The Dimensions of Written Expression: Language Group and Gender Differences

Abstract

This study compared the written expression of 159 English-speaking first (L1) and second language (L2) learners (M_{age} = 9; 7 years, SD = 3.63 months) in the UK. The L1 learners outperformed their L2 peers on the four dimensions of written expression, namely holistic quality, written vocabulary, organisational quality, and compositional fluency. Girls also outperformed boys on all dimensions, except for organisation. The interaction between language group and gender was nonsignificant, but there was a trend for the language group differences to be larger for boys. Vocabulary, organisation, and compositional fluency made unique contributions to holistic quality in both language groups and the strength of these relations were relatively comparable across the L1 and L2 groups. Educational implications are discussed.

*Key words***:** English as a second language, text writing, compositional fluency, spelling, multigroup path analysis

The Dimensions of Written Expression: Language Group and Gender Differences

1. Introduction

Meeting the needs of learners from diverse ethnic and language backgrounds remains one of the major challenges facing education professionals today. This is perhaps most clearly exemplified by reports indicating that minority language learners who speak a language other than the instructional language at home are more at risk of underachievement in reading comprehension and writing (National Assessment of Educational Progress [NAEP], 2011; Statistical First Release [SFR], 2011). There are about one million (15%) school age minority language learners in England (SFR, 2012c) and based on the current trends, it can be projected that in ten years' time almost one quarter of all school age children will speak a language other than English. Thus far, most research on minority language learners has focused on reading; with the exception of a notable few (e.g., Cameron & Besser, 2004), there is a dearth of studies comparing first (L1) and second language (L2) learners' written expression. Hence, we lack an understanding of how L2 learners perform on different dimensions of written expression and how aspects of their written expression contribute to their overall writing quality. Additionally, there is some evidence that L2 boys from low socioeconomic status (SES) backgrounds might be more at risk of underachievement in writing skills (Cameron & Besser, 2004). However, the research evidence on gender differences in writing is far from conclusive (Jones & Myhill, 2007; Peterson & Parr, 2012), and it remains to be clarified whether L2 boys are more at risk of low writing achievement. The primary goal of the current study is to address these gaps in the literature by examining the written expression of both L1 and L2 learners.

1.1.   Language group differences in written expression

Most research on L2 writing tends to focus on older age groups who speak English as a foreign language and involves the psycholinguistic analysis of the writing processes of students in their first and second languages (for an overview, see Wolff, 2000). There are also others that have examined the cross-linguistic interactions in the written discourse of children (Berman & Verhoeven, 2002; Fitzgerald, 2006; Zecker, 2004). However, research on minority language learners, who tend to have little or no literacy skills in their home languages and who are learning to write in a second language (e.g., English) which is also the language of instruction, is highly limited at this time (Lesaux, Geva, Koda, Siegel, & Shanahan, 2006).

Cameron and Besser's (2004) seminal study remains the most comprehensive study conducted on L2 learners' writing in the UK. The authors examined two writings (one fiction and one persuasive) of 138 L2 and 126 L1 learners produced for the national attainment tests at the end of primary school (about 11 years of age). The L2 sample was very heterogeneous and mostly composed of learners from Indian, Pakistani, Black African, Chinese, and Bangladeshi heritage. Most L2 learners had been living in the UK for at least five years. Cameron and Besser (2004) found that the L2 achievement gap on the national writing test was nine percentage points. The follow-up analysis revealed no language group differences in spelling accuracy levels. This was in accordance with the reports that L2 learners tend to underperform on overall writing quality but their spelling accuracy level tends to be comparable to that of their L1 peers (Babayiğit, 2013; Lesaux et al., 2006). Cameron and Besser's (2004) linguistic analysis of the scripts revealed that the L2 learners tended to make more grammatical mistakes than their L1 peers (e.g., in the use of prepositions and articles) and were less likely to use complex grammatical structures (e.g., adverbs, sentences with multiple clauses). Similar findings have been reported with 8-10 year old Turkish-Dutch speaking learners (Verheyden, Van den Branden, Rijlaarsdam, Van den Bergh, & De Maeyer,

2010). The children were asked to retell a comic strip story through writing in Dutch.

Relative to their monolingual Dutch speaking peers, the Turkish-Dutch speaking learners

were found to make more syntactic mistakes in their writings. Together these studies

highlight that weaknesses in sentence structure and grammatical accuracy may undermine the

L2 learners' overall text quality.

The quality of written vocabulary, often assessed in terms of the appropriate choice of

words and diversity, is another important dimension of written expression that influences text

quality. Cameron and Besser (2004) did not find any language group differences in the

quality of written vocabulary and Verheyden et al. (2010) did not assess the vocabulary

dimension of children's written text. Hence, given the paucity of studies, we do not know

whether L2 learners' written vocabulary differs from that of their L1 peers. We also do not

know which dimensions of written expression contribute to the overall writing quality in L2

learners and whether the pattern of these relations is comparable across the L1 and L2 groups.

For instance, in a study with predominantly L1 learners, Olinghouse and Leaird (2009) found

that the diversity of written vocabulary along with compositional fluency (total number of

written words) were the strongest predictors of children's overall writing quality. To date, no

study has examined these relationships with L2 learners.

1.2.   Gender differences in written expression

The reports on the national attainment tests of writing achievement indicate a

relatively stable gender gap in favour of girls (NAEP, 2011; SFR, 2011, 2012b). By contrast,

the findings from research studies have been mixed (e.g., Jewell & Malecki, 2005; Jones &

Myhill, 2007; Malecki & Jewell, 2003; Olinghouse, 2008; Peterson & Parr, 2012; Stainthorp

& Rauf, 2009; Troia, Harbaugh, Shankland, Wolbers, & Lawrence, 2012; Williams & Larkin,

2012). For instance, Olinghouse (2008) found that girls outperformed boys on the measures

of both compositional fluency and quality. Likewise, Malecki and Jewell (2003) found that girls outperformed boys on all dimensions of written expression including compositional fluency and spelling accuracy among children from early to middle primary grade levels. Trio et al. (2012) reported similar gender gaps in favour of girls with children from about 8 to 16 years of age. Cameron and Besser (2004) did not formally test gender differences in L1 and L2 written expression. Nonetheless, their report also indicates a tendency of more girls to obtain higher scores in writing in both L1 and L2 groups. Moreover, they found that the L2 achievement gap in writing was slightly larger for boys than girls: whereas the writing achievement gap between L1 and L2 boys was 12 percentage points, that for L1 and L2 girls was 9 percentage points. However, not all studies have found a gender difference in writing quality (e.g., Jones & Myhill, 2007; Williams & Larkin, 2012). For instance, Myhill and Jones (2007) tested adolescents between 11-18 years of age and found no evidence to suggest that boys' writing quality was poorer than that of their girl peers. Similar results were reported by William and Larkin (2012) with younger children aged between 8 and 11 years. Nonetheless, both studies reported that the girls wrote longer texts than the boys did.

Numerous explanations have been proffered for these seemingly contradictory findings, including the large variation of performance within each gender group (Jones & Myhill, 2007), a possible mismatch between the boys' writing style and curricular expectations that may put boys at a disadvantage in national attainment tests of writing (for reviews, see Jones, 2012; Peterson & Parr, 2012), and gender differences in beliefs about writing and motivations (Pajares & Valiante, 2001; Troia et al., 2012). Whatever the reasons might be, the gender gap is not considered problematic, as it has not contributed to academic underachievement or socioeconomic disadvantage for boys in general (Jones & Myhill, 2007). However, this is not the case for certain ethnic minority boys from low SES backgrounds. For instance, Spanish-English speaking Hispanic children constitute the largest

group of L2 learners in the US who also tend to come from predominantly low SES backgrounds (Wight, Chau, & Aratani, 2010). The low literacy achievement has been implicated as one of the primary factors that put Hispanic boys more at risk of academic underachievement and poor vocational prospects (for a review, see Goldenberg, Reese, & Rezaei, 2011). Therefore, some have posited that the study of gender differences in literacy levels should take place within the wider context of ethnic and SES group differences (Hansen & Jones, 2011; Mead, 2006).

The gaps outlined in the literature provide the rationale for this study. The written expression of L1 and L2 learners was examined at four levels: written vocabulary, organisation, compositional fluency, and overall holistic quality. There were two main research questions. The first research question concerned the extent to which the performance on the dimensions of written expression was moderated by language group and gender. Here, the main interest was to examine to what extent there was an L2 disadvantage in written expression and to what extent L2 boys were more at risk of underperformance on writing. The second question related to what degree the contributions of written vocabulary, compositional fluency, and organisation to the overall writing quality were invariant (equivalent) across the L1 and L2 learners. Thereby, the study sought to examine whether the aspects of written expression played a comparable or differential role in the overall writing quality of the two language groups.

2. **Method**

2.1. *Participants*

The participants were 89 L1 (42 males and 47 females; mean age = 115.4 months, *SD* = 3.71 months, range = 109 - 122 months) and 70 L2 (35 males and 35 females; mean age = 115.4 months, *SD* = 3.55 months, range = 108 - 121 months) learners at Year 5. The L1 and

L2 learners were recruited from the same classrooms across seven primary schools. The information about the home language, the duration of formal schooling in the UK, the special educational needs status, and entitlement to free school meals (FSM) was obtained through a short verbal questionnaire and the school records. The FSM is the most readily available demographic measure, which provides a proxy index of SES. In line with the formal definition of L2 in England, students who spoke a language other than English at home or in their community irrespective of the level of fluency and the time of exposure were classified as being L2 (Department for Education, 2012). In this study, all L1 learners spoke English as their first language and did not have any reasonable amount of experience with any other language. All children with parental consent were included in the study. In order to ensure that the two language groups had received comparable duration of formal schooling in the UK, L2 learners with less than four years of formal schooling in the UK were not included in the study. Accordingly, 81 % ($n = 57$) of L2 learners reported to be attending a primary school for six years, 6% ($n = 4$) for five years, and 13% ($n = 9$) for four years.

The two language groups did not differ in terms of sex ratio, $\chi^2 (1) = 0.037$, $p = .848$, the distribution of age, $t (157) = 0.085$, $p = .932$, or the rate of receiving formal or informal educational support, $\chi^2 (1) = 0.545$, $p = .460$. There were, however, more L2 learners in receipt of FSM, $\chi^2 (1) = 15.62$, $p < .001$; L1 = 16 (18%), L2 = 34 (49%). The latter finding reflected the demographics of minority language learners in England who tend to come from low SES backgrounds (Department for Education and Skills, 2006).

The sample reflected a wide range of ethnic and language backgrounds. The major ethnic groups were: 72 (45%) White-British, 25 (15.7%) Black-African, 18 (11.3%) Asian-Pakistani, and 11 (6.9%) Asian-Bangladeshi. Likewise, the most commonly reported home languages were Somali ($n = 15$, 21.4%), Urdu ($n = 11$, 15.7%), Bengali ($n = 12$, 17.1%) and Panjabi ($n = 5$, 7.1%). The distribution of the home languages was broadly in accordance

with the national trends (National Centre for Languages, 2011). The L2 learners' literacy skills in their respective home languages were very limited: only two children reported to have an average level of reading and writing skills in their home languages.

Finally, there were 77 boys and 82 girls in the combined sample. The boys and girls did not differ in terms of the rate of receiving FSM, $\chi^2 (1) = 0.34$, $p = .558$. However, more boys ($n = 16$, 21%) tended to receive some form of educational support than girls ($n = 7$, 9%) and the gender difference was marginally significant, $\chi^2 (1) = 3.87$, $p = .049$.

2.2   *Materials and Procedure*

All testing was conducted in children's classes. Class teachers helped with the implementation of the single word spelling test by reading aloud the words and sentences.

2.2.1 Single word spelling. The Graded Word Spelling Test (Vernon, 2006) assessed children's single word spelling skills independent from text generation processes. Words with increasing complexity were read aloud three times: first in isolation, then within a sentence and finally, once more in isolation. Standard procedures were followed. The Cronbach's alpha coefficient of this test was reported to be .96 (Vernon, 2006).

2.2.2   Written expression. The paragraph writing subtest from the Wechsler Individual Achievement Test 2nd UK Edition (WIAT-II; Wechsler, 2005) was used to assess children's written expression. The internal reliability of the written expression was reported to be .81 and .87 for similar age groups (Wechsler, 2005). Each child wrote two paragraphs in response to the prompts, 'My favourite game is' and 'On a rainy day I like'. In line with the guidelines, ten minutes were given to write each paragraph. In order to control for fatigue the prompts were presented over two different sessions. The standard scoring rubric in the test manual was used to assess children's writings in terms of holistic quality, organisational

quality, the quality of written vocabulary, and compositional fluency. A measure of spelling error rate (the ratio of the total number of errors by the total number of written words) was also obtained.

The holistic quality dimension provides an overall index of writing quality with a focus on the content, organisation, and the clarity of expression. For this, a 7-point rating scale is used ranging between 0-6: 0 (does not relate to the prompt), 1 (listing of one or more general activities with no clarifying descriptions), 2 (minimal amount of description and clarifies at least one activity), 3 (mentions several activities most of which are clarified with further descriptions but the descriptions are limited), 4 (generally well written, mentions several activities with moderate descriptions), 5 (contains a substantial amount of description and detail but organisation is weak), and 6 (clearly presented, rich in information, and well organised with developed descriptions).

The organisation quality assesses sentence and paragraph structure and is composed of six subcomponents: a) sentence structure (i.e., the use of complete sentences; e.g., two points, if all sentences are complete; one point, if most are complete; and zero point, if most are fragments or run-on sentences), b) paragraph has at least two sentences (i.e., number of complete sentences), c) paragraph uses linking expressions (i.e., the use of varied linking expressions such as *but*, *so*, *also*, *yet*), d) paragraph has examples (i.e., the number of illustrative examples), e) paragraph is unified (i.e., does not contain any off-topic information), and f) the sentences follow in a logical order (i.e., presents information in a logical and sequential order, and the information is not contradictory). With the exception of *paragraph is unified* and *sentences follow in a logical order*, which are rated as 0 or 1, all subcomponents are assessed with a 3-point rating scale ranging between 0-2. Hence, the maximum possible score for organisation is ten.

The written vocabulary dimension has two subcomponents: a) the use of appropriate, varied, expressive, and rich vocabulary rated on a 4-point scale ranging between 0 (i.e., simple, nonspecific and immature vocabulary) and 3 (i.e., rich and expressive vocabulary); and b) the use of unusual or creative vocabulary rated on a 3-point scale ranging between 0 (i.e., no unusual or interesting words) and 2 (i.e., contains two or more unusual or creative expressions or word combinations). The maximum vocabulary score is five.

Finally, the total number of written words was used as a measure compositional fluency. The word count is a widely used index of writing fluency (also referred to as productivity or compositional length) and has been found to correlate with writing quality in diverse populations (e.g., Graham, Berninger, Abbot, Abbot, & Whitaker, 1997; Malecki & Jewell, 2003; Olinghouse & Leaird, 2009).

The scores from the two prompts were combined to form a composite mean score for each dimension. Thereby it was aimed to increase the range as well as the reliability of the scores. Prior to this, it was confirmed that the scores from the two prompts were significantly correlated (the rs for holistic quality, organisation, vocabulary, fluency, and spelling error rate were .63, .61, .55, .69 and .73, respectively, all ps < .001).

For the initial training procedure, 10 paragraphs were scored by the author and an independent scorer who was trained on the standard scoring rubric of the WIAT-II. Any disagreements were resolved through further discussion of the scoring rubric. In order to assess the interrater reliability of the scores, 80 paragraphs (40 from each prompt) were double scored blindly. The interrater reliability indices were all above the .70 criterion (the average rs across the two prompts for holistic quality, organisation, vocabulary, spelling error rate, and compositional fluency were .78, .91, .74, 1.00, 1.00, respectively).

Handwriting legibility as well as surface features of punctuation and capitalisation errors may influence the content related quality ratings (i.e., holistic quality, vocabulary, and organisation) of the written paragraph. Therefore, further checks were conducted by blind re-marking of 44 of paragraphs, which were typed and corrected for any spelling or punctuation errors, such as capitalisation. This gave an average interrater agreement of 98% on holistic quality, organisation, and vocabulary. Together, these findings provided support for the reliability of the writing scores.

3.   Results

3.1   Descriptive statistics and preliminary considerations

Table 1 shows a summary of the descriptive statistics as a function of language group and gender. The diagnostic tests confirmed that there were no significant outliers or skews and that the distribution of the scores was normal on all measures except those for spelling error rate: L1 $Z_{\text{spelling error rate}} = 5.50$ and L2 $Z_{\text{spelling error rate}} = 6.32$, all ps < .001. A logarithm 10 transformation of the scores remedied the skewed distribution and the resultant spelling error rate scores were multiplied by -1 to facilitate the interpretation of the results, such that higher positive scores suggested better performance. Hence, hereafter, spelling error rate is referred to as spelling accuracy rate. There was no violation of the assumptions of the analysis of variance tests (e.g., the distributions of the scores on the dependent variables were normal and the variances across the groups were homogeneous).

[Table 1 about here]

3.2   Language group and gender differences

Preliminary analysis indicated that including age and FSM in the analysis of variance tests did not change any of the results. Therefore, these two measures were excluded to simplify the reported results and improve the statistical power of the analysis. Likewise,

excluding children with special educational needs from the data analysis did not change the reported gender differences confirming that the gender differences in the rate of special educational needs did not bias the results. For this reason and to maintain the sample size, learners with special educational needs were retained in the analyses. Finally, Cohen's criteria was employed to evaluate the effect sizes. Accordingly, the eta squared (η^2) values at or above .01, .06 and .14 suggest small, medium, and large effect sizes, respectively (Cohen, 1988).

Spelling is a powerful predictor of writing quality in primary grades (Graham, et al., 1997) and may have implications for the comparison of the language group and gender differences on the dimensions of written expression. For this reason, the spelling accuracy levels of the groups were examined first with a two-factor univariate analysis of variance test. There was a significant main effect of gender in favour of girls on both spelling measures, $F(1, 155)_{\text{single-word spelling}} = 11.47$, $MSE = 2966.87$, $p = .001$, $\eta_p^2 = .069$ and $F_{\text{Spelling accuracy rate}}(1, 155) = 9.46$, $MSE = 1.14$, $p = .002$, $\eta_p^2 = .058$. There was no statistically significant effect of language group or interaction between language group and gender on either spelling measures, all $ps > .05$.

Next, a 2 (language group) x 2 (gender) multivariate analysis of covariance was conducted to examine the language group and gender differences on the dimensions of written expression (viz., holistic quality, organisation, vocabulary, and compositional fluency). The single word spelling accuracy, which examined spelling skills independent of the writing processes, was included in the analysis as a covariate to control for gender differences in spelling levels. The main effects of language group and gender were statistically significant, Wilks' $\Lambda = 0.833$, $F(4, 151) = 7.56$, $p < .001$, multivariate $\eta_p^2 = .167$ and Wilks' $\Lambda = 0.894$, $F(4, 151) = 4.46$, $p = .002$, multivariate $\eta_p^2 = .106$, respectively. The

interaction between language group and gender was not significant, Wilks' Λ = 0.986, F (4, 151) = .553, p =.697, multivariate η_p^2 = .014.

Follow-up analyses indicated that the L1 learners scored higher than their L2 peers on the measures of holistic quality, organisation, vocabulary, and compositional fluency. The magnitude of the language group differences was mostly within the medium range: F (1,154) $_{Holistic}$ = 24.07, MSE= 39.61, p < .001, η_p^2 = .135; F (1,154) $_{Organisation}$ = 23.45, MSE= 258.64, p < .001, η_p^2 = .132; F (1,154) $_{Vocabulary}$ = 16.33, MSE= 21.29, p = .001, η_p^2 = 096; F (1,153) $_{Compositional\ fluency}$ = 7.84, MSE = 14493.90, p = .006, η_p^2 = .048. Likewise, girls outperformed boys on all dimensions of written expression, except for organisation. The effect sizes were within the small-to-medium range, F (1,154) $_{Holistic}$ = 7.88, MSE= 12.96, p = .006, η_p^2 = .049; F (1,154) $_{Organisation}$ = 0.30, MSE= 3.26, p =.587, η_p^2 = .002; F (1,154) $_{Vocabulary}$ = 8.75, MSE= 11.41, p = .004, η_p^2 = .054; F (1,154) $_{Compositional\ fluency}$ = 9.95, MSE= 18402.67, p = .002, η_p^2 = .061.

Although the interaction effect between the language group and gender was nonsignificant, there was a consistent tendency of the language group gap to be larger for boys and the gender gap to be larger for the L2 group. A summary of the standardised mean differences between the groups is presented in the Appendix. For instance, with the exception of compositional fluency, the effect sizes for language group differences were all large for boys but within the small-to-moderate range for girls. Likewise, whereas the effect sizes for gender differences were all within the medium-to-large range in the L2 group, they were small in the L1 group (except for compositional fluency and spelling). The lowest performing group was the L2 boys (Table 1).

3.3   The contributions of vocabulary, compositional fluency, and organisation to overall writing quality: Multigroup path analysis

Next, a multigroup path analysis examined the contributions of written vocabulary, compositional fluency, and organisation to overall writing quality over and above spelling skills across the two language groups. Table 2 shows a summary of the correlations between the measures by language group. Due to the large correlation coefficient between the two spelling accuracy measures (rs = .71 in the L1 group and .77 in the L2 group), a composite *spelling accuracy* measure was created using principal component analysis. The Analysis of Moment Structures (AMOS 19; Arbuckle, 2010) programme was used for all the analysis. A nonsignificant χ^2 value, a CFI value at or above .95 and a RMSEA value below .05 indicated an adequate model fit (Browne & Cudeck, 1993). The model was a very good fit to the data from both language groups, L1, χ^2 (1) = 0.813, p = .367, CFI = 1.000, RMSEA = .000, with 90% CI = .000 to .271; L2, χ^2 (1) = 0.099, p = .753, CFI = 1.000, RMSEA = .000, with 90% CI = .000 to .219. Figure 1 depicts the standardised path parameters for both language groups and Table 3 shows the unstandardized parameter estimates. In both groups, the overall model explained a large proportion of the variance in writing quality (76% in L1 and 71% in L2 group) and the effect of spelling accuracy on writing quality was indirect through its strong relationships with the other dimensions of writing. The covariance between FSM and compositional fluency was fixed to zero to release one *df* to calculate the model fit (see Kline, 2005).

[Table 2 about here]

[Figure 1 about here]

Having established that the model provided a very good fit to the data from each language group, it was possible to proceed with the multigroup path analysis. The model fit to the pooled data from the two language groups yielded excellent fit indices, χ^2 (2) = 0.911, p = .634, CFI = 1.000, RMSEA = .000, with 90% CI = .000 to .126. This was the

unconstrained model where the parameter values were estimated independently for each language group. In order to test whether the contributions of written vocabulary, compositional fluency, and organisation to overall writing quality were invariant across the two language groups, the direct path parameter values were fixed to equality across the two groups.

However, prior to this, it was important to confirm that the error variances were homogenous across the groups (see Aguinis, Petersen, & Pierce, 1999). With the exception of vocabulary, the requirement of homogeneity of error variances was met. The error variance ratio of vocabulary was 1:1.56, hence just above the 1:1.5 threshold (i.e., DeShon and Alexander's rule of thumb for error variance homogeneity) and the Bartlett's M was marginally nonsignificant, $M = 3.715$, $p = .054$. Therefore, vocabulary was excluded from the constrained model (though its inclusion in the analysis did not change the reported results) and instead, alternative tests of moderation was computed, namely James's and Alexander's tests, both of which yielded nonsignificant differential slopes for vocabulary, $U = 1.61$, (Critical U) $= 3.90$, $p > .05$; $A = 1.59$, $p = .207$.

The constrained model remained a good fit to the data, $\chi^2 (6) = 9.799$, $p = .133$, CFI = 0.989, RMSEA = .064, with 90% CI = .000 to .132 but the $\Delta \chi^2$ value was marginally significant, $\Delta \chi^2 (4) = 8.888$, $p = .064$. Hence, it was important to proceed with the analysis to identify, which pairs of parameter values were substantially different between the two language groups that contributed to the marginally significant model fit change (see Kline, 2011). The examination of the residual moments revealed that the direct path coefficient from organisation to holistic quality was larger in the L1 group. Releasing the direct path coefficient for organisation to be estimated independently for each group led to a nonsignificant model fit change, $\Delta \chi^2 (3) = 0.733$, $p = .865$ and improved the model fit indices, $\chi^2 (5) = 1.645$ $p = .896$, CFI = 1.000, RMSEA = .000, with 90% CI = .000 to .049.

Note that the χ^2 difference between the fully constrained model and the partially constrained model with free organisation was significant, $\Delta \chi^2 (1) = 8.154$, $p = .004$. Together these results indicated that although there was a tendency of organisation and vocabulary to be differentially related to L1 and L2 writing quality (Figure 1), the group differences were nonsignificant suggesting invariant relations between the dimensions of writing and overall holistic quality across the two language groups.

[Table 3 about here]

4.   Discussion

The present study examined the written expression of L2 learners, which remains a highly under-researched area. As anticipated, with the exception of spelling accuracy, there was an L1 advantage on all dimensions of written expression. Girls outperformed boys on all but the organisation dimension of written expression. The lowest performing group was L2 boys, hence there was a heightened risk for more L2 boys to underscore on writing. The interaction between gender and language group was statistically nonsignificant. As for the relative contributions of vocabulary, organisation, and compositional fluency to the overall writing quality, all three dimensions made direct contributions to the prediction of holistic quality scores over and above spelling skills and the strength of relationships was relatively similar across the two language groups.

4.1   *Language group and gender differences in written expression*

In accordance with the previous reports, the L1 and L2 learners performed on par in spelling (Cameron & Besser, 2004). Girls' superior performance on spelling has also been reported before (e.g., Malecki & Jewell, 2003). However, this result should be evaluated cautiously. The magnitude of the gender differences in spelling tended to be larger in the L2

than the L1 group (Appendix). In addition, not all studies on L1 learners have found gender differences in spelling accuracy (e.g., Stainthorp & Rauf, 2009; Williams & Larkin, 2012). Therefore, further research is required to clarify the possible interaction between language group and gender in spelling.

The L2 learners' written expression tended to be weaker than that of their L1 peers on all dimensions of written expression, and the largest language group differences were observed in holistic quality, organisation, and vocabulary. Together, these results suggested that the clarity of expression, the amount of information provided, the use of appropriate and varied vocabulary, and sentence structure were important aspects of written expression that differed across the two language groups. Hence, the present study confirmed the previous findings, which reported an L2 disadvantage on the overall writing quality and grammatical aspects of writings (Cameron & Besser, 2004; Verheyden et al., 2010).

As for the gender differences, girls' written scripts were longer and received higher scores than those of boys on vocabulary and holistic quality even when the gender differences in spelling skills were taken into account. Although there was no statistically significant interaction effect between gender and language group on any dimensions of written expression, there was a consistent trend suggesting that the language group differences tended to be larger for boys than for girls, and that the gender differences were larger for the L2 group. In fact, with the exception of compositional fluency, L2 boys scored lower than L1 boys on all dimensions of written expression, and the magnitudes of language group differences were about one-third larger than those for L1 and L2 girls. It is notable that Cameron and Besser (2004) also reported a similar trend. Hence, it seems that the low performance of the L2 boys was the major factor that contributed to the gender differences in this study. Together, these results suggest that L2 boys were more at risk of underperformance on the dimensions of written expression.

4.2   The contributions of written vocabulary, organisational quality, and compositional fluency to holistic writing quality

The findings confirmed and extended the previous reports on the relations between written vocabulary, compositional fluency, and writing quality (e.g., Olinghouse & Leaird, 2009). In this study, in addition to written vocabulary and compositional fluency, organisational quality also made unique contributions to children's writing quality over and above spelling skills. The effect of spelling on writing quality was indirect through its relationships with vocabulary, organisation, and compositional fluency. Broadly, the strength of these relations was very similar across the L1 and L2 groups, but there were also differences. The quality of written vocabulary tended to make the largest impact upon L2 learners' overall writing quality scores. For L1 learners, however, it was the organisation (i.e., sentence structure and the number of ideas) dimension which had the most impact upon their overall writing quality scores. However, the group differences were marginally significant for organisation and not significant for vocabulary. These nonsignificant results might partly be due to the modest sample size, hence the low statistical power of the current study (see Aguinis, Beaty, Boik, & Pierce, 2005). Nonetheless, a number of methodological factors, including scoring procedures and task related factors, may also influence the scores and thereby, the strength of relations between the predictor measures and writing quality (see the section 4.4.). Therefore, research with larger sample sizes and multiple measures of writing is essential to pursue the current findings and clarify whether the aspects of written expression play a differential role in L1 and L2 writing quality. Without doubt, this line of research has important implications for our understanding of the instructional needs of learners from diverse language backgrounds, as discussed further in the next section (4.3.).

4.3.   Educational implications

Future research is required to confirm the findings on boys' written expression and examine the factors, such as motivation, that may explain why boys tended to score lower than their girl counterparts on writing. It is particularly vital to clarify why the L2 boys' performance was lower than that of their peers on most of the dimensions of written expression and whether the factors that may contribute to the observed gender differences vary across the L1 and L2 learners.

The L2 learners' low scores on the dimensions of vocabulary and organisational quality suggested weakness in both the vocabulary and grammar domains of the English language. This finding is in line with the previous research on similar groups of L2 learners (Babayiğit, 2012, 2013; Cameron & Besser, 2004). Given the central role of grammar and vocabulary in writing skills (Dockrell & Connelly, 2009; Jones, Myhill, & Bailey, 2012; Olinghouse & Wilson, 2013), specific educational focus on vocabulary and grammatical skills seems to be even more important for L2 learners.

The pre-writing activities that develop and strengthen the semantic representations and thereby the background knowledge and vocabulary skills have been found to be among the most effective means of supporting children's writing skills (Graham & Perin, 2006). Likewise, sentence-combining activities (Graham & Perin, 2007; Saddler, Behforooz, & Asaro, 2008) and contextualised grammar teaching (Myhill, Jones, Lines, & Watson, 2012) have been found to be an effective means of supporting writing development. Thus far, however, the efficacy of these intervention programmes has been investigated predominantly with L1 learners; it is vital that future research examines the most effective ways of supporting the writing development of L2 learners (Graham & Perin, 2006). Finally, a number of case studies indicate that close monitoring of the progress of L2 students as well as sustaining both high expectations and well-informed leadership regarding the needs of L2 students may increase the writing achievement of L2 learners (Office for Standards in

Education, 2005). Without doubt, a concerted approach is required to address the needs of minority language learners.

4.4   General limitations and further research

As with any correlational study on a highly heterogeneous population of L2 learners, this study has several limitations. First, the reported relationships do not suggest causality and the direction of effects might be reciprocal. Second, the aggregated findings from diverse ethnic and language groups may not generalise to specific language groups. There are significant variations in the literacy performance of different language groups (SFR, 2012a) and the magnitude of gender differences across the ethnic groups (Strand, 2008). Likewise, the composition of the L2 sample, including age and the distribution of the language groups and SES background, might have influenced the results. In fact, the limited variation in the SES backgrounds of the L2 learners may explain why FSM was not related to any of the measures in this study. This is not an uncommon finding when studies are conducted on minority language learners predominantly from low SES backgrounds (e.g., see Verheyden et al., 2010). It is for these reasons that further research must employ larger samples of L2 learners from a broader range of age groups and SES backgrounds to develop a better understanding of the writing development of L2 learners. It is also possible that FSM on its own may not fully capture the individual differences in SES. Additional measures of SES, particularly information on mother's educational levels, are required to clarify the role of SES in children's writing development.

In this study, the use of two different prompts from a standardised test with a highly structured scoring rubric yielded relatively high interrater reliability estimates, hence addressed the reliability issues to some extent. However, the format of the two writing tasks was the same. Given the reports that the performance on different writing tasks may vary

significantly (Schoonen, 2005, 2012), it is essential for future research to confirm the current findings with a wide range of writing tasks and scoring procedures. In fact, the variations at the level of *writer*, *writing task, scoring rubric,* and *rater* can all influence the pattern of results and it remains a major challenge for writing research to address the multiple sources of variations that influence writing performance (for a review, see Rijlaarsdam et al., 2012). It is also noteworthy that studies with multiple writing measures would enable to examine language group differences with a latent variable approach, which assesses measurement bias, and therefore provides a more reliable method of group comparison (Kline, 2013; Vandenberg, & Lance, 2000).

Finally, the findings from this study need to be pursued to refine our understanding of the skills that underlie the performance on the dimensions of written expression. For instance, Cameron and Besser (2004) found that L2 learners displayed particular weaknesses in the use of formulaic sequences (e.g., idioms, sentence frames, collocations) and addressing the demands of different genres that seemed to have undermined the overall quality of their writings. The L2 learners may not have the opportunities to experience diverse text and formulaic sequences. These are the aspects of a complex array of high-level oral language and text processing skills that underpin text writing (for a review, see Hayes, 2012), the educational implications of which remain to be fully examined in L2 learners.

4.5　Conclusion

In sum, the findings confirmed the previous reports of a tendency of more L2 learners and particularly L2 boys to underperform on the key dimensions of written expression and highlighted the importance of examining in tandem the gender and language group differences in writing performance. Future research is required to confirm these findings as well as elucidate the underlying reasons for the observed language group and gender

differences in writing. Nevertheless, it is clear that both L2 learners and boys would benefit

from close monitoring of their writing development and further research in this area is

imperative to inform the educational practice in our increasingly diverse classrooms.

Appendix

Summary of the Standardised Mean Differences (Cohen's d) between the Language and Gender Groups

Measures	L1 Boys vs. L2 Boys	L1 Girls vs. L2 Girls	L1 Girls vs. L1 Boys	L2 Girls vs. L2 Boys
Single word spelling	.06	-.19	.43[*]	.65[**]
Spelling accuracy rate	.17	-.05	.34 [†]	.74[**]
Holistic quality	.81[**]	.54[*]	.36 [† a]	.57[** a]
Organisation	.91[***]	.42 [†]	.11 [a]	.32 [a]
Vocabulary	.73[**]	.41 [†]	.36[† a]	.70[** a]
Compositional fluency	.44 [†]	.38 [†]	.49[*a]	.56[* a]

Note. L1 = first language; L2 = second language. [a] Adjusted for gender differences in single word spelling accuracy. Positive values indicate higher mean scores for L1 learners and girls.

[†] *p* < .10. * *p* < .05. ** *p* <.01. *** *p* < .001.

References

Aguinis, H., Beaty, J. C., Boik, R. J., & Pierce, C. A. (2005). Effect size and power in assessing moderating effects of categorical variables using multiple regression: A 30-year review. *The Journal of applied psychology, 90*, 94-107. doi:10.1037/0021-9010.90.1.94

Aguinis, H., Petersen, S. A., & Pierce, C. A. (1999). Appraisal of the homogeneity of error variance assumption and alternatives to multiple regression for estimating moderating effects of categorical variables. *Organizational Research Methods, 2*, 315-339. doi:10.1177/109442819924001

Arbuckle, J. L. (2010). IBM SPSS Amos 19. Crawfordvile, FL, USA: Amos Development Cooperation.

Babayiğit, S. (2012). The role of oral language skills in reading and listening comprehension of text: A comparison of monolingual (L1) and bilingual (L2) speakers of English language. *Journal of Research in Reading*, Advance online publication. doi:10.1111/j.1467-9817.2012.01538.x

Babayiğit, S. (2013). Contributions of word-level and verbal skills to written expression: Comparison of learners who speak English as a first (L1) and second language (L2). *Reading and Writing*, Advance online publication. doi:10.1007/s11145-013-9482-z

Berman, R. A., & Verhoeven, L. (2002). Cross-linguistic perspectives on the development of text-production abilities: Speech and writing. *Written Language & Literacy, 5*, 1- 43. doi:10.1075/wll.5.1.02ber

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162). Newbury Park, CA: Sage.

Cameron, L., & Besser, S. (2004). *Writing in English as an additional language at Key Stage 2 (rep. No. 586)* Retrieved from https://www.education.gov.uk/publications/standard/publicationDetail/Page1/RR586.

National Centre for Languages (2011). National Centre for Languages (operating as part of the CfBT education trust). Retrieved from http://www.cilt.org.uk/home/research_and_statistics/statistics/languages_in_the_population/annual_school_census.aspx

Cohen, J. D. (1988). *Statistical power analysis for the behavioural sciences* (Second ed.). Hillsdale, NJ: Erlbaum.

Department for Education (2012). *Primary schools census guidance*. Retrieved from http://www.education.gov.uk/schools/adminandfinance/schooladmin/a0064400/school-census-2012.

Department for Education and Skills (2006). *Ethnicity and education: The evidence on minority ethnic pupils aged 5-16 2006 ed. (ref.: 0208-2006dom-en)*. Retrieved from http://dera.ioe.ac.uk/6306/.

Dockrell, J., & Connelly, V. (2009). The impact of oral language skills on the production of written text. *Teaching and Learning, British Journal of Educational Psychology Monographs Series II, 6*, 45-62. doi:10.1348/978185409X421110

Fitzgerald, J. (2006). Multilingual writing in preschool through 12th grade. In A. MacArthur, S. Graham & J. Fitzgerald (Eds.), *Handbook of writing research* (pp. 337-354). London, UK:The Guilford Press.

Goldenberg, C., Reese, L., & Rezaei, A. (2011). Contexts for language and literacy development among dual-language learners. In A. Durgunoğlu & C. Goldenberg (Eds.), *Language and literacy development in bilingual settings* (pp. 3-25). New York, USA: The Guildford Press

Graham, S., Berninger, V. W., Abbot, R. D., Abbot, S. P., & Whitaker, D. (1997). Role of

mechanics in composing of elementary school students: A new methodological

approach. *Journal of Educational Psychology, 89*, 170-182. doi:10.1037/0022-

0663.89.1.170

Graham, S., & Perin, D. (2006). *Writing next: Effective strategies to improve writing of

adolescents in middle and high school*. Washington, D.C: Alliance for Excellence in

Education. Retrieved from http://all4ed.org/wp-

content/uploads/2006/10/WritingNext.pdf

Graham, S., & Perin, D. (2007). A meta-analysis of writing instruction for adolescent

students. *Journal of Educational Psychology, 99*, 445-476.

Hansen, K., & Jones, E. M. (2011). Ethnicity and gender gaps in early childhood. *British

Educational Research Journal, 37*, 973-991. doi:10.1080/01411926.2010.515018

Hayes, J. R. (2012). Modeling and remodeling writing. *Written Communication, 29*, 369-388.

doi:10.1177/0741088312451260

Jewell, J., & Malecki, C. K. (2005). The utility of cbm written language indices: An

investigation of production-dependent, production-independent, and accurate-

production scores. *School Psychology Review, 34*, 27-44.

Jones, S. M. (2012). Mapping the landscape: Gender and the writing classroom. *Journal of

Writing Research, 3*, 161-179.

Jones, S. M., & Myhill, D. A. (2007). Discourses of difference? Examining gender difference

in linguistic characteristics of writing. *Canadian Journal of Education, 30*, 456-482.

Jones, S. M., Myhill, D. A., & Bailey, T. (2012). Grammar for writing? An investigation of

the effects of contextualised grammar teaching on students' writing. *Reading and

Writing*, Advance online publication. doi:10.1007/s11145-012-9416-1

Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2 ed.). London, UK:The Guilford Press.

Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3 ed.). London: The Guildford Press.

Kline, R. B. (2013). Assessing statistical aspects of test fairness with structural equation modelling. Educational Research and Evaluation, 19, 204-222.

Lesaux, N., Geva, E., Koda, K., Siegel, L., & Shanahan, T. (2006). Development of literacy. In D. August & T. Shanahan (Eds.), *Developing literacy in second-language learners* (pp. 75-122). NJ, USA: Erlbaum.

Malecki, C. K., & Jewell, J. (2003). Developmental, gender, and practical considerations in scoring curriculum-based measurement writing probes. *Psychology in the Schools, 40*, 379-390.

Mead, S. (2006). *The evidence suggests otherwise: The truth about boys and girls*. Retrieved from http://www.educationsector.org/usr_doc/ESO_BoysAndGirls.pdf.

Myhill, D. A., Jones, S. M., Lines, H., & Watson, A. (2012). Re-thinking grammar: The impact of embedded grammar teaching on students' writing and students' metalinguistic understanding. *Research Papers in Education, 27*, 139-166. doi:http://dx.doi.org/10.1080/02671522.2011.637640

National Assessment of Educational Progres. (2011). *National Assessment of Educational Progress (NAEP): Writing assessment*. Retrieved from http://nationsreportcard.gov/writing_2011/.

Office for Standards in Education. (2005). *Could they do even better? The writing of advanced bilingual learners of English at Key Stage 2: Hmi survey of good practice (2452) http://dera.Ioe.Ac.Uk/5384/*. Retrieved.

Olinghouse, N. (2008). Student- and instruction-level predictors of narrative writing in third-grade students. *Reading and Writing, 21*, 3-26. doi:10.1007/s11145-007-9062-1

Olinghouse, N., & Leaird, J. (2009). The relationship between measures of vocabulary and narrative writing quality in second- and fourth-grade students. *Reading and Writing, 22*, 545-565. doi:10.1007/s11145-008-9124-z

Olinghouse, N., & Wilson, J. (2013). The relationship between vocabulary and writing quality in three genres. *Reading and Writing, 26*, 45-65. doi:10.1007/s11145-012-9392-5

Pajares, F., & Valiante, G. (2001). Gender differences in writing motivation and achievement of middle school students: A function of gender orientation? *Contemporary Educational Psychology, 26*, 366-381. doi:http://dx.doi.org/10.1006/ceps.2000.1069

Peterson, S. S., & Parr, J. M. (2012). Gender and literacy issues and research: Placing the spotlight on writing. *Journal of Writing Research, 3*, 151-161. doi:http://www.jowr.org/articles/vol3_3/JoWR_2012_vol3_nr3_Peterson_and_Parr.pdf

Rijlaarsdam, van den Bergh, Couzijn, Janssen, Braaksma, Tillema, … Raedts (2012). Writing. In K.R. Harris, S. Graham & T. Urdan (Eds.), *APA educational psychology handbook. Vol. 3: Application to learning and teaching* (APA handbooks in psychology) (pp. 189-228). Washington, DC: American Psychological Association. doi:10.1037/13275-001

Saddler, B., Behforooz, B., & Asaro, K. (2008). The effects of sentence-combining instruction on the writing of fourth-grade students with writing difficulties. *The Journal of Special Education, 42*, 79-90. doi:10.1177/0022466907310371

Schoonen, R. (2005). Generalizability of writing scores: an application of structural equation modeling. *Language Testing, 22*, 1-30. doi:10.1191/0265532205lt295oa

Schoonen, R. (2012). The validity and generalizability of writing scores: The effect of rater, task and language. In E. van Steendam, M. Tillema, G. Rijlaarsdam, & H. van den Bergh (Eds.), Measuring Writing: Recent Insights into Theory, Methodology and Practice (Vol. 27, pp. 1-24). Brill. doi:10.1108/S1572-6304(2012)0000027004

Statistics First Release (2011). *National curriculum assessment at Key Stage 2 in England 2010/11 (SFR 31/2011) (revised), 15th december 2011*. Retrieved from http://www.education.gov.uk/rsgateway/DB/SFR/s001047/index.shtml.

Statistics First Release (2012a). *GCSE and equivalent attainment by pupil characteristics in England, 2010/11*. Retrieved from http://www.education.gov.uk/rsgateway/DB/SFR/s001057/index.shtml.

Statistics First Release (2012b). *Phonics screening check and national curriculum assessments at Key Stage 1 in England 2011/12*. Retrieved from http://www.education.gov.uk/rsgateway/DB/SFR/s001086/index.shtml.

Statistics First Release (2012c). *Schools and pupils and their characteristics*. Retrieved from http://www.education.gov.uk/rsgateway/DB/SFR/s001071/index.shtml.

Stainthorp, R., & Rauf, N. (2009). An investigation of the influence of the transcription skills of handwriting and spelling on the quality of text writing by girls and boys in Key Stage 2. *Handwriting Today, 8*, 8-13. Retrieved from http://www.nha-handwriting.org.uk/publications/annual-journal

Strand, S. (2008). *Minority ethnic pupils in the longitudinal study of young people in England extension report on performance in public examinations at age 16. Department for Children, Schools, and Families- RR029.London: Institute of Education, University of Warwick.* Retrieved from http://www.dfes.gov.uk/research/data/uploadfiles/DCSF-RR029.pdf.

Troia, G., Harbaugh, A., Shankland, R., Wolbers, K., & Lawrence, A. (2012). Relationships between writing motivation, writing activity, and writing performance: Effects of grade, sex, and ability. *Reading and Writing*, 1-28. doi:10.1007/s11145-012-9379-2

Vandenberg, R. J., & Lance, C. E. (2000). A review and synthesis of the measurement invariance literature: Suggestions, practices, and recommendations for organizational research. Organizational Research Methods, 3, 4-70. doi:10.1177/109442810031002

Verheyden, L., Van den Branden, K., Rijlaarsdam, G., Van den Bergh, H., & De Maeyer, S. (2010). Written narrations by 8- to 10-year-old Turkish pupils in Flemish primary education: A follow-up of seven text features. *Journal of Research in Reading, 33*, 20-38. doi:10.1111/j.1467-9817.2009.01430.x

Vernon, P. E. (2006). *Graded word spelling test, third edition revised and restandardised by Colin McCarty and Mary Crumpler*. London: Hodder Education.

Wechsler, D. (2005). *Wechsler individual achievement test (2nd UK edition)* London, UK: Harcourt Publishers.

Wight, V. R., Chau, M., & Aratani, Y. (2010). *Who are america's poor children? The official story (brief)*. Retrieved from http://www.nccp.org/publications/pdf/text_912.pdf.

Williams, G. J., & Larkin, R. F. (2012). Narrative writing, reading and cognitive processes in middle childhood: What are the links? *Learning and Individual Differences*, Advance online publication. doi:10.1016/j.lindif.2012.08.003

Wolff, D. (2000). Second language writing: A few remarks on psycholinguistic and instructional issues. *Learning and Instruction, 10*, 107-112. doi:http://dx.doi.org/10.1016/S0959-4752(99)00021-3

Zecker, L., B (2004). Learning to read and write in two languages. In C. A. Stone, E. R. Silliman, B. J. Ehren & K. Apel (Eds.), *Handbook of language and literacy: Development and disorders* (pp. 248-265). New York, USA: The Guildford Press.

DIMENSIONS OF WRITTEN EXPRESSION

Table 1

Summary of Descriptive Statistics as a Function of Language Group and Gender

Measures/ maximum possible score	L1 (*n* = 89)			L2 (*n* = 70)		
	Boys (*n* = 42)	Girls (*n* = 47)	Total	Boys (*n* = 35)	Girls (*n* = 35)	Total
	Mean (*SD)*	Mean (*SD)*	Mean (*SD)*	Mean (*SD)*	Mean (*SD)*	Mean (*SD)*
Holistic / 12	4.52 (1.37)	5.28 (1.57)	4.92 (1.52)	3.40 (1.40)	4.49 (1.31)	3.94 (1.45)
Organisation / 20	12.86 (3.61)	13.15(3.87)	13.01 (3.73)	9.57 (3.58)	11.54 (3.62)	10.56 (3.71)
Vocabulary / 10	2.57 (1.21)	3.15 (1.37)	2.88 (1.32)	1.66 (1.30)	2.66 (0.91)	2.16 (1.22)
Compositional fluency / na	122.79 (50.66)	150.02 (45.81)	137.17 (49.80)	102.80 (38.08)	133.49 (41.59)	118.14 (42.49)
Single word spelling / 130	95.07 (16.94)	101.83 (14.65)	98.64 (16.04)	94.11 (16.47)	104.77 (16.49)	99.44 (17.22)
Spelling error rate/ 1	.10 (.07)	.08 (.06)	.09 (.07)	.11 (.07)	.06 (.04)	.08 (.06)

Note. N = 159. L1 = first language learners; L2 = second language learners; na = not applicable.

DIMENSIONS OF WRITTEN EXPRESSION

Table 2

Correlations Between the Measures as a Function of Language Group

	Holistic writing quality	Vocabulary	Organisation	Compositional fluency	Spelling accuracy rate	Single word spelling
Holistic writing quality	-	.65***	.77***	.66***	.32**	.44***
Vocabulary	.77***	-	.52***	.39***	.29**	.40***
Organisation	.64***	.51***	-	.49***	.28**	.42***
Compositional fluency	.66***	.54***	.62***	-	.16	.22*
Spelling accuracy rate	.47***	.40***	.50***	.48***	-	.71***
Single word spelling	.47***	.39**	.42***	.43***	.77***	-

Note. Correlation coefficients for the first language learners ($n = 89$) are presented above and those for the second language learners ($n = 70$)

below the diagonal.

* $p < .05$. ** $p < .01$. *** $p < .001$.

DIMENSIONS OF WRITTEN EXPRESSION

Table 3

Summary of Unstandardized Parameter Estimates

Parameters			L1		L2	
			UnStd	*SE*	UnStd	*SE*
Direct Effects						
Vocabulary	→	Holistic quality	0.307***	0.07	0.609***	0.10
Organisation	→	Holistic quality	0.176***	0.03	0.077*	0.03
CF	→	Holistic quality	0.010***	0.00	0.008*	0.00
SA	→	Holistic quality	0.111	0.09	0.123	0.12
FSM	→	Holistic quality	-.269	.210	-0.108	.19
Covariances						
Organisation	↔	CF	92.940***	21.84	96.708***	22.00
Vocabulary	↔	CF	25.687***	7.47	27.284***	6.92
CF	↔	SA	10.644*	5.57	307.652**	94.21
Vocabulary	↔	Organisation	2.547***	0.59	2.252***	0.60
Organisation	↔	SA	1.452***	0.44	1.674**	0.47
Vocabulary	↔	SA	0.507***	0.16	0.482**	0.15
FSM	↔	SA	-0.026	0.04	-0.014	0.05
FSM	↔	Vocabulary	-0.019	0.05	-0.078	0.06
FSM	↔	Organisation	-0.240	0.14	-0.084	0.17
FSM	↔	CF [a]	0.00	-	0.00	-
Variances						
Vocabulary			1.731***	0.26	1.468	0.25
Organisation			13.966***	2.09	13.56	2.31

DIMENSIONS OF WRITTEN EXPRESSION

Parameters	L1		L2	
	UnStd	*SE*	UnStd	*SE*
CF	2451.758**	369.87	1779.894	302.56
SA	1.070***	0.16	0.900***	0.15
FSM	0.147***	0.02	0.250	0.04
D Holistic quality	0.549***	0.08	0.597***	0.10

Note. L1 = first language learners; L2 = second language learners; UnStd = unstandardised estimate; CF = compositional fluency; SA = spelling accuracy composite; FSM = free school meal; [a] = constrained to zero; D = disturbance (unexplained) variance.
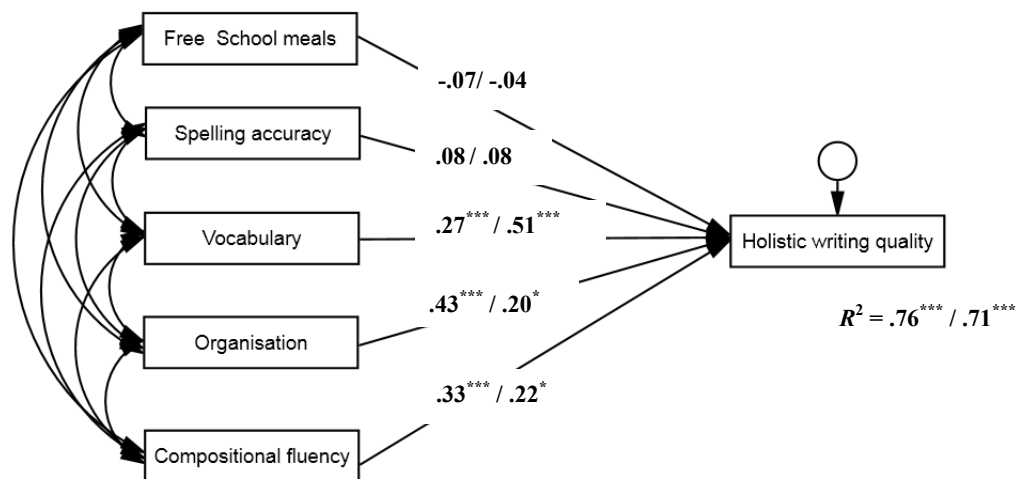
* *p* < .05. ** *p* < .01. *** *p* < .001.

Figure 1. Multigroup path analysis: Contributions of vocabulary, organisation, and compositional fluency to holistic writing quality in first (L1) and second language (L2) learners. The standardised direct path parameters for L1/ L2 learners. R^2 = total explained variance.

* *p* < .05. ** *p* < .01. *** *p* < .001.