

Malaysian Gen Y's Usage of Vocabulary in Academic Essay-Writing: A Comparison of the Effectiveness of Online *versus* Print Reading-to-Write Tasks

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ABSTRACT

Much second-language essay writing in higher education has been found lacking in both content and academic vocabulary. To stimulate higher-order thinking and to activate a more suitable vocabulary, argumentative essay-writing tasks in English can integrate prior reading material. Whether this source text should be presented online or in print, and how either presentation mode impacts tertiary students' vocabulary usage has not been extensively researched. In this study, a quasi-experimental comparative design is employed to investigate the relationship between the presentation mode of a reading-to-write source text (on the topic of crime and imprisonment) and the academic and topic-specific vocabulary that Malaysian Gen Y students (N = 45) use in their second-language writing. Analysis of the essays, using *VocabProfile* and *Text Lex Compare* software, shows that in both the online and print conditions, student writers are similar in their usage of sub-technical academic words (e.g. *assume*, *benefit* and *significant*). However, students who accessed the source text online display a higher number and wider range of topic-specific words (*prison*, *convict* and *handcuffs*) than students who read the same text in print. In other words, the online presentation mode seems to be associated with a lexically more diverse and sophisticated specialist vocabulary. It is not yet clear whether this positive effect is due to the increased motivation that Gen Y students experience in an ICT-driven learning environment or to other, more general cognitive and affective factors. Still, the study warrants the conclusion that academic writing instructors will be more successful in addressing the problem of weak vocabulary by setting reading-based writing tasks that present the source text online rather than in print.

Keywords: Reading-based writing tasks, vocabulary usage, academic and topic-specific vocabulary, Gen Y students, English as a Second Language

1. INTRODUCTION

Writing skills is an important element in a majority of college or university-level courses that teach English as a Second Language (ESL). Zhou's (2009: 1) study on English for Academic Purposes found that in academic communication, "linguistic accuracy plays an important

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role in the quality of written texts". One important factor determining the required level of accuracy is the use of appropriate vocabulary. However, most Malaysian students who enter tertiary education seem to lack vocabulary suitable for academic writing purposes. Mokhtar's (2010) recent study on vocabulary knowledge among Malaysian university students supports this observation. His analysis shows that the majority of students fail to achieve passing levels on tests that measure passive vocabulary and active vocabulary in a controlled context; secondly, in free essay-writing tasks, their compositions mostly consist of high-frequency words. In view of this, the main hindrance to higher-education writing for Malaysian students may well be weak and lack appropriate vocabulary usage.

It is generally believed that to be a good writer, a person has to be well read; in the past, Krashen (1993) even suggested free voluntary reading is key to student improvement in reading skills, linguistic competence, vocabulary, spelling and writing. Further, Noor (2006: 65-66) discovered that Malaysian students' barrier in the transition from high school to university was that they had been 'spoon-fed' and that they were unequipped for the 'deep-approach' reading demands of higher education. For this reason, writing instructors provide their college students with printed reading articles from different perspectives as it helps provoke thoughts but mainly it aids vocabulary generation.

Through centuries, teaching pedagogies have evolved to create appropriate teaching and learning environments for writing skills and lexical acquisition. Similarly, educators have incorporated a variety of teaching methods to teach vocabulary, gap-filling and developing sentences. However, it is also important to note that the current generation of college-going students consists of so-called *Gen Y* students, that is, those who are born between 1982 and 2000. This generation is an increasing proportion of our student population today. Through studies in generational differences, Gen Y-ers are referred to as *digital natives*, *Millennials*, *iGen* and are generally stereotyped as those that

"grew up with the Internet, instant messaging, downloading, so do not view these technologies as new; used to having choices and flexibility – in entertainment, shopping, etc.; used to quick responses at any time of day or night; open minded towards immigration and multiculturalism; believe technology can solve problems; including environmental problems; live at home longer ; prefer to take advice from peers (or work out problems themselves) rather than being 'taught' or following instructions; are intrinsically motivated by their own interests and curiosity (Cluett and Skene, 2007).

Teaching pedagogies, such as behavioral, constructivist, social and humanistic ones, are the underlying theories behind the development of effective learning environments commonly practised by educators today. These learning environments range from traditional over student-centred and active learning to collaborative learning and many more – all of these terms that are commonly used today. However, pedagogies that were used previously "no longer seem to be effective" (Eisner, 2003: 1).

As stated above, it is evident that this Net generation has expertise and preference for what we term Information and Communication Technology (ICT). This familiarity with ICT influences their approaches to learning and their expectations of what colleges should provide (Cluett and Skene, 2007). Thus the characteristics of this generation of college

students have influenced educators to implement a rich ICT teaching environment for effective teaching and learning to take place. It is reasonable to assume that it has also encouraged more educators to implement more online interactive reading (OIR) texts compared to the traditional printed reading (TPR) texts as part of classroom reading practice. Note, however, that a geographically dispersed group of academics from Africa, USA and Europe are challenging the validity of the Net generation concept and their preference for interactivity and their so-called Net use familiarity, on the basis of lack of evidence (Czernienicz, 2010).

Therefore, in order to tackle the problems outlined above, a comparative study was set out to answer the following related research questions of this study: (i) Which of two learning environments, i.e. traditional or ICT-based, is more effective in improving the overall quality of Gen Y's essay writing; and (ii) To what extent do the two teaching pedagogies differ in Gen Y students' usage of academic and topic-specific vocabulary usage?

2. LITERATURE REVIEW

As this topic encompasses a broad range of issues, it is obvious that not all the potentially relevant literature can be covered. As such, the literature review will mainly focus on the impact of ICT pedagogies on Gen Y, studies comparing traditional and ICT environments and lexical weaknesses amongst college students.

2.1 *Lexical Weaknesses*

It is generally believed by educators that to be truly proficient in a language, writing, reading, listening and speaking skills are equally crucial. However, the basis for language acquisition is lexical knowledge, as soundly supported by Krashen (as cited in Lewis, 1993: iii), when he states "when students travel, they don't carry grammar books, they carry dictionaries". This is indicative that vocabulary is important in order to express ideas and thoughts accurately.

Nevertheless, numerous studies indicate that this is an area of major difficulty for students in higher education. Studies by Hyland (2003), Deng and Hu (2007), Hyland and Tze (2009) and many others all corroborate Santos's (1988: 80) finding that professors rate lexical errors in ESL composition as the most serious. Research by lexical authority, Nation (2001), shows that an increase in L2 learners' academic vocabulary can contribute to higher ratings of their academic writing.

A well-known strategy is to provide students with a stimulus text. The benefits of reading-based writing tasks as opposed to impromptu writing-only tasks are well documented. Reading-to-write activities enhance students' higher-order thinking (Grabe and Stoller, 2009), improving content, organisation and language (Gebril, 2009). They also elicit a more authentic composition process with less initial pre-drafting and more flexible planning as you go along (Plakans, 2008). Her analysis also reveals that L2 (second-language) student writers prefer reading-based writing to writing-only essays. Boscolo *et al.* (2011) found that reading-based essay questions generate more topic interest.

It is unclear, however, whether the reading materials should be presented on paper or on screen, and whether or not interactive browsing should be enabled.

2.2 *Traditional versus ICT Pedagogies*

Today, the development of technology has grown far beyond our imagination and has impacted all areas of our lives, mainly redrawing the landscape of education. Berk (2009) claims that 50% of college students are unmotivated, disinterested, and disengaged from traditional classroom instruction. As such, it is essential that educators incorporate ICT elements in their courses in order to motivate learners and make their courses relevant to these changes among us.

One of the main theoretical frameworks advocating this view is the constructivist learning theory (Vygotsky, 1978), which argues in favour of a rich, active learning environment for effective learning to take place. As many studies show, this can be accomplished through the use of ICT. Selinger (2002) and John and Sutherland (2004), for example, have studied in-depth the pros and cons of ICT in the classroom for both teachers and learners. These and other studies have concluded that new technologies can stimulate the development of intellectual skills, spur more spontaneous interest, increase motivation, improve concentration and develop more autonomous learners.

As the information available on the Internet is growing day by day, more studies are being embarked upon to compare these two modes of teaching and learning from a variety of angles. From the aspect of reading, online material is increasingly dominating printed media. This development has ignited a whole new body of studies aimed at comparing interactive reading online and traditional print reading material practices (Kress, 2006).

Stakhnevich (2002) and Sutherland-Smith (2002), among others, compared the effect of modes of reading on students' comprehension, whereby students were exposed to different textual modes in the hope of increasing comprehension and vocabulary usage. Their results suggest that the web medium can produce better results than traditional print medium of instruction, mainly due to its flexible nature and interactivity. De Rycker and Ponnudurai (2011) found that online interactive reading resulted in better argumentation in a reading-based essay-writing task among Gen Y students.

Past studies have all indicated the benefits of more learner-centred and ICT-driven classroom environments for enhanced teaching and learning to take place. Nevertheless, this optimistic view is more and more being challenged. Researchers today are reporting conflicting results regarding the use of ICT and its benefits to, for example, Gen Y learners. Czernienicz (2010) concludes, on the basis of studies from all around the globe, that Gen Y actually does not have different learning preferences. There is no theoretical basis for claiming the opposite, let alone, solid empirical evidence.

Yavar *et al.* (2010) explain that in the past, classrooms did not have computers and the Internet. The main need for a successful lesson then was for a qualified, well-trained and hard-working lecturer. However, in a comparative study, he discovers that although technology has advanced and is widely incorporated into our pedagogical repertoire, it does not necessarily bring about greater benefits. He cites the main barriers to ICT in the classrooms such as "less opportunity for expression" and "inappropriate content and technology issues" (Yavar *et al.*, 2010: 42), and concludes that traditional pedagogies are very much relevant in today's classroom settings. Gorra *et al.* (2010), for example, conducted a longitudinal study on the impact of mobile and Internet-based technologies on

undergraduates at four universities in the United Kingdom. Their main finding is that while students value the range of choices available to them, the majority still prefer to access and conduct their learning in traditional ways using computers, pen and paper, as well as personal contact time with their tutor.

In conclusion, though it is clear that vocabulary needs to be improved in order to guarantee higher-quality academic writing among Gen Y students, the literature review shows that it is not immediately obvious to what extent ICT should be relied on as the main pedagogy or not. It is this question that the current study seeks to answer. Which pedagogy is more effective in enhancing students' lexical accuracy and appropriateness in academic writing: traditional or ICT?

3. METHODOLOGY

This quasi-experimental comparative study is based on the writing input of students, created within two different teaching pedagogies: interactive ICT and traditional forms. The details of the participants, data collection procedures and analysis are elaborated in the subsections below.

3.1 *Participants*

The participants consisted of first-year students from two lesson groups, A and B, consisting of 22 and 23 students respectively (total N=45). The participants were between 17-19 years of age and were enrolled in an Academic Writing course in a private university college in Malaysia. The participants were of comparable ESL proficiency levels, based on their SPM English results (A1 or A2), IELTS (Band 5.5–6) and TOEFL iBT (85 and above). Assignment to either lesson group was random.

3.2 *Procedure*

Both groups of participants were given the exact same piece of text containing the same information in terms of reading content (i.e. imprisonment in the US), language, layout and colour. The only difference was the mode in which the information was presented: Group A (N=23) read the text in traditional print reading (TPR) text, while Group B (N=22) read the same text interactively via an online interactive website (IOR). The website is one developed by the National Park Service US Department of the Interior under the Museum Management Program 2005. This site was selected as it was most suitable for its interactivity and also because of the reliability of the information provided.

The topic of the text was imprisonment in the United States (e.g. life at Alcatraz), and was chosen because it was in keeping with the theme of "crime and punishment" covered in the students' ESL course book: Barton and Sardina (2004: 177-193). This volume in the well-known *North Star* series offers reading and writing practice for intermediate students similar to our own participants. The political, economic, social and cultural themes that feature in the book tend to spark lively discussion and motivate students to express their own views in a range of writing activities. The themes also provide college and university students with a strong lexical basis, of both higher-frequency and lower-frequency words, relevant to various issues in contemporary society.

The participants were given 20 minutes to read the text via the different modes, followed by 10 minutes to reflect on, and formulate their answer to, the essay question *Imprisonment: Does it deter crime?* Following this, they were given 60 minutes to compose and word-process an essay of 280-300 words in length, and save it into a common folder on their individual desktop computers. Note that during composition, students had no longer access to the original reading text; this was to rule out word-for-word copying, and also in the IOR condition, to prevent cutting and pasting directly.

3.3 Data collection

The computer was seen as the most convenient and appropriate medium for students to compose, type and save their essays as it was less time-consuming than writing by hand. Gilmore (2009) and Friedman (2009) implemented a similar data-collection method as then the researchers were able to focus on the main research questions and not be perturbed by grammatical errors.

Following this, the data were entered into the online Vocabulary Profiler software called *Web VP for VocabProfile* (www.lex tutor.ca/vp/eng). This application returns the lexical frequency profile for any given text. Munice (2002), Hancioglu and Eldrige (2010) and other recent studies have employed the same software as it is easily accessible and provides a detailed breakdown of vocabulary into Coxhead's (2000) categories: K1 (first 1,000 most frequent words in English), K2 (second 1,000 most frequent words), Academic Word List (AWL) and words that do not appear in any of these lists, the so-called 'off-list' words (e.g. proper nouns). Note that 'academic' here refers to those words that are academic but not specific to any discipline (e.g. *factor*, *system*, *effect*, *assume*, etc.). In addition, *VocabProfile* supplies a thorough analysis of the data in terms of types (i.e. word categories) and tokens (i.e. running words in the text). For example, the word *prison* has two types based on inflectional morphology, namely *prison* (singular) and *prisons* (plural). The number of individual occurrences of each type within a text constitutes the number of tokens. Both concepts are important to determine the quantity and quality of a person's vocabulary usage. Note that the lexical item *prison* itself is referred to as a headword, or alternatively, as a word family (a family of related word types).

To compare the student essays with the source text and with the list of 25 headwords (or word families), use was made of *Text Lex Compare*, available from the same website as the *VocabProfile* software. This list of topic-specific vocabulary (on crime and punishment) consists of 25 headwords: *inmate*, *handcuffs*, *convict*, *cell*, *dangerous*, *penitentiary*, etc. Their selection was based on the 'crime' sections in the *Longman Language Activator Dictionary* and cross-checked with *North Star Reading and Writing for Intermediate and Higher-Intermediate levels*, which also covers the same theme.

4. FINDINGS

The findings will be reported separately for each pedagogical condition.

4.1 Traditional print reading (TPR)

This experiment involved 23 participants (N = 23), who read the text in traditional print mode before completing the essay on the given topic. The vocabulary was tabulated using the

online vocabulary software, which evaluates the data according to use and frequency of K1, K2, AWL and other 'off-list' words. We then checked the lists for the specific words to do with the 'crime' theme and determined the number of families, types and tokens. Note that off-list words do not allow further breakdown by family, hence is 'not available' (NA). Table 1 indicates overall vocabulary usage by frequency category. Percentages in the final column are based on the number of tokens.

Table 1 shows that a large majority of the vocabulary consists of K1 words totaling 76.46% and K2 words with a much smaller percentage of 9.22%. Students' essay-writing heavily relies on the 2,000 most frequently used words rather than an academically suitable vocabulary. The AWL category accounts for 5.48% only.

As for the topic-specific vocabulary, the following frequencies can be reported (see Table 2 below).

Table 1. TPR *VocabProfile* findings

Words	Families	Types	Tokens	%
K1 words (1-1000)	527	854	6784	76.46
K2 words (1001-2000)	156	218	818	9.22
AWL words	186	246	486	5.48
Off-list words	NA	328	785	8.85

Table 2. TPR Overall topic-specific vocabulary findings

Type	Token total
1. prison	138
2. convict	49
3. inmate	34
4. law	28
1. offender	15
2. cell	13
3. behavior	7
4. educational activities	4
5. violent	3
6. dangerous	3
7. maximum security	2
8. incarcerated	2
9. notorious	1
10. penitentiary	1
11. warden	1
12. handcuffs	1
13. leg irons	1
Total	303

From Table 2, it can be noted that types like *prison* and *convict* (i.e. both words as well as inflectional derivations like *prisons*, *convicts* and *convicted*) were used frequently compared to *cell*, *offenders* and *behaviour*. Apparently, this group of students was not very receptive to these words from the input text and did not use them with any appreciable frequency in their essays. Some topic-specific words like *correctional officer* or *release* (from prison) did not yield any occurrences at all. Overall, the 25 word families from the specialist vocabulary list yielded only a total of 303 tokens out of a grand total of 1,646 words for all the TPR essays together.

4.2 Interactive Online Reading (IOR)

The second pedagogical environment involved 22 essays ($N = 22$) on the same essay topic, targeting parallel topic-specific vocabulary. Again, the vocabulary used by this group was categorised using the online vocabulary profiler to identify their levels of vocabulary usage. A detailed breakdown of the data is given in Table 3. As in Table 1, percentages in the last column are based on the number of tokens.

Table 3 shows a high percentage of K1 vocabulary, totaling 76.91%, while a smaller percentage of 9.51% was made up of K2 vocabulary. Of the total vocabulary used in the essays, 86.42% consisted of K1 and K2 words. Note that the general academic vocabulary (AWL) accounts for only 4.66% of the total number of tokens.

The findings on the use of topic-specific vocabulary from this group of essay-writers are shown in detail in Table 4.

It is clear that a substantial number of words from the digital text (and the topic-specific vocabulary list) were incorporated into the essays of the IOR group. Words such as *prison*, *convict* and *inmate* are amongst the highest types used; *release*, *cell*, *educational activities* and *law* were also used relatively frequently. The remaining words on the list were also included in the essays, but infrequently. Some, however, like *offender* or *penitentiary* did not feature in any of the IOR essays. Nevertheless, from the topic-specific vocabulary list, a total of 529 tokens were used.

All in all, the students who read the text on an interactive online site were more receptive to the vocabulary used in the source material than those who read the text on paper. Although the vocabulary used in the essays were mainly K1 words with only a small percentage of K2 words, the IOR group also used a large number of word types from the reading text.

Table 3. IOR *VocabProfile* findings

Words	Families	Types	Tokens	%
K1 words (1-1000)	506	809	6245	76.91
K2 words (1001-2000)	139	192	772	9.51
AWL words	138	180	378	4.66
Off-list words	NA	233	725	8.93

Table 4. IOR Overall topic-specific vocabulary findings

Type	Token total
1. prison	157
2. inmate	82
3. convict	61
4. law	33
5. educational activities	29
6. release	28
7. cell	26
8. violent	17
9. control	15
10. behavior	14
11. dangerous	11
12. secure	11
13. notorious	7
14. escape proof	7
15. correctional officer	7
16. nominal wage	6
17. maximum security	5
18. handcuffs	4
19. necessities	4
20. incarcerated	4
21. warden	1
Total	529

5. DISCUSSION

To recapitulate, the main research question was to compare two teaching pedagogies (traditional and ICT-based) with respect to their impact on vocabulary usage in ESL argumentative essays. Table 5 compares the statistical breakdowns of the TPR and IOR groups in terms of their overall vocabulary usage. As above, percentages are based on the numbers of tokens for each pedagogical condition.

Table 5. Breakdown of vocabulary used by TPR and IOR groups

	TPR				IOR			
	Families	Types	Tokens	%	Families	Types	Tokens	%
K1 words	527	854	6784	76.46	506	809	6246	76.91
K2 words	156	218	818	9.22	139	192	772	9.51
AWL words	186	246	486	5.48	138	180	378	4.66
Off-list words	NA	233	725	8.93	NA	328	785	8.85
Totals	869	1646	8873	100.00	783	1414	8120	100.00

The descriptive statistics show that students in the IOR condition wrote less than those in TPR: the average IOR essay counts 369 words (8120 divided by N=22) compared to 386 for TPR (8873 divided by N=23). Even so, volume as such does not affect the kind of language used, and in fact, the lexical differences are minimal. To begin with, the usage of K1 words is very similar for both the TPR and IOR presentation mode group, with a mere 0.45% difference between the respective essays. Additionally, the percentage of K2 words used by both groups in the study differed by 0.29%, with a slightly higher percentage for the IOR mode group. Though for K1 and K2 together, TPR yielded higher absolute numbers, the percentages for TPR were lower than for IOR in view of differences in average essay length. Finally, the differences in AWL word choice found in the essays were also marginal, as they only varied by 0.82% between the two groups. Overall, it can be concluded that the vocabulary used in the essays by the two groups were of similar levels in all categories, and more importantly, given our research goals, that the mode of presenting the stimulus text, i.e. the pedagogy, did not play a significant role in improving the quality of academically suitable vocabulary used in the essays.

However, a different pattern emerged when we zoomed in on the usage of *topic-specific* vocabulary. In order to further explore the vocabulary usage in the student essays, Table 6 makes a comparison of the TPR and IOR modes in terms of *topic-specific* words and phrases.

The table shows that the IOR group is more inclined to use and/or borrow words from the source text into their essays than the TPR group. There is a significant difference of 226 tokens between the two groups. The data also reveal that on average, each participant from the TPR group used 13.17 words (303 words divided by 22 essays) whereas the IOR group averaged 24.04 words from the IOR (529 words divided by 23 essays). Therefore, in terms of frequency of topic-specific vocabulary usage, the IOR presentation mode group was more receptive to the topic-specific vocabulary and tended to use, on average, more words to do with crime and punishment that also occurred in the online reading text.

It was also evident from the essays that the TPR group did not use many of the words from the vocabulary list. In fact, the students in this group mainly depended on synonyms of the words from the list; for instance, *penitentiary* was substituted by *jail*, and *notorious* was replaced – be it inaccurately – with *bad*. As such, the TPR group tended to fall back on their existing body of vocabulary knowledge. This may be an indication that the paper-based method of presenting topic-specific vocabulary in context is less likely to lead to integration of that vocabulary into students' written output.

Vocabulary choice and usage are an integral aspect of high-quality academic writing, and from the analysis of the data above, it is evident that students are more likely to adopt words from online resources compared to traditional print materials. Admittedly, the present study does not warrant the conclusion that those topic-specific words have been permanently absorbed into the students' long-term active vocabulary. Whether IOR students have effectively learnt more vocabulary about crime and punishment than the TPR students is a different research question, requiring an altogether different research design. Still, our findings are not in disagreement with more comprehensive studies on the effectiveness of teaching and learning vocabulary through ICT. For example, Friedman

Table 6. TPR and IOR topic-specific vocabulary used

Type	Token total	
	TPR	IOR
1. prison	138	157
2. convict	49	61
3. inmate	34	82
4. law	28	33
5. offender	15	0
6. cell	13	26
7. behavior	7	14
8. educational activities	4	29
9. violent	3	17
10. dangerous	3	11
11. maximum security	2	5
12. incarcerated	2	4
13. notorious	1	7
14. penitentiary	1	0
15. warden	1	1
16. handcuffs	1	4
17. leg irons	1	0
18. secure	0	11
19. escape proof	0	7
20. correctional officer	0	7
21. necessities	0	4
22. control	0	15
23. disruptive	0	0
24. nominal wage	0	6
25. release	0	28
Total	303	529

(2009), McNamara *et al.* (2009) and Blachowicz and Obrochta (2005) all reported linguistic improvements with groups that implemented the usage of ICT in their teaching pedagogies.

In the same vein, the findings also more generally support the web-based constructivist learning theory which strongly believes in the importance of the interactive learning environment for successful teaching and learning to be achieved. Although the level of *overall* vocabulary usage was similar between the two groups, there was a significant difference in the usage of the *topic-specific* vocabulary in the essays, with the ICT mode group using more specialist vocabulary in their essays compared to the TPR group. Speculatively, if *using* a word correctly in the context of an essay-writing task means that the student has at least *learnt* to use that word beyond the level of mindless imitation, then our study lends further support to the constructive learning paradigm, no matter how temporary that active knowledge or increase in the size of the student's vocabulary may turn out to be. Again, this was not the purpose of the present study, and further research is

required. Finally, the goals of an educational foundation for technology-enhanced education are “to motivate students to engage in meaningful, constructive, active and productive learning” (Li *et al.*, 2010: 29). It follows from our analysis that with ICT teaching pedagogies, it can be achieved.

6. CONCLUSION

Although ICT, the Internet and all its resources are integrated into teaching and learning environments around the world, it is also crucial that educators recognise that the use of technology does not necessarily mean better teaching, let alone, better learning. The Internet clearly does not represent an alternative to all printed materials; rather, as the current study shows, it represents a useful option for teaching and learning. The findings summarised in the previous section show that the differences between print and online reading modes are non-existent except for the usage of topic-specific vocabulary in the IOR condition. Whether the lexical gains are a direct result of the deeper and more constructivist learning associated with ICT and the Internet has not been examined in this study. Given the mixed results of our study, we “as teachers, must approach technological change by asking ourselves whether our teaching has the potential to be enhanced by technology, and whether technology serves a purpose in aiding student learning” (Sutherland-Smith, 2002: 668).

The main objective of ICT-supported education is to motivate students through meaningful and active learning. The gains in terms of effectiveness, performance or achievement are not always clear-cut, however. There is evidence that “ICT has a positive effect on educational achievement, also in the context of formal education” (Punie *et al.*, 2006: 20). Our study shows that interactive online engagement with information caters to the needs of Gen Y students in Malaysia and leads to desirable outcomes even though not significantly more desirable in the interactive online essay-writing condition.

Regardless of the differences and similarities between traditional and ICT teaching pedagogies, it must be remembered that passivity is still very much associated with reading, being in print or online. Therefore, educators need to equip their learners with new and current teaching strategies in order to improve their language proficiency especially since “online materials increasingly dominate printed media” (Rowell and Burke, 2009: 108) and increase the usage of a more eclectic teaching style.

Given the relatively small number of essays, it is clear that further research is required. As observed above, alternative methodologies may have to be used to elicit data. Nevertheless, this study shows that educators need to create pedagogies that will enable them to better help Gen Y college students to learn, irrespective of their preferred teaching or learning styles and “using teaching methods we find credible and natural is no doubt a factor in our effectiveness in reaching our students” (Eisner, 2003: 13).

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