

## The i-map research project: work in progress



**Kim Walden**  
*Lecturer in Digital Discourse and Culture  
Faculty of Art and Design  
K.L.Walden@herts.ac.uk, ext 5394*

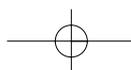


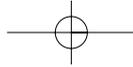
**Alan Peacock**  
*Principal Lecturer, Programme Tutor MA  
Digital Practices  
Faculty of Art and Design  
A.D.Peacock@herts.ac.uk, ext 5355*

### Summary

*This article asserts that the process of information gathering and handling has shifted in a digital information environment. These shifts pose new challenges for students in evaluating and using information which has implications for the way these skills are taught and assessed. In turn, this has triggered a critique of the conventional academic essay for its exclusively written form which focuses on a narrow range of communication skills and disadvantages some students.*

*Given these concerns, this article reports a new approach to assessment developed in the Faculty of Art and Design called the i-map (short for information map) which can be used in conjunction with the essay to document the enquiry process. Its key features are described and survey findings are considered. These include the need for information literacy skills in the curriculum, its use in counteracting plagiarism and how the i-map enables a fairer assessment of some students' learning experiences and capabilities.*





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### **Information gathering and handling**

Information gathering and handling is an increasingly important graduate skill and a core activity in many areas of professional practice. Indeed, it is one of the key activities of an information culture and of a knowledge economy.

In most contexts information gathering and handling has two distinct components: a process of enquiry and an act of communication. During the enquiry (process) the scope of the required information is identified, relevant material is located, evaluated, analysed, edited and compared. During the act of communication (the 'product', which may be in any one of a variety of forms: written texts, spoken presentations, posters, seminars, websites), the information is incorporated into a medium which has its own set of codes and conventions. Those codes and conventions apply not only to the material form of the product, they also determine the way in which source materials are handled and connotatively convey a relationship between author: reader and information itself.

The ready availability of online material and access to information sources through web search engines has markedly altered our relationship with information, generally, and within academic activities particularly. One aspect of this is our increasing collective anxiety about plagiarism which itself signals the shift from the certainty of a reading list, the canon, to the search engine. This change in our relationship with information places an emphasis on aspects of enquiry and process in the evaluation of competing sources rather than on communication and product.

A previous model of information gathering and handling was based in the library and the canon. The library (and by extension the librarian) acted as an 'approval filter': the texts on its

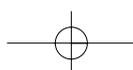
shelves were, by definition, authoritative canonic works to be read and cited as proof of understanding (and implicitly as proof of reading). This process of reading the 'authoritative' texts engages students with consistent models of 'good' practice and textual analysis, extends vocabularies and valorises conventions which are assimilated as a standard form.

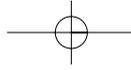
Search engines are the antithesis of the canon. We had become aware that using a search engine exposes a student to a wide range of sources, some of which are authoritative, many of which are not. This means that the student's task now includes the evaluation of, and discrimination among, sources before an evaluation of content can begin. The diversity of material, and its screen-based hyper textual/visual format, present varying models of practice and conventions which pose special challenges in evaluating, understanding and using information. It was this shift in the pattern of time, energy and skills required to carry through the same task which provided the starting point for our enquiry as it seemed to have implications not only for how we teach but also for what we assess.

### **Concerns about the academic essay**

Over recent years staff working on the BA/BSc Software Systems for the Arts and Media programme (SSAM), which is taught by staff from both the Faculty of Engineering and Information Sciences and the Faculty of Art and Design, have felt a growing sense of unease about the role of the academic essay in our courses.

Given the University's commitment to widen access to higher education<sup>1</sup>, our students come from a diverse range of educational backgrounds, sometimes with non-traditional





entrance qualifications, and uneven prior knowledge and experience. Recently it has become clear that the conventional academic essay, which is still widely used as the basic currency of so many undergraduate programmes, is no longer serving our purposes as well as it might. The essay is a coded artefact judged by what are inherently language-based criteria (quality of original expression, accordance with convention, etc.), which seems to disadvantage students not exposed to or prepared with these language skills.

We are increasingly aware, too, that the academic essay assesses a narrow range of communication skills when considered in the light of the broad range of communication modes current today. Now so much communication includes the use of colour, visual design, layout and graphics as well as the written word. For students of digital media there is a disjuncture between the communication modes they are learning and the communication modes in which they are assessed. The academic essay is linear, sequential and forensic whereas the emerging mode of communication in the digital environment is plurivalent, branching, associative and interactive.

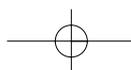
Despite these misgivings, we acknowledge that the essay remains a useful tool for measuring a student's ability to demonstrate knowledge and understanding of a given subject as well as analytical skills and an ability to synthesise information. However, whilst the use of quotation, reference and bibliography provides some indication of the enquiry, references are an inadequate mechanism for mapping the learning which has taken place in the research process. This system fails to demonstrate how much enquiry the student

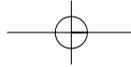
undertook. A well-written essay is not causally linked to the depth of enquiry undertaken and, vice versa, a rich enquiry may not result in a well-structured essay.

If the key to improving student performance in assessment is to develop a greater understanding of learning processes (Rowntree, 1977, p.138), then what we needed was a mechanism to make these processes both manifest and measurable. In response, we devised the i-map (short for information map) which focuses particularly on the process of enquiry: information gathering, handling and organisation. In the following section we outline the main features of this assessment tool and provide an account of its theoretical and methodological underpinnings in relation to other process-led forms of assessment. To do this we will discuss our model of assessment in the light of current thinking on assessment across the range of disciplines represented in the Learning and Teaching Support Network (LTSN) assessment series and the body of research which informs those papers.<sup>2</sup>

### **The i-map?**

The i-map is a strategy which provides tools to think with as well as formalising the reporting of the research process for assessment purposes. It structures, plans and records the research phase of an essay, report, conference paper or presentation, content-led web pages or similar activity. It does not replace these learning tasks but rather complements them by addressing the learning objectives of enquiry. The i-map may form a component of an assessment alongside a written text or presentation.





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**What does an i-map look like?**

An i-map may include:

- lists of key words, search terms, URLs, file or directory names, authors, titles of books, journals, articles and 'zeitgeist' sources.
- diagrams – spider diagrams, flow diagrams, block diagrams showing structures and inter-relationships.
- graphic elements – lines, arrows, circles, boxes and other visual devices which connect structure and frame.
- texts – headline texts, key words, key ideas, quotations, definitions, particularly well-said things.
- images – pictures and drawings which are useful to your understanding of the subject.

Importantly the i-map makes use of visual communication to represent the research process, including layout, colour, typeface and

line to communicate effectively. All these activities can be produced by hand, or using word-processor software, although structured drawing packages such as Macromedia Freehand, Adobe Illustrator and CoreIDRAW offer more scope for layout and exploring meaning through text and graphic elements.<sup>3</sup>

The i-map is a working record of the way ideas have been developed and information gathered. The i-map can record brainstorming activities and intuitive jumps between subjects and ideas, and order logical thought processes. It can document potential sources, actual sources and references. It shows interconnection of ideas and information, the strategies used to gather, evaluate and synthesise information, and the emergent structure and planning for the final text.

A key feature of process-led forms of assessment like the portfolio, learning journal

**doing an i-map**

a typical process of enquiry leading to a written text or poster

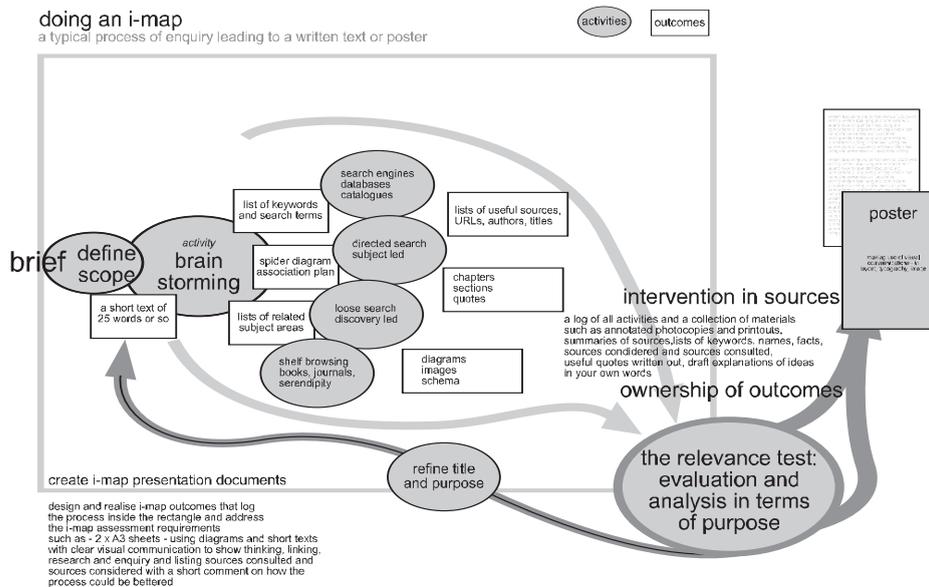
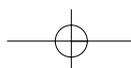
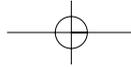


Figure 1: a model of the i-mapping process





and the i-map is that there is no set definition of what they contain. The 'open' nature of such assignments acknowledges that people have very different learning styles and they may represent them as they think best. This rationale is based on an understanding that evidence of valuable learning by students may lie outside our prior specifications. So, by leaving it open, nothing is ruled out (Rowntree, 1977, p.82). Whilst some may have concerns about the fairness and reliability of assessment if content and format are not standardised, overall we find ourselves in accord with the concept of 'fairness' outlined in the recent LTSN publication of assessment principles whereby instead of endeavouring to treat everyone the same, fairness here is manifest in the principle that everyone is given an equal opportunity to show their learning processes (Elton, 2003, p.3). In the end, this open strategy enables the diversity of students to be 'accommodated in ways that ensure equivalence if not identity of experience' in assessment (Brown and Glasner, 1999, p.12).

### Plagiarism

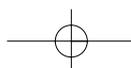
There is widespread concern about what is perceived to be a growing problem of plagiarism in higher education. Some research suggests that shifts in assessment practices from traditional unseen examinations to course work have meant that, irrespective of the advantages or disadvantages, coursework assessment is less easy to police for plagiarism. In addition, increasing class sizes mean that lecturers are now responsible for much larger groups and so are not so familiar with individual students and their capabilities (McDowell and Brown, 2001). What has been aptly dubbed 'mouse-click plagiarism' is compounded by the fact that students are now

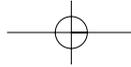
routinely required to word process their assignments and the cut-and-paste facility available on word processor software makes the compilation of an assignment look to be authored by a student irrespective of whether the necessary process of enquiry has taken place (Auer and Krupar, 2001).

Whilst there is not space to explore the complexities of the debate about plagiarism here, suffice to say that discussion tends to be framed by a binary is/is not judgment which frequently falls short of recognising the real problems of poor practice, inexperience and lack of skills in researching, planning and realizing texts. Whilst there are many shades of opinion as to why plagiarism is on the increase, researchers agree that to minimise inappropriate practices, it is important to structure assessment procedures to ensure that plagiarism becomes unworkable (McDowell and Brown, 2001). By definition the i-map is an assignment which records individual pathways of research activity which will be different for every student so it is difficult to produce anything which is not their own work, thereby providing 'proof of process' and avoiding the pitfalls of plagiarism.

### Formative and summative assessment

As a record of the enquiry, the i-map opens up the process for scrutiny. It provides a 'tool for talk' between the student and the teacher in formative assessment as well as a diagnostic tool for summative assessments. Experience has taught us that i-maps function best as part of a two-stage assignment whereby the first version provides an opportunity to feedback on the work-in-process. The final submission is then used for judgment and a grade, thereby providing a more holistic assessment of student endeavour and performance.





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Research into this staged approach to assessment concurs with our findings that the linkage of the formative and summative enables students to make a connection between improving the quality of learning and the impact this has on final outcomes (Elton and Johnston, 2002, pp.14-15).

At a time of rising student numbers when teaching staff are having to get to grips with the challenges of teaching large groups, this i-mapping process serves to generate 'individualised learning environments' for the students focused on their own processes of learning (Elton and Johnston, 2002, p.77, p.102). Most significantly, the i-map shifts the conceptualisation of assessments from a judgmental approach which produces grades, and compares students to a model of an active learning tool focused on learning and thinking processes (Baume, 2001, p. 9). Moreover, in a climate in which the generic skills of a graduate – that is to say what precisely constitutes 'graduate-ness' – are the focus of concern in the assessment process for the various stakeholders from parents to employers (Brown and Glasner, 1999, p.5), strategies such as this, which address the kinds of skills and abilities students will need not just within their studies but after university in employment, are becoming increasingly important.

### Survey

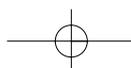
In the first stage of the research project, the i-map was piloted with groups at Level 1 and Level 2. In order to assess its impact, a preliminary survey of Level 2 students' essays, grades and feedback was undertaken. Results for the written text and i-maps were compared to assess the impact of this new form of assessment on overall grades while an

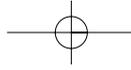
examination of feedback comments provided a picture of students' experience of information gathering and handling.

### *First impressions*

Perhaps not surprisingly, the survey confirmed that students are entering university with variable research skills, particularly in the use of the Internet. For many students, knowledge and understanding of search processes was rudimentary. Despite the fact that Learning and Information Services (LIS) provide a range of good quality information sources accessible to students and staff, popular search engines such as Google are invariably the first port of call for students in the enquiry process rather than bought-in networked journals and databases (Armstrong et al, 2001, pp.259-60). Students often lacked discernment in their choice of sources, disregarding authors' qualifications, the topicality of material and the need to triangulate commercial information. This seems to bear out the view that good research is not simply a matter of access to a networked information environment but demonstrates the urgent need to address what has been termed 'information literacy' within our courses (Webber and Johnston, 2003, p.240).

Most promising was the fact that the i-map seems to strengthen our ability to assess students' learning and capabilities. There are indications that this form of assessment supports students who may not have been exposed to the requirements, conventions and languages of formal academic practice elsewhere. In a cohort of sixty-four students, a small but significant group of eleven students demonstrated stronger levels of enquiry in their i-maps than was evident in their final essays. Moreover, five students who 'failed' the essay





demonstrated sufficient evidence of learning in their i-maps to 'pass' this assessment and so, with passes in all other assignments, were able to pass the course overall.

### *Second thoughts*

The pilot stage of the i-map assessment has not been without its snags and shortcomings. Our students have had little preparation for such a task in their previous educational experiences so, for some, this assessment task was perceived as yet other 'hoop' to jump through, adding to their workload, and so it was not always easy to persuade students to reflect on learning processes. The 'open' nature of the assessment in contrast to the academic essay defined quantitatively by word length caused some concern among students accustomed to strict assessment specifications. There was some worry that students (especially art and design students) might feel pressure to produce a creative, novel or exciting i-map and yet again product would be privileged over the process.

Innovative forms of assessment require careful introduction together with close 'scaffolded' support to enable the experience to be constructive (Darling, 2000, pp.118-19). In the early stages we had no pre-conceived idea of what the i-maps would look like. Neither had we examples of good practice to set some precedent. It is only now in our third year of using this assessment that the contours of this process are coming into focus as a result of experience.

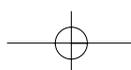
Whilst the i-map seems to be proving a useful mechanism for evidencing learning, we have to acknowledge that it has added to the burden of assessment for both staff and external examiners, which has yet more resource implications to be taken into account.

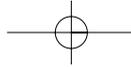
### **Conclusion**

This article has provided an account of a new approach to assessment currently being piloted on a selection of courses across the Faculty of Art and Design and elsewhere in the University. Its initial premise was to identify shifts in the process of information gathering and handling in a digital learning environment which we suggest poses new challenges for students in evaluating, understanding and using information. Further to this, we argue that these changes have implications for the ways in which these skills are taught and assessed. This strategy triggered a critique of the conventional academic essay in its present form. We suggest that it has limitations in terms of its narrow range of communication skills when considered alongside the vast range of communication modes available today and with its exclusively written form sometimes seems to disadvantage some students in contradiction of the University's equal opportunity policy which seeks to widen participation.

However, our intention is not to throw out the baby with the bath water. We acknowledge the value of the essay and have devised a complementary assessment which can be used in conjunction with the essay to document the enquiry process. The main features of the i-map were presented and considered in the light of other process-led forms of assessment working to similar principles.

To take stock of the impact of the i-map, a preliminary survey was undertaken which revealed some interesting results including the urgent need for information literacy skills to be incorporated into the curriculum. Early indications suggest that the i-map may have significant benefits for teaching and learning during both formative and summative assessments, in





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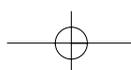
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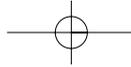
This first phase of the research project has thrown light not only on the student learning experience but on our teaching practices too. Innovative forms of assessment require careful induction, support and guidance throughout the process to ensure a positive experience. In addition, we will need to review the way we feedback to our students on their learning processes. However, to date, indications are promising and the assessment seems to have passed into course culture already when a student opened up the dialogue in a tutorial by saying, "Last week I was doing some i-mapping..."

In the next phase of the research we need to undertake a more extensive evaluation of the impact of the i-map on students' work over the three-year degree programme as well as canvas student attitudes towards this assessment. At the end of this article it seems there are as many new questions posed as answered. But then, this is a report of work in progress. So, we shall pause here and invite colleagues in the University to comment on this account, explore these approaches for themselves and contribute to the on-going debates raised by this article.

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#### Biographical notes

**Kim Walden** is Senior Lecturer in Digital Culture and Discourse in the Faculty of Art and Design. She has a background in educational research and presented the i-map project at the *2nd International CLTAD Conference Enhancing the Curricula: Towards the scholarship of Teaching in Art, Design & Communication* at the Universitat Autònoma de Barcelona in Spain in April 2004.

**Alan Peacock** is Programme Tutor for the MA Digital Practices in the Faculty of Art and Design, and leader of the Hyperfictions strand. His teaching integrates creative media practices, cultural studies and theoretical issues within a wide range of undergraduate and post-graduate programmes. An active practitioner and theorist working in new media fields, his work centres on interactivity and narrative with a particular concern for sound and the spoken word.

#### Endnotes

- <sup>1</sup> The University's Centre for the Enhancement of Learning and Teaching (CELT) cites the University-wide policy for the development of its teaching and learning activity, based on seven principles including the development of methodologies which underpin the University's strategy to widen participation and provide equality of opportunity. Available at: [http://www.herts.ac.uk/tli/policy\\_and\\_strategy/policy-strategy\\_main.html](http://www.herts.ac.uk/tli/policy_and_strategy/policy-strategy_main.html)
- <sup>2</sup> Funded by the four Higher Education (HE) funding bodies in Great Britain, the Learning and Teaching Support Network (LTSN) is a network of subject centres and a generic centre based in HE institutions throughout the UK, providing information, advice and resources on learning and teaching matters for academic and related staff in HE.
- <sup>3</sup> This graphical approach may have particular benefits for student with dyslexia. Similar strategies for what is described as 'visual learning' underpin software called 'Inspiration' available on computers in the Learning Resources Centre for students with these learning requirements.

