms of memorization theory, that introducing these learners to the written form  contributes to a multi-modal approach to learning which leads to richer, longer-lasting and more accessible memory traces.

The adoption of an independent and exploratory approach to language learning, in this case through the written book chapters and video-recorded t.v. documentaries,

is presented as a useful vehicle for developing oracy and literacy simultaneously but also as a tool for differentiation within the classroom.  Establishing a means of affording equal status, in the classroom, to both sound and print can be particularly difficult.  The overall aim of producing class books and t.v. programmes facilitated planning of literacy activities on a weekly basis.  Furthermore, segmenting these activities into book chapters and episodes allowed for shorter-term goals (rather than producing one book at the end of a term, for example).  This is, of course, especially useful with younger learners.  Differentiation was realized through independent and creative literacy activities.  Qualitative data showed that group work with learners of different L1/L2 abilities can be successful and that through working in small groups with sufficient independence and creativity, learners apply their own differentiation. Rather than a teacher-led device, each learner self-selects his or her own limits with respect to linguistic complexity and length.

The introduction of a holistic approach to developing L2 literacy (rather than purely systematic phonics instruction, for example) is recommended and supported by the relative success, within this study, of a particular lexical item ("travaille").  This word was successfully recoded at GPC and written reliably.   Quantitative data showed that it performed as well as the phonics instruction exemplar words but over half the amount of instructional time.  This, it is suggested, is possibly related to the idea that it was recoded (in reading aloud) as a whole word, rather than sub-lexically and also that it was practised regularly through writing.  L1 reading develops in similar conditions.  Phonics instruction takes place alongside and therefore supplements a variety of other literacy-related activities:  reading for meaning, writing for meaning and environmental print both inside and outside the classroom.  Whilst systematic L2 phonics instruction will undoubtedly contribute to the development of explicit GPC/PGC knowledge, the operationalisation of this requires both time (extent) and frequency of input/practice which can be achieved in a multitude of ways. Bearing in mind the superior performance in this study of exemplar (familiar) words, it further seems essential that L2 GPCs are presented in a variety of contexts.  In addition, it is

equally important to develop regular practice opportunities for recoding from sound to print and from print to sound.

The potential importance of L2 sounds has been noted. Successful recoders were more likely to be able to reliably reproduce L2 lexical items orally.  This teaching intervention, through the systematic and explicit phonics instruction, regularly focused on L2 sounds and their distinct articulatory properties.  It is suggested that, while this might help, it was not enough to create distinctive L2 phonological mappings (either for distinct phonemes or for phonological forms of whole words).  Focus on producing L2 sounds could be supplemented by talk tins or voice recorders which children can use in pairs or small groups to record and review spoken productions.

Overall though, time is the central issue for developing L2 reading aloud (and L2 literacy generally).   This study has shown that the best recoded GPCs tended to occur within those words which were viewed and practised most regularly, that the development of declarative sound/spelling knowledge is a slow and arduous process, that whole word recognition is occasionally implicated and that the L1 is ever-present (in both MFL oracy and literacy), having the potential to support, but also to disrupt the MFL learning process.  Research has already shown that, without explicit instruction, L2 literacy is unlikely to be "inferred" by the learner, however, literacy is an integral part of experiencing language and is regularly promoted by MFL policy and curricula. There will never be enough instructional hours in the curriculum (primary or secondary) to mimic the conditions for L1 literacy acquisition, so bearing in mind the relative success of this study's integrated approach, a simultaneous and early start to oracy and literacy is recommended.

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