Secondary School Students' Language Literacy Skills Aided by Computer Tools

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Abstract

This paper presents the results of Phase 1 study investigating how and why secondary school students use computer tools (spelling and grammar checkers) to aid them in their English writing and how their patterns of use related to their literacy development. The study was centred on how some students use computers effectively to support their writing, while others struggle to read and write in English. Sixty-five Year 8 students sat the standardised literacy tests, followed by a survey. The survey covered many variables including students' perceptions on the usefulness of the spelling and grammar checkers while composing their English writing. The students' responses indicated that their regular use of computer tools (spelling and grammar checkers) at Year 8 level aided them in their English writing, but they did not retain the skills that the tools offered. Some students were unsure of their spelling so they resorted to the computer tools to aid them with their spelling and grammatical sentence structure. Their general reasons were that they did not have to remember any of the corrections due to the computer tools availability when they needed them.

Keywords: Students, computer use, spelling and grammar checkers, literacy practices, reading and writing.

1. Introduction

Since computers became part of domestic, industrial and educational environments, new and innovative technologies have created changes and challenges in all fields. Children (the Net-Generation) are more perceptive and willing to exploit the electronic devices by engaging in the digital culture to construct self-identity and community [1]. The school aged children live in the emerging world ([2], [3] and [4]), a world of transition and with a global and local focus. The use of electronic medium/ICT has influenced the way young people perceive and transform the traditional written language into a language of their own, shaped by short conventional text messaging and online-chatting ([5]). The Net-Generation have the opportunity to use the computer and their tools (spelling and grammar checkers) to present their work in a traditional form rather than in the variety that they invented. Many students trust the spelling and grammar checkers because they are very unsure of their own spelling and grammar ([6]).

2. Purpose of the study

The focus of the study has stemmed from personal observation and discussion with students over the years as a classroom teacher in the areas of Computer Studies and Humanities. With the increased use of computers in both domestic and school environments, students have displayed more interest in the use of computers, by producing typed up rather than handwritten work.

The purpose of the study is to investigate how the use of computer-based spelling and grammar checkers, may influence the students' language literacy (reading, comprehension and writing) development. In relation to language, literacy is commonly defined as the ability to read and write effectively in a range of contexts ([7]). In today's society, both language and computer literacies are of major concern to scholars and educators. The study explored the relationship between the development of students' literacy skills and their computer use in both school and domestic environments.

3. Literature review

Computers in the education and domestic environments have become a common place for both teaching and learning. The transformation of educational activities into the electronic medium has sometimes been overwhelming to the young, their families and policy makers. "What has stimulated policy change has been the beliefs about average education levels in the labour force and the claimed effect of these on economic performance" ([8]). Sternberg et al ([9]) reported that some educators are concerned about the use of features built into today's word processors, such as spelling and grammar checkers, electronic dictionaries and thesauruses. "They fear that students will become too reliant on these tools and be unable to spell, acquire sufficient vocabulary, or construct grammatically correct sentences without them". By contrast, Warschauer ([10]) concluded that the use of these tools would increase students' written language skills. He suggested that students achieve more success in their writing when they have the opportunity to use the computer tools effectively.

Beavis [11] included the point that the growth of the networked society and the spread of ICT have brought significant challenges to schools and changes to traditional literacy. The definition of language literacy has changed over the years along with the advances and development of ICT. "New and innovative technologies have created changes, challenges, and opportunities in education and suggest new ways to approach the way literacy is taught" and defined [13].

These changes have made computer literacy skills more available to include interactions and communications through social events and practices. The digital natives apply their own language which they have invented by engaging in the use of the electronic devices as they emerge. The digital culture that the children identify with has shifted emphasis from the traditional written language to re-form a language that the Net-Generation created. Hence, the implications on young people's engagement in digital culture, from an ideological view, have a focus on digital texts as social and textual entities. They are digitally embodied in multimodal forms of literacy and are associated in the constructions of identity and community [3].

Several studies have investigated and evaluated the use of the spelling and grammar checkers and their implications for language literacy development for school-age children and their English writing. Chen and Lee [13] discovered from their study that text rewrites using "social networking applications [such as the internet using blogs, discussion boards and creating web pages] engage their students more effectively in interacting with the text". New skills can be derived from using, for example 'Facebook' (social networking site), and according to Rowsell [14], "mediating identities through multiple modes and applications. … , shaping written text and visuals around diverse audiences that have shorter and longer timescales".

4. Research methodology

The whole study was designed in two phases:

Phase 1 of the research began with screening procedures (English literacy screening), using a quantitative methodology to collect statistical data from sixty-five Year 8 students. It involved standardised literacy testing and a survey. Following the initial tests and survey in Phase 1, Phase 2 of the study made use of a qualitative approach to obtain more in-depth data. Six students (as case studies) were selected from the Phase 1 sample to constitute the Phase 2 informants. The students in Phase 1 were diversified achievers in their English literacy skills (reading, comprehension and writing).

The quantitative method was used to correlate the results by testing Year 8 students and collecting data to eliminate some phenomena/assumptions about the students' computer use and English writing ([19]). The number of students who consented to participate in the study was 65 (40 boys and 25 girls) out of 135 students at Year 8 level, who returned the consent forms, sat the tests and answered the questionnaire. Some of the questionnaire responses are used in this paper to complement and throw light on the literacy test results and students' perceptions of the computer tools, reading and writing.

The focus was centred on few factors. Variables were well thought-out when survey questions were devised. This relates to Phase 1 in my study. The pre-testing questionnaire was prepared and administered to quantify the variables for the quantitative data collection. The attempt was to operate under the assumption of objectivity, to avoid human bias whenever possible and to remain neutral or as value-free as possible. In summary, the strengths of the quantitative approach are based on 'control' (control of variables and the relationship between them) and its weaknesses on 'restriction' and 'controlling of variables'

The data for this paper was gathered by administering: (1) Australian Council for Educational Research (ACER) tests: Progressive Achievement Tests in Reading: Vocabulary and Comprehension (PAT – R) ([20]) and Developmental Assessment Resource for Teachers (DART – English) ([19]); and (2) a self-developed questionnaire that explored patterns of educational and domestic computer use, by Year 8 students. In light of McMillan and Schumaker's ([22]) statement, the first technique of data collection was administering the instruments at Year 8 level to obtain a broad picture of the sixty-five students' literacy skills and their patterns of ICT use.

These tools offer different problems in the digital age, according to Moje ([15]), young people also have access to a local network of peers, texts and activities (e.g., massive, multiuser computer games) that are more compelling or engaging than are the texts of schools. Facilitated by the electronic medium, according to Lam ([16]), "… English language is becoming increasingly tied to the cultural expression of various groups of native and non-native around the world". The degree to which education can build on the use of computers will depend on how well we understand what students do when they work with computers ([17], [8] and [13]).

5. English literacy screening tests

Only the reading vocabulary and comprehension parts of the ACER test booklets accompanied by Form 4 - Answer sheet, were used as they were applicable for Year 8 students. On the reading vocabulary and comprehension answer sheets, the students were not required to write anything besides mark the oval next to the correct answer. Every correct answer was worth one mark. However, the writing test required students to write two short essays in the booklet. The booklet provided them with ideas on each topic, which made it easy for students to incorporate their ideas into their writing. They were to explain their views about the 'Television' and 'The Note'. Their writings were judged on what they had to say, how well they organised their thoughts and how well they expressed themselves. The writing specimen test, tested each of two pieces of writing based on the content/context, language used and on-balance total ([21]). The results of the ACER tests, in Figure 1, set the framework for the procedures used to select the six case studies for Phase 2. Figure 1 is used to illustrate the overall average of the tests scores for both boys and girls.

5.1 Average scores of the standardised literacy tests

The results of the specimen tests were collated separately for each gender and analysed as shown in Figure 1.
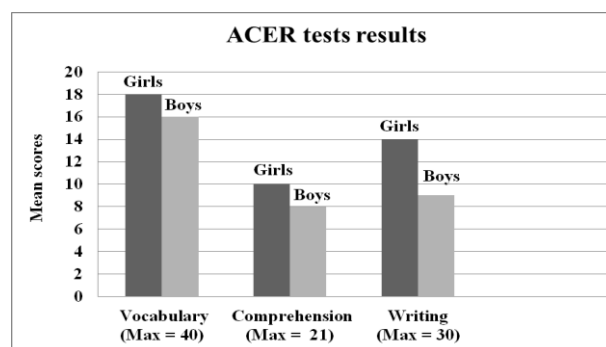

Figure 1. Girls' and boys' average performance in vocabulary, comprehension and writing tests

Figure 1 shows the overall average scores for both genders. The data reveal that the girls performed better than the boys on the standardised literacy tests. On average, the girls answered 18 questions correctly and the boys 16 questions correctly out of 40 questions in the reading vocabulary test. On the reading comprehension test, the girls' average scores were 10 correct answers and the boys' were 8 correct answers out of 21. Similarly, for the writing exercises the girls obtained an average of 14 marks and the boys obtained an average of 9 marks out of 30. These results reveal that neither gender had reached the

national average standard scores on any of the literacy tests. Neither the average scores of the boys (as a group), nor those of the girls (as a group) reached the national averages of 50% on any of the three literacy tests. However, the girls achieved scores closer to the average on each test, but remained below the national average. The students who scored above the national average (from medium to high) were 48% of the girls and 29% of the boys across all measures. The remaining students had mixed scores from low to high.

6. Survey results

The survey was divided into four parts; language(s); reading; writing; and computer usage. Each part consisted of questions based on the variables seeking students' reflection on issues relating to their language literacy development both at home and at school. The information sought assisted in exploring whether being multilingual related to the results of the literacy tests results, including reading and writing. It also offered insights into whether the use of computer tools (spelling and grammar checkers) enhanced or hindered the secondary school students' English writing.

The survey combined questions relating to the Languages spoken at home, English literacy skills and pattern of ICT use. In addition to the standardised literacy tests, students were required to answer open-ended and closed questions in the survey to obtain more information.

6.1 Languages spoken at home

Tables 1 and 2 display details of the language(s) the students and their families spoke at home. The survey sought data to explore whether a bilingual/multilingual household influenced the students' English language development. Table 1 illustrates the diversity of the school environment as a multicultural community.

Languages	Boys %	Girls %
Only English	54	32
Bilingual/Multilingual	46	68
Total	100	100

Table 1. Language(s) the students spoke at home

Table 1 also shows that 54% of the boys and 32% of the girls reported being in families who spoke only English at home. Overall, the data suggest that more boys than girls initially acquired and practised English as the only home language. By contrast, more girls than boys practised English and other best language(s) in their household. In some families, students were encouraged to maintain and speak both languages: English and their original language. In certain circumstances, according to the bilingual students' responses, they attended classes after school or on weekends to learn their home language.

The second question addressed which language the students most frequently spoke, read and wrote as they were growing up. Table 2 shows the students' responses.

The language most frequently used		
Languages	Boys %	Girls %
English	95	92
Other best language	5	8
Total	100	100

Table 2. The language most frequently used

Table 2 shows that 95% of boys and 92% of girls spoke, read and wrote most frequently in English, except for 5% of boys and 8% of girls whose families preferred them to practise their native tongue at home. The compulsory Languages Other Than English (LOTE) offered were and still are Japanese and Italian (from Years 7 to 10). Therefore, all students have to learn (LOTE) as an additional language.

6.2 Reading practice

Consistent with what was revealed in Tables 1 and 2, despite the diversity of languages at home, the majority of students nominated English as their preferred language in reading and writing. Barratt-Pugh and Rohl ([23]) asserted that "[l]earning in more than one language can enable children to critically analyse differences and similarities between texts. … The recognition and use of the child's home language in early childhood settings can lead to a strengthening of self-concept and confidence". The collected data sought students' ratings of their level of reading in English and their other best language. Under appropriate circumstances, reading and writing in a native language can improve and develop both vocabulary and comprehension skills in a second language ([24]), but there is little clear evidence of a consistent relationship for these students.

Students were asked to tick the appropriate box to indicate their level of reading in English and in their other best language. Table 3 shows the percentage of students according to how they rated their level of reading in each language.

Students' rating of their level of reading					
Reading in English	Boys %	Girls %	Reading in your other best language	Boys %	Girls %
Very good reader	53	60	Very good reader	2	4
Good Reader	40	40	Good Reader	23	52
Occasional/ Poor Reader	5		Occasional/ Poor Reader	43	32
I do not read at all	2		I do not read at all		
Left blank			Left blank	32	12
Total responses	100	100		100	100

Table 3. Students' rating of their level of reading

Table 3 records the students' self-ratings of their level of reading. The data indicates that 53% of boys and 60% of girls rated themselves as very good readers in English as well as 2% of boys and 4% of girls who rated themselves as very good readers in their other best language. Further, an equal 40% of

both genders rated themselves as good readers in English with 23% of boys and 52% of girls giving themselves the same rating in their other best language. Of the boys, 5% rated themselves as occasional/poor readers in English and 43% in their other best language. The data indicate that the largest percentage of students identified themselves as proficient English readers, but overall those with other best language were markedly less confident in their reading. The data indicate that the largest percentage of students identified themselves as proficient English readers. However, the data in Figure 1 show a different result to how the students' performed in the reading vocabulary and writing tests. In both tests, they did not reach the national average standard. However, the data in Figure 1 show a different result to how the students' performed in the reading vocabulary test. They did not reach the national average standard.
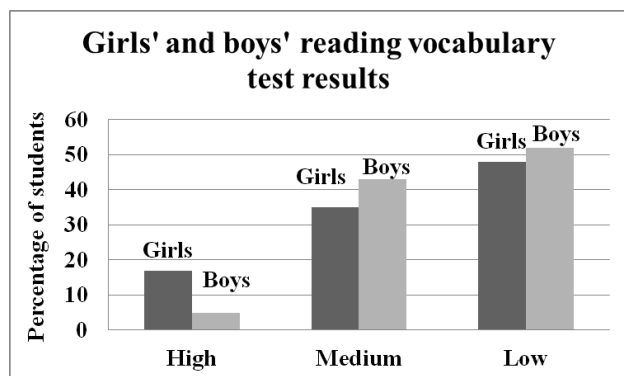

Figure 2: Girls' and boys' reading vocabulary test results

Figure 2 above illustrates the results of the reading vocabulary test for each gender. For the girls 48% achieved low scores in reading vocabulary skills compared to 52% of the boys. For the girls 35% achieved medium scores compared to 43% of the boys and 17% of the girls achieved high scores compared to 5% of the boys.

The percentage results, in the reading vocabulary test, show a 4 percentage point difference between the proportions of boys and girls in the low range. More boys achieved low scores than the girls. As shown in Figure 2, there were also more boys than girls in the medium range. At the medium level, there was an 8 percentage point difference between the proportions of boys and girls on the reading vocabulary test. However, there were more girls than boys (12 percentage point difference) in the high performance range. The data indicate that there was not much difference between the boys and the girls in low and medium performance, but substantially more girls than boys achieved high scores. This is supported by Figure 4.1 which shows the average score, in the reading vocabulary test, for the girls is 18 out of 40 and for the boys is 16 out of 40. These figures also demonstrated that both genders performed below the national average standard as a result of the high percentage of scores at the low level.

The high percentage of scores in Figure 2 shows that 17% of the girls achieved high scores compared to 5% of the boys. These results do not reflect on students' self-rating of their level of reading. As shown in Table 3, 53% of boys and 60% of girls rated themselves as very good readers. Further, an equal 40% of both genders rated themselves as good readers. The data indicate that the largest percentage of students identified themselves as proficient English readers. However, the data in

Figures 1 and 2 show a different result to how the students' performed in the reading vocabulary test.

6.3. Writing practice

Their writing test results were analysed separately for the students were required to handwrite their essays rather than marking the oval for the correct answer in reading vocabulary and comprehension tests. Figure 3 shows the results of the writing test.
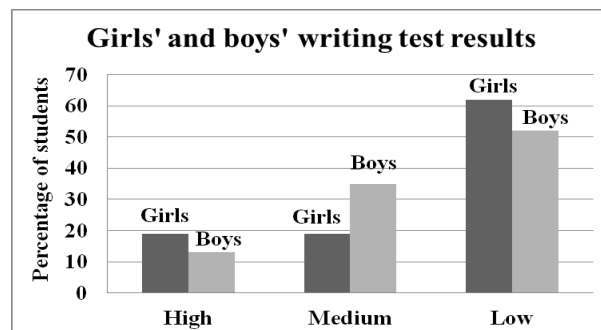

**Figure 3. Girls' and boys' writing test results**

The assessment criteria provided in the DART Manual were used. The scoring of each piece was recorded according to the information provided. Figure 3 shows that 62% of the girls and 52% of the boys achieved low scores for their writing pieces. Their writing, at this level, consisted of a few sentences showing basic understanding of the demands of the task. They were brief in expressing their point of view, and lacked coherence and sequence in the plot and were lacking in context and language skills. At the medium level, 19% of the girls compared to 35% of the boys demonstrated a distinguishable story–line and attempted to incorporate the characters' names even if the characters were not well defined. They included some coherence in their writing, but there was little evidence of selection and control of the content to achieve specific purposes. At the high level, 19% of girls compared to 13% of boys achieved coherent structural arguments, justified their point of view and appropriately used detailed evidence to back up their views.

The two handwritten samples were written by two students (a girl and a boy) from different classes. The samples were chosen from the majority of students who achieved low scores for their writing pieces.

Sample 1 T.V was written by a female student

Sample 2 'The Note' was written by a male student.
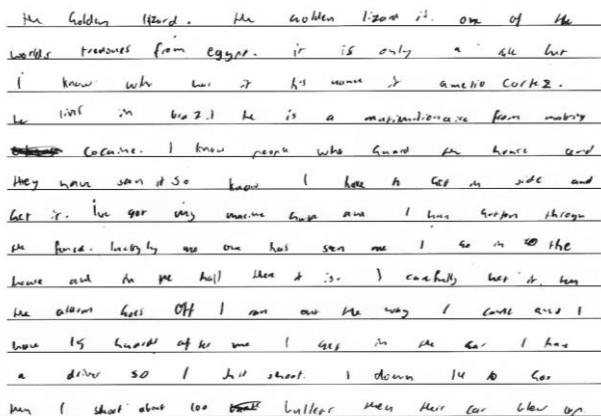
The above two samples were chosen to give insights into some of the issues in the writing of the 65 participants. In reference to the two samples, the development of handwriting skills is an important foundation for success across all curriculum areas. Moreover, when handwriting is perceived as arduous and time-consuming, motivation to write may be greatly reduced, leading to a lack of practice that may further compound difficulties with writing [25].

The prominent messages stemming from several studies reveal that students should be developing an enriched vocabulary to support their comprehension of both oral and written (particularly the handwritten skills) [26], [3], [27]. However, for at least some of the students, controlling their writing to match standard forms of words and grammar were clearly an issue. For example in sample (T.V. essay), the female student wrote in the second sentence that

'[a] remaricable idear for kids who get board throaghout the day'.

In Sample 2, the male student's handwriting was difficult to read and comprehend. He wrote (as far as I can determine):

'… he is mutimilionaire from matriey Cocaine
… I carefully hit it, hm the alllim hoes off …'.

The results in Figure 3 reveal a substantial difference between the boys and the girls when composing their English writing pieces without the aid of the computer tools (spelling and grammar checkers). The specimen test results indicated that both boys and girls performed below the national average for their age group.

Hartley and Tynjälä [28] stated that young children's physical act of writing interferes with their concentration on the content. Despite increased computer use, according to Feder and Majnemer [29], "[h]andwriting remains an important developmental skill for a child to master". In our society, handwriting is both one means of communication and a necessary life skill, as in writing a letter or telephone message or completing an application form. They added that "[h]andwriting is still the most immediate form of graphic communication". Ljungdahl [30] asserted that handwriting develops skills needed for good readers and writers by stating that "[g]ood handwriting visually reinforces the memory of word patterns and can help in speaking, spelling, and writing more effectively".

This part of the survey focused on writing. Students rated their writing from very good to poor writers. Table 4 illustrates students' responses on their writing skills in English and in their other best language.

Students' rating of their own writing					
Writing in English	Boys %	Girls %	Writing in your other best language	Boys %	Girls %
Very good	50	88	Very Good	3	8
Good	45	12	Good	30	44
Poor	5		Poor	40	36
Left blank			Left blank	27	12
Total responses	100	100		100	100

Table 4. Students' rating of their own writing

Table 4 displays the self-ratings of the students' level of writing. The data indicates that 50% of boys and 88% of girls saw themselves as very good writers in English. In contrast, among those who responded in relation to their other best language, only 3% of boys and 8% of girls rated themselves as very good. For English, 45% of boys and 12% of girls rated their writing skills as good, with 30% of boys and 44% of girls rated themselves as good writers in their other best language. However, 5% of boys (but no girls) saw themselves as poor writers in English, while 40% of boys and 36% of girls saw themselves as poor writers in their other best language. While no students left the response blank for English, some students did not answer the question for another language; 27% of boys and 12% of girls left this part of the question unanswered.

The data reveal that the students' rating of their level of writing does not match with the results in Figures 1 and 3. Overall, the writing test results, for both boys and girls, were below the national average standard. As shown in Table 4, the 50% of boys to 88% of girls who perceived themselves as very good writers were not consistent with their scores on the standardised test and suggested that the students had very different internal criteria for judging their writing from those used in standardised tests. Graham and Harris ([31]) stated that "students who experience difficulties mastering these skills may avoid writing and develop a mindset that they cannot write".

7. Computer use

I sought students' estimated time and types of their PC use to provide insight into their access to a personal computer, the frequency of computer use and estimated time spent using the computer; the main activities performed on the computer at home and at school; the frequency and types of computer use both at home and at school; the usefulness of computer tools (spelling and grammar checkers); explain the meanings of the prompts when they appear on the screen; the strategies they employed to ensure the correct word and sentence structure are selected from the spelling and grammar checkers' lists when they contain more than one suggestion.

7.1 Games

One question asked them to list their preferred computer games and how did they go about reading the instructions. The games listed were 'Flight Simulator', 'Lord of the Ring', 'Fifa', 'Halo' 'Doom', 'Soccer', 'Mafia' and many others. Their responses were that they do not need to read the instructions, but they 'exploit each level of the game before they continue to the next level'. Games, according to Gee [32], are often challenging, but "do-able", they are often pleasantly frustrating which is very motivating for human beings (all ages) [32]. Gee stated that motivation is the most important factor that drives learning. Good computer and video games incorporate a whole set of fundamentally sound learning principles. It is, therefore, possible that the students' extensive playing of games could contribute to their overall learning at school, but there is not yet a clear evidence that playing games has contributed to the language literacy of these students.

The question about the computer activities did not provide clear instructions to the students about separating the estimated time for each activity performed on the computer. Hence, the students provided an overall estimated time for all the activities they were engaged in while using their PCs at home. The estimated time was converted to minutes for a better analysis as shown in Figure 4.
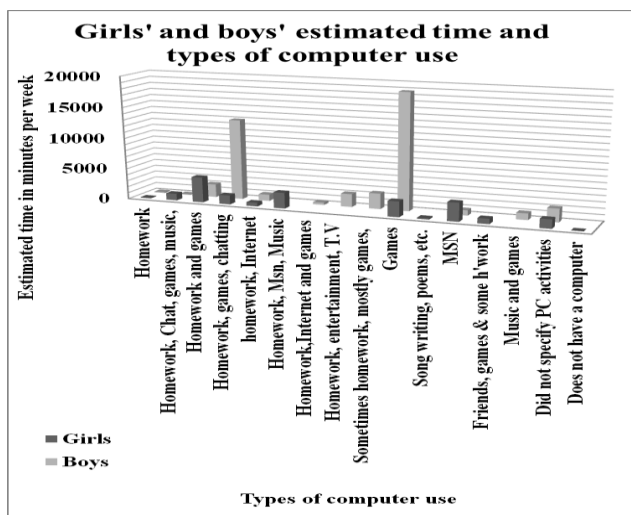
Figure 4. Girls' and boys' estimated time and types of PC use

Figure 4 demonstrates how the students spent their home time using their PCs. The girls (24 girls) reported a grand total of 17,906 minutes (298 hours = 12.41 hours per female student) spent using the computer each week. The boys (40 boys) reported a grand total of 34,130 minutes (a total of 569 hours - approximately 14.23 hours per male student) spent using the computer each week. Figure 4 shows that the girls reported a grand total of 4,105 minutes (68 hours per week) using the PC to play games and chat on MSN, but they combined these activities with some homework. They did not mention how much time they spent completing their homework. Two girls responded with 90 minutes (one and a half hour) spent on homework alone. However, the majority of the girls included homework with their other activities. The total combination of homework and other activities is 9,805 minutes (163 hours = 7 hours per female student) per week. In contrast, the data in Figure 4 shows that two boys responded with 150 minutes (2 and a half hour) spent on homework alone. The boys' total

combination of activities on the computer that included homework was 11,160 minutes (186 hours – some 5 hours per male student) on average per week. The majority of the boys' responses to this part included games, internet, chatting online and some homework. Figure 4 demonstrates that there are a substantial difference between the boys' and the girls' time spent on computer activities. They used their PCs at home mainly for amusement rather than for educational purposes.

7.2 ACER test results and extent of computer use

The correlation coefficient distribution to measure the correlation between the students' responses of their estimated time (in minutes per week) spent using their personal computers against the results of the ACER tests. For writing, for both boys and girls, the overall means shows a positive relationship between minutes per week of computer use and scores on the writing test. This pattern does not hold in its entirety for vocabulary and comprehension. For vocabulary, the results for the boys and girls are quite different. The results for the girls are the same for both vocabulary (-0.01) and comprehension (-0.02). Girls who spend longer on the computer performed slightly lower on the vocabulary and comprehension tests. However, there was a much stronger negative correlation for boys (-0.19). More extensive use of computers by boys correlated negatively with vocabulary scores to such an extent that the overall correlation was also negative (-0.15). This negative result for boys indicated that the boys who spent more time on the computer showed a lower result in their vocabulary scores. As shown in Figure 4, students (boys and girls) reported spending most of their home time playing computer games, chatting online (MSN), using the internet, and much less time producing schoolwork. They used their PCs at home mainly for amusement rather than for educational purposes. It did not appear to be any difference between the boys and the girls in the activities that they reported, except that the boys spent more time playing computer games and chatting online than the girls.

8. Students' perceptions of the checkers and strategies for word and sentence replacement.

The data indicate that the majority of these students were using the electronic medium to aid them with their English writing. The data reveal that 92% of girls and 97% of boys found the spelling checker either very useful or useful. In a similar way, a total of 84% of the girls and 85% of the boys found the grammar checker either very useful or useful. The students' perceptions on the usefulness of the spelling and grammar checkers may connect with their writing test results. The actions they reported taking at the appearance of the red squiggly line in the document included: 'U click on the first one'; 'take a guess'; 'usully the one on the top'. Their use of the tools reveals that students had not integrated the information available in the tools with their mental dictionary/vocabulary to expand their literacy knowledge in English ([33])

Olsen and Williams ([34]) who have found that, while attention to what is identified by the lines (red and green underlines) improves the quality of poor writers, it makes good writers worse – since they start to rely on the spelling and grammar checkers completely, while ignoring their own instincts. They found that "… spell checkers do little to deal with issues such as the use of homonyms, such as the word 'desert' versus 'dessert'". ([34]). Grammar checkers work from a set of rules about when a plural noun is used with a singular verb in typical cases, for example, "is" versus "are" usage, but they also fail to

misdiagnose many cases as well ([34]). In line with Olsen and Williams [34], Galletta et al ([35]) investigated different versions of word processors content-related features (spelling and grammar checkers). They found that the language-checking software fails to detect true errors. They reported that students should be developing an enriched vocabulary to support their comprehension of both oral and written language (particularly the handwritten skills). However, for at least some of the students, controlling their writing to match standard forms of words and grammar were clearly an issue.

9. Conclusion

The views of educators, scholars and politicians about the use of ICT and its relationships to aspects of language literacy vary. On the one hand, there are views that strongly support the use of ICT both at home and at school. These views suggest that by engaging in ICT-mediated interaction, school age children will acquire computer literacy, which may improve their learning in other areas. On the other hand, others argued that the increased use of ICT can distract school age students from learning and practising the basics of handwriting, writing and reading skills.

The results of the ACER tests, the average results in Figure 1, revealed that the students performed below the national average in the three literacy tests. The tests were based on traditional printed texts and writing skills. The results of the standardised literacy tests did not match the students' responses to the reading and writing in the survey. The evidence presented here suggests that the students rely extensively on the support from the computer tools. Two conclusions suggested by the data are: 1) lack of motivation for reading, comprehension and writing does not necessarily connect to bilingual or monolingual status; 2) high expectations of oneself and self-motivation are the motives to successfully acquire language literacy skills.

Consistent with the latter, the students' responses to the survey were that when they saw the squiggly red lines on the screen meant 'there are spelling errors. They reported that they right clicked on the spell checker list and selected a replacement word. They did the same with the squiggly green lines as it suggests an alternative to correct the sentence structure. The students' responses made it obvious that if and when they saw the prompts in the document they took steps to correct the text. Whether the students select the 'correct' word or sentence replacement they consider it appropriate correction has been made when the coloured squiggly lines disappear from the documents. The students' correcting behaviour appeared to reflect autonomous understandings rather than more ideological understandings of (computer) literacy that involves global social networking and the use of several digital literacies available to them.

An implication of the study for teaching is that teachers should teach the use of the spell and grammar checkers explicitly to their students so that they are equipped with the knowledge and skills to use them effectively in their writing.

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