LANGUAGE AND ELECTRONIC MEDIUM SKILLS DEVELOPMENT THROUGH AUTONOMOUS AND IDEOLOGICAL PRACTICES

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ABSTRACT

The purpose of this paper is to report on how the concepts of autonomy and ideology are perceived by scholars, educators and researchers. The project is a preliminarily study to investigate the connections between the language and computer literacies, that would lead to further influences the implications on the development of traditional language learning. The study will be covering 180 secondary students in two private schools (one is only girls, referred to as G school and the other is co-educational, referred to as BG school). This paper will mainly focus on comparing the students' performance and use of the electronic medium at school and at home. The G school students do not bring nor use any of the electronic medium at school, except when the library computers are booked by their teachers for research. They handwrite their notes and assignments in their workbooks. Their education is focused on mastering the autonomous dimensions of a given literacy, the ideological dimensions can present much more compelling and in depth challenges. The literature reviews differentiate between language literacy and computer literacy acquisitions, the two literacies require different skills from each other. Even though, the BG students are using their electronic devices at school as well as in their domestic environment for homework. They are using the devices more than seven to nine hours a day. They access their textbooks as eBooks on their devices and they compose their notes and school work electronically. However, the G students are also practising on their personal computers and are familiar in operating the software and hardware as much as the BG students who spend a substantial amount of time each day on their electronic devices.

KEYWORDS

Language and Computer Literacies, Autonomous, Ideology and Electronic Devices

1. INTRODUCTION

The content of this paper will focus on the models of autonomous and ideological concepts, introduced by Brian Street, on both language and computer practices and how school age students in two private school develop their literacy skills in the two domains of 'language' and 'computers'. 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 for I have recently started the research and intended to apply it in four areas: first, the definitional and conceptual issues of literacy; second, language literacy; third, computer literacy, which applies to the acquisition and development of computer skills, particularly those associated with electronic medium; fourth, the evolution of computer literacy to include new literacies, as new technological components emerge and interlock in computer usage to encompass Information and Communication Technology (ICT) literacy and its applications. The schools will be referred to by a code (BG is referred to the co-educational school–boys and girls) which is located in the north suburb of Melbourne and G is referred to girls' school which is located in the north-west suburb of Melbourne, Australia. In the courses of the curriculum, the G school students do not carry electronic devices for school use and are still using the printed textbooks and handwrite their school notes, comparing to BG school students who are reprimanded for not having their electronic medium devices on hand for using the eBooks which may also be associated with social media.

1.1 Definitional and Conceptual Issues of Literacy

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. There is no mention of how literacy enables people to function socially, culturally and politically. A corollary of the autonomous model of literacy is the presumption that learning to read and write, in and of itself will improve the social and economic conditions of people (Street 1995: 151-152). In critiquing the concept of autonomous literacy by scholars, Street brought into full light the awareness that literacy is not simply a set of context-neutral skills or competencies in mastering graphemes, phonemes or written and spoken texts. In developing a more inclusive alternative perspective, his focus turned to cultural dimensions of literacy involving attitudes, values, practices and conventions. He included that

> *The autonomous model of literacy works from the assumptions that literacy in itself – autonomously - will have effects on other social and cognitive practices. It assumed that the acquisition of literacy will in itself lead* [to] *higher cognitive skills, improved economic performance, greater quality, ... This model ... disguises the cultural and ideological assumptions and presents literacy's values as neutral and universal. ... The alternative ideological model of literacy offers a more culturally sensitive view of literacy practices as they vary from one context to another (Street 2005: 417-418).*

Street (1993) identified many issues relating to the models and notions of literacy. In relation to the ideological model of literacy, he argued that it

> *recognises a multiplicity of literacies; that the meaning and uses of literacy practices are related to specific cultural contexts; and these practices are always associated with relations of power and ideology. They are not simply neutral technologies. ... Literacy practices are constitutive of identity and of personhood – whichever forms of reading and writing we learn and use have associated with them certain social identities, expectations about behavior and role models. ..., 'what it is to be a person', to be moral and to be human in specific cultural contexts is frequently signified by the kind of literacy practices within which a person is engaged (1993: 139-140).*

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 stand 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).*

After the 1990 International Literacy Year, Bélisle (2006) added that literacy had come to be seen in a broader way as knowledge acquisition: "to be literate is not only to identify and satisfy information needs through mastery of print", but involves the capacity and the inclination constantly to "continue constructing one's own knowledge, as learning is a lifelong learning endeavour, never fully attained" (p. 54). In line with Bélisle (2006), Kimber and Wyatt-Smith (2008: 330) reported that the strategy adopted an inspirational tone, "urging teachers to embrace and capture the potential of new technologies in classroom practice". They stated that pedagogies integrating ICT can enhance learning. "ICT provide tools and environments that support interactive conceptual learning, focused on constructing and creating knowledge. It exhorts teachers to empower students to purposefully select activities, applications and modes of communication and to engage students in simulations, modelling and creative activities". Kimber and Wyatt-Smith's (2008) work echoed Bélisle (2006: 64) who also reported that pedagogy is influential communication, providing children with the information and the tools to successfully integrate into society as concerned, autonomous and fulfilled actors.

Consequently, 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. According to Barton (2007: 118-119), the autonomous view suggests that "there is a 'great divide' between literate and non-literate, both at the individual level and at the cultural level, and that there are cognitive consequences associated with literacy itself". Subsequently, Reder and Deliva (2005) in agreement with Barton (2007) elaborated on the 'great divide' views of the consequences of literacy, which have posited fundamental and far-reaching cognitive differences as a consequence of being (or not being) literate, not only between societies and individuals, but also between local and global contexts. In his later writing, Street (2003) pursued the distinction between literacy events and literacy practices to further clarify the notions of literacy. He applied these notions to what was challenged in the "New Literacy Studies" (NLS) (Mandinach and Cline 2000).

Heath (2007: 204 – 206) was not satisfied with Street's explanations of the concepts of 'literacy and social practices' and looked at it from a contemporary perspective of how young people convey and receive information in the NLS/multimodality of 'literacy practices'. Heath stated that multimodal literacies involve all media forms that combine visual literacy, information literacy, digital literacy and conventions. The initial formulation of Street's theory of literacy was broadly applied without taking into account the extensive use of the electronic medium, its rapid changes moving away from traditional literacy and its impact on contemporary society and the young. It was only in his later writings that Street engaged more extensively with issues associated with digital/computer literacy.

1.2 Defining Language and Computer Literacies

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 (Markauskaite 2006). Markauskaite utilised Street's (1984) models by relating the different purposes of ICT literacy to different teaching and learning practices. She pointed out that

> [i]n this model, ICT is an integral part of all literacy practices. ... [She includes the notion of ICT literacy in a specific context with dimensions which are intended to provide benefits in the first instance]; in an autonomous model 'benefits to individual' [and in the second instance of the] ideological model 'benefits to society' (Markauskaite 2006: 10 – 16).

Understandings of computer literacy include literacy events with many dimensions underpinning literacy practices at the global level such as information literacy, visual literacy, technology literacy and digital literacy (Cohen and Cowen 2008, and Barton 2007). The term digital literacy developed to include media literacy and the ability to interpret information. Digital literacy encompasses computer hardware, software (particularly those used most frequently by businesses), the internet, cell phones, PDAs, iPods, iPads and other digital devices. McLean (2010: 14) stated that "…, social networking sites such as MySpace, Instagram, Twitter, Facebook and others offer their members opportunities to engage in multimodal consumption and production of a range of texts, including photos, videos, text comments, symbols and images". Young people using these skills to interact with society are called digital citizens (Lankshear and Knobel 2006: 12 – 24). Digital literacy also has different meanings, according to Leahy and Dolan (2010: 210 –221) which includes terms such as "computer literacy" (the technical knowledge of computer professionals); "Information literacy" includes the ability to verify, interpret and validate the information; "Cyber literacy" includes competence with using the internet, digital communication and the Web. Digital literacy is used to refer to the use of electronic equipment by all members of society, for personal and social interactions and for educational and business needs. It is underpinned by basic skills in ICT: the use of computers to retrieve, access, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet (McLean 2010: 13 - 22). 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 acquisitions are fundamentally essential for the exchange of information required in our society.

2. LANGUAGE LITERACY

More generally, in current usage, the term language literacy implies an interaction "between social demands/practices and autonomous individual competence, ranging from individual skills, abilities and knowledge, to social practices and functional competencies to ideological values and political goals" (Winch et al 2006: xxxii – xxxvi). Malatesha and Aaron (2010: 310) stated that "letter knowledge requires the ability not only to be aware of the phonemes of the language but also to relate these sounds to the letters of the alphabet". They added that increasing awareness of phonemes can also increase children's knowledge about reading and writing in a particular language. From an ideological perspective, language literacy is a broad term used to indicate not only the importance and the ability of individuals to read and write in a designated language, but also their ability to interpret the world as presented to them in the texts (Blake and Blake 2002: 10). Hence, writing is clearly a form of communication, which also connotes the activity of forming letters and words, and sentences which can signify meaning to a prospective reader.

2.1 Students' Writing

Handwriting has been largely forgotten in the literacy and ICT debates, but Ljungdahl (2010: 357) stressed that handwriting develops skills needed for good readers and writers. Increasingly, writing is done on the keyboard, enhancing legibility, but only in contexts where keyboards or alternative digital technologies are available. In other contexts, which are still frequent in both classrooms and high stakes environments such as examinations, the acquisition of handwriting skills free the student to focus on the quality of ideas and clarity of expression, including accurate spelling. In addition, good (consistent) handwriting visually reinforces the memory of word patterns and can help in speaking, spelling, and writing more effectively. This applies to the students at G school and was confirmed by their teachers. They read widely and saw a relationship between this and their effective writing skills. Carroll et al (1995: 5) asserted that the value is in the handwritten language when practised independently; the handwriting reinforces the acquisition of literacy skills. In line with Carroll et al (1995), De Craene and Cuthell's (2006: 1–5) study revealed that children, who handwrote their work and engaged more in reading printed texts, showed development in their motor and cognitive skills at a young age. In line with the literature, the G students who practised their handwriting skills were able to express their ideas and wrote lengthy essays. This strategy was consistent with strategies adopted by their teachers who expect their students to handwrite their drafts as many times as they needed until they reached the curriculum expectations. Their reasons were that students were provided with the opportunity to reflect on issues (such as spelling and grammatical errors, expressions and the like) that they might improve on by redrafting their pieces of writing. In support to the teachers consisting practices, Feder and Majnemer (2007: 312) asserted that "[f]ailure to attain handwriting competency during the school age years has, far-reaching negative effects on both academic success and self-esteem". Despite the widespread use of computers, they added, that "legible handwriting remains an important life skill that deserves greater attention from parents and educators" Ljungdahl (2010: 363 – 367). The data in Table 1 compares in percentage the settings of the two schools and their policies for using/not using electronic devices.

Table 1. BG students compulsory use of electronic devices and G students do not use any electronic devices at school

Students	No electronic devices at school %	Electronic devices %	Research projects using electronic devices at school %	Passing rate at Year 12 %
G school	80		20	70
Electronic devices used at home	20			
BG school				30
Laptop		45	80	
iPads		44		
Mobile Phones		11		
Total	100	100	100	100

Table 1 demonstrates 80% of students in G school do not own any electronic devices for school use, while 20% use their domestic personal computer (PC) to produce their school work. The question was asked of year 12 students how do they feel about being unable to use any electronic devices at school. Their responses were: "This helps us to improve our handwriting to be faster at composing the required writing which will earn us a high mark at the end of year exams. Handwriting the essays in the exam are easily readable and clear to the examiners". This makes a substantial difference in the passing rate of 70% of G students compared to 30% of BG students at the end of year exams. The G students' responses echoed in De Souza and Towndrow (2010: 26), who stressed the importance of handwriting for students who still use pen and paper format in their exams. While 100% of students at BG school were directed to solely use their electronic devices to perform all their school works. They stressed that at times, "we could not read our own handwriting". It is a hindrance to us at the end of year exams. Nevertheless, Ljungdahl (2010) stressed 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" (p. 357).

The definitions of literacy are of increasing breadth and reflect a growing emphasis on context. The relevance of this study particularly relates to the text composition. This applies to G school where the students are contented to handwrite their school work and its outcomes. 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. For the purpose of this study, the main focus will be to compare the relationship between language literacy and computer literacy, which involves the use of computer peripherals and software applications and their tools.

3. 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 (Williams 2002: 8). At a less specialised level and from the autonomous view, this applies to BG students; computer literacy involves the knowledge of how to turn on a computer, start and stop software applications as well as save, retrieve and print documents. In relation to software, Cohen and Cowen (2008: 546) defined computer literacy as "the ability to effectively use [autonomously] computer tools, such as word processors, spreadsheets, databases, presentation and [integration of] 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". Ideologically, the term computer literacy is commonly used to characterise a degree of knowledge and awareness about computers and their role in society. Computer literacy, according to Cartelli (2010, 1-6), applies to an understanding of computer characteristics, capabilities, and applications, as well as an ability to implement this knowledge in the skilful, productive use of computer applications suitable to individual roles in society. From an ideological view, computer literacy has evolved into a broad term that incorporates the use of the internet and other digital devices.

3.1 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). Computer literacy has evolved into a broad term that encompasses a range of related literacies, including digital, network, ICT, electronic devices in different fields of communication, including the internet (Cesarini 2002: 1–4). More recently, computer literacy has expanded to multidimensional related literacies known as ICT. The ideological dimensions of computer literacy or ICT revolve around online communication (globally), the internet and wireless electronic devices to facilitate access to digital resources.

The internet has become more and more important in 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.

4. RESEARCH METHODOLOGY

The nature of the present study has two methods associated with an ethnographic quantitative approach: (1) the implications of the increase in the use of ICT, and (2) the students' perceptions of and identified use of ICT both at home and at school (Burns 1997: 9-10). This methodology will be used to analyse the shift from reading the printed text and handwriting to engaging with electronic medium devices. Seeking students' opinions will be a source of descriptive data that will assist in arriving at a judgment of how computers are enhancing or hindering the development of language literacy skills compare to those who are not using the electronic devices. This is a preliminary start of observation and pre-surveying/discussing with students the main variables of electronic devices usage at home and at school. All students at BG school have to carry their devices to the classrooms in all subjects and also take them home to do their homework. There is a substantial difference between the two private schools. All BG students are obliged to use their devices according to their school policy. While the students at G school, are not allowed to bring to school any electronic devices. There is one pc in each classroom for the teachers to project any work into the electronic white board and the students copy the notes or summaries of the work into their exercise books.

4.1 Results

I have observed 90 students at the GB school and 90 students at G school all students are at secondary level. The BG school students use their devices between 7 to 9 hour a day between school and homework. While the G students only carry their textbooks and do not have any electronic devices to use. Figure 1 displays the percentage of middle school students at BG (Years 6 to 9) who use more than one device, while G school students do not use electronic devices at school but both BG and G students use them at their domestic environment.
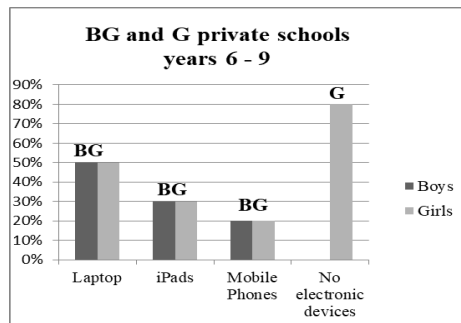

Figure 1. Middle school (Years 6 to 9) students' use/not use of electronic devices

Figure 1 demonstrates 50% of boys and 50% of girls at BG school are using their laptops to access information and use them for communication purposes. While 30% of boys and 30% of girls use their iPads and 20% use their mobiles phones. Their activities include homework and leisure time. Hence, 80% of students at G school do not use any electronic devices at all at school, but they still experience self-efficacy in operating their PC away from school. They are as familiar with the electronic devices as much as the BG students are. Regardless, they are also the Net-Generation (Rohatgi et al, 2016, 103-116), every day, students come into contact with computer technologies and learn about them in less formal ways outside the school. "IT skills are acquired through family, through friends, self-tuition, and through many other sources" (Milić, and Škorić 2010, 63). Hence, Hatlevik et al (2018, 107-119) stated that "… ICT self-efficacy is positively related to computer and information literacy when controlled for other student characteristics and background contextual variables". Furthermore, students' ICT self-efficacy at both schools plays important roles in understanding students' computer use and accessessing information literacy. However, the senior students at BG school are compelled to use more specific devices, depending on the demand of their subjects.
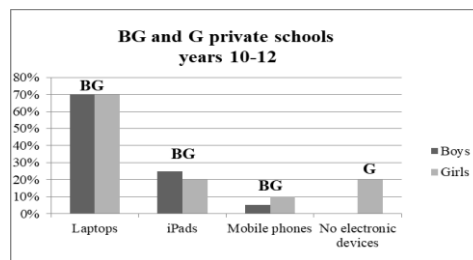
Figure 2. Senior (Years 10-12) students' use/not use of electronic devices

Figure 2 illustrates 70% of boys and 70% of girls are using laptops, while 25% of boys and 20% of girls are using iPads at the BG school. The mobile phones are less used, 5% of boys and 10% of girls may use their mobile phones to access and manipulate the required data. The experience Year 12 students who practiced the use of the electronic devices such as iPads with the inclusion of Bluetooth keyboard are able to save their work on Google drive. The question was asked how do they access their documents and why using the Google drive rather the iCloud drive. Their responses were that the iCloud provides only five gigabytes of free capacity to save their data and when the capacity exceeds the required amount, they have to pay money, where Google drive is not restricted to any data capacity and also free. The G students do not use electronic devices, 20% of them commented that the storage they used for their data is only in their exercise books. Further comments, it is safer, "we do not worry about computer viruses and the deletion of our work".

The use of ICT in different settings such as the home or school environment for different purposes such as recreation or working on school-related tasks may provide opportunities for students to gain mastery experience. As such, mastery experiences are considered "to be crucial antecedents of students' self-efficacy, which in turn determine their achievement" ideologically (Rohatgi et al, 2016, 103-116).

4.2 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 (Martin 2006: 8 − 9; Ainley 2010: 2). ICT literacy covers the new and emergent technological devices combined, introducing new literacies (internet, iPads 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). These changes have made computer literacy skills more available to include interactions and communications through social events and practices. The changes become more apparent in Street's notions. Literacy events and practices apply to the acquisition of computer literacy skills. The literacy events happen when the Net-Generation (Rohatgi et al, 2016, 103-116) acquired the new literacy and put it into practice. On the other hand, autonomously, 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 young people identify with has shifted emphasis from the traditional written language to re-form a language that the Net-Generation created (Mountifield (2006: 172–173). They are digitally embodied in multimodal forms of literacy and are associated in the constructions of identity and community (Nævdal 2007: 1113). They will continue to apply their experience to further practice with more emergent technology.

5. CONCLUSION

Today, young people face a challenging situation. Whilst, they have the opportunity to benefit from powerful digital technologies which open up new learning opportunities, they also need to deal with handling and making sense of such devices in a complex and non-stable world. For example, the BG school students are constantly using their digital devices for seven to nine hours a day, increasing their accessibility and power to shape action and perception through the development of learners' understanding and application of creativity,

computational thinking, media literacy and digital citizenship. However, the literature suggests that being competent in literacy implies that one knows which practices, attitudes and values are appropriate in a given situation. This applies to the G school students who are autonomously mastering the language literacy without the destruction of the digital devices, and the ideological dimensions can present much more compelling and in depth challenges. The prominent messages stemming from the literature and the comparison of the two schools 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. Though, 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). Hence, the implications on young people's engagement in digital culture, from an autonomous and ideological view, have a focus on digital texts as social and textual entities.

Computer literacy and its relationship to language literacy development among school age children need further and continuous study. Technology is still advancing rapidly and further changes to the education system infrastructure and domestic environments are likely. It is, therefore, necessary to have a closer look at the ways in which individual student made use of the computers and their associated literacy tools. In future studies, a collaborative work between teachers and researchers will be necessary to progress the formulation of multimodal 'New Literacies' and 'digital literacies' and intermodal pedagogic 'spellings' and 'grammars' will be needed to accommodate the New Literacies Studies in classroom contexts. Further studies will assist in facilitating productive participation along these lines among the researchers and teachers in ICT, English and literacy education.

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