

Contracts: an introduction to the skills of legal writing and analysis

Dr Paul Maharg

The student cannot be *taught* what he needs to know, but he can be *coached*: 'He has to *see* on his own behalf and in his own way the relations between means and methods employed and results achieved. Nobody else can see for him, and he can't see just by being "told", although the right kind of telling may guide his seeing and thus help him see what he needs to see'

Donald Schön, *Educating the Reflective Practitioner: Toward a New Design for Teaching and Learning in the Professions*, Jossey-Bass, San Francisco, 1987, p.17, quoting John Dewey, *John Dewey on Education: Selected Writings*, R.D. Archambault, editor, (Chicago, University of Chicago Press, 1974)

1. Introduction

Contracts is a computer program designed for first year undergraduates studying Obligations in Glasgow University's School of Law, written by Paul Maharg and Professor Joe Thomson. It aims to improve students' written work by -

- introducing the skills of legal problem-solving
- illustrating the major stages of the writing process
- asking students to analyse their own writing processes
- presenting good models of legal writing and alternative strategies to achieve good practice
- enabling students to improve through practice

The program addresses the concern shared by all branches of the legal profession regarding undergraduates' legal writing and problem-solving skills. In a survey conducted in England, for example, solicitors clearly supported the teaching of both skill sets at undergraduate level (53% and 73% respectively), but were dissatisfied with the level of graduate performance in both (Bright, 1991). To address these concerns, *Contracts* focuses on the development of undergraduate writing and problem-solving skills. In so doing it calls on learning theories which

support the view that such skills can be learned via computer-based learning. Despite the general opinion that legal practitioners will more and more be using computers to communicate, there have been few other attempts to date to help students learn basic legal writing skills on computer. In this paper I describe how *Contracts* coaches students, the HCI research and models of writing underpinning the program; the results of preliminary evaluation, and future plans for the program.

2. Description of *Contracts*

The program uses *Guide Hypertext* authoring software to create a hypertext structure where students are given the opportunity to construct and control their own learning. The title window, for instance, leads students to a navigation panel or 'dashboard', and a tutorial menu. Students may then open any one of seven tutorials or 'sessions'. These consist of a tutorial on how to use *Contracts* designed for naive users, an Introduction which sets out basic problem-solving and writing skills concepts, and five skills sessions based on the Scots law of contract.¹

Contracts focuses on the *skills* of legal writing and analysis rather than substantive or black letter law. Each tutorial or 'session' requires students to have completed a certain part of the lecture course before tackling the session's main problem - session one, for instance, requires students to know about invitation to treat, *pollicitatio*, offer and acceptance, *ius quaesitum tertio* and personal bar; and students are encouraged to use their notes on these subjects while composing their essay. The session sets a problem question based on this knowledge, and introduces the student user to the skills of planning a problem question essay and using cases to substantiate legal points. Most importantly, the session gives students the chance to practise writing essays, and to compare their essays with an example essay on screen. Both problems and examples essay were written by Joe Thomson, who is the Obligations course leader.

Students start to use a session once they have completed the substantive law applicable to it in lectures and tutorials. Below is a summary of the knowledge students are expected to bring to the five sessions, and a list of the skills the students practise in each -

	legal knowledge required	focus of skills development
session 1	<ul style="list-style-type: none"> • invitation to treat • <i>pollicitatio</i> • offer • acceptance • <i>ius quaesitum tertio</i> • personal bar 	<ul style="list-style-type: none"> • planning an answer to a problem question • using cases to substantiate legal points
session 2	<ul style="list-style-type: none"> • <i>obligationes literis</i> • <i>rei interventus</i> 	<ul style="list-style-type: none"> • structuring a problem-solving essay • discussing cases in the essay

¹ The 'how-to' tutorial lasts approximately 20 minutes and is a brief guide to clicking icons, buttons and text, and the screen conventions. From casual observation I have found that this, together with a HELP menu, meets the needs of nearly all students.

	<ul style="list-style-type: none"> • homologation 	
session 3	<ul style="list-style-type: none"> • error • rescission • agency 	<ul style="list-style-type: none"> • creating a structure of legal argument • distinguishing cases
session 4	<ul style="list-style-type: none"> • frustration • breach of contract 	<ul style="list-style-type: none"> • arguing with legal principles • using judicial opinions in the essay
session 5	<ul style="list-style-type: none"> • illegality 	<ul style="list-style-type: none"> • effective reviewing strategies • when to review the essay • what to review in the essay

Once they enter a session, students typically encounter an introductory window setting the objectives of the session and then a window of simple skills explanation. They then begin to practise the writing skills in microtasks which are designed to support the session objectives. These activities, where students interact with the program and produce writing in their Write files, are intended to be the *locus* of most student learning in the program. Students are encouraged as far as possible to complete the activities, for in doing so they practise the skills, strategies and forms of writing intrinsic to legal argumentation.

The shape of the Writefile window requires some comment. It is portrait rather than the more natural landscape shape because it's important for users to be able to read both activity instructions and problem texts, and have access to their own writing with as little interference from 'program tasks' (eg keystrokes, mouse actions) as possible. In trials with two full-screen breadth landscape windows one above the other, students commented that reading text was made more difficult because of the length of line they were forced to read and because of the unusual post-box slit appearance of the window. They were also irritated at only being able to read approximately eight lines at a time. The solution was two parallel portrait windows. While some students disliked this shape of Writefile for longer activities, most felt at home with its 'notebook' feel, in most of the activities.²

Using portrait windows for both activity description and Writefile has another advantage (Maharg, 1991). Differently shaped windows on the screen perform a mnemonic function for the user. Thus the left hand portrait window, if kept solely for the purpose of activities, comes to be identified by the user with activities. User anticipation is thus fulfilled each time this window appears on screen, and navigation through the hypertext structure of *Contracts* becomes easier.

There is one unusual activity involving the Writefile which also requires comment. At one point in session five, students type into a blank screen, and thus generate writing which they are unable to see. This activity forces them to concentrate on the task of generating material and keeping it as coherent as possible, while preventing interference from the micro-tasks of reviewing which often occur when the writer stops to review. Marcus and Blau (1983) suggest that many students find this a useful activity. It's certainly one which computers are eminently adapted to provide. Students can read their writing simply by clicking a button icon in the window.

² In their study of student usage of hypermedia, Hutchings *et al* (1994) found that only 9% of students interviewed felt that a dual window set-up in their program was distracting.

The activities in *Contracts* build in a cumulative fashion on each other from session to session, the simple heuristic structure of the first session becoming more complex in the second, with more extended activities appearing in the third, and so on. This structure is mirrored in the plan of the activities within each session, going from small-scale to larger-scale, each one building on the last. The program tries to avoid presenting students with the Scylla and Charybdis of boredom (with tasks that are too easy) and frustration (with tasks that are too difficult). Above all, the activities seek to stimulate in students an awareness that certain skills are necessary to carry out certain tasks in writing, and that these skills are within their grasp. In doing so the program seeks to avoid imposing rigid rules on the student's already formed writing process.

There are basically three types of activities in the program:

i. *reflection* within the session.

These activities ask for student response, but generally require no writing in the Write file. They are always small-scale, and help describe or stimulate strategies and ideas about writing which the students can carry out and develop in the larger activities.

ii. *writing* within the session, carried out in the Write file

As one would expect, these constitute the bulk of the activities, and students will spend more time on these than on anything else in the program. They range from composition - planning, generating first drafts, reviewing and so on - to analysis of writing, including comment on their own and other students' essays.

Where possible, the same texts are used in more than one session for purposes of analysis. This repetition has the advantage that students need not familiarise themselves with a new text in each new activity. Students can thus usefully focus on practising the writing skill - *how* to say it - while the difficulty of criticising a new text - *what* to say - is minimised. It also has the advantage that students can occasionally re-draft and use their writing generated in previous sessions.

iii. *comparison* with the example answer.

When students have written their essay on the problem question, they are invited to compare an essay written by Professor Joe Thomson with their own. This essay is tagged with 'buttons' which contain Paul Maharg's comments on its rhetorical structure and which reinforce the session's objectives. The program treats these essays as example, not model answers. The point of *Contracts* is entirely lost if students are encouraged to copy a rhetorical style without understanding the structures and reader expectations of the genre. Students are therefore encouraged to question and break down the example answer so as to perceive the rhetorical rules which govern the composition. They are also asked to compare the example essay with their own and other student texts.

3. The heuristic models in *Contracts*

The program derives its educational theory from a number of sources. First, the program is based on the ancient rhetorical tradition of *imitatio*, versions of which were advocated by Cicero and Quintilian, rediscovered in the Renaissance by, amongst others, legal commentators. This

heuristic tradition has undergone considerable development recently in HCI research. In the field of programming for instance, Pirolli and Anderson (1985) observed that examples played a critical role for students learning concepts in programme languages, while Kessler and Anderson (1986) went on to postulate that learners learned effectively when they were able to construe correct mental models of examples. In a similar vein, Chi *et al* (1989) observed that students learn efficiently from examples if they take the time and effort to explore and explain the examples to themselves as they learn. These studies suggest that if students are made aware of the meta-skills in the programming domain, then they can develop good mental models of the examples which they can then transfer to other tasks. The principle underlying problem-solving by analogy in the field of programming is applicable also to the complex and ill-structured field of legal writing skills and problem-solving.³ If the meta-skills which lie behind the productions of Joe Thomson's example essay are made apparent to students as tools which can be used in their own writing to create better legal argument and more persuasive essay structures, then the examples become powerful heuristic devices.

The second source is the growing literature on reflective practice and constructivism. In that legal writing, like all writing, is often an 'indeterminate zone of practice', the concept of the reflective practitioner is particularly relevant; and indeed reflective practice is one aim of the program (Schön, 1988, p.6). For Schön, professional artistry is a form of 'reflection-in-action', and it plays a central role in the description of professional competence. Such reflection-in-action is a self-conscious construction and *reconstruction* of the world:

when practitioners respond to the indeterminate zones of practice by holding a reflective conversation with the materials of their situations, they remake a part of their practice world and thereby reveal the usually tacit processes of worldmaking that underlie all of their practice. (p.36)

Schön's work is one variant of the constructivist approach to learning, which broad camp includes Ausubel's work on 'advance organisers', (Ausubel 1963), recently elaborated by Novak and Gowin (1984); metacognition theorists such as Osman and Hannahm (1991); and the cognitive flexibility hypertexts advocated by Spiro *et al* (1988; 1989; Duffy & Jonassen, 1992). Such work emphasises landscape criss-crossing, active participation in learning and faded control by the program as the user progresses through it.

4. Models of writing and the CBL background to *Contracts*

Since the early seventies the study of writing has moved focus from the finished product to the process of composition. Writing is now seen by researchers as a complex and difficult task, one which involves juggling multiple constraints and one in which there are diverse ways to produce what a discourse community would acknowledge as expert text (Bizzel, 1982). This view has emerged from the descriptive accounts and models of the writing process in the work of cognitive psychologists such as Flower and Hayes (1981; 1981; Flower, 1989). Their models treat writing not as a linear process of fixed stages, each with a defined product, but as a fluid

³ It is interesting to note in this respect that, as Witte & Cherry (1994) point out, the early work of Flower and Hayes on composition was influenced by the work of Newell and Simon on problem-solving

activity, pre-eminently recursive, a continuous process of generating and revising. It is a persuasive view, offering plausible explanations for the differences between expert and inexperienced writers, and enabling writers to improve their practice by helping them to understand their writing manoeuvres and, where appropriate, encouraging them to adopt alternative writing strategies.

More recently, these models have been influenced by the research into 'situated cognition' (Brown, Collins and Duguid, 1989) and the realisation that the particular context for symbolic representations heavily affects both generation and reception of meaning. Thus, with reference to undergraduate writing, Bartholomae (1985) pointed out the difficulties for students in negotiating the roles and demands of a university; while the recent work of Flower and Hayes focuses on the effect that particular contexts have on the cognitive processes involved in writing (Flower, Schriver, Carey, Haas & Hayes, 1992; Witte, 1992; Witte & Cherry, 1994)

While there has been little direct cross-over between this cognitive research and legal writing instruction, legal academics have for some time now conducted their own critique of the quality of legal writing and its instruction. Most of the responses come from American academics, who are - rightly - concerned about the traditional attitude adopted by legal academics towards student writing. Many (Achtenberg (1975), Gale (1980), Boyer (1988), Cox and Ray (1990), Neumann, (1990) amongst others) record 'faculty disdain for the subject matter and administrative dislike of the expense' of legal writing courses (Gale, pp.317-18). Some academics go further in their criticism. In a powerful article, for instance, Philip Kissam (1987) suggests that law schools have inculcated narrow, legalistic attitudes towards language by failing 'to employ the writing process as an effective learning device'. Concentrating their assessment on substantive black-letter law and the finished product, Kissam argues that law lecturers give students the illusion that authority, *auctoritas*, is to be found in legal language itself, and less in a lawyer's - and law student's - own analysis of a problem. As a result, students adopt a formalistic approach in which the polyphonic nature of legal discourse is stifled.

It is a subtle and persuasive argument, one to which other legal academics have responded and elaborated for themselves (eg Hodges 1988). It is also one that finds many parallels in the cognitive research of Flower and Hayes, and many other writing researchers. The problem is recast in different terms in UK reports and documents ranging from the Marre Report and HMI Reports (1990) to HEFCE Quality Assessment Reports (1993-4), and all with similar inferences: namely, that students ought to be given the opportunity to learn the complex process of legal reading, writing and research skills, and that it is the duty of faculty to see that this is done competently and effectively using a range of heuristic methods.

Contracts is one attempt to do just this. It presents strategies of good writing practice based on the model created by Flower and Hayes; but it also takes into account the criticisms of this model made by other writing researchers, notably Scardamalia, Bereiter & Goelman (1982) and Sharples (1989). It enables students to understand legal writing as an iterative process, and encourages them to experiment with different techniques, but it also sets students' writing tasks within the social and organisational context of Glasgow University's Law School, and specifically of the undergraduate Obligations course. It gives examples of both expert and inexperienced writing, but it also describes strategies to deal with rhetorical aspects of legal writing

unfamiliar to undergraduates (eg citation of cases, construction of legal argument). Above all, it stresses that black letter law is not enough: the skills of legal problem analysis and legal writing are essential to the profession and must be learned and used to produce critical, reflective practice.

If the model of writing which the program espouses is important, so too are the principles of computer-based learning design (CBL) which underpin the structure of the program. There are two basic features of CBL which determine the form and content of *Contracts*:

i. *the program emphasises procedural skills and strategies*

Cognitive scientists refer to knowing the terms and structure of a subject as tacit knowledge, and the manipulative skills used in that subject as procedural knowledge. Learning and teaching tacit knowledge is generally acknowledged to be less problematic than learning procedural knowledge. Thus manipulating the tacit knowledge of writing and problem-solving skills while actually manipulating law requires reflection and practice if it is to be done well by novices - for instance, in coping with relatively unfamiliar legal technical terms and the difficult prose of case law, identifying important factual information in a problem and applying legal rules to it. Yet if it is more difficult to teach the procedural skills of writing than the tacit knowledge of it, it's also essential. Writing and problem-solving are above all practical activities, and the teaching of them is pointless if it consists of merely didactic advice. Any attempt to teach them must therefore foreground practice, and present strategies and models in such a way that a student can understand and practise these, and take what he or she wants from them.

In order to teach procedural skills, the complex task of writing academic prose is broken down into a series of manageable units. This is essential for computer as well as human memory; but it also serves to clarify for the student the skill structure of the writing task and, by implication, the criteria against which performance should be matched. Thus, within each session in *Contracts* the skill area is defined and analysed, and students perform activities in order to practise specific skills. These skills are based on what are generally perceived by cognitive theorists to be common problems in students' writing, eg -

- they don't see any tonal, structural or genre dissonance in their writing
- they can sense a problem, but can't define it, or work out a solution
- they lose sight of purpose &/or audience
- they can carry out some revision processes, eg adding details to support generalisations, but not others, eg qualifying
- they don't know which revision process to carry out at certain points in their writing
- they may block their revising processes because they're too apprehensive about their writing

ii. *procedural strategies are always alternatives*

But if the program focuses on common problems in student writing, it does not insist on panaceas. Students are given models and strategies and asked to apply them, in order to try them out for size. It is, after all, one of the basic points to arise from process-centred research that there are many ways to produce expert texts. Some researchers, for example, see dichotomies between Planners and Discoverers, or between 'classical' and 'romantic' positions, as typified by

the contrast between the compositional habits of Mozart and Beethoven. Others such as Sharples see both Planners and Discoverers as 'pathological (though in exceptional cases very successful) writing types', and advocate a model where, 'for most writers, creativity arises from a rhythmic cycle of engagement and reflection'.⁴ This latter approach is the one adopted in *Contracts*.

Learning, however, seldom occurs in a simple additive or serial manner, and certainly not in a subject as complex as writing. If *Contracts* is highly structured to accommodate different writing styles, it also stimulates students to develop their own ways of structuring and organising new learning. It encourages students to criticise not only their own and others' writing, but the program's own feedback and models of good writing.

5. *Contracts* and the Obligations course

No educational software can function well unless syllabus and curriculum contexts are taken into account. *Contracts* has been designed to be incorporated into the students' mainstream course work in Obligations. Tutors can play a valuable role by -

- discussing the program with students - for example analysing and expanding on the objectives of the program and the strategies presented in it
- basing tutorial activities on the writing and problem-solving micro-tasks in *Contracts*
- using each session's problem question as a tutorial activity - for example, writing an alternative answer to the problem, or taking a student's essay and comparing it to Joe Thomson's on-screen essay. This tutorial activity could take place in a tutor's room (with both essays printed out for students) or in the computer lab, with students (one or two to a workstation) comparing Joe Thomson's on screen essay with a hard-copy alternative
- helping students to analyse their own and others' work
- commenting on and marking the essays written by students using the program, and following up the program's objectives in the students' later work

Tutors on the Obligations course are encouraged to integrate the program with their substantive law teaching so that students will treat the program as an integral part of their Obligations course, and not merely a voluntary or remedial course for poor writers. Students seldom undertake voluntary work when they have so much to cope with already, and those who know they are poor writers will probably not risk what they may see as another potential blow to their already damaged self-esteem by using the program. In any case the program has not been designed as a remedial course in writing: it is an introduction to the skills of essay writing which, in a discipline as new to students as law is, could benefit all students. Just why this needs to be so will be apparent if we remember what happens to most student essays at the assessment stage. Summative assessments of undergraduate problem-solving essays rarely take account of students' abilities to structure and organise their writing. Often only when an essay is exceptionally poor will a student's ability to produce a legal text be discussed, and then only in a

⁴ Mike Sharples, 'Computer Support for the Rhythm of Writing', paper delivered at Computers and Writing Conference, March 1993.

remedial context. As a result, students aiming to achieve assessment objectives think of writing as all content; and rarely consider the process of text generation: content entirely eclipses it.

6. Evaluation of the program

The program was put on-line initially on a pilot basis and students were recommended to use it. It underwent its first evaluations in the summer of 1994. Two students were videotaped using the program in 'think-aloud' protocols. The program interface was revised in the light of student actions and comment. Questionnaires were also issued and analysed: short questionnaires, to those students in the Obligations class who had not used the program, and more detailed questionnaires to those students who had. Four students completed the longer, ten-page questionnaire. They all reported that *Contracts* had clarified the legal writing tasks they were asked to undertake in first year Obligations, and that the program had given them more confidence in their abilities to solve legal problems and construct legal argument.

This is encouraging, but the evaluation process is continuing, and in the future will include other universities. *Contracts* is already in use in the Department of Law and Public Administration at Glasgow Caledonian University and has been put on-line in Strathclyde University's Law School. Further evaluations *via* questionnaire will be carried out at these sites. We will thus be seeking responses from a larger group of students, and hope to set up an evaluation whereby tutors will use a competence grid to assess the individual skills learned in each session, and will use this grid to mark the students' written competence. The program will also be assessed by a data log where appropriate.

While using these evaluatory methods will give us some indication as to the effectiveness of the program's immediate aims, it is difficult to assess the longer term effects of the software. We would hope that the writing and problem-solving skills which students learn from the program are transferable, in that they will be applied across the legal curriculum. We would also hope that these skills are a basis for the more advanced skills which students will learn in their Honours years when they undertake more sustained critical analyses of law and legal theory. Emphasising reader-centred rather than writer-centred prose as they do, these skills may also serve as a foundation for the drafting and communication skills of the legal practitioner.

7. Future directions

The next version of *Contracts*, to be ready by autumn 1996, will include the following features:

i. concept mapper and text outliner

As Patric Holt (1992) has pointed out, most commonly available software tools concentrate on text generation and low-level editing: grammar-, spell-checkers and the like. Yet, as Flower and Hayes, Matsuhashi, Sharples and many other process-oriented researchers have been showing since the late seventies, any cognitive model of writing reveals the importance of planning and organisation in the generation of text. At the moment, students are poorly served: most word

processors have outliners, but users require to switch software if they want to use tools such as concept mappers, text annotators, or if they want to create notes, topic lists and topic maps, outlines and argument structures.

What is required is an environment which will support both writing and problem solving. This is particularly relevant to law students because the processes of problem-solving and writing are almost inextricable. **Over the past decade the literature describing prototypes has grown considerably, and most of it proves that concept mappers can create this environment (Englebart, 1988; Reader & Hammond, 1994).** Recent examples include the Writer's Assistant (Sharples, 1989), Xerox EuroPARC's DigitalDesk, Designer's Notepad (Twidale, Rodden and Sommerville, 1994). *Contracts* will use an auto-monitoring tool developed by a Teaching and Learning Technology Project based at Strathclyde and Heriot-Watt Universities. This tool combines a text outliner with a concept mapper in which users can construct their own web of inter-connected concept nodes. The program will, *inter alia*, enable students to

- associate new ideas with existing ideas
- make an initial, rapid dump of ideas
- make global revisions
- clarify the emerging structure of their writing
- annotate the learning or writing process
- diagrammatize argument by illustrating cause and effect and analogy.

ii. session maps

Navigation is a perennial concern in any hypertext structure. In the evaluation questionnaires students noted that they occasionally forgot where they had reached in the *rhetorical* structure of the sessions, although they were not physically lost. In other words, they knew what they were working on, and knew what to do next in the way of clicking buttons; but they were unsure in which direction they wanted to go. Under these circumstances a user's planned learning quickly becomes browse-learning, and individual initiative is lost. To prevent this, each session will have its own 'rhetorical map' which will provide an overview or 'terrain view' of the session's objectives, activities and feedback. Users will be able to click on a node and go to that particular window, should they wish.

8. References

Achtenberg, B.(1975). Legal Writing and Research: the Neglected Orphan of the First Year. *University of Miami Law Review*, 218-43

Ausubel, R. (1963) *The Psychology of Meaningful Learning*. New York: Grune & Stratton

Bartholomae, D. (1985). Inventing the university. In M. Rose (ed), *When a Writer Can't Write: Studies in Writer's Block and Other Composing-process Problems* (134-65). New York: Guilford Press

- Bizzell, P. (1982) Cognition, convention, and certainty: What we need to know about writing. *Pre/Text*, 3, 213-43
- Boyer, Allen (1988). Legal Writing Programs Reviewed: Merits, Flaws, Costs, and Essentials, *Chicago-Kent Law Review*, 62, 23-51
- Bright, Susan (1991). What, and how, should we be teaching? *Law Teacher*, 25, 1, 11-25
- Brown, J.S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher*, 18 (1), 32-42.
- Chi, M.T.H., Bassok, M., Lewis, M., Reimann, Glaser, R. (1989). Self-Explanations: How Students Study and Use Examples in Learning to Solve Problems. *Cognitive Science*, 13, 2, pp. 145-182
- Cox, Barbara J. and Mary Barnard Ray (1990), Getting Dorothy out of Kansas: the importance of an advanced component to legal writing programs. *Journal of Legal Education*, 40, Summer, 351-61
- Duffy, Thomas M., and Jonassen, David H., (1992) eds, *Constructivism and the Technology of Instruction: A Conversation*. Hillsdale, NJ: Lawrence Erlbaum Associates
- Engelbart, D., (1988) A Conceptual Framework for the Augmentation of Man's Intellect. In Greif, I., (ed), *Computer-Supported Co-operative Work: A Book of Readings*. San Mateo, Morgan Kaufmann Publishers Inc.
- Flower, L.S.(1989). Cognition, context, and theory building. *College Composition and Communication*, 40, 282-311
- Flower, L.S., Hayes, J.R., (1980) Identifying the Organisation of Writing Processes. In Gregg, L.W. & Steinberg, E.R. (eds), *Cognitive Processes in Writing*. Hillsdale, NJ: Lawrence Erlbaum Associates
- Flower, L.S., Hayes, J.R., (1981) Plans that guide the composing process. In C.H. Frederiksen and J.F. Dominic (eds), *Writing: The Nature, Development, and Teaching of Written communication* (vol. 2, pp.39-58). Hillsdale, NJ: Lawrence Erlbaum Associates
- Flower, L.S., Schriver, K., Carey, L., Haas, C., & Hayes, J.R. (1992). Planning in writing: The cognition of a constructive process. In S.P. Witte, N. Nakadate, & R.D. Cherry (eds), *A Rhetoric of Doing: Essays on Written Discourse in Honor of James L. Kinneavy* (181-243). Carbondale: Southern Illinois University Press.
- Gale, R. (1980), Legal Writing: the Impossible Takes a Little Longer, *Alabama Law Review*, 298
- HEFC (1994) Subject Overview Report, QO 1/94, *Quality Assessment of Law 1993-4*

HMI Report, *A Survey of Undergraduate Legal Education, 1987-90*

Hodges, E.P., (1988). Writing in a Different Voice. *Texas Law Review*, 66, Fall, 629-40

Holt, P. (1992). User-centred design and writing tools: designing *with* writers not *for* writers. *Intelligent Tutoring Media*, vol.3, No.2/3, May/August

Hutchings, G.A., Hall, W., & Thorogood, P., (1994). Experiences with hypermedia in undergraduate education. *Computers in Education*, 22, 1/2, 39-44

Kessler, C.M., Anderson, J.R., (1986), 'Learning Flow of Control: Recursive and Iterative Procedures', *Human-Computer Interaction* 2, pp.135-66

Kissam, Philip C. (1987) Thinking (By Writing) About Legal Writing, *Vanderbilt Law Review*, 40 (January) 135-73

Maharg, Paul, (1991), *WriteGuide* and *ReportGuide*: hypertext writing programs. In Anderson, J. & S. Lee (eds), *The STELLA Symposium: Computers in Teaching and Research in English* Oxford: Oxford CTI Centre for Textual Studies, 18-22

Marcus, Stephen and Sheridan Blau (1983), Not Seeing is Relieving: Invisible Writing with Computers, *Educational Technology*, April 1983, 12-15

Neumann, R.K. (1990) *Legal Reasoning and Legal Writing*. Boston: Little, Brown & Co

Novak, J.D., & Gowin, B.D., (1984). *Learning How to Learn*. Cambridge: Cambridge University Press, 1984

Osman, M.E., & Hannahm, M.J. (1991). Metacognition Research and Theory: Analysis and Implications for Instructional Design. *Educational Technology Research and Development*, 40 (2)

Pirolli, P.L., & Anderson, J.R., (1985). The role of learning from examples in the acquisition of recursive programming skills. *Canadian Journal of Psychology*, 39, 2, pp.240-72

Reader, W., & Hammond, N., (1994). Computer-based tools to support learning from hypertext: concept mapping tools and beyond. *Computers in Education* 22, 1/2, 99-106

Scardamalia, Marlene, Bereiter, Carl, Goelman, Hillel, (1982). The Role of Production Factors in Writing Ability. In Nystrand, Martin (ed) *What Writers Know: The Language, Process, and Structure of Written Discourse*. New York: Academic Press

Schön, D., (1988). *Educating the Reflective Practitioner*. San Francisco, Jossey-Bass Publishers

Sharples, M. & Pemberton, L., (1989). Representing writing: an account of the writing process with regard to the writer's external representations. *Cognitive Studies Research Paper No.119*, School of Cognitive and Computing Sciences, University of Sussex,

Spiro, R.J., Coulson, R.L., Feltovich, P.J., and Anderson, D.K. (1988). Cognitive flexibility theory: Advanced knowledge acquisition in ill-structured domains. In *The Tenth Annual Conference of the Cognitive Science Society*, Hillsdale, NJ: Lawrence Erlbaum Associates

Spiro, R.J., Coulson, R.L., Feltovich, P.J., and Anderson, D.K. (1989). Multiple analogies for complex concepts: Antidotes for analogy-induced misconception in advanced knowledge acquisition. In S. Vosniadou and A. Ortony (eds), *Similarity and Analogical Reasoning* (pp.498-531). Cambridge, Cambridge University Press.

Twidale, M.B., Rodden, T., & Sommerville, I., (1994). The use of a computational tool to support the refinement of ideas. *Computers in Education* 22, 1/2, 107-118

Witte, S.P. (1992). Context, text, intertext: Toward a constructivist semiotic of writing. *Written Communication*, 9, 237-308

Witte, S.P., & Cherry, R.D. (1994). Think-aloud protocols, protocol analysis, and research design: an exploration of the influence of writing tasks on writing processes. In Peter Smagorinsky, (ed) *Speaking About Writing: Reflections on Research Methodology* (pp.20-53). London, Sage Publications