Abstract

Extensive L2 reading instruction has been associated with significant learning gains in reading comprehension and writing, as well as with increased positive reading attitudes. Further evidence in support of extensive reading was found in Canada with Francophone ESL children (Lightbown, 1991). In addition to the overall effectiveness of extensive reading, there is a need to investigate how individual learner factors relatively affect the benefits obtained from this type of instruction, in line with the aptitude-treatment interaction framework. Specifically, learner background variables related to L1 literacy ability could be of particular interest to explain variation in L2 learning gains. The purpose of this study was to examine whether any relationships between learner background variables related to L1 reading and learning gains in L2 writing differed depending on the nature of L2 instruction (an extensive reading/listening program or regular instruction). The overall findings of the study indicated a relationship between L2 learning under extensive reading-while-listening instruction and L1 reading-related factors, particularly positive L1 reading attitudes (a factor internal to the learner) and a supportive reading environment combined with mother's reading interest and parents' education level (external factors).

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1. Literature review

1.1. L1 reading factors and L2 achievement

First language (L1) reading and writing skills (or L1 literacy abilities) have been shown to be successful predictors of second language (L2) achievement (Sparks, 2012; Sparks, Patton, Ganschow, & Humbach, 2009). Strong L1 reading skills largely depend on reading habits and attitudes that are developed early in childhood, typically in children's homes, an important site for literacy development. Research shows that children who have pleasant experiences with reading early in childhood are more likely to read frequently later in life and develop positive attitudes toward reading (Baker, Scher, & Mackler, 1997). Baker et al. (1997) found that having adult reading models in the home environment who take reading as entertainment fostered children's reading interests and achievement. Also, a supportive reading environment at home with access to a wide variety of reading material has been shown to be essential to develop a child's reading habits and attitudes (Gest, Freeman, Domitrovich, & Welsh, 2004). Finally, parental involvement through a variety of parent-child activities such as joint book reading have been associated with early literacy or reading achievement in several studies (e.g., Burgess, Hecht, & Lonigan, 2002; Senechal, LeFevre, Thomas, & Daley, 1998; Weems & Rogers, 2007) and in meta-analytic study reviews (Bus, van Ijzendoorn, & Pellegrini, 1995; Scarborough & Dobrich, 1994).

Several researchers have argued that the development of good reading habits and positive L1 reading attitudes results in stronger L1 skills and has an impact on L2 achievement. Cummins (1979, 1984) hypothesized that L2 skills depend on the level of

development of the L1, particularly on the development of 'cognitive academic language proficiency', the ability to use language in decontextualized ways, including writing. Similarly, Carroll (1973) also related L2 learning to L1 learning ability arguing that the ability to learn an L2 is a residue of L1 learning skills. These claims were supported by the results of Skehan's work (1986a, 1986b, 1989) following up on the Bristol Language Project (Wells, 1985), which showed that early indices of L1 development, as well as family literacy indicators such as parents' level of education and literacy in the home environment, were able to predict later L2 learning skills. In addition, a series of studies by Sparks and associates (e.g., Ganschow & Sparks, 2001; Ganschow, Sparks, & Javorsky, 1998) have consistently shown that L1 literacy skills are positively associated with oral and written foreign language (FL) proficiency in secondary and postsecondary levels. This research supported their Linguistic Coding Differences Hypothesis (Sparks & Ganschow, 1991), which proposed that the ability to learn an L2 is influenced by L1 skills because both L1 and L2 depend on similar learning mechanisms.

1.2. Extensive reading and reading-while-listening

The transfer of L1 literacy skills may be facilitated under certain types of L2 instruction in which the focus is on cognitive academic skills, narrowly defined as the use of language for intellectual purposes, such as understanding meaning from the written page or thinking about linguistic content in analytical form (Cummins, 1984). One of these types of instruction is extensive reading. According to Richards and Schmidt (2002, p. 193), extensive reading means "reading in quantity and in order to gain a general understanding of what is read." In extensive reading programs, learners read a relatively large amount of texts compared with intensive reading, which involves slower

reading of a small amount of materials. The goal is that learners enjoy reading and "develop good reading habits, to build up knowledge of vocabulary and structure, and to encourage a liking for reading" (Richards & Schmidt, 2002, pp. 193-194).

In a FL context, where access to input is typically poorer than in other contexts, an extensive reading program can be an effective intervention to maximize learners' exposure to input, both quantitatively and qualitatively. This is an idea compatible with Krashen's 1981 Comprehensible Input Hypothesis (see Krashen, 2008, for an extended version) and his argument that language acquisition takes place through exposure to large amounts of input that we understand and from which we learn incidentally without being aware that we are learning.

Research that has examined the effectiveness of extensive reading in pretest-posttest designs, usually classroom-based studies with high school and adult learners (see reviews by Horst, 2005 and Nakanishi, 2014), has shown that extensive reading is associated with significant gains in reading comprehension and writing, as well as with increased positive attitudes toward reading (Day & Bamford, 1998; Yamashita, 2004; Waring, 2001) and considerable gains in vocabulary learning (Webb & Chang, 2015).

Further evidence in support of extensive reading was found in Canada, where an instructional program based on reading-while-listening was successfully implemented with primary school Francophone children learning English as a second language (ESL) (Lightbown, 1991). The program included a combination of simultaneous reading and listening activities that involved reading stories and listening to accompanying audio recordings for 30 minutes a day. Learners worked individually and independently. As part of a longitudinal study, learners' performance was evaluated at several points of time over the course of six years and results showed that comprehension-based learning was as effective as regular audiolingual ESL programs on comprehension, receptive

vocabulary, L2 pronunciation and some measures of oral production (Lightbown, 1992). In addition, the learners in the comprehension-based learning program reported enjoying this type of instruction more than the learners in the regular program.

Using data from the same large-scale longitudinal study, Trofimovich, Lightbown and Halter (2013) investigated whether learner background factors such as motivation and L2 reading ability were positively associated with learning gains in L2 speaking ability under the comprehension-based methodology in comparison to the regular L2 program. They hypothesized that this type of extensive reading program could be of particular benefit to learners with high levels of L1 literacy ability, among other variables.

The results of the study showed that relationships were stronger in the comprehension-based program than in the traditional program. Particularly, contact with English, reading interest, and parental bilingualism correlated significantly with L2 comprehensibility in the first and second year of the program. In addition, significant correlations were also found with L2 accuracy, except for contact with English in the second year of the program. On the other hand, only contact with English and parental bilingualism correlated significantly in the comparison group, and not consistently across the two grades investigated.

Trofimovich et al. (2013) argued that these results showed that learner profiles were differently associated with different types of instruction. Given that the two groups in the study were comparable in terms of the learner background variables investigated, the authors concluded that their results were compatible with possible aptitude-treatment interaction (ATI) effects between type of instruction and measures of learners' L2 contact and L1 literacy, among others.

Motivated by the effectiveness of comprehension-based learning, the importance of such instruction for beginner-level learners (see Shintani, Li, & Ellis, 2013), and the scarcity of recent extensive reading literature related to school-based learners (Nakanishi's 2014 meta-analysis includes no study from primary education), a year-long small-scale reading-while-listening intervention program was designed and implemented in Barcelona, Spain. The study included an intervention group, similar to that in the Canadian program, which engaged in independent reading-while-listening practice, and a comparison group that followed regular teacher-led classes. The groups were compared for linguistic gains in a pre-posttest design (Authors, in press). There were 28 learners in each of the two groups, all of them 5th graders (age 10-11) at the time of the study.

In order to assess students' linguistic gains, five instruments were used: a listening comprehension test, a written production task, a sentence imitation task, a dictation and a reading/listening comprehension task. In addition, data were also collected through questionnaires, in order to gather information about attitudes towards L2 learning and L2/L1 reading as well as about specific aspects of the reading/listening sessions. Finally, questionnaires were also administered to parents in order to gather information about their own and their children's L1 reading habits and attitudes.

The results for linguistic gains showed that participants in both groups made significant pre-to-post learning gains. However, the groups were not significantly different from each other on most of the measures. Significant differences were only found in one of the written production measures (total number of strips filled in) in favor of the comparison group, and in the dictation and reading/listening comprehension task, in favor of the intervention group (though in this case only posttest scores were available). In terms of attitudes and motivation, the results of the questionnaire showed

more positive attitudes in the intervention than the comparison group. For example, 44% of the learners in the intervention group reported English to be among their favorite subjects and 59% said they liked learning English with audiobooks a lot, while no learner reported not having liked the sessions. On the other hand, only 16% of the learners in the comparison group reported English to be among their favorite subjects. Similarly, only 16% said that they liked English lessons a lot and 16% that they did not like them.

Authors (in press) concluded that their findings support the benefits of a comprehension-based program among young L2 learners especially in terms of attitudinal outcomes. Furthermore, the learners in the intervention group progressed at least as much as the students in the comparison group in spite of having had much less teacher-led instruction time than the latter.

2. Present study

Similarly to Trofimovich et al. (2013), the aim of the present study was to investigate possible links between type of L2 instruction and L1 reading factors such as a supportive reading environment at home, reading habits and attitudes. Data for the present study came from the small-scale longitudinal investigation with young L2 learners of English by Authors (in press).

The goal of the present study, as also explained in Trofimovich et al. (2013), is in line with the ATI paradigm (Cronbach & Snow, 1977). This research paradigm (for a review, see Vatz, Tare, Jackson, & Doughty, 2013) takes individual learner differences into account in order to assess the effectiveness of different instructional interventions, under the premise that instruction is most effective when matched to learners' specific abilities. The term aptitude refers to any relatively stable learner characteristic that can

be used as a predictor, whereas treatment refers to a manipulable variable (e.g., method of instruction). An interaction is expected when treatments produce different effects in learners with different levels of aptitude. In other words, when learners have characteristics "that increase (or impair) their probability of success in a given treatment" (Cronbach & Snow, 1969, p. 5).

Previous research, carried out largely in the educational field in the 1970's and 1980's, has shown that learner characteristics indeed affect or mediate what happens in an educational situation (e.g., Bursuk, 1971; Cronbach & Webb, 1975; Hauptman, 1971; Wesche, 1981). Authors (in press) pointed out the need for research investigating how individual learner factors affect the benefits obtained from extensive reading/listening and they argued that this type of semi-autonomous learning could be of particular benefit to learners with higher levels of literacy ability. The only study, to the best of our knowledge, that has investigated this issue has been Trofimovich et al. (2013), but using data from a longitudinal study carried out in the 80's in an ESL context, in Canada, when audiolingualism was the predominant teaching methodology. The current study investigated the same research question using data from a 2014 longitudinal study in a FL context, in Barcelona, Spain (see above). In this study, L2 learning gains were measured by means of a written task, an aspect that was not investigated in the Canadian study. Specifically, the purpose of the current study was to examine whether any relationships between learner background variables related to L1 reading (such as a supportive reading environment at home or reading habits and attitudes) and learning gains in L2 writing differ depending on the nature of the L2 instruction received (an extensive reading/listening program versus regular instruction). The research question that guided the study was the following:

Does the relationship between L1 reading factors and learning gains in L2 writing differ depending on the nature of the L2 instruction received (an extensive reading/listening program or regular instruction)?

3. Method

3.1. Participants

Primary school learners studying English as a foreign language (EFL) at a public school in Barcelona (Spain) participated in the study ($N = 56$). Parents were also invited to participate by filling out an L1 reading habits questionnaire. The learners were 10-11 years old at the time of the study and were in 5th grade.

The initial pool of participants included 28 learners in the intervention group and 28 learners in the comparison group, taught by the same teacher. Four of the learners in the intervention group and three of the learners in the comparison group had been identified by the school as having learning difficulties and were excluded from the analysis.

The final pool consisted of those learners who had completed the reading questionnaires analyzed in the present study: 24 learners in the intervention group (41.7% males and 58.3% females) and 17 in the comparison group (52.9% males and 47.1% females). Out of these, a total of six learners in the intervention group and seven learners in the comparison group were studying English as an out-of-school activity. These participants' learning gains were compared to the gains of those participants who were not taking extra language classes in each of the groups. In the comparison group, differences were not significant ($p > .05$)[1]. In the intervention group, there was a significant difference for one of the measures (total number of content words)[2]. However, this difference was not considered a threat to reliability, since the purpose of the study was not to compare the learning gains of the two groups, but to investigate

whether learning gains were related to learner background variables differently in each of the groups.

3.2. Design

The study followed a pretest/posttest quasi-experimental design. Two intact classrooms were randomly assigned as the intervention and comparison groups. The intervention group received the treatment, a reading-while-listening focused program, while the comparison group followed regular instruction. All participants received three English language sessions per week. Total instruction time was kept constant. In the intervention group, two of these sessions were listening/reading sessions (1 hour and a half in total), while the third session was regular instruction (1 hour). In the comparison group, all three sessions were regular instruction. Pretest measures were administered in September, at the beginning of the academic year. The treatment was delivered from October until the end of the academic year in June. Posttest measures were administered in June.

3.3. Tasks and materials

3.3.1. Treatment materials

The regular instruction program consisted of teacher-centered instruction. The comparison group followed this program in the three English sessions they had each week. A language textbook with a topic-based approach was used combined with other teacher-produced materials. During these sessions, the teacher addressed the students mostly in English and grammar was taught incidentally.

The intervention group followed this regular instruction program only one session per week and the reading-while-listening program twice a week. In the

reading/listening focused program, learners were provided with a reading/listening library from which they could choose the audio-books they wanted to read/listen to during each session. The books were graded readers (58%) and children's storybooks (42%), all of which had been carefully chosen. Graded readers were chosen from the list of publishers and language learner literature awards available at the Extensive Reading Foundation (http://erfoundation.org/wordpress/). Most of the readers had between 100 and 200 running words. All of them were audio-books.

The children's storybooks included in the library were originally written for younger children (ages 3-8), since it was considered that these would be easier to follow for EFL learners in 5th grade, but care was taken to avoid books that could be too childish for 10-11 year-olds. All the books had supporting illustrations. The library had a total of 60 titles available at the beginning of the treatment in October, and the number of books was increased to 110 in February.

Treatment sessions had two parts. The first part (approximately 20 minutes) consisted in reading/listening to books (reading-while-listening task). The second part consisted in completing post-reading tasks. In these tasks, participants wrote the title of the book they had read, voted for the number of stars the book deserved, rated their comprehension level, and finally wrote down any sentences or dialogues they could remember from the book, anything they had learned about the language, or an alternative title for the book.

Before the beginning of the treatment, participants were given some initial training about how to use audio-books. The goal of this training was to model good practices with audio-books. Also as part of the initial training, participants received some phonics instruction, which included Genkie English charts and 10 sound-spelling rules.

3.3.2. Pretest/posttest measures

A writing task was used as pretest/posttest measure. The task was a comic strip with eight empty bubbles that participants were asked to fill in with a sentence or two in English (see Appendix A). The task was not based on the specific teaching materials used in those classes but it had been satisfactorily used in a previous study with learners of the same age group (e.g. Authors, 2014). In addition, two questionnaires about L1 reading factors, such as home support, habits and attitudes were administered as part of the posttest in the two groups. They were both administered in the participants' L1 (see the English translation in Appendix B). One of the questionnaires was addressed to the learners themselves and the other one was sent out to their parents. The learners' questionnaire consisted of seven Likert-scale items, most of which included four levels. The items asked about issues such as the amount of time the learners spent on reading, the availability of reading materials at home, as well as reading attitudes. The parents' questionnaire had 12 Likert-scale items, most of which included four or five levels. The items asked about the amount of time spent on reading by each of the parents, the number of books available at home, as well as the parents' education level, and questions about their children's reading habits.

3.4. Procedures

The learners in the reading-while-listening program were given a set of instructions to follow in every session. First, they were told that they could freely choose the books they wanted to read in every session. Second, they were told to read/listen to the audio-books twice in every session. And third, they were told to complete two or three post-reading tasks of their choice after reading the book twice. Depending on the length of

the soundtrack, students chose one or more books per session. The teacher was instructed to ensure that at least 20 minutes were devoted to reading/listening. She monitored students' work and was available to solve technical or language problems.

3.5. Scoring and analysis

Four writing measures from four different proficiency dimensions were analyzed in the study: total L2 word count (a fluency measure), total number of function words (an accuracy measure), total number of content words (a measure of lexical richness), and total number of different verb forms (a grammatical complexity measure).

The total L2 word count (tokens) excluded proper names, lines copied from the handout or lines written mostly in the L1, interjections (e.g., 'mm', 'oh no'), and the repetition of a word for emphasis purposes (e.g., 'Is very very delicious!').

The total number of function words (tokens) included only those words that were accurately used. These could be auxiliaries, modal verbs, pronouns, prepositions (as long as not part of a phrasal or prepositional verb), conjunctions, determiners, numbers, or the word 'not.' If a word was repeated for emphasis, it was only counted once.

The total number of content or lexical words in the L2 (tokens) included nouns, main verbs (including copula 'be'), adjectives, and adverbs, even if they were misspelled or used in the wrong tense (e.g., present instead of past). Lexical words that appeared in the text of the handout were excluded (e.g., snack, glass, orange, monkey) and words such as 'bye bye', 'thank you', and 'good morning' were considered as one word.

Finally, the total number of verb forms included either accurately used or attempted verb forms (e.g., 'is', 'are', 'am', imperative, progressive).

A first rater coded 100% of the data and an independent rater coded 25% of the data for these categories. The percentage agreement between the two independent coders was 96% for the fluency measure (total word count), 90% for the accuracy measure (number of function words), 95% for the vocabulary measure (number of content words), and 92% for grammatical complexity (number of verb forms). Disagreements in scoring were then discussed and resolved.

4. Results

The present study focused on whether any relationships between L2 learning gains and learner background variables related to L1 reading home support, habits and attitudes differed depending on type of instruction. The outcome measures investigated were four written production task measures covering fluency, accuracy, lexical richness, and grammatical complexity. Table 1 shows the descriptive statistics for the learning gains in each of the groups. Gains in each of the groups were normally distributed according to one-sample Kolmogorov-Smirnov (*KS*) tests ($p > .05$).

INSERT TABLE 1 ABOUT HERE

Exploratory factor analyses via principal components analysis (PCA) were first performed on the learners' and parents' answers to the questionnaires in order to determine how many factors were involved in learners' and parents' responses. Regarding the learners' questionnaire, it included items such as the amount of time spent on reading, the availability of reading materials at home, as well as reading attitudes. Answers were provided on different Likert scales along a dimension from negative (or fewer) to positive (or more) (see Table 2).

INSERT TABLE 2 ABOUT HERE

A PCA with Varimax rotation was conducted ($n = 41$), in order to extract independent (uncorrelated) factors. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .607. Conventionally, values that are higher than .600 suggest that the partial correlations between the variables are adequate for the analysis. Barlett's test of sphericity was significant ($p = .039$), indicating significant relationships among the variables. The eigenvalue-more-than-one criterion was adopted to determine the number of factors. The analysis revealed three factors with eigenvalues greater than 1.0 that accounted for 65.25% of the total variance.

According to the rotated solution, three items loaded on the first component with coefficients indicating appreciable indicator-factor correspondences (i.e., > .40; Thompson, 2004) (see Table 3): 'How many books did you read for Christmas?', 'How many books are there in your home for children your age?', the strongest loadings, and 'Do you like reading?', the weakest. Based on the two strongest loadings on this factor, which accounted for 29.38% of the total variance, the factor was labeled 'Availability and use of reading materials in the home environment.' Two items loaded on the second component with coefficients greater than .40: 'Did your parents read to you when you were a small child?' and 'How often do you go to a library to read and/or borrow books?' This factor, which accounted for 20.80% additional variance, was labeled 'Family-based reading habits.' The last component had three loadings greater than .40: 'Are you given books as a birthday or Christmas gift?', 'Do you like reading?', and 'How long do you read outside of school in a week? ' This factor was labeled 'Love for reading' and it accounted for the remaining 15.07% variance.

INSERT TABLE 3 ABOUT HERE

Regarding the parents' questionnaire, it included items asking about the amount of time they spent on reading, the number of books available at home, as well as the parents' reading attitudes and education level, and questions about their children's reading activity (see Table 4). This questionnaire was completed by all the parents in the intervention group (24 learners), but only by 10 parents in the comparison group (out of 17 learners) [3].

INSERT TABLE 4 ABOUT HERE

A PCA with Varimax rotation was then also conducted ($n = 34$), in order to establish independent (uncorrelated) factors on the basis of factor loadings. The *KMO* measure of sampling adequacy was .45 and the Barlett's test of sphericity was significant ($p = .001$). The analysis yielded five factors with eigenvalues greater than 1.0 that accounted for 75.49% of the total variance. Four items loaded on the first component with coefficients greater than .40 (see Table 5): 'How many books do you have for adults at home?', 'How many books do you have for children his/her age at home?', 'Do you give books to your child as a gift?', and 'Do you like reading (mother)?' Based on the strongest loading ('How many books do you have for adults at home?'), this factor, which accounted for 19.42% of the total variance, was labeled 'Supportive reading environment at home.' Three items loaded on the second component with coefficients greater than .40: 'Do you like reading (father)?', 'When you go on vacation, do you take books with you for your child?', and 'How often do

you read books/magazines/newspapers (father)?' This factor was labeled 'Father's reading interest' and it accounted for 17.46% additional variance. Three items as well loaded on the third component: 'Does your child like reading?', 'How many books did s/he read over the last vacation?' 'Do you give books to your child as a gift?' This factor, which accounted for 14.86% additional variance, was labeled 'Parents' awareness of their child's love for reading.' Three more items loaded on the fourth component with coefficients greater than .40: 'How often do you read books/magazines/newspapers (mother)?', 'What is your highest education level (either father or mother)?', and 'Do you like reading (mother)?' This factor, which accounted for 13.60% additional variance, was labeled 'Mother's reading interest and parents' education.' Finally, one item loaded on the last component: 'Did you use to read to your child when s/he was younger?' This factor accounted for 10.16% additional variance and was labeled 'Bedtime reading routines.'

INSERT TABLE 5 ABOUT HERE

Factor scores from both questionnaires were saved as variables. Factor scores are the scores participants would get if they could be measured directly on the factors. Each learner, therefore, had a factor score from the parents' questionnaire and a factor score from the learners' questionnaire. Scores in each of the groups were normally distributed, according to one-sample *KS* tests ($p > .05$). The second step in the analysis involved computing Pearson correlations between factor scores and gain scores in each of the two groups (intervention and comparison). Table 6 displays the correlations between factor scores from the learners' questionnaire and learning gains in the four

writing measures investigated, while Table 7 displays the correlations between factor scores from the parents' questionnaire and L2 gains in the four writing measures.

INSERT TABLES 6 AND 7 ABOUT HERE

As can be seen in Tables 6 and 7, there were no significant correlations between factor scores and learning gains in the comparison group, suggesting no relationships between outcome measures and L1 reading variables in the regular instruction program. In the intervention group, a few significant correlations were found between outcome measures and factors from both the learners' and the parents' questionnaires. Regarding the learners' questionnaire, availability and use of reading materials at home was significantly related to outcomes in two of the writing measures, total number of words (fluency) and number of different function words accurately used (accuracy). Love for reading was also significantly related to number of function words. Regarding the parents' questionnaire, only one of the factors, the mother's reading interest and parents' education, was significantly related to one of the writing measures, number of different content words (lexical richness).

5. Discussion

This study set out to investigate whether any relationships between learner background variables related to L1 reading factors and learning gains in L2 writing differ depending on type of instruction (an extensive reading/listening program versus regular instruction). Regular instruction was defined as largely teacher-centered instruction characterized by the use of an EFL textbook and the practice of the four skills. On the other hand, the extensive reading/listening program was a learner-centered intervention that focused on reading and listening skills.

Four of the reading factors identified in the analyses were interpreted as related to attitudes toward L1 reading: 'Love for reading', in the learners' questionnaire, and 'Child's love for reading', 'Father's reading interest', and 'Mother's reading interest and parents' education' in the parents' questionnaire. The correlational analyses showed significant relationships between two of these factors ('Love for reading' and 'Mother's reading interest and parents' education') and learning gains in the extensive reading/listening group, but not in the regular instruction group. Specifically, 'Love for reading' correlated significantly with accuracy gains in L2 writing and 'Mother's reading interest and parents' education' correlated significantly with gains in lexical richness. These results suggest that those learners who enjoyed reading more, whose mothers also liked reading, and who had parents with higher education levels benefitted more from an instructional program that focused on L2 reading and listening. These factors did not play a role in the regular instructional program, which did not focus on any skill in particular.

These findings indicate that positive attitudes toward L1 reading are transferred to L2 reading, in support of Day and Bamford's (1998) model, which proposed that one of the sources of attitudes toward L2 reading is learners' attitude toward L1 reading. Also, Yamashita (2004) found that L1 and L2 reading attitudes are related and that positive attitudes motivate learners to read more in extensive reading programs. She argued that what is more likely to transfer from L1 to L2 are the values learners attach to reading, which tend to stay constant across languages, rather than what learners feel about reading (e.g., confidence in one's reading abilities). Positive attitudes to L1 reading influence L1 reading ability, which in turn will impact L2 reading ability (Cummins, 1978). Although a direct link between reading attitude, habits and/or activity and actual literacy abilities was not directly examined as part of the current study,

previous research has shown that L1 print exposure makes unique contributions to individual differences in abilities such as spelling, reading comprehension, and verbal fluency (Sparks, 2012), in line with Cummins' theory. Therefore, those learners who probably had greater reading and literacy abilities (greater ability to read, spell, write, and comprehend), partly the result of having a positive reading attitude and reading as a habit, would have been able to take greater advantage of the L2 reading/listening intervention in the present study.

The fact that parents' education level also influenced learners' performance in the reading/listening intervention group supports the importance of this variable in learners' academic achievement, as shown by various studies where the mother's education level was a predictor of academic success (King & Friesen, 1972; Hart & Risley, 1995). The higher the parents' education level, the more they will tend to read to their children and engage in more literacy-rich activities, providing a supportive reading environment and contributing to the development of positive attitudes and children's overall literacy ability. Evidence of the relationship between, specifically, the mother's education level and children's literacy ability is that mother's education level correlates with children's vocabulary size (Dixon, 2011). Also in the present study, the variable that correlated with learners' L2 outcomes was the mother's interest in reading, rather than the father's, which indicates mothers' key contribution to children's literacy ability.

The third and last factor that correlated significantly with two of the outcome measures (fluency and accuracy) in the extensive reading/listening intervention group was the factor interpreted as 'Availability and use of reading materials in the home environment' in the learners' questionnaire. This factor was a combination of attitudes toward reading, reading activity, and availability of reading resources. It included the

attitudinal item 'Do you like reading?', an item about the number of books the learner read during Christmas holiday, and an item about the number of children's books available in the learner's home, the strongest loading on the factor of the three. Interestingly, the equivalent factor in the parents' questionnaire ('Supportive reading environment at home') did not yield any significant correlations. The main difference between the two factors was the loading of the attitudinal item 'Do you like reading?' in the factor extracted from the learners' questionnaire, which did not load in the factor from the parents' questionnaire (the equivalent attitudinal item, 'Does your child like reading?' had a weak loading of -.067 in this factor). This discrepancy seems to indicate that children's answers concerning themselves, even at this age, may be more reliable than parents' answers based on the perceptions they have of their children's attitudes. All in all, these results would support the importance of a learner's positive attitude toward reading, in addition to just having a supportive reading environment at home, as a key factor in extensive reading/listening instruction.

The remaining two factors that did not yield any significant correlations with learning gains also lacked significant loadings from attitudinal items. In the analysis of the learners' questionnaire, the factor interpreted as 'Family-based reading habits' included an item about the learner's use of public libraries and an item about reading as a bedtime routine. In the parents' questionnaire, the factor interpreted as 'Bedtime reading routines' included an item that asked parents whether they used to read to their children before going to bed. Neither of these two factors correlated significantly with L2 learning outcomes in the two types of instruction investigated. This finding contrasts with results from studies showing that early home literacy experiences (HLE), such as joint reading, contribute to explaining young children's language and reading skills (Burgess et al., 2002). This seems to indicate that at an older age such a relationship

may be mediated by other aspects of the HLE, such as the opportunity to observe parents, and especially the mother, engaging in literacy as a preferred leisure activity (Scarborough & Dobrich, 1994).

All together these results suggest that positive attitudes toward L1 reading by child and parents (particularly the mother) and a supportive reading environment at home (including number of books, but also parents' education level and a positive reading attitude) have a stronger link to L2 achievement than reading habits or routines per se under an instructional program that focuses on reading and listening. The relatively small number of correlations found would indicate that other factors that have not been taken into account in this study may play a more important role. This would be supported by the results of a recent meta-analysis of the correlates of L2 comprehension (Jeon & Yamashita, 2014) where L1 reading comprehension yielded a moderate correlation with L2 reading comprehension.

From an ATI perspective, the presence of significant correlations between L1 reading factors and outcomes in only one of the two types of L2 instruction investigated suggests a possible interaction between learner individual differences and type of instruction, in line with the ATI paradigm. These results add to the existing literature on the relationship between L1 literacy skills and L2 achievement (e.g., Sparks, 2012) by showing that instructional programs where L2 literacy skills play a role will be particularly effective for learners whose background profile includes a high level of L1 literacy ability. Trofimovich et al. (2013) also found that learner background variables such as L1 reading scores and interest in reading showed stronger correlations with L2 learning outcomes under a comprehension-based instructional program that engaged learners in listening/reading activities. From a social point of view, both studies seem to indicate that students who favoured the most from the intervention program were those

from families with greater amounts of cultural capital (Bourdieu, 1986), supporting its important role in educational achievement and attainment (Dita & Dingh, 2002).

6. Conclusions and limitations

To conclude, the overall findings of this study indicate a relationship between L2 learning under extensive reading-while-listening instruction and L1 reading-related factors, particularly positive L1 reading attitudes (a factor internal to the learner) and a supportive reading environment combined with mother's reading interest and parents' education level (external factors).

These findings must be interpreted in the light of several limitations. The first one is the small sample size. A second limitation is the use of questionnaires to assess aspects such as the learners' attitudes and home environment. Parents and, especially, children may have found it difficult to estimate the frequencies of behaviors, and they may have been influenced by social desirability factors. Future research should look at behavioral measures of L1 literacy in addition to self-reported data to further validate the results of the present study. Similarly, other L2 literacy measures such as L2 reading and receptive vocabulary measures should be investigated.

In spite of these limitations, the study offers valuable findings in two underexplored areas: evidence of the relationship between L2 proficiency and factors related to L1 reading habits, activity and home environment; and evidence of a possible interaction between learner individual differences and type of instruction in primary school learners.

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[1] Total number of words (t(15) = -1.528, p = .147), function words (t(15) = -.924, p = .370), content words (t(15) = -1.423, p = .175), and different verb forms (t(15) = .931, p = .367).
[2] Total number of words (t(22) = -.502, p = .621), function words (t(22) = -.828, p = .417), content words (t(22) = -2.488, p = .021), and different verb forms (t(22) = -.610, p = .548).
[3] As a reviewer notes, parents from children in the comparison group may have been less motivated to fill the questionnaire because their motivation was not as high as that of the parents of the intervention group,

who may have felt special. However, they had been informed that their children's group would take part in the experience the following academic year.

References

Authors (in press).

Authors (2014).

Baker, L., Scher, D., & Mackler, K. (1997). Home and family influence on motivation for reading. *Educational Psychologist*, *32*, 69–82.

Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241–258). Westport, CT: Greenwood Press.

Burgess, S. R., Hecht, S. A. & Lonigan, C. J. (2002). Relations of the home literacy environment (HLE) to the development of reading-related abilities: A one-year longitudinal study. *Reading Research Quarterly*, *37*, 408–426.

Bursuk, L. (1971). Sensory mode of lesson presentation as a factor in the reading comprehension improvement of adolescent retarded readers (ERIC Document Reproduction Service No. ED 047 435).

Bus, A. G., Van Ijzendoorn, M. H., & Pellegrini, A. D. (1995). Joint book reading makes for success in learning to read: A meta-analysis on intergenerational transmission of literacy. *Review of Educational Research*, *65*, 1–21.

Carroll, J. (1973). Implications of aptitude test research and psycholinguistic theory for foreign language learning. *International Journal of Psycholinguistics*, *2*, 5–14.

Cronbach, L. J., & Snow, R. E. (1969). *Individual differences in learning ability as a function of instructional variables. Final report*. Stanford University: California School of Education.

Cronbach, L. J., & Snow, R. E. (1977). *Aptitudes and instructional methods*. New York: Irvington.

Cronbach, L. J., & Webb, N. (1975). Between and within-class effects in a reported aptitude-by-treatment interaction: Reanalysis of a study by G. L. Anderson. *Journal of Educational Psychology*, *6*, 717–724.

Cummins, J. (1978). Bilingualism and the development of metalinguistic awareness. *Journal of Cross-Cultural Psychology, 9*, 131–149.

Cummins, J. (1979). Linguistic interdependence and the educational development of bilingual children. *Review of Educational Research*, *49*, 222–251.

Cummins, J. (1984). *Bilingualism and special education: Issues in assessment and pedagogy.* Clevedon, England: Multilingual Matters.

Day, R. R., & Bamford, J. (1998). *Extensive reading in the second language classroom.* Cambridge: Cambridge University Press.

Dita, S. & Dingh, K. (2002). Applications of social capital in educational literature: A critical synthesis. *Review of Educational Research*, *72,* 31–60.

Dixon, L. Q. (2011). The role of home and school factors in predicting English vocabulary among bilingual kindergarten children in Singapore. *Applied Psycholinguistics*, *32*, 141–168.

Ganschow, L., & Sparks, R. (2001). Learning difficulties and foreign language learning: A review of research and instruction. *Language Teaching*, *34*, 79–98.

Ganschow, L., Sparks, R., & Javorsky, J. (1998). Foreign language learning problems: A historical perspective. *Journal of Learning Disabilities, 31*, 248–258.

Gest, S. D., Freeman, N. R., Domitrovich, C. E., & Welsh, J. A. (2004). Shared book reading and children's language comprehension skills: the moderating role of parental discipline practices. *Early Childhood Research Quarterly*, *19*, 319–336.

Hart, B. & Risley, T. R. (1995). *Meaningful differences in the everyday experience of young American children.* Baltimore: Paul Brookes.

Hauptman, P. C. (1971). A structural approach vs. a situational approach to foreign language teaching. *Language Learning*, *21*, 236–244.

Horst, M. (2005). Learning L2 vocabulary through extensive reading: A measurement study. *The Canadian Modern Language Review, 61*, 355–382.

Jeon, E. H., & Yamashita, J. (2014). L2 reading Comprehension and its correlates: A meta-analysis. *Language Learning*, *64*, 160–212.

King, E. M., & Friesen, D. T. (1972). Children who read in kindergarten. *The Alberta Journal of Educational Research*, *18*, 147–161.

Krashen, S. (1981). *Second language acquisition and second language learning.* Oxford: Pergamon Press.

Krashen, S. (2008). The comprehension hypothesis extended. In T. Piske, & M. Young-Scholten (Eds.), *Input matters in SLA* (pp. 81–110). Bristol: Multilingual Matters.

Lightbown, P. M. (1991). Getting quality input in the second/foreign language classroom. In C. Kramsch, & S. McConnell-Ginet (Eds.), *Text and context: Cross-disciplinary perspectives on language study* (pp. 187–197). Lexington, MA: DC Heath.

Lightbown, P. M. (1992). Can they do it themselves? A comprehension-based ESL course for young children. In R. Courchene, J. St John, C. Thérien, & J. I. Glidden (Eds.), *Comprehension-based second language teaching* (pp. 353–370). Ottawa: University of Ottawa Press.

Nakanishi, T. (2014). A meta-analysis of extensive reading research. *TESOL Quarterly, 49,* 6-37.

Richards, J. C., & Schmidt, R. (2002). *Longman dictionary of language teaching and applied linguistics*. (3rd ed.). London: Pearson Education.

Scarborough, H. S., & Dobrich, W. (1994). On the efficacy of reading to preschoolers. *Developmental Review, 14,* 245–302.

Senechal, M., LeFevre, J., Thomas, E. M., & Daley, K. E. (1998). Differential effects of home literacy experiences on the development of oral and written language. *Reading Research Quarterly*, *33*, 96–116.

Shintani, N., Li S. & Ellis, R. (2013). Comprehension-based versus production-based grammar instruction: A meta-analysis of comparative studies. *Language Learning*, *63*, 296–329.

Skehan, P. (1986a). The role of foreign language aptitude in a model of school learning. *Language Testing*, *3*, 188–221.

Skehan, P. (1986b). Cluster analysis and the identification of learner types. In V. Cook (Ed.), *Experimental approaches to second language acquisition* (pp. 81–94). Oxford: Pergamon.

Skehan, P. (1989). *Individual differences in second language learning*. London: Arnold.

Sparks, R. L. (2012). Individual differences in L2 learning and long-term L1-L2 relationships. *Language Learning*, *62*, 5–27.

Sparks, R., & Ganschow, L. (1991). Foreign language learning difficulties: Affective or native language aptitude differences? *Modern Language Journal*, *75*, 3–16.

Sparks, R., Patton, J., Ganschow, L., & Humbach, N. (2009). Long-term relationships among early language skills, L2 aptitude, L2 affect, and later L2 proficiency. *Applied Psycholinguistics*, *30*, 725–755.

Thompson, B. (2004). *Exploratory and confirmatory factor analysis.* Washington, DC: American Psychological Association.

Trofimovich, P., Lightbown, P. M., & Halter, R. (2013). Are certain types of instruction better for certain learners? *System, 41*, 914–922.

Vatz, K., Tare, M., Jackson, S. R., & Doughty, C. J. (2013). Aptitude-treatment interaction studies in second language acquisition: Findings and methodology. In G. Granena, & M. H. Long (Eds.), *Sensitive periods, language aptitude, and ultimate L2 attainment* (pp. 271–290). Amsterdam: John Benjamins.

Waring, R. (2001). Research in extensive reading. *Studies in Foreign Language and Literature*, *25*, 44–67. Retrieved from:
http://www.robwaring.org/papers/various/kiyo2001.html

Webb, S., & Chang, A. (2015). Second language vocabulary learning through extensive reading with audio support: How do frequency and distribution of occurrence affect learning? *Language Teaching Research*, 1–20. First published online 28 November 2014.

Weems, D. M., & Rogers, C. (2007). America's next top model: Parent behaviors that promote reading. *Child Education*, *84*, 105–106.

Wells, C. G. (1985). *Language development in the pre-school years*. Cambridge: Cambridge University Press.

Wesche, M. B. (1981). Language aptitude measures in streaming, matching students with methods, and diagnosis of learning problems. In K.C. Diller (Ed.), *Individual differences and universals in language learning aptitude* (pp. 119–154). Rowley, MA: Newbury House.

Yamashita, J. (2004). Reading attitudes in L1 and L2, and their influence on L2 extensive reading. *Reading in a Foreign Language, 16*, 1–19.

Table 1
Pretest scores, posttest scores, and learning gains in the comparison and intervention groups.

Writing Measures	Comparison (*n* = 17)			Intervention (*n* = 24)		
	Pre	Post	Gains	Pre	Post	Gains
Fluency	20.41	38.26	**16.60**	21.33	34.46	**13.13**
	(13.33)	(19.45)	**(15.78)**	(10.79)	(16.05)	**(14.08)**
Accuracy	4.59	7.73	**3.05**	3.75	6.71	**2.96**
	(3.83)	(3.71)	**(3.25)**	(2.52)	(3.17)	**(2.40)**
Lexical richness	5.59	9.83	**4.0**	4.54	8.13	**3.58**
	(3.40)	(5.51)	**(4.23)**	(2.75)	(3.65)	**(2.41)**
Complexity	2.18	3.21	**1.0**	1.87	2.58	**.71**
	(1.62)	(1.57)	**(1.59)**	(.99)	(1.50)	**(1.33)**

Table 2
Items in the learners' questionnaire (*n* = 41).

ITEMS	*M*	*SD*	Minimum	Maximum
Are you given books as a birthday or Christmas gift?	3.37	.74	1	4
How often do you go to a library to read and/or borrow books?	2.87	.89	1	4
Do you like reading?	3.43	.54	2	4
How long do you read outside of school in a week?	3.24	.88	1	4
How many books did you read during the Christmas holiday?	1.68	.53	1	3
Did your parents read to you when you were a small child?	3.13	.73	1	4
How many books are there in your home for children your age?	3.47	.99	1	5

Table 3
Rotated component matrix (learners' questionnaire) (*n* = 41).

ITEMS	Factor 1	Factor 2	Factor 3
Are you given books as a birthday or Christmas gift?	-.203	.021	**.815**
How often do you go to a library to read and/or borrow books?	.072	**.836**	.031

Do you like reading?	**.417**	.006	**.636**
How long do you read outside of school in a week?	.369	.083	**.618**
How many books did you read during the Christmas holiday?	**.847**	-.174	.081
Did your parents read to you when you were a small child?	-.016	**.842**	.042
How many books are there in your home for children your age?	**.715**	.258	.096

Table 4
Items in the parents' questionnaire (*n* = 34).

ITEMS	*M*	*SD*	Minimum	Maximum
Does your child like reading?	3.37	.69	1	4
Do you give books to your child as a gift?	3.69	.53	2	4
Did you use to read to your child when s/he was younger?	3.46	.56	2	4
When you go on vacation, do you take books with you for your child?	3.54	.70	1	4
How many books did your child read over the last vacation?	2.74	1.95	1	10
How many books do you have for children his/her age at home?	2.77	.84	1	5
Do you like reading (mother)?	3.79	.53	3	5
Do you like reading (father)?	3.32	.95	1	4
How often do you read books/magazines/newspapers (mother)?	4.44	.70	3	5
How often do you read books/magazines/newspapers (father)?	4.33	.96	2	5
How many books do you have for adults at home?	3.56	.86	2	5
What is your highest education level?	5.23	.97	3	6

Table 5
Rotated component matrix (parents' questionnaire) (*n* = 34).

ITEMS	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Does your child like reading?	-.067	-.013	**.930**	-.072	.059
Do you give books to your child as a gift?	**.747**	-.246	**.467**	.069	-.150
Did you use to read to your child when s/he was younger?	.065	-.085	.142	-.045	**.915**
When you go on vacation, do you take books with you for your child?	-.154	**.779**	.265	.049	-.071
How many books did s/he read					

over the last vacation?	.227	.192	**.690**	.059	.140
How many books do you have for children his/her age at home?	**.761**	.142	-.007	.123	-.004
Do you like reading (mother)?	**-.486**	.131	.348	**.651**	.263
Do you like reading (father)?	.146	**.824**	-.036	.014	.153
How often do you read books/magazines/newspapers (mother)?	.042	-.081	-.090	**.848**	-.155
How often do you read books/magazines/newspapers (father)?	.356	**.738**	-.046	.013	-.302
How many books do you have for adults at home?	**.775**	.319	.032	.050	.349
What is your highest education level (either mother or father)?	.350	.115	-.008	**.673**	.043

Table 6
Correlations between factor scores from the learners' questionnaire and gain scores in the comparison and intervention groups.

Variable	Fluency		Accuracy		Lexical richness		Complexity	
	Comp	Exp	Comp	Exp	Comp	Exp	Comp	Exp
Availability and use of reading materials in the home environment	-.22	.49*	.04	.66*	.01	.15	.11	.07
Family-based reading habits	.13	-.34	-.14	-.30	.21	-.19	-.30	.15
Love for reading	-.09	.18	.10	.47*	.18	.06	.29	.12

Note. *$p < .05$, **$p < .01$, ***$p < .001$ (two-tailed); Comp = comparison group; Exp = intervention group.

Table 7
Correlations between factor scores from the parents' questionnaire and gain scores in the comparison and intervention groups.

Variable	Fluency		Accuracy		Lexical Richness		Complexity	
	Comp	Exp	Comp	Exp	Comp	Exp	Comp	Exp
Supportive reading environment at home	.36	-.25	.10	-.10	.09	.06	.28	-.03
Father's reading	.13	-.19	.38	-.28	.09	-.34	.11	-.03

interest

Child's love for reading	.29	.22	.56	.37	.50	.01	.49	.10
Mother's reading interest and parents' education	-.32	.04	.12	.15	.41	.66**	-.35	.22
Bedtime reading routines	.49	.30	.01	-.06	.09	.08	.13	-.33

Note. *p* < .05, **p* < .01, ***p* < .001 (two-tailed); Comp = comparison group; Exp = intervention group.

Cavall Fort (1119, March 2009), p. 36

APPENDIX B

<u>Learners' reading questionnaire:</u>

1. How long do you read outside of school in a week?

   1 = I read very rarely.
   2 = I read for a while 1 or 2 days a week.
   3 = I read for a while 3 or 4 days a week.
   4 = I read for a while every day or almost every day.

2. How many books did you read during Christmas holiday?

   1 = Fewer than 2 books.
   2 = Between 2 and 5 books.
   3 = More than 5 books.

3. How many books are there in your home for children your age?

   1 = Five or fewer books.
   2 = Between 5 and 20 books.
   3 = Between 20 and 50 books.
   4 = Between 50 and 100 books.
   5 = More than 100 books.

4. Are you given books as a birthday or Christmas gift?

   1 = Never.
   2 = Rarely.
   3 = Sometimes.
   4 = Often.

5. How often do you go to a library to read and/or borrow books?

   1 = Never.

2 = Twice or three times a year.
3 = Once a month.
4 = Once every two weeks or more often.

6. Do you like reading?

   1 = Definitely not.
   2 = Not much.
   3 = A little.
   4 = A lot.

7. Did your parents read to you when you were a small child?

   1 = Never or rarely.
   2 = Yes, sometimes.
   3 = Yes, often.
   4 = Yes, every day.

Parents' reading questionnaire:

1. Does your child like reading?

   1 = Definitely not.
   2 = Not much.
   3 = A little.
   4 = A lot.

2. Do you give books to your child as a gift?

   1 = Rarely.
   2 = Occasionally.
   3 = Sometimes.
   4 = Often.

3. Did you use to read to your child when s/he was younger?

   1 = Never or rarely.
   2 = Yes, sometimes.
   3 = Yes, often.
   4 = Yes, every day.

4. When you go on vacation, do you take books with you for your child?

1 = Rarely.
2 = Occasionally.
3 = Sometimes.
4 = Often.

5. How many books did your child read over the last vacation?

   1 = One.
   2 = Two.
   3 = Three.
   4 = Four.
   5 = Five.
   6 = Six.
   7 = Seven.
   8 = Eight.
   9 = Nine.
   10 = Ten.

6. How many books do you have for children his/her age at home?

   1 = Five or fewer books.
   2 = Between 5 and 20 books.
   3 = Between 20 and 50 books.
   4 = Between 50 and 100 books.
   5 = More than 100 books.

7. Do you like reading (mother)?

   1 = Definitely not.
   2 = Not much.
   3 = A little.
   4 = A lot.

8. Do you like reading (father)?

   1 = Definitely not.
   2 = Not much.
   3 = A little.
   4 = A lot.

9. How often do you read books/magazines/newspapers? (mother)

1 = Never.
2 = Rarely.
3 = Sometimes.
4 = Often.
5 = Very frequently.

10. How often do you read books/magazines/newspapers? (father)

1 = Never.
2 = Rarely.
3 = Sometimes.
4 = Often.
5 = Very frequently.

11. How many books do you have for adults at home?

1 = Five or fewer books.
2 = Between 5 and 20 books.
3 = Between 20 and 100 books.
4 = Between 100 and 500 books.
5 = More than 500 books.

12. What is your highest education level (either father or mother)?

1 = No education.
2 = Unfinished primary education.
3 = Primary education.
4 = Secondary education.
5 = Career.
6 = College.