

## **Information literacy in adult returners to Higher Education: student experiences in a university pre-entry course in a UK university**

*Anthony Anderson, Bill Johnston, Alexandra McDonald*

### **Abstract**

This paper reports a qualitative investigation of the experiences of 18 students taking a year long, part-time pre-entry course designed to help participants choose a course of study and develop confidence in their ability to study at first year university standard. The particular focus for the research was information literacy, and the study sought to illuminate students' reasoning underlying their information use. It was found that interviewees expressed greater confidence in the veracity of textbooks than websites, but that this contrast appeared to be based on a relatively unsophisticated epistemology. The interviews also suggested that students' metacognitive awareness and control, particularly over the critical thinking processes by which candidate information is selected or rejected for study, were somewhat weak. The core characteristics of information literacy for this group are discussed and suggestions for follow-up studies and interventions to assist in improving matters are provided.

### **1 Introduction**

Recent years have witnessed a considerable growth in the numbers of adult returner students within higher education within the United Kingdom (King, 2004; HEFCE, 2005; SFC, 2004) and accordingly a research literature has begun to build up investigating this particular group of learners (e.g. O'Donnell and Tobell, 2007; Richardson, 1994; Tennant, 2006). The concept of lifelong learning is portrayed in the academic and policy literatures as both a transformational educative process and a vital contribution to human capital development (Holford,

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### **Authors**

Anthony Anderson is a Senior Lecturer in the School of Psychological Sciences and Health, University of Strathclyde.

Email: [tony.anderson@strath.ac.uk](mailto:tony.anderson@strath.ac.uk)

Bill Johnston, Centre for Academic Practice and Learning Enhancement, University of Strathclyde.

Alexandra McDonald, Centre for Lifelong Learning, University of Strathclyde.

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Jarvis and Griffin, 1999; Dunne, 1999; Istance, Schuetze and Schuller, 2002; Scottish Executive, 2003a, 2003b). Information literacy (“the adoption of appropriate information behaviour to identify, through whatever channel or medium, information well fitted to information needs, leading to wise and ethical use of information in society” (Johnston & Webber, 2003, 336)) is not simply a technological construct, nor a simple extension of library inspired images of searching processes. It encompasses the abilities to locate, evaluate and use effectively the information sought and as such necessarily includes both critical thinking skills (used for evaluating the information found, and in reflecting metacognitively on one’s own information search and selection processes) and learning skills (which are necessary at the information use stage). Information Literacy is in part an ‘intellectual skill’, which contributes to overall educational development and success. It is essential when studying in information rich learning environments in order to make the most of the learning opportunity afforded by tertiary education.

Consequently, information literacy has been identified as a keystone for lifelong learning. For example, Candy, Creabert and O’Leary (1994) included information literacy as a key characteristic of the lifelong learner. Likewise, UNESCO (2005, 2006) has declared that all lifelong learners should have well-developed information literacy skills, hence our interest in information literacy in relation to adult returners engaging in lifelong learning in the form of access to undergraduate education.

The key question for the present study is: what are the learners’ perceptions of their information use within the context of their course? Given that they use information in the context of a formal educational course, they are required students to access and use academic information sources. Consequently, the important lines of enquiry into their experiences concern their reported ways of finding and deciding to use sources, particularly in relation to the perceived trustworthiness of obtained sources.

A number of Access to Higher Education courses have been created by universities within the United Kingdom to cater specifically for adult returners (Waller, 2005), given their low level of qualifications and their sometimes negative experiences of learning at school. The pre-entry group is interesting because of its particular experience of the university curriculum (shortened but focused to highlight major aspects of first year) and study of this group may be useful for identifying those aspects requiring redesign within both the pre-entry course and the first year course proper.

## **2 Literature review**

The definition of information literacy above has a number of implications. Shapiro and Hughes (1996) argue that information literacy should be conceived broadly; it should not just be about the effective use of information technology to find information but to think critically about “the entire information enterprise and information society” (Shapiro and Hughes, 1996, 2). This broad conception of information literacy as a liberal art emphasizes its necessity as an essential skill for lifelong learning, and as a prerequisite for being an informed and successful

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member of society; see also Bruce, Edwards and Lupton (2006), and Lupton (2004) who elaborate these points in relation to higher education, particularly the relation of student experiences of information literacy as part of their subject studies and development of academic skills. Indeed, UNESCO (2003, 2005, 2006) has published defining statements on information literacy, and in particular has declared information literacy and lifelong learning as “key elements for the development of generic capabilities” (UNESCO, 2005, 2). Similar emphases are to be found in the SCONUL (the United Kingdom’s Standing Committee on National University Libraries) “7 pillars of information literacy” model (SCONUL, 2011) which identifies skills and processes for information literacy within higher education.

The two major lines of enquiry in the present research are the ability to access information on the one hand, and the application of critical thinking to help select among the information thus retrieved on the other. These processes involve two aspects of thinking: a) metacognition (broadly, thinking about thinking) and b) epistemological thinking (broadly, the participants’ conception of the nature, sources and limits of knowledge). Kuhn (Kuhn, 2011; Kuhn and Park, 2005) has written extensively about metacognition and distinguishes two aspects, namely metaknowledge (knowing about the content of what is known) and metastrategy (knowing about the process by which knowledge is obtained). Epistemological thinking has been investigated extensively (e.g. Perry, 1970; Belenky, Clinchy, Goldberger and Tarule, 1986; King and Kitchener, 1994) and whilst the various authors make varying fine discriminations among different qualities of epistemology, these can be broadly grouped and summarized across authors (Whitmire, 2003) as Low (dualist views in which knowledge is certain and there are definite right and wrong answers), Medium (multiplist views in which it is acknowledged that varying expert views can co-exist but do not have any principled way of choosing among them) and High (contextual, relativist views in which it is acknowledged that knowledge is constructed and its acceptability is relevant to a context of theory and evidence that bears on it). In general, weaker degrees of metacognition and less sophisticated epistemologies are likely to be associated with poorer quality information literacy processes, with unsystematic information search, difficulty in judging the quality of and selecting among the items obtained, and difficulty in dealing with multiple perspectives across different items where these arise (e.g. Jansen, Spink and Saracevic, 2000; Lazonder, 2000; Nicholas, Huntington, Williams and Dobrowolski, 2006), and attempts have been made to develop methods to improve matters (e.g. Lucas and Topi, 2005; Miller, Chabot and Messina, 2009; Walton and Hepworth, 2011).

There is also evidence that critical thinking in relation to retrieved information is less good than ideally it might be; e.g. Brem, Russell and Weems (2001); Halverson, Siegel and Freyermuth (2010). Halverson et al. (2010) provided evidence that students’ evaluative criteria included both relevant (e.g. credibility, accuracy of information) and non-relevant (readability, superficial aesthetic features) information selection and evaluation criteria. Similarly, Attar (2005) used interviews conducted with adult participants whilst the latter accessed and used web pages, to collect reasonably naturalistic data on adults’ use of and reaction to websites. Attar observed a number of problems, including uncertainty

on the part of some users as to what kind of text they were looking at, for example being unclear as to whether a given page was an 'official' organizational site or a page written by an individual.

A further study suggesting that there are shortcomings in searching for and evaluating the information obtained was undertaken by Whitmire (2003) using Yale undergraduates as participants. She interviewed undergraduates about their information search processes as they completed a research paper during their senior year. She noted that these students varied in their degree of epistemological sophistication, and that this influenced their use of mediators, their search processes, and their choice of information sources. For example, epistemologically less sophisticated individuals were less likely to consult journal articles than textbooks, sometimes admitting to not knowing how to conduct the relevant searches. In passing, it is worth noting that Whitmire's study is now some 10 years old and student use of information search tools may well have become more widespread and habitual in the interim. However, there seems no reason to suppose that the observed variation in students' epistemologies is likely to have changed during that time, which would suggest that Whitmire's observations are potentially of continuing relevance.

Taking all of the above research together, therefore, there is evidence that adults exhibit shortcomings in information literacy at both the search and the evaluation phases of information seeking. Given this evidence, we can anticipate weaknesses in people's information literacy skills, and the present study was designed to explore these issues in the case of adult returners to study.

### **3 Educational context of the research**

The research involved interviewing students from a part-time, evening study access course at Strathclyde University; this university is a city-centre university with a technological and applied focus. The Pre-Entry Certificate in Arts and Social Sciences studied constitutes a potential vehicle for adult returner applicants to prepare themselves for full-time degree study. It is a year-long part-time evening course involving the study of a succession of three modules, each involving a series of ten lectures in a particular academic subject. Like the main undergraduate degree to which it provides access, the pre-entry course involves the study of three subjects (with selection of subjects by the students). It is taught and assessed by many of the same staff who teach during the first year of the undergraduate programme proper, thus providing valuable alignment between the two courses, as well as preparation for the first year of the degree (Johnston, 2010).

The educational context of our study is therefore one of students learning a subject through selected taught topics, assessed by assignments and exams, and encountering expectations concerning appropriate knowledge of sources and use of information for study. Searching for and evaluation of information are the main areas of information literacy which students are expected to display to a greater or lesser extent in compliance with course requirements such as completing assignments or in studying prior to examinations. However, the course designs did not give priority to elaborating information literacy in the learning process, nor

offer any systematic support in developing the relevant skills, and librarians were not involved in formally teaching information literacy skills as such. That is, the students are reliant upon their accumulated previous experience and whatever informal procedures they had acquired.

#### **4 Methodology**

The research, which was conducted towards the end of the 2010-11 academic year, sought to explore the learners' perceptions of their information use in the specific context of the pre-entry course. In order to obtain the kind of rich information that we desired regarding the students' experiences of study and of information-literacy-related issues, we decided to adopt a qualitative approach using semi-structured interviews. This would allow a holistic approach to exploring learners' experiences of information literacy and its relation to patterns of study, epistemology and experience of the course more generally. The study involved open-ended, semi-structured interviewing on three broad themes with a sample of volunteers from the pre-entry course cohort. The three themes explored were: students' experiences of study in the access course thus far, students' approaches to studying, and students' information literacy. The present paper concentrates on reporting the responses to the questions about information literacy. Participants' responses to the other two themes are reported elsewhere (Anderson, Johnston and McDonald, in press; Johnston, Anderson and McDonald, 2012).

The interview schedule was deliberately broad, and the interviews were conducted by three postgraduate students experienced in semi-structured interviewing. Their instructions were to get the participants talking on each of the three broad themes, with general prompt questions and suggestions for follow-up questions to help interviewees elaborate (see Appendix 1). The subsequent data were transcribed and qualitatively analysed. The relevant body of background theory to the issue of information literacy was not mentioned to the postgraduates, and none of the associated terminology was therefore used by the interviewers, to minimise the risk of our distorting the participants' responses: they were simply asked questions about how they went about finding desired information and how they selected among the results obtained. The study has parallels with that by Whitmire (2003), outlined above. However, our study involved broader questioning which allowed us to glean insights into the relation between information literacy and broader issues such as study skills (Anderson, Johnston and McDonald, in press), and our study involved adult returners rather than senior undergraduates.

The confluence of the authors' academic backgrounds (one curriculum developer and information literacy researcher (BJ), one psychologist with an interest in student learning and experience as an academic selector (TA), and one practitioner who runs the pre-entry course (AMcD)) influenced the design of the present study. These backgrounds gave us: considerable accumulated experience in qualitative research; complementary prior interests in information literacy and critical thinking; in-depth knowledge of the pre-entry course itself; and a shared commitment to improving widening access. The semi-structured interviews were conducted on our behalf by three postgraduate social psychology students (represented here by the letters C, J and R), all of whom had been trained in a

Masters course in Research Methods that included interviewing and other qualitative research methods. This paper focuses on the questions concerning how the students accessed information to assist them in preparing items of classwork such as essays. 18 volunteer individuals (9 male, 9 female, of varied ages, with all participants older than 21 years of age with a maximum age of 70 for one participant) were interviewed on these themes. The majority (17) of the interviewees were adult returners in their 20s or 30s and thus typified the pre-entry cohort; however, two interviewees were early retirees in their 50s and one participant voluntarily stated her age as 70. The interviewees' responses were transcribed, and subsequently qualitatively analysed using the constant comparative method (Strauss and Corbin, 1990; Glaser, 1992), in which similarities and differences among emerging categories were iteratively noted and discussed, and within-category differences identified to generate sub-categories. Our focus in the present paper will primarily be on the themes that emerged that were related to information literacy. In the excerpts from interviews below, the following conventions are used. Individual interviews are coded C1-5, R1-6, and J1-7 for the interviews conducted by each of students C., J. and R. Omitted segments of speech (omitted because they are irrelevant to the topic or represent a digression) are represented by "..."; noticeable pauses and consequent self-corrections or self-interruptions are represented by a colon.

## 4 Results

We consider our results under the two broad headings already identified at the outset: finding and using sources, which broadly concerns the searching process and the selection of information within obtained texts (Johnston and Webber's (2003) "locating" information), and deciding on the trustworthiness of obtained sources, which reflects the element of critical thinking identified at the outset. These are both clearly identifiable aspects of information literacy and entail subtly different metacognitive activities; in the former case the metastrategic activity of conducting searches both for relevant documents and for relevant content within obtained documents, and in the latter case a more metaknowing-epistemological activity of evaluating the academic worth of information obtained.

### 4.1 Finding and using sources

The activity of finding and using sources served a number of purposes for the students: to amplify material encountered in lectures, to use within assignments, and to generally broaden knowledge of an academic subject. Students showed a strong tendency to treat recommended textbooks as their primary source of information, with the internet as a backup, additional possible resource:

*I tended to stick mostly to the textbooks and used the computer to back up, and also to add to my references as well.*

(Interview J6)

This respondent implicitly acknowledges the need to cite multiple sources by going beyond the textbook to expand the reference list on their essay.

*I would go to the libraries and research there and would obviously have been told about books so we would buy the books which were relevant and read the bits that*

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*were relevant at that time not necessarily reading the whole book. You were snatching at the bits that you knew that you had to understand.*

(Interview C5)

This interviewee alludes to selectivity in reading, with a focus on the parts of the textbook that are deemed to be relevant, though how relevance is judged is not elaborated on (see the further comments below on this issue). It is interesting to note in passing that the interviewee talks of “snatching at bits” of textbooks and explicitly avoids reading the whole book. This could reflect a learning strategy of covering the bare minimum of background reading, or alternatively it could reflect an approach that sticks closely to the point at hand in the interest of avoiding digression. The theme of digression is picked up by at least one other interviewee (see below), but for now it is sufficient to note that making judgments about how narrowly or widely to read around lecture contents is likely to be problematic for students at this particular stage of their academic careers.

When seeking information, students reported having assistance from a number of sources:

*I have been using my local library a lot and they've been really good at helping me find textbooks and resources...*

(Interview R1)

The use of the interviewee's local public library rather than the university library is of note; this might simply reflect the logistics of studying part-time by evening study, but it might also suggest a feeling of being daunted by the scale and the atmosphere of the university library (cf. O'Donnell and Tobell, 2007).

*...I found a couple of websites for Spanish but I didn't really use them as much as looking at textbooks. Again, I relied on my daughter who is doing a crash Higher in Spanish at the moment and got dictionaries and essentially just followed the course work you recommended to back it up...*

(Interview C3)

As is also true of the interviewee quoted immediately below, there is allusion on the part of several interviewees to using relatives as mediators in the information search process.

*...what I done (sic) is obviously, I had my book and in my work, two of the girls, I've got one girl who's at (another university) and one at (a third university) and they got me books out their library. So I ended up I had about six different books so it was really helpful...*

(Interview R4)

The final sentence of the above quote is interesting: “ended up” suggests a temporally drawn out search process which begs questions about the basis on which it was terminated. It also contrasts with the internet studies alluded to above by e.g. Nicholas et al. (2006), which imply a more rapidly concluded search process. However, the implication that having “six different books” was particularly helpful suggests that six books were considered to represent something of an overkill.

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*I have asked the library staff but not the lecturer because I felt it was something I should be able to find myself.*

(Interview C2)

Like Whitmire (2003) we find across interviewees use of a variety of mediators: in this case relatives, academic staff, and public librarians, though not peers. Again it is noteworthy that textbooks feature heavily across these responses, as opposed to other types of resources: Whitmire (2003) observed a reluctance even among senior Yale undergraduates to consult journals or the internet. The responses suggest that the students seek help in information searching from quite a variety of sources: their local public library, friends, and relatives, and at least one interviewee expresses reluctance to approach lecturing staff regarding issues related to searching for information. Arguably, this points to a perception of the lecturer as a teacher, with the student role being in part that of an independent resourcer. By implication, the search process appears to be a temporally extended one.

#### **4.2 Deciding on the relevance and trustworthiness of sources**

Textbooks were clearly trusted more than internet sources, with participants expressing a presupposition to the effect that because a book has been printed by a publisher it has been “vetted” and is consequently more trustworthy:

*When you are looking at a textbook, the information that is contained within it has to be factual, it can't just be bits and pieces picked out of anywhere. Like, if they're explaining a topic it has to be factual, it has to be drawn on resources to go into that book in the first place otherwise they wouldn't have got it published. Whereas the internet sometimes I find can be a bit... leading in some ways whereas when you read a book it's got no bias you know, it's just presenting the facts, it's not somebody's personal opinion...*

(Interview R1)

The notion of the factual status of textbooks implies a realist epistemology in which there is certainty among experts as to the “true” states of affairs within a field; this is contrasted with “opinion” and “bias” expressed in websites by the assumedly less expert.

*I did definitely find myself much more using books rather than the internet because it was a bit tricky and a bit: didn't want to take false information or wrong stuff or anything.*

(Interview R4)

The allusion to the internet being “a bit tricky” is ambiguous: it could refer to web pages being complicated to use, or alternatively difficult to evaluate (in line with the findings of Attar, 2005).

*Well the internet I was a bit wary about because obviously on the different websites and things if its published in a book then you're a bit more confident thinking that this is actually kind of true information, whereas when I was looking at different websites, I mean there were some that were just wacky and I was just*



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*like I'm just not even going to let that sink into my brain in case I start talking about it.*

(Interview R4)

Again, wariness of the internet is expressed, with the issue of confidence explicitly mentioned. The possibility that “wacky” content might be retained and inadvertently subsequently used implies a conception of learning and knowing as slightly passive and not under the learner’s control.

*Because it was from the internet... I would always have to be very careful about that, it would have to be something specifically or directly relevant that you know I was one hundred percent certain about. How I would decide that I am not entirely sure, it would really depend on the circumstances I suppose, depend on the subject.*

(Interview J3)

Overall, these quotes highlight two major issues. The first is the sharp distinction drawn between true and false information; books are seen as trustworthy and likely to contain “true” information, whereas websites are seen as a source of untrustworthy and even downright “wacky” information. This reflects both a realist epistemology in which true or factual information is contrasted with mere opinion (Whitmire, 2003) and the fact that website content is often unpoliced in terms of its accuracy. Given that the interviewees’ presumptions about website contents are not always justified, this characterization of books versus websites is something of a considerably exaggerated caricature, and a much more nuanced position would be justifiable. Secondly, the students’ comments are suggestive of metacognitive shortcomings: for example, they are unclear as to the criteria that they are using to make decisions about source relevance (“How I would decide (relevance) I am not exactly sure...”), and they appear to be unconfident about their own capacities for critical thinking (“I’m just not even going to let that sink into my brain in case I start talking about it”).

Students varied in their answers to direct questioning about the trustworthiness issue:

*I don't know I suppose if you've been using the internet long enough you look for signs that tell you if it is genuine or if it is legitimate and if it's not. As soon as you go on to a site I suppose you do automatically, subconsciously look out for these things but don't realise it... I think you just know, I suppose you just keep going from one (source) to another and you just know... if you've been browsing long enough I think that you would automatically see things or maybe I don't know because I work in money laundering and stuff I just look out for things but I look out for these things automatically in everything and I don't know how I pick out that it is legitimate and genuine...*

(Interview R7)

Again this individual expresses vagueness in speaking of the metacognitive processes involved in deciding on information quality (e.g. “You just know”; “I don’t know how I pick out that it is legitimate and genuine”). This interviewee goes so far as to describe the criteria for deciding website content legitimacy as

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“subconscious”, “automatic” and based on accumulated occupational experience (“work in money laundering”).

*If (internet sources) feel wrong: I don't mean wrong, if it doesn't feel one hundred percent authentic or academic or scientific, like Wikipedia for example, you can go there and search and you could get material for an entire essay if you wanted but you would obviously take that with a pinch of salt. Certainly my approach seems to be if it feels right then it might be and if it feels wrong then it definitely is wrong, and if it does feel right then double triple check it if you can.*

(Interview J3)

This interviewee again alludes to a vaguely articulated situation involving whether material “feels” “right” or “wrong”. There is certainly not much evidence here of well thought-out, clearly articulated and metacognitively monitored thought processes being utilized.

Consensus across sources was a key criterion of trustworthiness for some:

*Normally if I have maybe read through a lot of websites and they are maybe saying generally the same thing then maybe I would assume that that was the right kind of information, but if I have only seen something once I don't bother adding things like that.*

(Interview J5)

This corroborates Whitmire's (2003) finding with senior undergraduates. Consensus across sources is seen as the acme of trustworthiness, and like Whitmire's epistemologically relatively weak participants, the above interviewee would advocate responding to a dissident or unique view by ignoring it.

Corroboration of website content by the textbook content increased the website's perceived trustworthiness:

*There are some sites, some American sites which gave different information from the British ones, and there was a lot of information which was kind of similar but had simple differences, so which to include kind of came down to what the textbook said rather than what it said on the web.*

(Interview J6)

The reputation of individual authors also clearly mattered to some:

*I would usually use something if it was like from a credible author, somebody who was well known and who knew what they were talking about... I wouldn't go on the internet and use a website that I didn't recognise because it would be pointless.*

(Interview C4)

*If I've had the OK from the lecturer to take that as a valid source then that's how I would decipher that or just in general the notoriety of the author and the clout that they have about the subject that they are writing about.*

(Interview R6)

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Interviewee C4 does not articulate what he or she means by “recognising” a website. Interviewee R6 falls back on the authority of the class tutor in deciding on author reputation.

Wariness of the internet extended to its enhanced possibilities for digression:

*I don't use a lot of internet resources... I find you can be too easily led with the information you are looking for into something that's not really relevant. Whereas, if you stick to like textbooks, which I've been trying to do, I feel like it kind of gives you a better description of what it is rather than kind of drifting into something else... it's a more credible source of information.*

(Interview R1)

This comment suggests that a noted property of the internet and hypertext more generally, that is, its affordance of the possibility of browsing information across sites via links, is actually perceived as problematic, whereas books, lacking as they do live links to other sources, have a discreteness and a self-contained quality that clearly appeals to the students. Attar (2005) noted a similar phenomenon in which her adult interviewees expressed irritation and disappointment at the challenges presented by hyperlinks and hypertextuality (“all I want is simple plain information” (Attar, 2005, 496)).

Some students showed differential willingness to use internet sources depending on the academic subject involved (cf. Estes, Chandler, Horvath and Backus (2003) who observed varying degrees of skepticism expressed by students towards different academic disciplines):

*I did (use internet sources) for Law because there were a majority of sources that were online, that were provided by the home Office or the Justice Office or something like that... if there's studies and articles that have copyright attached to them and whatnot and come from a valid source, in this case the government, I would use that or I would trust that but with regards to History for example I wouldn't use the internet for History, it's mostly opinionated and Wikipedia definitely I wouldn't ever use that at all for anything.*

(Interview R6)

It is clear from other students' comments, and the comments of the tutors themselves obtained through informal interviews with them convened to feed back our findings to them, that tutors across the different subjects vary in the extent to which they recommend that students consult internet resources; the tutors in Law appear to recommend the use of internet sources whereas the tutors in History actively discourage it.

Other students showed more willingness to use sources like Wikipedia:

*I'd say there's a little bit of peeking at Wikipedia as well, just because it's quite a: although you wouldn't reference it or without thoroughly checking that what they've got there exists and you can go and look at the source material of it rather than the thing itself, it is quite good in the same way that a documentary on the telly or a radio program, it's quite a handy way of skimming and then getting an overview for maybe a bit of bias, it's just another thing to compare it to, just on*

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*the web in general, people's opinions, trying to get a flavour for that, maybe a bit of the politics behind some of the writing.*

(Interview J1)

This particular comment contrasts with those of many of the interviewees, who explicitly claim not to use Wikipedia (and in some subjects the tutors had indeed actively discouraged students from doing so). The allusion to “peeking” at Wikipedia is suggestive of a slightly furtive transgression; and the comparison to the kind of brief overview provided in a broadcast programme is an interesting one. Finally, the allusion to the “politics” of differing views is suggestive of a slightly more sophisticated, multiplist rather than dualist, epistemology in which experts can disagree with each other and “facts” are no longer quite so certain.

## 5 Discussion

The interviews generated a great deal of qualitative data, as interviewees appeared willing to talk at length about their experiences. In retrospect, it would have been possible to use the interviews to delve more deeply into participants' perceptions of information literacy and its associated issues. However, this would have been at the expense of obtaining information about study- and course-related issues (Anderson, Johnston and McDonald, in press; Johnston, Anderson and McDonald, 2012) and their relation to information literacy, and arguably, on balance the data obtained proved very valuable. The study demonstrated that this group of students focus on distinguishing what they see as high-quality information sources from what they see as low-quality ones. They articulate their intuitive quality judgements concerning academic literature in terms of what Whitmire (2003) would refer to as a “low” level of epistemological thinking in which there are clear-cut distinctions to be drawn between “correct” or “factual” information on the one hand, and “incorrect” information or “opinion” on the other. In describing their experiences, these students are somewhat vague regarding the metacognitive processes used to make these judgements. Our key observation based on the data concerns the interrelationships between information literacy on the one hand, and epistemological development and metacognition on the other and we explore these interrelationships further below.

The students' responses suggest that whilst study (typically in the form of multiple reading of material: Anderson, Johnston and McDonald, in press) and learning are the essential bedrock of their activities, there are three further interrelated elements that are in play whilst they study, namely:

- Information Literacy;
- Epistemology;
- Metacognition.

It would seem that the core activity of studying and these three additional elements are represented disproportionately in the student accounts of their activities. Study / learning is clearly to the fore and is described in naturalistic terms of actions involving the use of study resources including: books; lectures; lecturers; the internet; information mediators; family members and peers. Not

every resource is cited in each interview, and some, for example peers and the internet, have somewhat negative connotations. Students, nonetheless, are in an information rich situation which is epistemologically challenging and embodies expectations about academic use of information. However, this is not explicit or apparently clearly understood by the students. Nevertheless, the course requires them to begin to perform in this environment.

In many ways our interviewees exhibit similar responses to Whitmire's (2003) Yale undergraduates. Arguably both groups were in effect undertaking the same type of activities – reading up on topics, finding more information, and writing an essay. Arguably the Yale sample were tackling more complex and challenging topics, and certainly Whitmire describes a more elaborate set of library and information system mechanisms and techniques in play – keyword searching, use of online catalogs, visits to the library stacks, and citation chaining. A key difference between the groups, however, seems to be that the Yale students are much more engaged in dialogue with peers than are the adult returners. The Yale students therefore appear to be more integrated within their academic community. The Yale sample also included individuals with more sophisticated epistemological thinking than was exhibited by the adult returners, as one might expect given the greater degree of academic experience of the Yale students.

Given that study/learning is the core activity, the issue that naturally arises is how one could redesign the educational activities engaged in by students to help enhance information literacy, epistemological thinking and metacognitive control. In terms of information literacy, conventionally students could expect to learn about a range of sources over the course of a degree, and somehow also be taught or learn the skills of information retrieval demanded by the interfaces of different information systems. They might also expect to encounter support from mediators such as librarians, and indeed academics. Whilst that plausible trajectory might be seen as sufficient to the needs of given study tasks, it would not of itself constitute an education in information literacy as it has come to be described in the academic and professional literatures. For that to happen, it is arguable that curriculum development of the scale undertaken by the CILASS (Centre for Inquiry-based Learning in the Arts and Social Sciences) Project at Sheffield University (McKinney and Levy, 2006), would need to be rolled out much more extensively. This would entail not simply additional tutorials designed to enhance skills in information literacy or study methods. For example, it would be essential to proceed with a pedagogical strategy such as enquiry-based learning, located in specific disciplines and designed as a substantial part of the course. In the light of the results from our study we would advocate attention to epistemological and metacognitive development via learning experiences within which information literacy tasks are embedded which explicitly entail disciplinary controversy and multiple theoretical views.

There is broad agreement among theorists on epistemological development (Perry, 1970; Belenky, Clinchy, Goldberger and Tarule, 1986; King and Kitchener, 1994) that epistemological sophistication typically grows as an undergraduate progresses through his / her course (although it is worth noting that some at least of Whitmire's, 2003, senior Yale undergraduates were exhibiting low levels of epistemological sophistication). There is an implication in our data that the low

level of epistemological development suggested by our interviewees' responses might be impeding both information literacy and learning as interrelated aspects of education. To believe in absolute truth is to (explicitly or implicitly) disregard those materials perceived as "untrue" and to render pointless an information search for alternative perspectives, and in that sense epistemological development is somewhat fundamental for information literacy.

Interviewees said little about their information search processes, but more about their intuitive quality judgements about information sources; there was little talk of how the search process took place or how information was extracted. Students made few metacognitive comments about their strategic approach to material. The respondents' comments suggest that they do not fully differentiate between finding information in texts (reading strategies) and developing search strategies to access information in sources such as databases or via the internet (this would entail identifying key terms and formulating search statements in a form which could be applied to the organization of a specific database). This indicates that they would score poorly against the SCONUL 7 pillars model of information literacy (SCONUL 2011) and perhaps be categorized as very much novice users of information literacy. Thus it can be suggested that they do not see information as a discrete phenomenon, separate from its encoded form in texts and therefore will need to be "taught" this distinction (cf. Crook's (2005) point about academic literacies more generally).

These learner characteristics would seem to call for a pedagogical approach which went beyond basic instruction in library skills, and searching protocols. For example, it seems clear that some means of developing a personal sense of the phenomena of information in relation to knowledge and meaning must be developed alongside any schedule of information skill instruction. In essence, the encouragement of a metacognitive appreciation of the differences between information and knowledge needs to be allied to any interventions aimed at improving searching skills.

Whilst systematic attention to information literacy in study / learning should lead to more relevant activity, this will not necessarily lead to better learning (in the sense of the progressive development of epistemological understanding within, and across, subject domains) unless attention is given to epistemology and metacognition in the design and teaching of both the domain content of the course and of information literacy strategies to be used to explore the content further. This would place the matter of information literacy education firmly within the remit of lecturers as an integral part of course content teaching and learning. This contrasts with the more familiar procedure of assuming students will "pick it (information literacy) up", be given help by lecturers when they encounter problems, and, more generally, relying on the availability of library services to fulfill the needs. In addition, it would be logical for lecturers to seek advice from and collaborate with academic librarians during the course re-design phase.

## 5 Conclusion

To sum up in relation to our key question: *what are the learners' perceptions of their information use within the pre-entry course?* It is clear to us that the course

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does indeed entail information literacy *activities*, but our data suggest that the most fully realized learning experience and a better preparation for undergraduate study, will involve careful re-design of information literacy tasks within the course to highlight epistemological and metacognitive issues as a presage for further development.

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### **Appendix 1: Interview schedule**

1. Question: Tell me about your experience of the access programme so far.  
How has it been going?
- Prompts: Tell me more about X (where 'X' is something raised in previous answer)  
How do you study? What do you do?  
How confident are you about your own study skills?  
Do you discuss study-related issues with other students?
2. Question: In working on your course, how do you find information relevant to it?
- Prompts: Tell me more about X (where 'X' is something raised in previous answer)  
For example, if you were writing an essay, what information would you seek, and where?  
How do you decide whether a particular source of information is useful or not?  
Have you sought help in how to find information? If so, from whom?
3. Question: Does your experience of Higher Education fit with what you had expected?
- Prompts: Tell me more about X (where 'X' is something raised in previous answer)  
Tell me a bit more about this in relation to your original reasons for coming on the course.  
Are there any aspects of the Higher Education experience that you are sceptical about?