STUDIES RELATING TO COMPUTER USE OF SPELLING AND GRAMMAR CHECKERS AND EDUCATIONAL ACHIEVEMENT

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ABSTRACT

The content of this paper will focus on both language and computer practices and how school age students develop their literacy skills in the two domains of 'language' and 'computers'. The term literacy is a broad concept that has attracted many interpretations over the years. Some of the concepts raised by the literature apply to both language and computer literacy issues. Hence, this paper is intended to review the literature in areas: such as the definitional and conceptual issues of literacy; the development of language literacy (formally assessed in the areas of reading, vocabulary and comprehension) skills, but which also incorporates handwriting practices; computer literacy which applies to the acquisition and development of computer skills, particularly those associated with spelling and grammar checkers; the evolution of computer literacy to include new technological components emerge and interlock in computer usage to encompass Information and Communication Technology (ICT) literacy and its applications; in conjunction with the revelations of studies relating to computer use of spelling and grammar checkers and educational achievement.

KEYWORDS

Reading, Writing, Language and Computer Literacies, Spelling and Grammar Checkers.

1. INTRODUCTION

Today, "technological change happens so rapidly that the changes to literacy are shaped not only by technology but also by our ability to adapt and acquire the new literacies that emerge" (Leu et al 2004: 1591). In addition, Atkin (1998: 12) suggested that our current youth live in the emerging world, a world of transition and with a global and local focus: "life-long learners, learning to learn, contextualised and transformative". The use of electronic medium/computers has influenced the way young people in what Tapscott (1998: 1) referred to as the Net-Generation, perceive and transform the traditional written language into a language of their own, shaped by short conventional text messaging and online-chatting and reading. 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 (Mountifield: 2006). These changes have made computer literacy skills more available to include interactions and communications through social events and practices (Street 2001: 11). The acquisition of language literacy differs from the acquisition of computer literacy in their achievement and learning development. The school aged children live in the emerging world (Atkin 1998), a world of transition and with a global and local focus. The Net-Generation has 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 (Sinclair 2010).

2. RESEARCH METHODS

I will adopt a triangulation approach including both quantitative and qualitative methods using a mixed methods design for two-phase study. In Phase 1, language literacy tests consists of reading, comprehension and writing, will be administered to 150 year 9 students. Pre-survey was conducted to seek students'

perceptions of the usefulness of the tools. The quantitative data from the first phase will sequentially be integrated into the second phase where qualitative methodology will be used to obtain a deeper understanding (McMillan and Schumaker 2006, Creswell and Garrett 2008) of the influences of the tools on the students' English writing. To elicit qualitative data, I will observe the students in their classes, analyse their writing and interview them and their teachers.

3. DEFINITIONAL AND CONCEPTUAL ISSUES

Literacy definitions have expanded from an original focus on just reading and writing to include additional types relating to many aspects of contemporary society. Issues relating to literacy definitions have reflected many dimensions and explanations from different perspectives and disciplinary areas. Theorists such as Street (1984) have distinguished between an autonomous model and an ideological model of literacy. In the autonomous model, literacy is defined as a set of value-free skills, like decoding the printed words into sounds (decontextualising text) (Street 1995: 18 – 19). Viewed from this perspective - the acquisition of reading and writing skills is simply a cognitive process. The ideological model is recognized in a multiplicity of literacies and practices to specific cultural contexts. Both models of literacy have been interpreted in different ways by different scholars. For example, Blake and Blake's (2005: 172) interpretation of the autonomous model is "the prevailing Western view of literacy, a single thought". In extending a modified view of literacy into the social domain, Bélisle (2006) included three complementary approaches to literacy that stood out in educational analysis:

> *an autonomous model of literacy is based on the assumption that reading and writing are simply technical skills; a socio-cultural model, based on the recognition of all literacies as socially and ideologically embedded; and a strong claim model based on anthropological statements of the revolutionary power of instrumented thinking processes (p. 52).*

The autonomous model has been criticised many times over the years as a result of questioning its strategies, applications and goal directions, particularly in response to the rapid development of technology and its wide use, by all ages, in contemporary society.

4. DEFINING LANGUAGE AND COMPUTER LITERACIES

Attempts to define language literacy have extended well beyond reading and writing. The varied disciplines defined their respective literacy in accordance with their research and study areas (functional, cultural, political and other literacies). An additional type of literacy is computer literacy. Hence, Street's (1984) autonomous and ideological models of literacy that were subsequently replaced by the notions of literacy events and practices, partially apply to computer literacy. Many technological dimensions have been considered in moving to the current term of ICT and digital literacy (Avila and Moore 2012).

Understandings of computer literacy includes literacy events with many dimensions underpinning literacy practices at the global level such as information, visual, technology and digital literacies (Cohen and Cowen 2008). Taking into consideration the relation to computer literacy, Fehring (2010: 183) stated that there are two "interlocked components of the concept of multiple literacies"; one refers to the multiple forms of literacy now required to operate in the world of education and work; and the other concept of multiple literacies refers to the "multimodal and multidimensional aspects that the learning of literacy skills now encompasses". Hence, Fehring (2010) asserted that the concept of multiple literacies has had a powerful influence on classroom practice: "Multimodal and multidimensional curricular have become the standard for students from the young age to lifelong learners" (p. 180). Ultimately, the young and the old have to become computer literate to effectively use ICT and its components such as the Internet and other digital resources. Despite the need to become computer literate, Blake and Blake (2005: 172) reported that the use of ICT also requires language literacy skills, "[r]eading and writing are [also] used [in order] to transmit information, to interpret, to respond to the expression of human thought." Language literacy skills are fundamental acquisition for the exchange of information required in our society.

5. LANGUAGE LITERACY

The social situations have changed and brought with them changes to the definition of language literacy with the additional emergence of new technologies in educational, domestic and workplace environments. Forster (2009: 12) reported that there is no single internationally accepted definition of 'literacy'. However, the term has begun to address more complex understandings than when 'being literate' was defined by the ability to read and write. The definitions of literacy are of increasing breadth and reflect a growing emphasis on context.

5.1 Reading Vocabulary and Comprehension as Parts of Literacy

The major purpose of reading is the construction of meaning, comprehending and actively responding to what is read (Christie 2005: 1 – 4). Malatesha and Aaron (2010: 317) stated that vocabulary knowledge is a prerequisite and a critical factor in improving reading comprehension. Readers use their knowledge of text structures to build a coherent memory representation, and these structures or relationships are part of their cognitive representation (Luke (2012: 6). Narvaez (2002: 158) outlined the causes of individual differences in the comprehension of texts along two lines: "reading skill" and "reader's knowledge".

Chen and Lee (2010: 127) 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), according to Rowsell (2009: 108), "mediating identities through multiple modes and applications. … , shaping written text and visuals around diverse audiences that have shorter and longer timescales". Moje (2010) acknowledged that these conflicting aspects, together with a probable lack of literacy skills in young people's language development (due to lack of continued, sustained literacy instruction), create difficulties for many youth in secondary schools to read at even basic levels (p. 50). She stated that reading at the secondary school level is more demanding and complex. Her reason was that "regular and explicit literacy instructions tend to diminish around Grade 6 (p. 49).

Leino et al (2004: 252) included other studies in their article to assert that students who spend a lot of time reading on their own tend to be better readers than those who devote limited amounts of time to reading. From the autonomous view, Mckenna and Simkin (2008: 85 - 87) stated that "reading is a tool, or set of tools, for content acquisition". Their research into technology applications that foster "reading growth have implications for content learning in digital environments.…The research into technology applications in reading can be divided into two categories: between "higher" and "lower" order processes". They were described as "word recognition" and "comprehension".

5.2 Writing

Writing and literacy stand in a complex relationship to one another. As children write in languages such as English, they look closely at how letters are used to form words and construct a system for the spelling (phonic) conventions of written text. As with reading, lots of writing in an alphabetic language improves phonic knowledge. Nevertheless, Boscolo and Mason (2001) concluded that writing can improve students' learning by promoting active knowledge construction that requires them to be involved in transforming rather than only in a process of reproducing. Through writing, students have the opportunity to manipulate, integrate, and re-structure knowledge by using, and reflecting on their existing conception and beliefs in a continuous process of developing meaningful understanding (p. 85).

5.2.1 Handwriting

Handwriting has been largely forgotten in the literacy and ICT debates, but it is still needed to reinforce learning and language development. The temptations to ignore the development of handwriting skills are due to the advent of alternative modes of composing writing by using word processing and speech synthesis (De Souza and Towndrow 2010: 26). They stressed that handwriting is very important for students who still use pen and paper format in their exams.

6. COMPUTER LITERACY

Computer literacy definitions vary depending not only on the different levels of users from regular users to power users (software developers, programmers and network infrastructure experts), but also on how literacy is perceived and applied by educational and industrial/workplace theorists. Computer literacy involves not only the understanding of what is possible with (and what influences the use of) computers, but also the physical use of combined equipment (peripherals) and software applications (Corbel and Gruba 2004: 23). At a less specialised level and from the autonomous view, computer literacy involves the knowledge of how to turn on a computer, start and stop software applications as well as save and print documents (Corbel and Gruba 2004: 24). In relation to software, Cohen and Cowen (2008: 546) defined computer literacy as "the ability to effectively use [autonomously] computer tools, [and software applications] such as word processors, spreadsheets, databases, [PowerPoint] presentation and graphic software". From a possibly wider perspective, Moursund's (2003: 9) definition of computer literacy, that also reflects an autonomous model, is "a functional level of knowledge and skills in using computers and computer-based multimedia as an aid to communication with oneself and others for the purposes of learning, knowing, and for using one's knowledge". From an ideological view, computer literacy has evolved into a broad term that incorporates the use of the internet, ICT which drives language re-form/transformation and other digital devices.

6.1 The Internet

The Internet is an integral part of computer literacy. It is a "powerful tool and endless source of information, which is easy to find and easy to produce" (Knierzinger and Turcsanyi-Szabo 2001: 926). The effects of the Internet are deep and complex. A study by Leu et al (2007: 46 – 47) suggested that most of the adolescents who read the results page from a search engine [the Internet], … "do not actually read the items on the result page. Instead, the majority use a simplistic 'click and look' strategy". More emphasis has been placed on new literacies as new technological devices appear, but also as their scope elaborates the ideological dimensions of multiple uses that emerge and interlock in expanded computer usage and its applications (Florian 2004: 8). The Internet has become more and more important for young people's lives at school and at home. Ma et al (2008: 197) stated that "the Internet is affecting all subjects in K-12". Ma et al's study included those described by Tapscott's (1998) term the 'Net-generations' who are fluent with digital technology, including all sorts of digital and electronic devices. The Internet use has also meant that "more children at school are practising cheating" (Ma et al (2008: 198). They added that there are "Web sites that provide free essays for students to plagiarize reports and term papers" (p. 199). They reviewed other studies which reported that the majority of their subjects (from different age group) responded that they copied and pasted from the Internet, "the characteristics of the Internet brought more convenience to digital plagiarism, particularly among middle school students" (p. 199). They used an example from one of the studies of a female student who forgot to do her homework. She went online and copied a paper in her handwriting believing the teacher would not find out what she did. Young people are more vulnerable to this kind of data capture since they are inclined to use the internet more interactively and purposefully. It is, therefore, necessary to ensure that ICT (Information and Communication Technology) is understood broadly.

6.2 ICT Literacy

ICT literacy is a broad term that includes multiple communication devices, various services and applications associated with it. ICT literacy is increasingly regarded as a broad set of generalisable and transferable knowledge, skills and understandings that relate to communication tools used to access, manage, integrate, evaluate and create information in order to function in a knowledgeable society (Ainley 2010: 2). ICT literacy covers the new and emergent technological devices combined, introducing new literacies (Internet, iPod and others) as they become available. Harris (2005: 34) stated that ICTs are "social information spaces". They are designed as much for the reciprocal "sharing of information" as they are for "seeking and disseminating information". He elaborates that "sharing" involves exchanging information amongst users and "seeking" implies going to sources outside one's immediate social system. Out-of-school and in-school digital literacies are used by youth interactively and purposefully, in ways that are increasingly hypertextual, connected and communicative (Bussert-Webb and Diaz 2012: 5).

6.3 Language Re-form/Transformation

The re-form of any language in the current era is often attributed to the speech-like characteristics of much electronic communication. For example, printed texts can often become 'ad-speak' and therefore unconventionally spelt and punctuated, for example, "btw" replacing by "by the way" (Tapscott 1998: 1 - 2, Christie 2005: 186). Often, people use digital tools to communicate, spell words using only abbreviations or one letter or number or a specific combination of letters, or letters and numbers to mean what the writer suggests. For example, "before" is replaced by "b4", "later" is replaced by "l8r", "for" is replaced by "4" and "laughing out loud" is replaced by "lol" and many other re-formed words or expressions (Tapscott (1998: 1 – 2); Christie 2005: 190) noted further opportunities for change and suggested alternative opportunities can be seen in multiple sound-spelling relationships.

In line with Tapscott (1998), Mountifield (2006: 172 – 173) referred to the Net-Generation or Net-Gen. Such people were "born after 1982, [and] are the 'digital natives', always connected, highly mobile, able to multitask, format agnostic, comfortable in a visual-rich environment and able to move seamlessly between the physical and the virtual environments". Despite their reputation as digital natives, according to Harris (2008: 161), young people's skills in effective navigation of today's information landscape are actually somewhat limited. He elaborated that "young people are at a developmental disadvantage when it comes to evaluating digital media". They are more likely to apply their own judgment based on the web sites rating and their choices are based on design and presentation features rather than the content. However, young people's skills would progressively improve with "cognitive growth, education, and experience". But Net-chatting and extended text reading in English are expected to have an even greater effect on writing (Nævdal 2007: 1113).

7. COMPUTER TOOLS

The computer software applications consist of many features (font size, text style, colour, WordArt and many others) and tools (spelling checker and grammar checker) for the users to enhance their works and improve their presentations. Galletta et al (2005) reported that the spelling and grammar checkers are common utilities found in many software packages.

7.1 Spelling Checker

The first tool to be described is the spelling checker. The user is prompted by the spelling checker to review individual words with incorrect spelling by instantaneously underlining the words with a squiggly red line (indicator of misspelt words) while they are writing (Hartley and Tynjälä 2001: 165). When the user sees the prompts on the screen, he/she places the mouse pointer on the underlined word and right clicks to access the information. The words are compared to an electronic dictionary included in the software. I pre-surveyed one hundred and fifty Year 9 students on the usefulness of the spelling checker. The students' responses are shown in Figure 1.

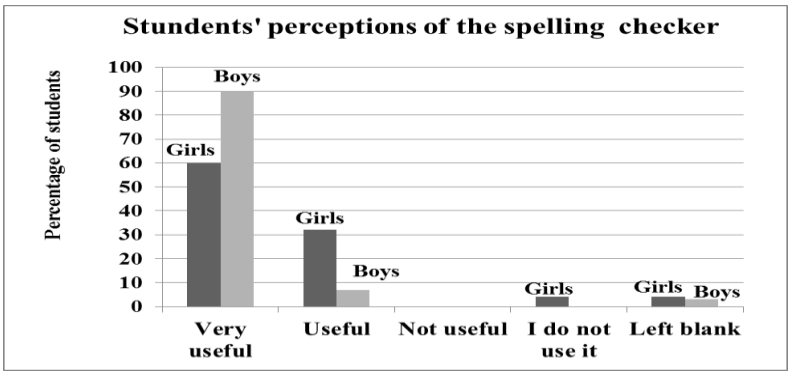

Figure 1. Students' perceptions on the usefulness of the spelling checkers

Figure 1 shows that 90% of boys and 60% of girls perceived the spelling checker as very useful. Some students commented that "the electronic spelling checker enhances [their] English writing". However, learning to spell enhances children's English writing. Although, Sinclair (2010: 6) stated that there are at least two types of grammar definition: "one type is [describing] the way the language is used; and the second type emphasises the correct use and following a set of rules". She stressed that when students use the spelling and grammar checkers and do not understand what the checkers are telling them, then they become confused which can affect their literacy skills development (p. 133).

7.2 Grammar Checker

Groups of words with grammatical errors are underlined with a squiggly green line as an indicator of sentence structure issues. A grammar checker is used to check for grammar, writing style, and sentence structure errors, but not all identified groups of words are necessarily 'wrong'. A style feature such as passive voice may be underlined in a decontextualised attempt to make writing 'simpler'. The tool can check documents for excessive use of a word or phrase, identify sentences that are too long, and find words that are used out of context such as 'four example' (Hong Wei and Davies: 2011). I also sought the students' responses on the usefulness of the grammar checker. Their responses are shown in Figure 2.

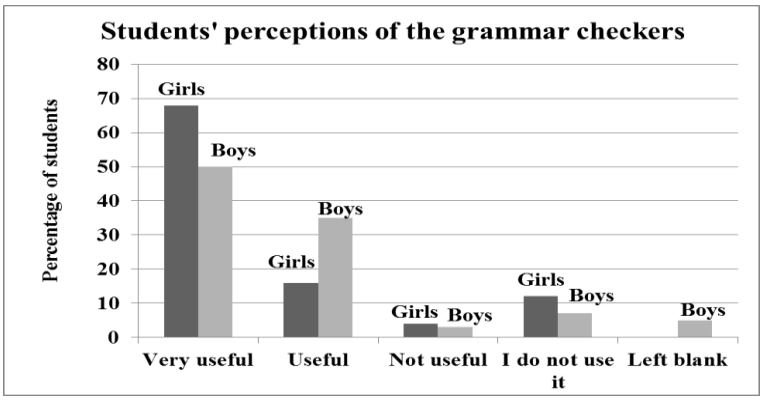

Figure 2. Students' perceptions on the usefulness of the grammar checkers

Figure 2 shows that 85% of the boys and 84% of the girls perceived the grammar checker from useful to very useful. Sinclair (2010: 6) added that many students trust the spelling and grammar checkers because they are very unsure of their own spelling and grammar. Consequently, they assume that the checker must be right. Sinclair (2010) included that the pitfalls are when the checker does not adequately recognise alternatives because the setting is inappropriate, for example, using a US dictionary for work in the UK, resulting in spellings such as 'behavior' rather than 'behaviour'; sometimes the checker can't distinguish between frequently confused words which can often make students change a correct word to a wrong one (p. 140). Since the advent of word processing and spell checkers, according to Moats (2006: 1 – 2), some educators have argued that spelling instruction is unnecessary.

8. STUDIES EVALUATING SPELLING AND GRAMMAR CHECKERS

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. Facilitated by the electronic medium, according to Lam (2008: 1209) " … the English Language is becoming increasingly tied to the cultural expression of various groups of native and non-native around the world". Conversely, in other language research, Heift and Rimrott's (2008: 196) study revealed that "while the number of correct responses was significantly higher when the system provided a correction list, there was also significantly less learner uptake for the feedback type that did not provide any correction suggestions". Moreover, students were far more successful in submitting the target word if it appeared in the spelling checker suggestion list. In contrast, if the target word was absent from the suggestion list, students picked a

wrong replacement word from the list. Heift and Rimrott's (2008) study concluded that the order in which the words appear in the suggestion list seemed to be an influencing factor for students to select one word over another. In other words, their participants picked the word that appeared in first position in the spell checker list more than in any subsequent position.

Figueredo and Varnhagen (2006) conducted their study in Canada titled 'Spelling and grammar checkers: are they intrusive?' Their subjects were twenty-five freshmen, 20 English majors and 20 graduate students revised two essays on a computer, one with the spelling and grammar checkers, and the other with a dictionary (p. 723). For the checker condition, the spelling and grammar checkers were turned on, and the spelling and punctuation errors were flagged in the text by red and green squiggly lines respectively. They modified the correction options offered by the checkers. For the spelling errors, they created a word list of potential suggestions for spelling corrections. If the participant clicked on a flagged error, a pull down menu would appear with three potential choices. The correct choice and two foils were placed in different positions in the pull-down menu. For example, 'retrospect', 'retrespect', 'retrispect' were supplied for the error 'retraspect' (p. 726). They used the same method for punctuation errors. The participants completed two essays. They revised the first essay on a word processor and had access to a dictionary for the second essay. Their findings revealed that content revisions were not significantly different across technology conditions, but all student groups were able to correct more surface errors with the aid of the checkers than they were with the dictionary. They also found a correlation between spelling ability and correction in the dictionary condition but not in the checker condition. They concluded that "the main source of difficulty for students, at that level, in the dictionary condition was in detecting the surface errors without the help of the checkers" (p. 730).

Using a special program, 'Grammatik V', Hong Wei and Davies (2011) sought to assess the effectiveness of a popular grammar and style checker. They conducted their study in Thames Valley University and Richmond College in London. Seventeen students of English as Foreign Language, who came from six different subject disciplines were involved. During the trial, the students were required to produce two versions of each writing sample. One sample was produced prior to using the program. The second contained the changes made during the trial. Both samples were collected in order to provide information on the effects of using the program (p. 2). Their findings revealed both mechanical problems and spelling. The mechanical problems were to do with 'capitalisation', 'punctuation', 'infinitive forms', 'number styles' and others. The spelling errors were separated from the others in order to highlight specific issues and to avoid misleading conclusions (p. 3). They reported that the program proved much less successful in identifying and relating subjects with verbs when they used the modifiers in between or when they appeared in complex sentences. They concluded that the "effectiveness of using the current [Grammatik V] program to check students' writing for academic purposes, on the whole, is not very satisfactory, although the different ratios of correctly and misdetected and questionable problems did suggest that there were variations of performance in the three areas the program focused on: mechanics, grammar and style" (p. 10).

Some researchers have investigated just how much people rely on the little squiggly red and green lines in Microsoft documents. They have found that, while attention to what is identified by the lines 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 (Olsen and Williams 2004: 1020 – 1022). They found that "… spell checkers do little to deal with issues such as the use of homonyms, such as the word 'desert' versus 'dessert'. It will let you eat 'desert' as well as die from thirst in the 'dessert'" (p. 1021). 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 (p. 1022). In line with Olsen and Williams 2005, Galletta et al (2005: 82) investigated different versions of word processors content-related features (spelling and grammar checkers) which they called "language-checking software". They found false positives and negatives: "the false negatives, where the language-checking software fails to detect true errors". The example they used in their study was "[g]o ahead with the complete role-out" where "role" was not flagged to be replaced by "roll"; and false positives, where the software detects problems that are not errors". They illustrated another example for the sentence "Multiple regression was run". The spell checker underlined "regression" and suggested it to be changed to "regressions". If and when the user follows that advice, other difficulties cascade down the errant path. The word "was" was then underlined and the suggestion was made to change the word to "were". Following the suggested advice, distorted the true meaning of the original sentence (p. 3).

Another study conducted by Fandrych (2001: 1 – 12) investigated the spelling and grammar checkers assistance, in two software applications (Microsoft Word and WordPerfect), and the consequences for second

language learning and teaching. She selected case studies of English in South Africa. One of the students typed 'inorder'. It was flagged to be replaced with "one of the following: 'ignored', 'ironed', 'ironware', 'intruder', 'inured' – all of which would be syntactically inappropriate" (p. 4). More problems were detected that contained misleading advice to restructure the sentence using the grammar checker. She concluded that "word processors cannot solve all the problems many users face when composing texts, especially if English is not their first language" (p. 12). As a consequence, according to Vascellaro (2006: 1 – 3), immersion in new technologies improved student attitudes and behaviours but had little overall impact on student achievement. At a higher academic level, a study was conducted at the University of Pittsburgh, Pennsylvania, United States of America, involving 33 undergraduate students to look at the differences in reader's ability to correct spelling and grammar errors with and without the assistance of spelling and grammar checking tools. The participants were given a letter to correct. Half of the group utilised spelling and grammar checkers, and the other half did not. Using Skills Assessment Test (SAT) which consists of three sections: critical reading, mathematics and writing. The results were "those with strong verbal skills rely heavily on the grammar and spelling features of word processing software, thereby hurting the accuracy of their documents". The group that did not use the software performed as expected in relation to each student's verbal score. She concluded that "[u]nfortunately, a computer is much better at numbers than it is at doing grammar and spell-checks" (Osborne 2003: 1 - 8). From the above studies, it is clear that the spelling and grammar checkers are not helping the digital natives to improve on their traditional literacy development.

9. CONCLUSION

Language literacy acquisition differs from computer literacy, and the two literacies require different skills from each other as shown by their definitions in Sections 3, 4, 5 and 6. Making connections between the two literacies leads to further influences on and implications for the development of traditional language learning as shown in the literature. The literature suggests that being competent in literacy implies that one knows which practices, attitudes and values are appropriate in a given situation. While education is often focused on mastering the autonomous dimensions of a given literacy, the ideological dimensions can present much more compelling and in depth challenges. The prominent messages stemming from the literature are that young children should be developing an enriched vocabulary as an indicator of oral language proficiency which is essential for comprehension of both oral and written language. However, technological changes have happened so rapidly that changes to literacy are shaped not only by technology, but by our ability to adapt and acquire the new literacies that emerge with its applications (Leu et al 2004; Florian 2004). Good examples are shown in Figures 1 and 2, the students perceived the spelling and grammar checkers as very useful in enhancing their English writing.

The conducted studies evaluating relationships between computer use and educational achievement, Olsen and Williams (2005); Hong Wei and Davies (2011), suggested that the mere expanded use of computers is not a guarantee for the acquisition of proficient language literacy. Their conclusions are complex. The students are not developing their language literacy skills sufficiently, or practising their speaking and writing skills, by engaging in direct interactions with the electronic medium. These skills can be developed by reading, expanding their vocabulary and comprehension and by presenting their own written work (Ma et al 2008).

Other studies evaluated the spelling and grammar checkers and just how much school-age children rely on the little squiggly red and green lines in word processing documents. Their findings indicated that while it improves the quality of poor writers, it makes good writers worse by enabling or encouraging them to ignore their own instincts (Olsen and Williams 2004). Word processors cannot solve all the problems many users face when composing texts. There were many issues falsely advised by the tools (Fandrych 2001). In examination of different versions of word processors, Galletta et al (2005) and Fandrych (2001) have shown similar results that the software failed to detect true errors. If and when the user follows the advice suggested by the programs, other difficulties cascade down the errant path.

There are implications in the use of spelling and grammar checkers as the literature revealed. Therefore, teachers should teach students how to use the electronic spelling and grammar checkers and encourage them to use the dictionaries as well. So the students can use the correct spelling rather than guess and select the words and sentences randomly from the provided list by the tools.

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