

[DOI: 10.20472/IAC.2018.043.019](https://doi.org/10.20472/IAC.2018.043.019)

LOUISE KAKTINS
Macquarie University, Australia

INTERNATIONAL STUDENTS' USE OF TECHNOLOGY AND THE IMPLICATIONS FOR PEDAGOGY: A CASE STUDY

Abstract:

The pervasiveness of digital technology in all aspects of society generally, has raised concerns in the higher education sector as to the implications for pedagogy especially with the exponential influx of Gen Y students (those coming of age between 1998 and 2006) whose use of such technology is already a seamless part of their daily lives. Understandably, their expectation may well be that such technology will also be embedded in their academic lives as undergraduates and later as postgraduates. On the other hand, pressures on the universities – cost-effectiveness, increasing diversity and volume of the student body – are making educational technology appear a ready solution, if not panacea. In the midst of such an academic landscape, international students have their own specific challenges in adapting to the western style, English-language-based Higher Education (HE) environment. This paper aims to investigate international students studying in a commercially operated pathway program at a Sydney-based university and their relationship to technology against the current challenges of using technology to facilitate academic achievement. Key areas of focus include: the disconnect between digital exposure and digital literacy, the use of online tools such as e-dictionaries and students' attitudes to e-learning. Pedagogical implications are explored.

Keywords:

internet, pedagogy, digital literacy, educational technology, digital natives, digital immigrants

JEL Classification: I20

1 Introduction

The widespread saturation of digital technology into all parts of people's lives means that information and computer technology (ICT) has "melted" into everything in society including education (Education for the Future, 2014). Indeed, ICT appears to be viewed as a part of "the natural environment of the twenty-first century" (Corbel, 2007) and the role of technology in education seemingly accepted as inevitable, unquestioned and insistently positive (Selwyn, 2016). Such perceptions lead to three key challenges which will be explored in this paper in relation to international students in a pathway program. The first, a consideration of the actual standard of digital literacy among international students especially for academic purposes, the second, whether indeed international students are likely to use technology for educational purposes, and finally, whether extensive use of technology actually results in the educational gains (specifically for international students) that are generally so frequently touted (Selwyn, 2016). Discussion of these challenges has direct implications for pedagogy.

For the purposes of this study, international students are defined as those "individuals enrolled in institutions of higher education who are on temporary student visa and non-native English speakers (NNES)" (Andrade, 2006, p. 134). Private third party educational providers are those commercial entities partnering with higher education institutions to recruit mainly international students by offering a combination of English as a Second Language (ESL) coursework and credit-bearing academic units, to fulfill entry requirements for mainstream university degrees (Choudaha, 2017).

This paper utilises a case study framework and relies on survey data. The private higher education provider of pathway programs (de-identified as PHEP) that is the focus of the present case study is associated with a metropolitan university (de-identified as Met_U) in one of Australia's capital cities, and has been operating from Met_U's campus for well over two decades. PHEP mainly targets international students but in recent years has also marketed to local students who have become a growing presence. PHEP is one of a number of similar institutions (also affiliated with various Australian universities) owned by a large, for-profit, publicly listed, private higher education conglomerate that is also expanding its operations overseas.

2 Literature Review

The pervasive nature of digital technology in higher education as well as education generally, has raised concerns about the role to be assumed by such technology. At a time when increasing pressure is being exerted on all western universities to become both more resourceful in self-funding and more efficient in dealing with higher volumes of undergraduates, technological strategies are becoming particularly attractive to respond to both issues. In company with Generation Y's supposed ongoing exposure and access

to ICT in their personal lives, such direction seems inevitable. However, whether current undergraduates (or even post graduates) have the requisite digital literacy skills for academic purposes is being debated, especially in the case of international students who come to western universities and/or pathway programs from variable digital and educational backgrounds.

Johnson et al (2014, p. 22) define digital literacy “as the ability to use information and communication technology to find, evaluate, create and communicate information”. They go on to note that often the members of academic faculty themselves need a greater engagement with digital literacy, particularly at an in-depth level that involves a mindset shift as well as an attitude shift, otherwise students will not be able to work effectively with technology at higher levels such as those required in the workforce. The authors stress the urgency of addressing what they and others (e.g. Lee, 2014) believe are actually fairly low levels of digital literacy amongst both students and staff.

Other researchers (e.g. Sternberg, 2012) make a finer distinction in stressing that so-called “digital natives” - those defined by Prensky (2001) as being brought up with technology and therefore relating to it with ease and enthusiasm – while competent in the use of technology in their private lives or for administrative purposes, in fact possess only limited generic technological skills which do not necessarily translate into the types of specialized technological skills demanded in academic and professional contexts. Indeed, many researchers question the hardline demarcation implied in the “digital native”/ “digital immigrant” divide, pointing out often academic staff (presumably the “digital immigrants”) possess sophisticated technological skills for academic purposes that are minimally present or even conspicuously absent in their students – the so-called “digital natives” (Kennedy et al, 2008; Sternberg, 2012).

At the same time, students’ perceptions about their own digital literacy as well as their academic potential generally, may be over-rated. Keen (2007) writes at length about the internet-instigated rise of the “cult of the amateur” which has blurred the traditional lines of demarcation between expert and amateur. It is not a great leap to consider that a side-effect may be a skewed attitude on the part of students that has resulted in an inflated self-perception of their abilities both technological and academic. The repercussions for students in their approach to their studies is especially concerning.

More particular issues related to digital literacy arise in regard to international students. Ashton-Hay et al (2016, p. A-10) point out that such students may not necessarily have been exposed to educational technology in their home countries so feel disadvantaged in a western style digitally-saturated academic setting. “The assumption that twenty-first century students automatically know how to learn using technology is not entirely accurate because technology is less frequently used for learning in emerging economy nations” (Ashton-Hay et al, 2016, p. A13). Such concerns must invariably arise when

dealing with international students from non-parallel educational backgrounds, especially when Australian universities are now incorporating so-called “plagiarism detection” software in their learning management systems, particularly Turnitin, as a standard means of addressing issues of academic integrity. Consequently, at a minimum, all students (whether domestic or international) are now obliged to gain competency with their particular university’s learning management system in order to upload their assignments and do so within the similarity parameters set by their lecturers in regard to the “plagiarism detection” software of choice.

While much research (Kennedy et al, 2008; Sternberg, 2012) has focused on the so-called Generation Y and the digital characteristics they bring to HE, both positive and negative, fewer studies have focused on international students (of the same generation) in this regard, particularly within the context of transitioning to university study via pathway programs, an especially pivotal period for such students as it provides a springboard for their academic success (or otherwise) within a mainstream undergraduate program later on. To consider the concerns of these students would go some way to responding to Selwyn’s (2016, p. 442) challenge that “a greater diversity of people also needs to be encouraged to speak up about education and technology”.

3 Method

During the course of one teaching week of a PHEP academic term, a pencil-and-paper survey was administered to 13 classes (average class size of 25 students, totalling 315, excluding local students). A total of 264 international students responded (approximately 84% response rate). The students were enrolled in a core unit dealing with academic literacy (de-identified as ABLE), specifically streamlined for those intending to major in business, economics, commerce, finance, accounting, or related disciplines. It is a unit also offered to mainstream students at Met_U, through which PHEP students gain credit points towards their university degree. Students enrolled in ABLE at PHEP are those who obtained a Band 4 or less in HSC English (or equivalent) or less than a 7 in IELTS (or the equivalent), and who were concurrently enrolled in a first year microeconomics unit. In other words, students requiring academic support to eventually be eligible to enrol in a mainstream university degree.

Questions were constructed using a consistent Lickert scale of 1 (Agree) to 5 (Disagree). For the purposes of this study, the Likert scale categories 1 and 2 (the two representing *agreement*) have been collapsed into “Agree” and categories 4 and 5 (the two representing *disagreement*) collapsed into “Disagree” while category 3 is indicated as “Neutral” with little significant statistical bearing (Petocz, 2014, personal communication). Such a system will be consistently applied throughout this paper. Questions are coded as per the actual survey document.

The current paper is based on this survey which gathered demographic information and preliminary data (regarding the international students' perception of their language skills, their motivations and expectations, their future plans, and their preference for using English names) and more specifically data about students' attitudes to technology and their main uses of technology both for personal and academic purposes.

4 Findings and Discussion

Profile of international students

Of the 264 respondents, overall the largest percentage (88%) were in the 19-24 yr age range with males (60%) outnumbering females (40%). The majority came from Asia – China (65%) and Hong Kong (10%). Within a broader educational context, the strong presence of Asian students in the international student cohort both in Australia and overseas is noted in the literature (Birguglio & Smith, 2012; Gu & Schweisfurth, 2006; Jin & Cortazzi, 2011) as highly significant in international education. “Affluence, economic growth, values strongly supportive of education and uncertainties about domestic capacity all contribute to Asia’s growing presence in global student mobility” (Kell & Vogl, 2012, p.13). The respondents were all enrolled in units that were intended to support them in their transition to a mainstream university degree with a focus on business, economics, accounting, marketing and similar.

In the HE sector, the largest volumes of international students come from specific markets (Australian Government Department of Education and Training, 2017) especially China (39%). Given the heavy reliance of Australian universities on international students (See Table 1), the economic imperative alone – export earnings from Australian HE for international students reaching a record high of approximately A\$22 billion in 2016 (Maslen, 2017) - to continue attracting such students and maximising their opportunities for academic success, is great, especially considering projections that the number of international students coming to Australia will rise 30% by 2020 (Maiolo, 2013).

Table 1. Percentages of international students for a cross-section of Australian universities (Australian Education Network, 2017).

University	Location by state	%
Federation University Australian	Victoria	48.9%
Royal Melbourne Institute of Technology (RMIT)	Victoria	46.3%
Murdoch University	Western Australia	40.6%
University of Wollongong	NSW	40.5%
Macquarie University	NSW	26%

Attitudes to ICT

As per Figure 1, a substantial number of respondents (70%) favoured using ICT for learning and many believed this improved their learning (60%). Just under 80% used the Internet for their assignments and 60% claimed they were able to effectively evaluate research material on the Internet. It was interesting that Wikipedia was only favoured by 30% of respondents as a preferred research source especially considering much literature claiming Wikipedia is now the second most preferred research option for students generally (e.g. Purcell et al, 2012). Of greatest concern is the accompanying problems regarding the reliability of Wikipedia for academic purposes. Keen scathingly refers to it as an “online encyclopaedia where anyone with opposable thumbs and a fifth-grade education can publish anything on any topic from AC/DC to Zoroastrianism” (p. 4).

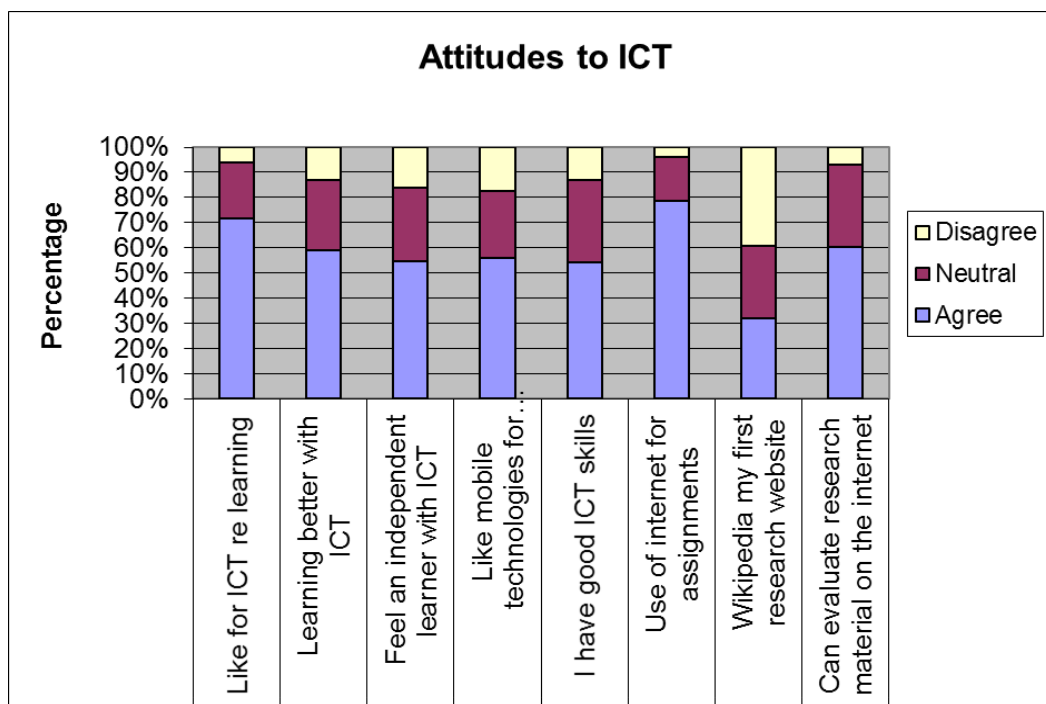


Figure 1. Overview of respondents’ attitudes to ICT.

Looking at Figure 2, it appears that while respondents frequently use MS WORD (79%) and have reasonable ability to create a Table of Contents (TOC) using this feature in WORD (67%) as well as insert headers and footers (70%), and can use PPT for presentation (77%), they use Excel spreadsheets less frequently (45%) and also create graphs in Excel less frequently (55%).

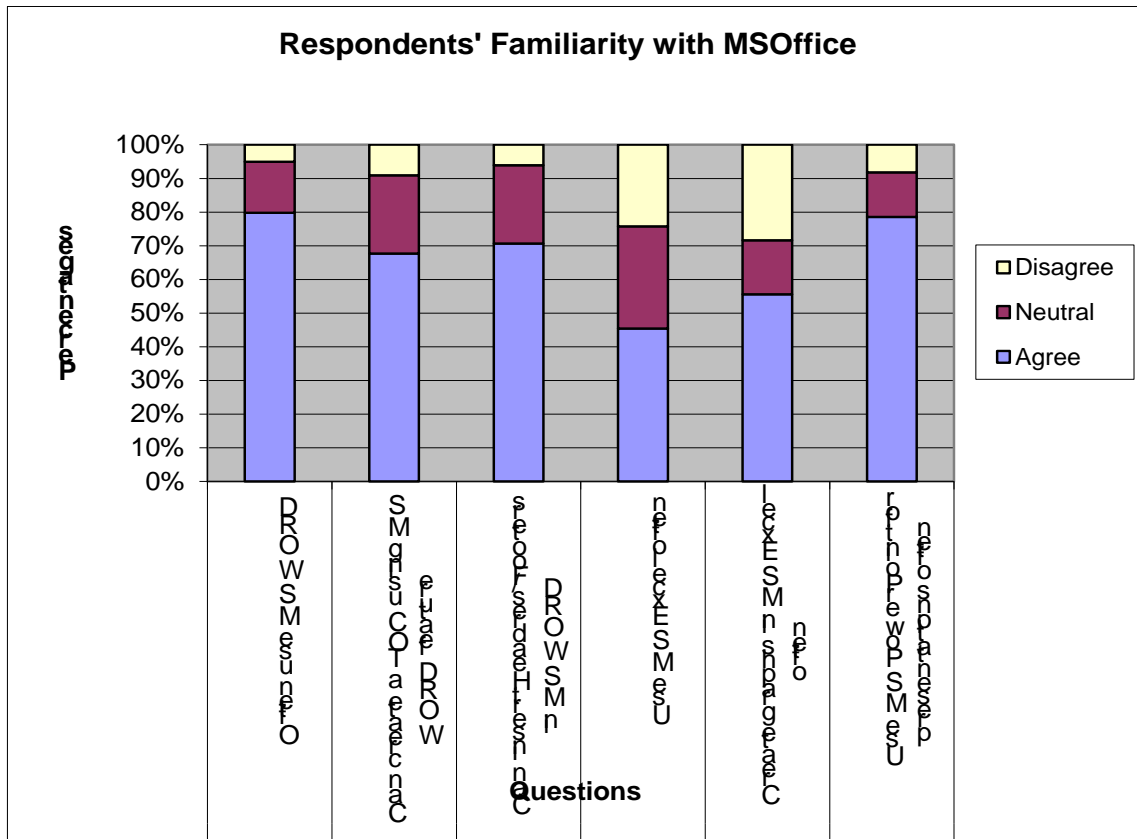


Figure 2. Respondents' use of Microsoft (MS) Office applications.

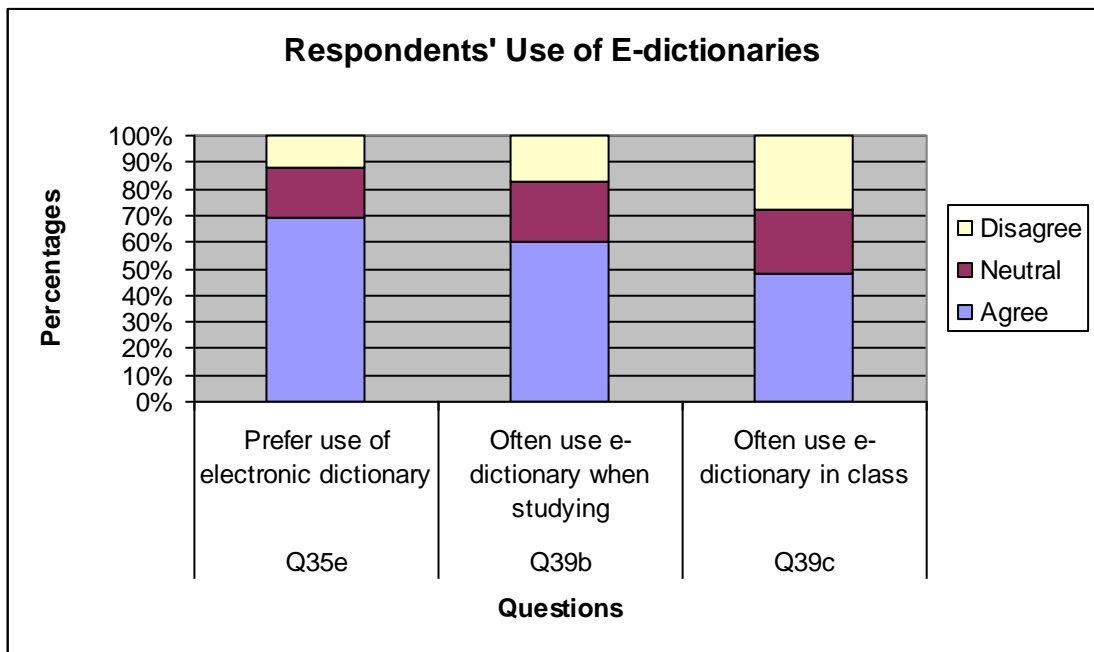


Figure 3. Respondents' use of electronic dictionaries.

For international students, a key challenge is achieving a reasonable mastery of the English language, specifically English for Academic Purposes (EAP). Therefore, the use of electronic dictionaries is widespread. Figure 3 illustrates respondents' preference for use of e-dictionaries generally (68%), whether in class (47%) or other study situations (58%).

Jin & Deifell (2013) stress the use of online dictionaries has become an irreversible trend due to their convenience, ease of access and nil financial cost while acknowledging the criticisms from researchers in terms of students only focusing on single words (thereby decontextualising by ignoring the context of the sentence/text) and being unable to use effective reading strategies to use such apps as effectively as required.

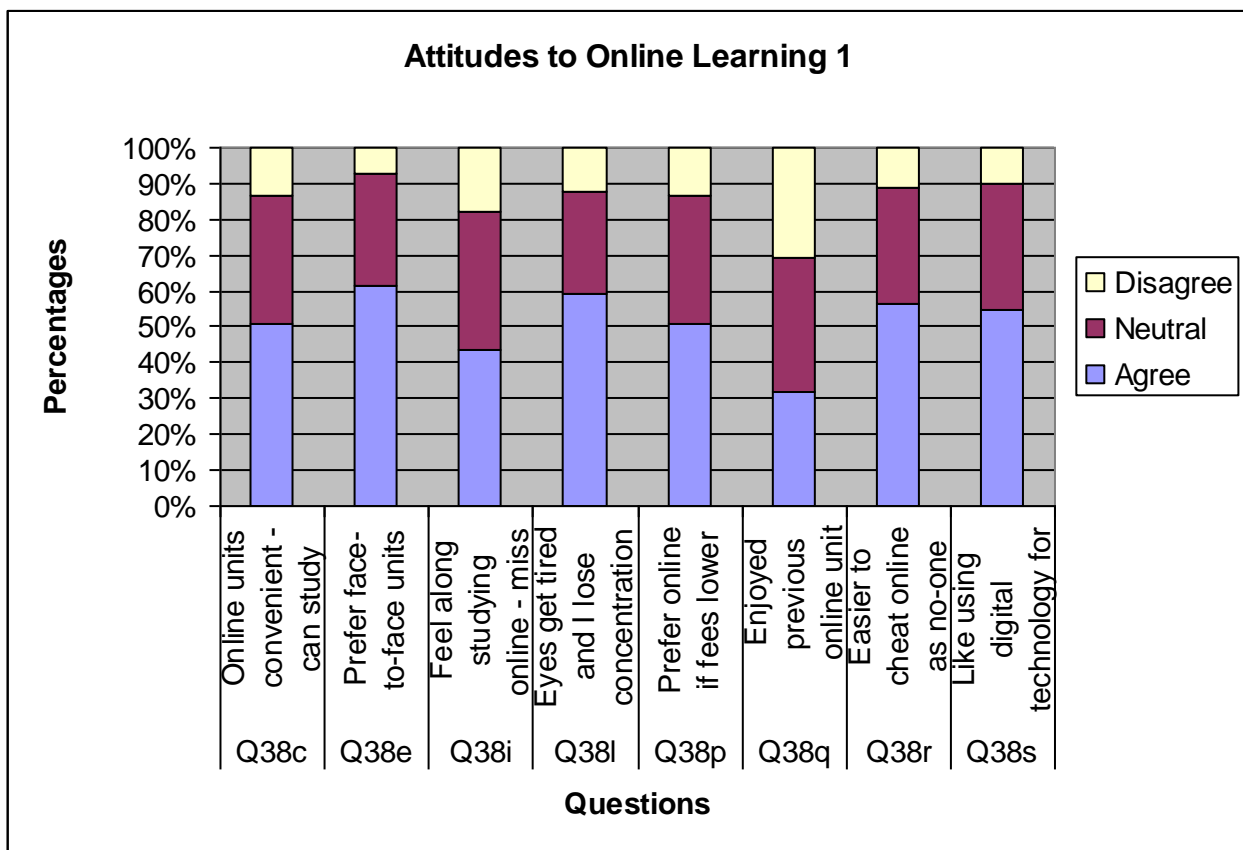


Figure 4. Respondents' attitudes to online learning Part 1.

While respondents (Figure 4) appeared to have some preference for online learning due to the convenience (50% ~ Q38c) especially if linked with lower fees (50% ~ Q38p), and they liked using digital technology for study (54% ~ Q38s), more direct comparisons between face-to-face and online study produced some interesting data. A sizable amount of respondents preferred face-to-face units (60% agree vs 7% disagree for Q38e) and felt

that when responding to a statement regarding learning more from online units than face-to-face 43% in the poor category. Only about 30% agreed that they had enjoyed a previous online unit. Also, many (42% ~ Q38i) felt they were “alone” when studying online and missed the group atmosphere. Interestingly, 58% (Q38l) acknowledged that their eyes got tired and they lost concentration when accessing texts online. A notable percentage (56% ~ Q38r) agreed that it was “easier to cheat online as no-one can check”. This latter observation complements findings (discussed below) based on SPSS analysis regarding plagiarism within the online environment.

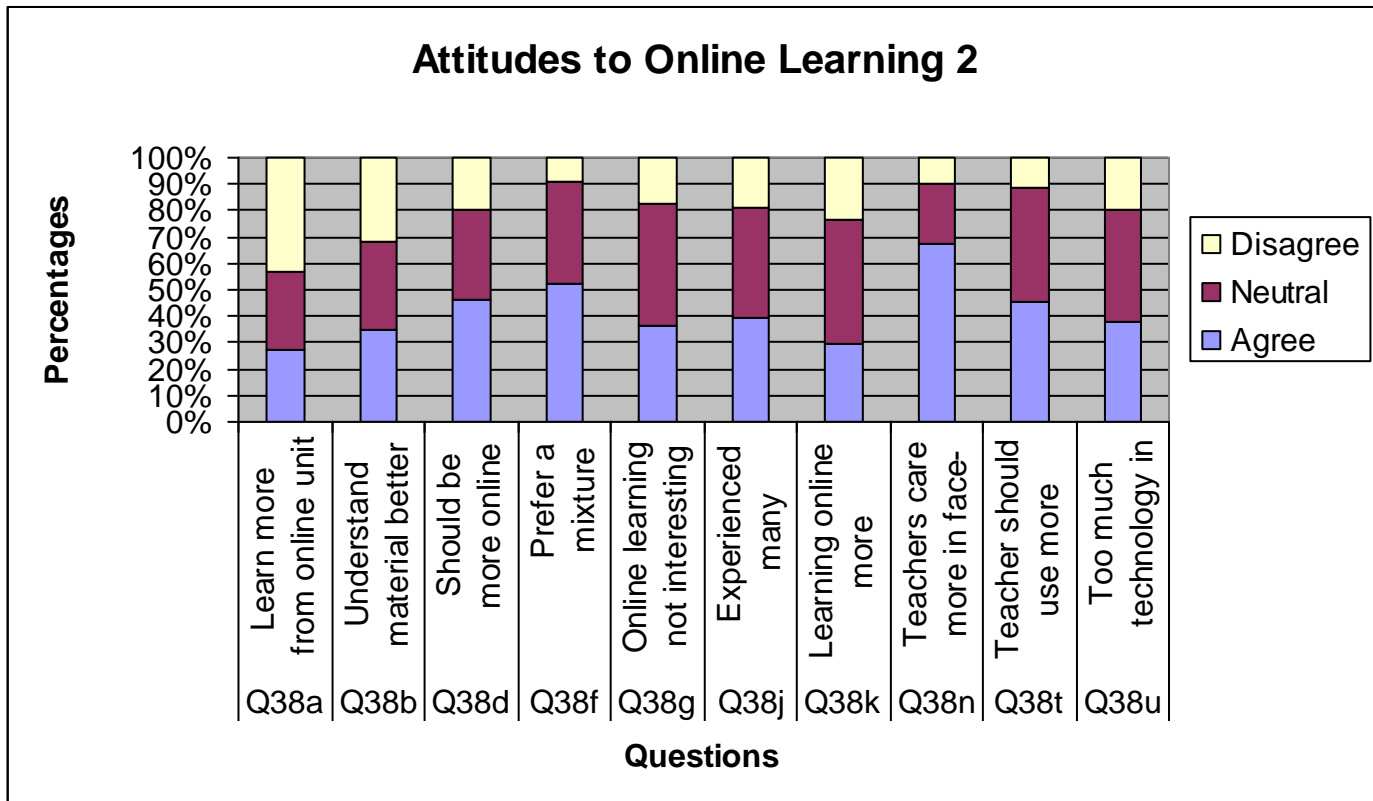


Figure 5. Respondents’ attitudes to online learning Part 2.

While equal numbers responded “agree” vs “disagree” in regard to understanding material better online, a substantial number of respondents (43%) disagreed that more could be learnt from an online unit than one delivered face-to-face. Despite this, 45% agreed that there should be more online units while 52% preferred a mixture. Some 38% had experienced difficulties in accessing material online. While 44% believed that teachers should use more technology in the classroom, 37% agreed that the excessive use of technology in the classroom also resulted in less learning. A particularly telling response was that made to the statement that “Teachers care more in face-to-face

classes than online” with 66% of participants responding “agree” and only 10% responding “disagree”.

Even in much earlier studies, such as that of Hellsten and Prescott (2004), particular focus on pastoral care was expressed as an important feature of the international student/teacher relationships. “The ethic of care is an expectation of the teaching practices by the students interviewed” (Hellsten & Prescott, 2004 p. 37). Understandably, the role of teacher may be very much that of *in loco parentis* for international students, some of whom may be away from home for the first time. The seeming importance of this aspect for international students may go some way to explaining the above result.

Plagiarism

Based on the descriptive inferential analysis undertaken on the quantitative data using the Statistical Package for the Social Sciences (IBM SPSS Version 22) an interesting trend emerged regarding plagiarism. The SPSS analysis showed that a higher score on the plagiarism scale (dependent/response variable = PLAG1) was predicted by a higher use of mobile technology (standardized coefficient $B = 0.404$); higher use of Facebook (standardized coefficient $B = 0.169$); higher use of the internet (standardized coefficient $B = 0.272$) and experiencing greater problems with online delivery (standardized coefficient $B = 0.155$). This was aligned with lower (i.e. negative) motivation for a degree (standardized coefficient $B = \text{minus } 0.284$) and lower capacity for using ICT (standardized coefficient $B = \text{minus } 0.15$). The R square indicated a 34% variation explained by the variables.

5 Implications for pedagogy

Digital exposure vs digital literacy

Prensky’s dichotomous categories of digital natives/digital immigrants may be questionable or at best, partially true. Likewise, Oblinger and Hawkins (2006) claim academics assume that university students are technologically competent because of their constant exposure to technology but they add the caveat that “Having no fear is not the same as having knowledge or skill” (p. 12). Note, for example, the limited use of Excel spreadsheets (45%) or Excel graphs (55%) among respondents whose major would be business or commerce. Jeffrey et al (2011) concur in claiming that exposure to technology per se does not result in digital literacy and certainly not for the standard demanded in higher education. In addition, Lea and Jones (2010, p. 379) caution that the scale of ICT use by students is less important than understanding “the processes of meaning-making for student learners in a digital age”. It is this that may be the key to devising robust pedagogical strategies to incorporate ICT into higher education. Therefore, a more embellished and expanded definition of information literacy should

really be at the forefront of pedagogical decisions. Oblinger and Hawkins (2006, p. 13) provide such a one.

Information literacy includes cognitive activities, such as acquiring, interpreting and evaluating the quality of information. It is enabled by technical skills, such as using a computer to research, organize, analyze, and communicate. And it carries legal and ethical implications such as understanding intellectual property and copyright, as well as understanding bias in the information itself.

This implies a whole range of critical thinking and critical analytical skills including the ability to judge the reliability of sources as well their potential bias and the context in which they are embedded. It also adds the dimension of academic integrity that has wide-ranging ramifications as regards very contemporary challenges in the HE sector, notably, plagiarism and contract cheating (Kaktiņš, 2018).

Online dictionaries

Considering the popularity of e-dictionaries among the respondents, one recommendation to improve the quality of international students' use of such resources, would be the inclusion of a course (either independent or as an integrated part of other academic skills units) designed to teach digital dictionary skills, based on the findings of Ranalli (2013) who claims that such strategic instruction for ESL students (in a tertiary level writing course) is not only extremely effective, but urgently required. Nesi and Hall (2002) note that for international students the inclusion of an assignment section devoted to appropriate dictionary use, to understanding the information dictionaries carry and to critically evaluating dictionaries, was an effective strategy. See their paper for a detailed breakdown of the various language errors resulting from international students' basic use of dictionaries, errors that can jeopardise the quality and cohesion of students' writing for academic purposes. While the Nesi and Hall study referred to print dictionaries, it would not be a great leap to consider how similar errors would be made in the online environment. Indeed, further research comparing print and online dictionary use among international students would be a useful endeavour.

Digital vs face-to-face teaching

While students and teachers now have a different relationship such that much of the information mediated via the teacher is now readily available online (McCusker, 2014), the case can be made that ready accessibility does not equate with critical evaluation on the part of students, and teachers are still central to the learning process even if now it is to guide students in their choices.

The data suggest that respondents do value face-to-face teaching with 60% preferring this form of learning. Coupled with the SPSS results aligning substantial online activity with a greater propensity for plagiarism, there still appears substantial value in more

traditional modes of learning/teaching. Likewise, non-technologically based learning approaches might be encouraged for better learning outcomes for international students.

It is also worthwhile to note the injunction from Zhang et al (2004, p. 79) that “E-learning requires more maturity and self-discipline from students than traditional classroom education, which may explain the higher dropout rate in e-learning programs compared to conventional programs”. For international students new to western style academic culture and (in the case of many Asian students) accustomed to an autocratic teacher-centric learning style in their home countries (Alon & Lu, 2004), excessive exposure to online education may be less than beneficial unless accompanied by extensive scaffolding in how to approach such a specialised form of instruction if authentic pedagogical outcomes are to be achieved.

Teaching focus

The connection between a propensity for ICT and greater propensity for plagiarism warrants further investigation in subsequent research. In the meantime, current literature (e.g. Baruchson-Arbib & Yaari, 2004) suggests that there may be a marked difference in students' perceptions of printed material versus online material such that internet sources are seen as more viable sources to plagiarise. Again, Keen (2007, p. 2) paints a digital context that has instigated a “flattening of culture that is blurring the lines between audience and author, creator and consumer, expert and amateur” while Van Dijck (2010) remarks on the widespread (but erroneous) public perception of search engines being a neutral tool for information-gathering. A dedicated course of study for the evaluation of digital material (such as that suggested by Stenger, 2018) may be one step towards addressing this particular challenge, especially as Dillon (2010) highlights both the centrality of people and ethics within ICT practice to achieve a respectful context in which humans can align with each other in an online world.

6 Conclusion

This paper has been concerned with the digital skills and widespread use of ICT among international students and the impacts on their academic progress in HE. Key to all aspects of fusing digital technology and pedagogy is whether or not this assists international students in achieving the in-depth knowledge and disciplined academic training that they require to succeed at university. The less than robust alignment between the use ICT per se and the more sophisticated type of digital literacy required for academic purposes implies a need for more focused instruction and guidance especially in light of the challenges ICT poses in regard to the robust evaluation, ethical contextualisation and appropriate utilisation of research material proliferating within that sphere.

Acknowledgements

The author wishes to thank Dr Agnes Bosanquet for her insights and recommendations and Associate Professor Peter Petocz (2014) for his personal communication regarding the organisation of the research data.

References

- ALON, I and LU, L. (2004). The state of marketing and business education in China. *Marketing Education Review*, Vol.14, No. 1, 1-10.
- ANDRADE, M.S. (2006). International students in English-speaking universities: Adjustment factors. *Journal of Research in International Education*, Vol. 5, No. 2, 131-154.
- ASHTON-HAY, S; WIGNELL, P. and EVANS, K. (2016). International student transitioning experiences: Student voice. *Journal of Academic Language and Learning*, Vol. 10, No. 1, 1835-5196.
- AUSTRALIAN EDUCATIONAL NETWORK (AEN), (2017). *International students at Australian Universities*. Retrieved 29 August, 2017 from <http://www.australianuniversities.com.au/directory/international-student-numbers/>
- AUSTRALIAN GOVERNMENT DEPARTMENT OF EDUCATION AND TRAINING (2017). *End of Year Summary of International Student Enrolment Data 1 – Australia – 2017*. Retrieved August 31, 2018 from <https://internationaleducation.gov.au/research/International-Student-Data/Documents/MONTHLY%20SUMMARIES/2017/International%20student%20data%20December%202017%20detailed%20summary.pdf>
- BARUCHSON-ARBIB, S. and YAARI, E. (2004). Printed versus internet plagiarism: A of students' perception. *International Journal of Information Ethics*, Vol. 1, No. 1, 1-7.
- BIRUGLIO, C. and SMITH, R. (2012). Perceptions of Chinese students in an Australian university. *Asia Pacific Journal of Education*, Vol. 32, No. 1, 17-33.
- CHOUDAHA, R. (2017). *Landscape of third-party pathway partnerships in the United States*. National Association for Foreign Student Affairs (NAFSA). Retrieved August 31, 2017 from http://www.nafsa.org/Professional_Resources/Browse_by_Interest/International_Students_and_Scholars/Landscape_of_Third-Party_Pathway_Partnerships_in_the_United_States/
- CORBEL, C. (2007). Teachers' roles in the global hypermedia environment. In J. CUMMINS, J. and DAVISON, C. (2007), *International handbook of English language teaching*. New York: Springer.1113-1124.
- DILLON, R.S. (2010). Respect for persons, identity, and information technology. *Ethics of Information Technology*, Vol. 12, No.1., 17-28.
- EDUCATING FOR THE FUTURE (Oct 21, 2014). *Jubilee Trendsetter Event*, Faculty of Human Sciences, Macquarie University Forum, Macquarie University.

- GU, Q. and SCHWEISFURTH, M. (2006). Who adapts? Beyond cultural models of 'the' Chinese learner. *Language, Culture and Curriculum*, Vol. 19. No.1, 74-89.
- HELLSTEN, M. and PRESCOTT, A. (2004). Learning at university: The international student experience. *International Education Journal*, Vol. 5, No. 3, 344-351.
- JEFFREY, L; HEGARTY, B., KELLY, O., PENMAN, M., COBURN, D. and McDONALD, J. (2011). Developing digital information literacy in higher education: Obstacles and supports. *Journal of Information Technology Education*, Vol. 10, 383-413.
- JIN, L. and CORTAZZI, M. (Eds.) (2011), *Researching Chinese learners: Skills, perceptions and intercultural adaptations*. Hampshire and New York: Palgrave MacMillan.
- JIN, L. and DEIFELL, E. (2013). Foreign language learners' use and perception of online dictionaries: A survey study. *Merlot Journal of Online Learning and Teaching*, Vol. 9, No. 4, 515-533.
- JOHNSON, L; ADAMS BECKER, S., ESTRADA, V., and FREEMAN, A. (2014). *The NMC Horizon Report: 2014 Higher Education*. Austin Texas: The New Media Consortium. Retrieved February 9, 2015 <http://cdn.nmc.org/media/2014-nmc-horizon-report-he-EN-SC.pdf>
- KAKTINŠ, L. (2018). Contract cheating advertisements: What they tell us about international students' attitudes to academic integrity. *Ethics and Education*, Vol. 13, No. 2, 268-284.
- KEEN, A. (2007). *The cult of the amateur: How today's internet is killing our culture and assaulting our economy*. London: Nicholas Brealey.
- KELL, P. and VOGL, G. (2012). *International students in the Asia Pacific: Mobility, risks and global optimism*. Dordrecht, Heidelberg, London and New York: Springer.
- KENNEDY, G.E; JUDD, T.S., CHURCHWARD, A. and GRAY, K. (2008). First year students' experience with technology: Are they really digital natives? *Australasian Journal of Educational Technology*, Vol. 24, No.1, 108-122.
- LEA, M. R. and JONE, S. (2011). Digital literacies in higher education: Exploring textual and technological practice. *Studies in Higher Education*, Vol. 36, No. 4, 377-393.
- LEE, P. (11 August, 2014). Trends in students online – Not such digital natives? *University World News*, (330). Retrieved August 18, 2014 from <http://www.universityworldnews.com/article.php?story=20140811093736768>
- MAIOLO, A. (2013, March). Overseas students to jump by 30%. *Campus Review*, Vol. 23, No. 3, 4.
- MASLEN, G. (2017). Education exports hit record high of nearly US \$17 billion. *University World News*, Issue 445, February 3, Retrieved 6 February, 2017 from <http://www.universityworldnews.com/article.php?story=20170203122701961>
- McCLUSKER, S. (2014). *Teaching in the new (abundant) economy of information*. Retrieved March 9, 2015 from <http://blogs.kqed.org/mindshift/2014/03/teaching-in-the-new-abundant-economy-of-information/>

- NESI, H. and HAILL, R. (2002). A study of dictionary use by international students at a British University. *International Journal of Lexicography*, Vol. 15. No. 4, 277-305.
- OBLINGER, D.G. and HAWKINS, B.L. (March/April, 2006). The myth about student competency: "Our students are technologically competent". *Educause Review*, Vol. 41, No. 2, 12-13. Retrieved December 12, 2014 from <https://net.educause.edu/ir/library/pdf/ERM0627.pdf>
- PRENSKY, M. (2001). Digital natives, digital immigrants: Do they really think differently? *On the Horizon*, Vol. 9, No. 6, 1-6.
- PURCELL, K; RAINIE, L., HEAPS, A., BUCHANAN, J., FRIEDRICH, L., JACKLIN, A., CHEN, C. & ZICKUHR, K. (2012). *How teens do research in the digital world*. Pew Research Center, Washington D.C. Retrieved February 10, 2013 from http://pewinternet.org/~media/Files/Reports/2012/PIP_TeacherSurveyReportWithMethodology110112.pdf
- RANALLI, J. (2013). Online strategy instruction for integrating dictionary skills and language awareness. *Language Learning & Technology*, Vol. 17, No. 2, 75-99.
- SELWYN, N. (2003). *Why students do (and do not) make use of ICT in university*. Paper presented at the Finding Common Ground: IT Education, Dearing and Democracy in the Information Society conference, Leeds University. Retrieved 2 February, 2017 from <http://www.leeds.ac.uk/educol/documents/00003130.htm>
- SELWYN, N. (2007). The use of computer technology in university teaching and learning: A critical perspective. *Journal of Computer Assisted Learning*, Vol. 23, 83-94.
- SELWYN, N. (2008). An investigation of differences in undergraduates' academic use of the internet. *Active Learning in Higher Education*, Vol. 9, No. 1, 11-22.
- SELWYN, N. (2016). Minding our language: Why education and technology is full of bullshit...and what might be done about it. *Learning, Media and Technology*, Vol. 41, No. 3, 437-443.
- STENGER, M. (2018). How to teach your kids to tell fact from fake news. *ABC News*. Retrieved August 29, 2018 from <http://education.abc.net.au/newsandarticles/blog/-/b/2945691/how-to-teach-your-kids-to-tell-fact-from-fake-news>
- STERNBERG, J. (2012). 'It's the end of the university as we know it (and I feel fine)': The Generation Y student in higher education discourse. *Higher Education Research & Development*, Vol. 31. No. 4, 571-583.
- PURCELL, K; RAINIE, L., HEAPS, A., BUCHANAN, J., FIEDRICH, L., JACKLIN, A., CHEN, C. and ZICKUHR, K. (2012). *How teens do research in the digital world*. Pew Research Center, Washington D.C. Retrieved February 10, 2013 from http://pewinternet.org/~media/Files/Reports/2012/PIP_TeacherSurveyReportWithMethodology110112.pdf

VAN DIJCK, J. (2010). Search engines and the production of academic knowledge. *International Journal of Cultural Studies*, Vol. 13, No. 6, 574-592.

ZHANG, D; ZHAO, J.L., ZHOU, L. and NUNAMAKER, J.F. Jr. (May, 2004). Can e-learning replace classroom learning? *Communications of the ACM*, Vol. 47, No. 5, 75-79.