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Electronic literacy reading skills and the challenges for English for Academic Purposes

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Abstract

Competent reading skills in an electronic environment are vital elements to successful academic study at many Higher Education Institutions (HEIs). For non-native speakers of English (NNS) this necessitates not only a command of the English language, but also, amongst other things, electronic literacy (EL) reading skills. Such skills involve a knowledge of what to do: how to find information, how to evaluate it and, if relevant, how to make use of it in English in academic settings and beyond. This paper reports on a study which investigates EL reading skills amongst NNS studying a range of academic subjects and levels in English at two British HEIs. Students were asked to classify their computer skills (a term which for the purposes of this study we use interchangeably with EL reading skills) and to complete a questionnaire - a small sample of students were then randomly selected and asked to complete a series of short tasks which they were observed doing and then interviewed about. We divide this sample into two groups those with high level computer skills (HLCS) and those with low level computer skills (LLCS). Our findings point to a number of significant differences between these groups. The paper considers these findings in relation to issues for English for Academic Purposes (EAP) programmes whose primary remit is to equip NNS with the language and study skills necessary for successful academic study. It is suggested that such programmes might develop EL reading skills amongst students with differing computer skills within a Computing for Academic Purposes (CAP) component, which takes task-based pedagogy as its central tenet.

Key words: electronic literacy, reading skills, computers, hypertext, EAP

Introduction

There is an obvious link between English for Academic Purposes (EAP) programme content and computer

assisted language learning (CALL) as defined in its broadest sense. Jarvis (2005: 141) observes that "A great deal of work with computer-based materials (C-bMs) in English language teaching (ELT) takes place in higher education institutions (HEIs) or university contexts; and within HEIs, EAP courses are undoubtedly a major remit for providers." After all, the primary purpose of EAP is to equip non-native speakers (NNS) of English with the language and study skills that are needed so that they can operate efficiently, effectively and appropriately in academic study. Such programmes will consequently be pre-sessional, if delivered before a student goes on to their chosen course, or in-sessional if delivered during their course. EAP, along with English for Occupational Purposes (EOP), are both branches of English for Specific Purposes (ESP), which take as their defining characteristic the notion of language for specific, as opposed to more general, purposes. Such language tends to be defined in terms of discourse functions which include: cause and effect, narrative, description, process, comparison and contrast, fact and opinion, argumentation, etcetera. In delivering such content programmes would seek to develop not only language, but also study skills and study competences. For today's NNS students however, being able to operate efficiently, effectively and appropriately in academic contexts has an additional element, and that is being able to do so in an electronic environment. Such environments have, of course, become a prevalent feature at many HEIs across the globe. Collins and Wende, (2002: 7), for example, comment that "ICT [information and communication technology] use, in terms of email, wordprocessing, PowerPoint, and the Web, has become standard as part of the teaching and learning process. . ." One important aspect to this involves understanding the EL reading skills that NNS have and use - such insights will help to formulate ways in which these skills, as required, might be incorporated into EAP programmes so as to better equip students. To date, despite Jarvis' observation above, there has actually been very little work in this specific area as Chun (2006: 70) has noted, "What is striking is that in the last 10 years, the great majority of studies dealing with technology or CALL and L2 reading have focused on the teaching and learning of L2 vocabulary". This paper is a contribution to addressing this shortfall.

Electronic literacy reading skills

Electronic literacy (EL) has changed significantly with the arrival the WWW particularly in relation to reading and its associated skills. In pre-WWW times reading on the computer screen was seen as an illumination of traditional literacy because hypertext was predominantly used in language presentations and guided reading tours to provide context (usually word definitions or graphic illustrations) to language, rather than new reading possibilities (Ward and Irby, 1981; Marshall and Irish, 1989). Today, however, hypertext when used on the WWW has gone beyond this and as Chartier (2001: 8) notes this shift has modified the relationship between "images, sounds and texts linked up electronically, in a non-linear manner". One of the consequences, as Topping (1997) observes, is that reading hypertext has become more like navigating than reading as we know it. This has been echoed more recently by Warschauer (2003: 111) who refers to "... added layers that account for the new possibilities presented in the electronic medium of computers and the Internet". Of particular significance in the context of this study, Warschauer et. al. (2000:172) note that "although reading and writing online are closely related to reading and writing in print, the two literacy

contexts are also sufficiently different to demand theoretical and practical attention."

It is the reading element of EL which is our primary concern here, although it should be noted that EL can be a broader term which can include some or even all of the other language skills (writing, listening and speaking). Shetzer and Warschauer (2000:173) use the term EL to describe "how people use computers to interpret and express meaning", and perceive it through three overlapping areas such as communication, construction and research. For the purposes of this study, our working definition of EL reading skills comes from Shetzer's and Warschauer's (2000:175) work on reading in an online environment which involve skills which are "... intimately bound up with searching and evaluating skills", a person who wants to read something, firstly, needs to find the information which requires skills such as knowing how to operate the search engine, and how to formulate questions in order to maximise the chance for successful hits. Secondly, a person needs to skim and scan, simultaneously making judgments about the validity, reliability, and accuracy of the source and information and as such "reading in the online realm by necessity becomes critical literacy".

For our purposes from here on we use the terms EL reading skills and computer skills interchangeably, the main reasons behind our thinking are two-fold. Firstly, the division between the skills of reading, writing, listening and speaking is somewhat problematic within language pedagogy at the best of times, and this is probably even more so in an electronic environment where skills frequently overlap and\or are integrated - searching to name just one example clearly involves both reading and a type of writing (inputting key words). This notion of integrated skills in an electronic environment is an important one for pedagogy and we shall return to it when considering practical implications for EAP delivery. Secondly, the students in the qualitative element of this study were understandably using the term computer skills in their discussions with us, rather than EL reading skills.

Research does suggest that with native speakers (NS) reading behaviours may differ according to their EL skills. Hubscher and Puntambekar's (2003) found that hypertext reading behaviours of novice and advanced WWW users are different since the former are more inclined to explore and thus get distracted by hypertext whilst the latter have much more goal-directed focus and thus tend to be more successful in getting the required information. This is supported by the limited amount of work with NNS; Toyoda (2001) for example observes that students' reading behaviours on the WWW depend predominantly on the level of EL with technologically less advanced students finding reading frustrating and difficult. To date, as has already been noted, there has been very little work which has looked at the EL reading skills of NNS operating in English and in academic contexts.

The study and its participants

Our purpose was to investigate one primary research hypothesis into second language online reading and to then consider the findings in terms of how EAP programmes might be developed to bridge any of the issues arising. Our hypothesis was as follows:

> The way NNS students read in English on the WWW correlates with the level with which they classify their computer skills.

The study employed a combination of quantative and qualitative techniques. The quantative element consisted of a questionnaire as documented in Appendix A. This was administered to 56 international students from 23 countries on a range of academic programmes at two British HEIs. The questionnaire was piloted and amended accordingly before being distributed among randomly chosen international students who were seen to be reading on the WWW in English and, when asked, declared that they did so on a regular basis. All students were at an upper intermediate level of English having matriculated for academic study with an English language level of at least 6 (or equivalent) on the IELTS scale. Seventy-nine percent were postgraduates and 21% undergraduates. The qualitative element of the study was employed to get closer to meanings, views, feelings and actions of participants and this consisted of a set task (Appendix B) which six participants were observed completing and were then interviewed about.

Participants completing the questionnaire were invited to indicate their level of computer skills which, for analysis and discussion purposes, we then classified into two groupings. As can be seen from Appendix A, we have classified those students who reported having "excellent" or "very good" computer skills as Higher Level Computer Skills (HLCS) and the remaining students who indicated "satisfactory" or "poor" levels as Lower Level Computer Skills (LLCS). We acknowledge the potential limitations of such self-classification - however, we feel confident of reliability for two reasons. Firstly, our anecdotal observations of what students were doing on the computers before, and\or during, and\or after completing the questionnaires at the piloting and the actual study stages suggested that students were accurately reporting their level. Secondly, in the qualitative element of the study, all six participants confirmed to our satisfaction the accuracy of this self-classification in terms of task achievement and their interview comments - this provided at least some degree of triangulation. The HLCS group formed 46.4% with the LLCS forming the remaining 53.6%. The qualitative element of the study drew three randomly selected students (S1, S3, S5) from the HLCS group and three (S2, S4, S6) from the LLCS group.

Results

General information and searching

The data was analysed from several perspectives in order to find potentially significant trends. There were insufficient numbers for us to draw conclusions about the significance of country of origin and there were no major differences regarding gender. There were some differences between postgraduate and undergraduates regarding critical reading skills, with more postgraduates indicating and demonstrating higher levels of such skills - as might be expected from students with more experience of academic study. It is beyond the scope of this paper to fully explore this, and in any case such differences were small compared to the differences in level of EL reading skills. There were no significant differences arising from the degree

classification (Science or Arts).

Several statistically significant factors are, however, worth noting. Firstly, older people tended to be in the LLCS group and this is perhaps understandable given that such users will have had to make the transition to digitalised mediums, unlike the younger students who might be classified as "digital natives" (Pernsky, 2001) and as such will have known nothing but such mediums throughout their lives. The HLCS group spend more time on the WWW (Q5) and read in English more frequently (Q5.1), but their reasons for reading (Q5.2) and what they read (Q5.3) are not too dissimilar from the LLCS group - both groups seem to use the WWW for what might be termed the "academic" as well as "social" purposes. There is little to differentiate the frequency with which the two groups print from the WWW (Q5.4), but there are some differences regarding some of the reasons for this (Q5.5). All students reported being able to search for information on the WWW, which is, of course, now a fundamental skill in academic life. However, the HLCS group expressed a clear preference for Google (Q6.2) and for sticking to their favourite engine (Q6.1).

Students' critical approach

The data for this section is drawn from the reading strategies and the first section of the reading process part of the questionnaire, as well as from the task in Appendix B. The data indicates that the HLCS students tended to be more critical with regards to textual content of the WWW - a larger percentage pay more attention to credible sources - such students are much more aware that domain may indicate the reliability of the source. The interviews seem to confirm this with S5 for example commenting that:

> Generally I think it [searching the WWW] is easy. The difficult point is how to decide which WWW address is reliable. Normally I just judge from the internet address like .gov, .edu, .com and decide which I can use and I can trust ... some information I try to make comparison. The question about who invented WWW I looked at different websites and they all pointed at Lee so I decided that I can trust the one I have chosen.

Such a view was echoed by S1 who says:

> There are website like e.g. of our school. There is no reason for them to lie about anything. But there are websites that are changeable ... There are websites that aren't updated you have to check the information on the other ones ... Sometimes you have to read the content to check if it is okay or not.

These views are in marked contrast to those from LLCS students:

I think that most of them (websites) are true (S4).
Sometimes I miss this point to check the publisher and whether it is truly reliable (S6).

Our observations confirm such comments, particularly with one LLCS student who clearly found it difficult to distinguish between commercial and non-commercial sites, with this student visiting e-bay and clicking on various "pop-ups" during the tasks - this ultimately made the whole process of online reading longer, less effective and more frustrating for the subject. A further indication of uncertainty of all the LLCS students was demonstrated by their attempts to involve the researcher by asking questions such as "Can you tell me if it

is okay?" The data does suggest that students' critical approach to textual content of the WWW correlates with the level of their EL reading skills and it would seem to be the case that the LLCS students' limited critical reading skills are the result of a lack of experience and knowledge about how the WWW works; such students are easily misled and confused by sources which are automatically eliminatedby more experienced WWW readers. Arguably, critical reading became a secondary goal since finding information was more important than evaluation of the source - this view is supported elsewhere in the research, see for example Burbules (1998).

Technology-related strategies

The HLCS students tended to use technology more often and more effectively when it came to scanning for specific information and these students were also more inclined to bookmark interesting websites. The questionnaire findings are supported by the observational data which indicates that in the case of the HLCS students, technology did not restrict their reading behavior, but rather added an extra dimension to it. These students tended to personalize the technology environment in which they worked - S1 for example launched all the programmes that she might have needed before she actually started any reading. In addition, it could be observed that the HLCS students' reading involved far less experimenting than the LLCS students' reading since they knew how and where the information can be found by clicking on relevant links. Some LLCS students seemed to pick links at random and got lost more often and this resulted in exploring websites that were almost automatically identified and rejected by the HLCS students. The data seems to confirm the view that hypertext reading behaviour of WWW users are different between LLCS and HLCS, the former being more inclined to explore hypertext and the latter, with more goal-directed behaviour, tending to be more efficient, effective and thus successful. Indeed, most LLCS students commented upon what we would characterise as the "technology factor." S6 says:

> I think now for me it [reading on the WWW] is more about computer skills than language though. These days we have to use computers a lot and if someone is not good at computers I think it blocks the competence ...

whilst S4 mentions that:

> I use computers to do very basic things and sometimes it is not enough. I mean, I am okay with writing the dissertation, but if I do some other things I think I need to learn more computer knowledge. I know my technique about computer is very limited. If I knew more about Google I think I would find more information.

Implications

The study, taken as a whole to include the collated questionnaires and the interviews, suggests that the way NNS students read in English on the WWW does indeed correlate with the level with which they classify their computer skills and that students' critical approach to textual content of the WWW also correlates with the level with which they classify their computer skills. This represents challenges for EAP whose primary remit,

as we have already noted, is to equip and support NNS with the language and study skills necessary for successful academic study - it is clear that some students are inadequately equipped in this regards. Furthermore, previous studies suggest that EAP providers are not necessarily addressing this shortfall. In a comprehensive survey of provision on programmes at British HEIs Jarvis (2004: 126-127) found that "many EAP providers may not be adequately addressing the WWW and its applications in an academic environment"; he goes on to ask, "Do students really know how to access and evaluate relevant WWW sites? And how to paraphrase, quote and appropriately reference material from the WWW?" Additional questions arising out of this study might include:

- Do students make sufficient use of the WWW?
- Are they confident when searching for information?
- Have they developed critical reading skills?
- Do they have a sense of technology-related strategies?

The short answer to all of the above questions would seem to be "some do, some don't". We have already noted the importance of ICT skills amongst all students at HEIs and the issue for EAP providers, if they are to adequately equip NNS, would seem to be how to respond and it is to this which we now briefly turn.

An obvious potential problem here is that students on EAP programmes are usually grouped according to their language level and not their EL reading skills and yet we know from the research that the possession of such skills is important (Prensky, 2001; Konishi, 2003; Penzo, 2006; Hubbard, 2005). We are not, however, proposing that the grouping of students should change, even if it were possible to do so but we do believe that EAP providers cannot simply avoid the need to develop EL reading skills, by for example considering it beyond their remit. It is our view that many of the issues arising out of this study can be addressed within EAP sessions, even where students within the class have very different computer skills. We might characterise the dilemma as the "technology skills factor" verses "language level" - it is not, however, a new issue. It was, for example, over ten years ago that with reference to word-processing Jarvis (1997a: 168) advocated "pairing up a student who is competent ... with a student who is a beginner" and several years later (Jarvis, 2003) began to explore how students with advanced computer skills might be used as a resource in the EAP classroom.

Our preferred solution would be to fully integrate EL reading skills-based work into a range of classroom-based activities so that the computer is not seen as separate. For Bax (2003) this represents the "normalisation" of computer assisted language learning (CALL), whist Egbert (2006) characterises this as the "end of CALL". There are, however, as has been noted by Ioannou-Georgiou (2006), a number of very real obstacles to this including: timetable constraints, staff skills and availability of sufficient computer-rooms. We propose that a way of bridging such issues is through a "Computing for Academic Purposes" (CAP) element or component to EAP programmes. As an element it can be added to other core provision, as a component it might be completely new. Either way it does not necessitate computers being available for use in every

classroom by every teacher on every possible occasion. Rather, such an element could, for example, be incorporated into, and thus considerably enhance, components such as projects, presentations and/or reading and writing skills. It could do so by adding many of the EL reading skills items discussed in this paper to the other areas of input. We see CAP as a step towards the normalisation of CALL in EAP. By way of conclusion, let us briefly turn to what this might mean in practice.

Computing for Academic Purposes (CAP) tasks

We propose a task-based approach which develops EL reading skills, in conjunction with other aspects of an EAP programme, as the key to the successful development of CAP. Task-based language pedagogy has, over a number of years, become well established and widely documented (Ellis, 2003; Nunan, 1999; Willis, 1996; Willis and Willis, 2007) and so it is no surprise that within the CALL literature task has also become central; Levy and Stockwell (2006: 16) comment that "... task specification is a frequent point of departure as a means of framing CALL design ...[and] ...are critical.." A task-based approach specifies what is to be done, rather than the language to use and this is particularly useful if we are to address the needs of LLCS students, whilst also allowing for useful meaningful activities for HLCS within the same class.

Some time ago Jarvis (1997b: 44) noted that there was an abundance of materials for the delivery of "various components such as academic reading, academic writing, academic listening and academic speaking ..." but that "Information technology, despite its widespread prevalence and clear relevance at universities world-wide, has not yet established itself as a major EAP component, and this is reflected in a regrettable lack of literature on the subject." Although 10 years later there are still no EAP-based resource books, at least a discussion of how mismatches can be bridged has emerged in the literature (Jarvis, 2001; 2003; 2004). If for example we take two of the standard discourse functions that we might find in a typical EAP syllabus, that of comparison and contrast and narrative - with a little imagination we can devise a CAP task which develops EL reading skills and integrates them with other skills, both technology-based and more traditional. For example, as part of their project or presentation sessions, students are grouped or paired-up (with a mix of HLCS and LLCS) and set a title of "Compare and contrast the geography of China with that of the UK" or "The life and work of Nelson Mandela" (the underlined text could be replaced with any number of possibilities) - a variety of input might take place before, and\or whilst, and\or after the task has been completed. Such input can focus on any number of language items, study and competence skills as well as many of the EL reading skills listed in Appendix A including: searching for, evaluating and referencing WWW sources. The outcome of such tasks could be the submission of a written word-processed project and\or a presentation. The specific syllabus items that one might expect from such course components could be covered here, such as: the writing process and presentation of word-processed work or the use of PowerPoint slides and signposting academic presentations etcetera.

Conclusion

This paper has demonstrated that, based on a combination of the questionnaires and the interviews, there does appear to be correlation, albeit impressionistic, between the way NNS students read in English on the WWW and the level with which they classify their computer skills and we have suggested that this raises a number of challenges for EAP. The paper has suggested that a CAP component on EAP programmes may offer a way forward. Further work in terms of better establishing the needs and expectations of academic departments and developing and evaluating CAP as an aspect of EAP provision is now needed if we are to fully equip our students in a computer-dominated academic environment.

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Appendices

Appendix A

Questionnaire (adapted) and collated data for HLCS and LLCS

GENERAL INFORMATION:

1. How old are you?

	Percent	
Age	LLCS	HLCS
18-23	33.3	19.2
24-29	30	61.5
30-35	20	15.4
36-40	10	0
41 +	6.7	3.8
Total	100	100

2. What is your gender?

	Percent	
	LLCS	HLCS
Male		57.7
Female	56.7	42.3
Total	100	100

3. Where are you from? *(country)*

LLCS		HLCS	
Country	Percent	Country	Percent
Korea	3.3	Singapore	3.8
China	46.7	China	34.6
Pakistan	3.3	Mozambique	3.8
Philippines	3.3	Pakistan	3.8
Malaysia	6.7	Philippines	3.8
Mongolia	3.3	Angola	3.8
Iran	3.3	Cameroon	3.8
Libya	3.3	Nigeria	7.7
Botswana	3.3	Botswana	3.8
Poland	10	Poland	7.7
South Africa	3.3	Kuwait	3.8
Thailand	3.3	India	11.5
Tajikistan	3.3	Brasil	3.8
Malawi		Saudi	

4. What course are you doing?

	Percent	
Course	LLCC	HLCS
MA	26.7	30.8
MSc	40	53.8
BA	3.3	7.7
BSc	23.3	7.7
Phd	6.7	0
Total	100	100

Tajikistan	3.3	Brasil	3.8
Malawi	3.3	Saudi Arabia	3.8
Total	100	Total	100

5. How much time a day do you usually spend on the internet?

Time	Percent	
	LLCS	HLCS
less than 1hour	3.3	0
1-2 hours	46.7	19.2
3-4 hours	20	46.2
more than 4 hours	30	34.6
Total	100	100

5.1 How much of that time spent reading in English?

Time	Percent	
	LLCS	HLCS
less than 1hour	22.7	18.2
1-2 hours	22.7	9.1
3-4 hours	36.4	27.3
more than 4 hours	13.6	45.5
Missing no answer	4.5	0
Total	100	100

5.2 Why do you read in English?

	Rarely/Never		Sometimes		Often/Always	
	LLCS	HLCS	LLCS	HLCS	LLCS	HLCS
To relax	36.7	38.4	30	19.2	20	34.6
To get information	0	7.7	10	11.5	86.6	76.9
To learn English	20	30.8	26.7	7.7	33.4	50
Other	96.7	96.2	N/A	N/A	3.3	3.8

5.3 What do you read in English?

	Rarely/Never		Sometimes		Often/Always	
	LLCS	HLCS	LLCS	HLCS	LLCS	HLCS
e-books	26.6	42.3	30	11.5	16.6	34.6
blogs (on-line journals)	20	19.2	26.7	23.1	36.7	50
Articles (other than from on-line	0	3.8	16.7	23.1	70	73.1
e-mails	0	7.7	10	38.5	80	53.8
news	3.3	11.1	20	11.5	56.7	69.2
Other	100	92.3	N/A	N/A	0,0	7.7

5.4 How often do you print from the internet?

	LLCS	HLCS
Rarely/Neve	16.6	19.2
Sometimes	33.3	38.5
Often/Alwa vs	50	42.3
Total	100	100

5.5 I print from texts when ...

	LLCS	HLCS
a) I want to keep something for the future	70	57.7
b) I want to learn from the material	80	69.2
c) I am too tired to sit in front of the screen	40	42.3

tried to sit in front of the screen		
d) the text is interesting	56.7	34.6
e) the text is long	6.7	42.3
f) other *(please specify)*	6.7	7.7

SEARCHING THE INTERNET:

6. Do you use search engines to find information? 100% yes – both groups

6.1 When I search the internet I …

	LLCS	HLCS
I usually use my favourite search engine	63.3	80.8
I use any search engine	6.7	3.8
I use different search engines for different things	30	15.4
Total	100	100

6.2 My favourite search engine is …

	LLCS	HLCS
Google	40	73.1
Baidu.com	3.3	0
Yahoo	0	3.8
other	0	0
no answer	56.7	23.1
Total	100	100

READING STRATEGIES ON THE INTERNET:

	Rarely/Never		Sometimes		Often/Always	
	LLCS	HLCS	LLCS	HLCS	LLCS	HLCS
I check how long the text is (before reading)	20	15.3	40	34.6	36.7	42.3
I think of what I want to read about and search for it (before	3.3	7.7	26.7	23.1	70	69.2
I look for headings (before reading)	23.3	11.5	30	30.8	43.3	53.8
I check if the text is for my level	33.4	42.3	33.3	15.4	30	30.7
I start reading the whole text	30	19.2	33.3	23.1	30	42.3
I focus on words and phrases	20	7.7	43.3	53.8	36.7	30.7
I focus on the text as a whole	3.3	15.3	43.3	15.4	53.3	69.2
I predict what will be next in the text	40	7.6	33.3	42.3	23.3	46.2
I look for how the text is organized	36.6	11.5	23.3	34.6	36.7	53.9
When I read on the internet I skip parts I don't understand	16.6	26.9	40	30.8	43.3	38.4
First I read the text fast for meaning and **later** I read it again	23.3	30.7	30	19.2	46.6	50
I read the text more than once if I don't understand it	10	7.7	33.3	38.5	53.3	53.9
I look for meaning from the text without using a dictionary	16.6	23.1	53.3	53.8	30	23.1
I check words in a paper dictionary	60	46.2	16.7	26.9	20	26.9
I ask somebody if I don't understand	50	57.7	33.3	19.2	13.3	23.1
I stop reading if I don't understand	76.7	73	13.3	23.1	0	3.8

READING PROCESS:

Critical Reading and Technology

	Rarely/Never		Sometimes		Often/Always	
	LLCS	HLCS	LLCS	HLCS	LLCS	HLCS
I look for the author of the text	27.3	22.7	31.8	31.8	40.9	40.9
I check where the writer is from	40.9	40.9	45.5	22.7	9	27.2
I look for the date of publication of the text	27.2	36.3	27.3	13.6	45.5	45.4
I check the source from which the text comes from	18.2	27.3	31.8	27.3	50	40.9
I try to compare information on different websites	18.1	31.9	59.1	13.6	18.2	50
I check whether website finishes with "**cn**","**org**", "**edu**", "**com**"etc.	36.4	31.9	50	18.2	13.6	50

READING STRATEGIES ON THE INTERNET:

Technology-Related Reading Strategies

	Rarely/Never		Sometimes		Often/Always	
	Low %	High %	Low %	High %	Low %	High %
I put my search question in quotation marks "..." to find exact phrase	54.5	36.3	13.6	27.3	27.3	31.8
I change the search engine if I can't find something in the first one	36.4	22.7	31.8	40.9	31.8	31.8
I use the option "**Advance search**"	54.6	40.9	22.7	27.3	22.7	27.2
I use the option "**Cached**" when the site I am looking for is not available	63.7	77.3	27.3	13.6	4.5	4.5
I use the option "**Similar Pages**"	68.2	50	22.7	40.9	4.5	4.5
I "jump" from one site to another and look for interesting things (before reading)	13.6	18.2	45.5	13.6	40.9	63.6
I wait for the whole page to download (before reading)	13.6	18.1	36.4	18.2	50	59.1
I look for pictures (before reading)	45.4	18.2	22.7	31.8	31.8	45.4
I look for video and sound/music files (before reading)	54.5	27.2	22.7	27.3	22.7	36.4
I look for links (before reading)	27.3	18.2	63.6	36.4	9.1	40.9
I use video and sound/music files to understand the text	68.2	72.8	18.2	13.6	13.6	9,0
I use "**find in this page**" option to search for key words	59.1	31.8	27.3	22.7	13.6	40.9
I use available links to understand the text	22.7	13.6	59.1	36.4	13.6	45.4
I use pictures to understand the text	45.5	27.2	27.3	27.3	27.3	40.9
I change the size of the letters if they are too small or too big to read	31.8	18.1	27.3	22.7	40.9	59.1
I look for the additional information on the Internet if I don't understand something	9.1	9.1	54.5	40.9	36.4	50
I check words in an on-line dictionary	27.2	18.2	13.6	31.8	59.1	50
I check words in a computer dictionary	31.8	31.8	31.8	31.8	36.4	36.3
I bookmark interesting websites (mark as your favourite websites)	31.8	22.7	36.4	13.6	31.8	63.6
I save interesting websites	9.1	18.1	36.4	27.3	54.6	54.5
I copy and save interesting vocabulary and expressions for the future	36.3	54.5	36.4	22.7	27.3	18.2
I use history to search for the text that I read before	31.8	31.8	36.4	27.3	31.8	31.8
I copy and save interesting links in text documents (e.g. "Word" files)	9.1	40.9	54.5	31.8	36.4	18.2
I check the spelling of my question before typing it in the search engine	31.8	40.9	22.7	18.2	45.5	36.4
I change the question if I can't find something	0	4.5	22.7	0	77.3	90.9
When I search the Internet I find what I want	0	0	2.7	4.5	77.3	95.4

Appendix B: Observation task and file form

Please answer the following questions:
1. How much is the cheapest season ticket for Manchester United and Manchester City games?
2. Who, when and where invented the World Wide Web?
3. How far (in km) is it from University of Salford to Manchester Airport?

4. Which University is older: Southampton University or Salford University?

5. Name 3 rock bands from Manchester

6. Who wrote the article: "Current Developments in Second Language Reading Research". When and where was it published?