



**REVIEW**

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**January 2004**

**A systematic review of the  
impact of ICT on  
literature-related literacies  
in English, 5-16**

*Review conducted by the English Review Group*

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# ACKNOWLEDGEMENTS

The EPPI English Review Group and this specific set of reviews are part of the initiative on evidence-informed policy and practice at the EPPI-Centre, Social Science Research Unit, Institute of Education, University of London, funded by the Department for Education and Skills (DfES). Particular thanks go to Diana Elbourne, Rebecca Rees, Katy Sutcliffe, Jo Garcia and all members of the EPPI-Centre team.

The Review Group acknowledges financial support from the DfES via the EPPI-Centre and via core institutional research funding from the Higher Education Funding Council for England, and from the Department of Educational Studies at the University of York. It is working within a University of York context where the National Health Service Centre for Reviews and Dissemination, the Department of Health Sciences, the Social Policy Research Unit and the The Centre for Criminal Justice, Economics and Psychology are major players in evidence-informed research.

The authors would also like to acknowledge the work of Carole Torgerson and Alison Robinson in providing expert help on the methodological and administrative aspects of the review; Dodi Beardshaw for proof-reading; and Nancy Rowland for advice on a dissemination strategy.

# LIST OF ABBREVIATIONS

BECTa	The British Educational Communications and Technology Agency
BEI	British Education Index
BFI	British Film Institute
BPRS	Best Practice Research Scholarships (England and Wales)
CD-Rom	Compact Disc, Read-Only Memory
CAI/CAL	Computer-Assisted Instruction/Computer-Assisted Learning
CALL	Computer-Assisted Language learning
CPD	Continuing Professional Development
CT	Controlled Trial
DfES	Department for Education and Skills (previously DfEE: Department for Education and Employment) (England and Wales)
EAL	English as an Additional Language
EFL	English as a Foreign Language
EPPI	Evidence for Policy and Practice Information and Co-ordinating Centre
ERIC	Educational Research Information Clearinghouse (USA)
ESL	English as a Second Language
ESOL	English for Speakers of Other Languages
GCSE	General Certificate of Secondary Education (England and Wales)
ICT	Information and Communication Technologies
ITT	Initial Teacher Training
L1	First/mother language
L2	Second/later acquired language
NHS CRD	National Health Service Centre for Reviews and Dissemination (UK)
OECD	Organization for Economic and Collaborative Development
OfSTED	Office for Standards in Education (UK)

PC	Personal computer
QCA	Qualifications and Curriculum Authority (England and Wales)
RCT	Randomised Controlled Trial
REEL	Research Evidence in Education Library
SEN	Special Educational Needs
SIGLE	Source for Information on Grey Literature in Europe
SSCI	Social Science Citation Index
TESOL	Teaching English to Speakers of Other Languages
TTA	Teacher Training Agency (England and Wales)
VCE	Victoria Certificate of Education (Australia)

This report should be cited as: Locke T, Andrews R (2004) A systematic review of the impact of ICT on literature-related literacies in English 5-16. In: *Research Evidence in Education Library*. London: EPPI-Centre, Social Science Research Unit, Institute of Education.

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# SUMMARY

## Background

The broad background to this review is that there is a growing concern internationally that the investment in Information and Communication Technologies (ICT) in schools is not impacting on literacy development. This concern arises from a belief held by many – including governments as well as schools – that ICT *is* beneficial to learning and specifically literacy learning. The question is a specific one and has to be seen within a wider political, social and technological context in which the symbiosis between new technologies and new literacies (and thus literacy learning) is acknowledged.

In this systematic in-depth review of the impact of ICT on literature-related literacies in English, 5-16, Locke and Andrews set out to determine – as far as they could, given the range of research available and the conceptual complexities of the field – the nature of the impact of what have become known as new technologies within a wider notion of the symbiosis between ICT and literacies.

The background anticipates that research studies of the impact of ICT on literature-related literacies are thin on the ground. It sets out key definitions and explores the conceptual issues in the present review, supplementing the generic part of the report in this regard. It also summarises briefly the policy, practice and research background. The review uses systematic research review methodology developed by the EPPI-Centre, as described in the generic part of this report.

## Aims

The overall aim of the two-year project is to determine the impact of ICT on literacy learning in English for 5-16 year-olds.

The aim of the in-depth sub-review is to determine the impact of ICT on literature-related literacies.

## Review questions

The overall research question for the two-year project is: 'What is the impact of ICT on literacy learning in English, 5 – 16?'

The research question for this sub-review is:

***What is the impact of ICT on literature-related literacies in English, 5-16?***

## Structure of review

The structure of this review is unusual in that it includes a *two-stage* 'mapping' process, followed by an in-depth review.

In the **descriptive map of the overarching review**, the process of identifying, including and characterising the studies for the systematic review of the *impact* of the ICT on literacy learning, is described. This map is an updated version of the original map described in Andrews *et al.* (2002). In total, a series of five sub-reviews have been undertaken to address aspects of the original research question. In the present review, the **literature-based literacies map** describes the process of identifying, including and characterising the studies for one of the five sub-reviews.

## Methods

### Overarching descriptive map

#### ***Defining relevant studies for the descriptive map of the overarching review: inclusion and exclusion criteria***

The earlier systematic review (Andrews *et al.*, 2002) mapped the research on the impact of ICT on literacy learning in English, 5-16. The relevant research was searched for, located, sent for and mapped for the years 1990-2001. In addition to updating the searches for the period 2001-2002 and screening for inclusion of any potentially relevant studies for the period 2001-2002, all the included studies in the original map were re-keyworded, using revised generic and review specific keywording sheets. The English Review Group working document (Appendix 2.1) for the inclusion and exclusion of potentially relevant studies was updated to reflect changes made to the keywording sheets, both generic and review specific. (See Appendix 2.1 for the inclusion/exclusion criteria for the descriptive map of the overarching review.)

#### ***Defining relevant studies: inclusion and exclusion criteria***

The English Review Group working document for the inclusion and exclusion of potentially relevant studies was updated to reflect the changes made to the keywording sheets, both generic and review specific.

#### ***Identification of potential studies: search strategy***

The potential studies for this review were identified through an updating of the original electronic searches and handsearches.

#### ***Screening studies: applying inclusion and exclusion criteria***

The updated database for 2002-2003 that included potentially relevant studies published after October 2001 was screened by a member of the review team (CT) using titles and abstracts and the updated working document with inclusion and exclusion criteria.

#### ***Characterising included studies: EPPI-Centre and review-specific keywording***

All the studies included in the original database from the review of 2001 were re-keyworded by members of the Review Team using the new guidelines from the EPPI-Centre (EPPI-Centre, 2002a). The studies retrieved for the updated database were keyworded by a member of the Review Team (CT), with assistance from other members of the Review Team and the EPPI-Centre where there was any doubt about keywording. The database was fully annotated with the keywords by another member of the team (AR). For pragmatic reasons, the database for 2002 was closed on 30 November 2002. Any studies received after that time will be included in the next update.



**Identifying and describing studies: quality assurance process**

For the purposes of quality assurance, two members of the Review Team (RA and SB) and one member of the EPPI-Centre (DE) screened a random sample (10%) of the studies (screened by CT) in the updated database. Screening was undertaken independently, using the inclusion/exclusion criteria working document. After double-screening, the inter-rater reliability scores between CT and RA, CT and SB, and CT and DE were calculated using the Cohen's Kappa.

**Sub-review on literature-based literacies****Screening and keywording**

First, the updated (2002-2003) database for all the studies on the impact of ICT on literacy learning was screened (CT). This database included all potentially relevant studies published after 2001 as well as those that appeared between 1990 and 2001. Then studies keyworded as literature-related were re-screened by Terry Locke and Richard Andrews. For purposes of quality assurance, two members of the review team (RA and SB) and one member of the EPPI-Centre screened a random sample (10%) of the studies in the updated database.

For keywording, a random sample from the updated database of 18 papers was double-keyworded by two members of the EPPI-Centre (DE and KS). Two reviewers (GL and RA) independently re-screened the studies retrieved from the database and then compared results. All disagreements were resolved without recourse to further EPPI-Centre involvement.

**In-depth review**

Data-extraction was undertaken by two reviewers (TL and RA) working independently, using the 2002 version of EPPI Reviewer. Any disagreements were discussed and resolved. Any included studies that were data-extracted in the 2001-2002 review on networked ICT (e.g. Love, 1998) were re-data-extracted.

The four criteria for weighing the evidence of research were used to gauge the quality of evidence: the methodological quality of each study (A), the appropriateness of research design for answering the review question (B), the relevance of the particular focus for addressing this question (C) and the overall weight of evidence in the light of responses to the first three criteria (D). In respect of the second criterion, a detailed list of issues to bear in mind was drawn up and is listed in the full report.

**Narrative synthesis**

A narrative synthesis was undertaken, including the weight of evidence judgements as set out above. No meta-analysis was possible in the case of this in-depth review because of the largely qualitative nature of the evidence. Publication bias was not addressed as it was not possible to draw a funnel plot on the basis of the evidence gathered.

**Results****Overarching descriptive map: results**

A total of 2,319 potentially relevant reports were identified for the current review. Of these 2,319 reports, 1,891 (just over 81%) were excluded by screening titles and/or abstracts and 428 were sent for. Of the 428 reports, 34 (fewer than 8%)

were not received within the timeframe of the review or were unavailable. A reading of the full report resulted in the exclusion of a further 182 reports, leaving a total of 212 that met the criteria for inclusion in the mapping study.

### **Quality assurance results**

#### **Screening**

The inter-rater reliability score between CT and RA was 0.65 (good); the inter-rater reliability score between CT and SB was 0.39 (fair); and the inter-rater reliability score between CT and DE was 0.36 (fair). CT and RA were initially less inclusive, possibly because of greater experience of screening educational databases. SB and DE were consistently more cautious in excluding papers in the initial screening, including papers where there was any doubt.

#### **Keywording - EPPI-Centre generic keywording sheet**

Inter-rater agreement was very high. Out of a total possible 180 'keywords', disagreement occurred in only 30 keywords (i.e. 16.7%).

#### **Keywording - English Review Group ICT and literacy keywording sheet**

Agreement was again very good. Out of a total possible 794 keywords, disagreement occurred in 88 cases (i.e. 11%).

### **Sub-review on literature-based literacies: results**

#### **Synthesis**

Twelve studies were identified as relevant to the focus of the in-depth review on the impact of ICT on literature-based literacies. Of these, half were from the US and half from Australia/Canada. One-half focussed on the primary years, with 40 percent on the secondary years and the others bridging the two phases. One-third of the studies explored conceptual and other relationships, while two-thirds were research-manipulated or naturally-occurring evaluations.

The twelve studies were distilled to seven on further analysis. Four studies were excluded as insufficiently focussing on literature-related aspects of literacy, and one on the basis that it was insufficiently focussed on evaluation.

The weight of evidence of the remaining studies that formed the basis of the in-depth review was high to medium overall.

### **Conclusions: in-depth review**

A common theme emerging from the research studied is that teachers matter more than technology. 'Impact' is mediated by teachers, and specifically by the discourses that teachers and students use. The actual outcomes of the two-way relationship between ICT and literature-related literacy learning are determined by a third factor: the ideology, values and practices of the teacher or teachers who set up the interaction.

Another firm finding is that there is a mismatch between commercially available multimedia literature software packages and response-based teaching. However, two studies indicate the possibility of multimedia literature-based software packages that encourage both literary reading and writing. A number of studies reviewed comment on motivational aspects of impact when ICT is introduced into the literature programme. There is, however, a suggestion that duration of

exposure to a technology can affect motivation, and that there may be a connection between de-motivation and cognitive aspects of what happens when readers engage with digital texts structured in certain ways. Other themes this review have identified are e-credibility and a need for more emphasis to be given in future research on literary *writing* (in contrast to literary *reading*) as a focus for classroom practice and research.

A number of studies specifically frame literature-based literacy within a response-based-tradition and assume a degree of orthodoxy in this position, especially in the US. Others confirm a more problematic status for literature as a category and assume, for example, that as a category it has expanded beyond print-based mediation. It is also a common thread that a carefully conceptualised account of literature-based literacy lends itself more easily to the identification of desirable learning outcomes, with both social and cognitive dimensions. A number of the studies suggested positive ways in which ICT can foster collaborative meaning-making *around* texts. There was less deliberate focus on the ways in which cognitive aspects of textual response might change as texts become transformed technologically or in response to new, digitally mediated text forms.

On the basis of these findings, this report indicates the problematical nature of literature, the changing nature of all texts (including 'literary' ones) and textual practices under technological pressure, the problematic nature of narrowly conceived learning outcomes, and the mediation of pedagogical discourses. It concludes that these implications are relevant to policy, practice and the future research agenda.

# 1. BACKGROUND

The impact of ICT on literacy learning in English is a topical and important issue. There is a need for a systematic review of research in this field, not least because governments worldwide are investing heavily in the provision of hardware and software to educational institutions as well as in the training of teachers and students of all ages in the application of ICT in literacy learning.

Between March 2001 and June 2002, the English Review Group carried out the first part of a systematic review in attempting to answer the overall question 'What is the impact of ICT on literacy learning in English, 5-16?' Having mapped the research literature, the first in-depth review focussed on *networked* ICT (i.e. email and the internet). The second part – which is the focus of the present report – looks at a number of other in-depth (sub-) reviews that investigate aspects of the impact of ICT on literacy learning; effectiveness (by identifying and synthesizing all the randomised experimental research); moving image; literature-related literacies; and software packages for teaching language and/or literature in English as a first and/or additional language.

The background to the present second part of the overall review is set out in the report<sup>1</sup> of the first part:

'There is particular significance in the selection of such a topic for education policy in England and Wales. The year 2003 marks the end of the New Opportunities Fund/Teacher Training Agency initiative on training teachers in the subject application of ICT. A computer-literate teaching profession will need to know about the impact of ICT on literacy learning in order to encourage the best use of resources in the raising of literacy standards. Policy-makers will need to know the results of our research in order to shape future policy with regard to ICT in the curriculum. Parents concerned about their children's education in the digital/information age will find the results of the study useful, especially with regard to the home/school dimension. So too, young people might find the study helpful in avoiding unnecessary time spent with practices that are less than useful or enjoyable' (Andrews *et al.*, 2002, p 1).

The overall aim of the present and related reviews, then, remains to determine the impact of ICT on literacy learning for 5-16 year-olds.

Research studies on the impact of ICT on literature teaching and learning are likely to be few in number, partly because the teaching of literature and the application of ICT in English teaching are often seen as diametrically opposed. This chapter anticipates that research studies of the impact of ICT on literature-related literacies will be thin on the ground (Leu, 2000). It sets out key definitions and explores the conceptual issues in the present review, supplementing the generic part of the report, which deals in detail with such terms as 'literacy' and 'ICT'. It also looks at the policy, practice and research backgrounds before identifying the authors' interests in the project and the specific review question asked.

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1 Published as Andrews R, Burn A, Leach J, Locke T, Low G, Torgerson C (2002) A systematic review of the impact of networked ICT on 5-16 year olds' literacy in English (EPPI-Centre Review). In: *Research Evidence in Education Library*, Issue 1. London: EPPI-Centre, Social Science Research Unit, Institute of Education.

## 1.1 Aims and rationale for the current review

The main aim of this systematic review was to investigate the impact of ICT on literature-related literacies in English 5-16.

## 1.2 Definitional and conceptual issues

We use the term 'literature-related literacies' rather than the problematic term 'literature', and explain our decision below. By 'literature-related literacies' we mean a range of competences enabling students to read, interpret and critique literary texts (however defined) and to engage in the production of such texts.

Any study of the impact of ICT on literature-related literacies is complicated by the fact that it is effectively addressing three moving targets: ICT itself, literature and literacy. Indeed, it might be suggested that the noun 'impact', itself, is a moving target (see below). It has become a kind of orthodox commonplace to describe literacy as a social practice and therefore subject to change (Leu, 2000). Literacy has become a plural – literacies – and more often than not prefaced by terms, such as 'technological', 'digital', 'computer', 'multiple', 'new' and sometimes 'old', i.e. the one(s) academic researchers grew up with.

For such reasons, the term **literacy**, as used in the overarching protocol for this project, has two meanings. First, it refers to the ability to read and write. More broadly, it includes social as well as cognitive aspects of literacy on the one hand and to texts where written language has been complemented by a graphic or pictorial dimension on the other.

In addition, **ICT** has been defined as including stand-alone computers, networked technologies with a multimodal interface, mobile phones with the capacity for a range of types of communication, and other technologies which allow multimodal and interactive communication.

The fluidity of the current social milieu is summed up by Leu (2000) in his use of the word 'deictic' to refer to the rapidity with which definitions of literacy are regularly redefined 'not by time or space, but by new technologies and the continuously changing envisionments [sic] they initiate for communication' (p 745). It is not only ICTs as systems which are changing; it is the 'envisionments' of their use. While changes in technology have a role to play in the transformation of literacy, so new literate practices can serve to transform technology use. For this reason, **impact**<sup>2</sup>

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2 There remains controversy about the term 'impact'. We have chosen the term for the present reviews in order to stand between the precision of the term 'effect' (which would require RCTs to determine such outcomes) and the broad (and vague) generality of the term 'influence'. A recent publication from the Qualifications and Curriculum Authority (Coles, 2002) explores the meaning of the term 'impact' by defining a number of receivers of impact: individuals, groups, institutions and curricula or regulations/procedures. Because our focus is on literacy *learning*, we have concentrated on the impact on individuals and groups of young people rather than on institutions or curricula.

One final but important conceptual issue has emerged during the course of the research. By assuming the impact of *x* on *y* (of ICT on *literacy learning*), we have assumed a causal one-way connection and have thus operated within a broad scientific paradigm. Although such an approach has many virtues and has shed light on such a connection, we acknowledge that the broader relationship between ICT and literacy learning is probably symbiotic. Andrews explored this two-way connection in a paper being prepared for the International Federation of Teachers of English conference ('Where next for research on ICT and literacies?' International Federation for the Teaching of English Conference. University of Melbourne, July 2003). A symbiotic relationship would have implications for the design of research studies that attempted to explore further the connection between ICT and literacy.

needs to be thought of symbiotically, with technologies and literate practices mutually transforming each other.

An instance of this symbiosis can be found in a report on the American BookRead Project (see Jody and Saccardi, 1998). What is significant about this project, although the report authors do not comment on it directly, is that the intervention (networked ICT), while apparently being utilised to serve traditional educational ends – responding to literature – actually works transformatively. That is, the intervention actually transforms the literature-based literacy practice, that is, the act of reading itself. If one thinks of reading as the interpretative, meaning-making conversation (even with oneself) one conducts around a text, then the introduction of networked ICTs alters that conversation (in ways that Jody and Saccardi report on at length). In the case of the BookRead Project, the authors of the texts studied were included in the conversation. Young readers did not have to establish authorial intention through interpretation; they could simply address questions to a live author – a different kind of meaning-making practice, we would suggest.

In addition, there are a number of reasons why **literature** must be viewed as a shifting target, despite its continued overt presence in national English curriculum statements. On the one hand, its status as a category has been affected by the attack on the literary canon (for example, Eagleton, 1983). Questions such as 'What should be categorised as literature?' are not settled ones. And the question of what deserves categorisation as literature is complicated by the current high status of 'children's literature' and 'literature for young adults'. On the other hand, changes in critical theory have meant the proliferation of approaches to literary study. Putting it bluntly, there is no simple answer to the question, 'What constitutes literature-related literacy?' Indeed, some theorists would challenge the validity of such a construction.

A further complicating factor is the place of writing in the context of 'literary study', however the latter is defined. Scholes (1985) points out the privileging of reading over writing in traditional 'literary study' courses and comments on the unthinkability of students being viewed as producing 'literature' themselves. The hegemonies implicit in such an analysis probably persist, but one can suggest that a challenge to this situation might come from a curriculum utilising the interactive potential of digital technologies.

Taking these factors into consideration explains why we define literature-related literacy as: a range of competences enabling students to read, interpret and critique literary texts (however defined) and to engage in the production of such texts. Such a definition accommodates, for example, theoretical positions which distinguish between operational, cultural and critical literacies (Green and Bigum, 1996) or which advocate the notion of 'technological literacy' (Lankshear and Knobel, 1997).

### 1.3 Policy and practice background

The use of ICT in schools to support literacy learning is pervasive. Successive governments, across a range of English-speaking countries, have, since the mid-1990s, invested large amounts of resources to developing ICT in schools. What appears to have been lacking in all this noise and endeavour has been the articulation of a rationale for ICT integration into the English/literacy programme.

To take the New Zealand case, a recent issue of *English in Aotearoa* (2001), despite a reported increase in ICT access and use in New Zealand schools, quoted research indicating relatively low levels of integration of ICTs in the classroom practices of

English teachers, especially at secondary level. Ham (2001) reported that the ratio of computers to students in New Zealand schools had increased from 1:60 to 1:10 in primary schools and from 1:50 to 1:6 in secondary schools between 1989 and 2001. Virtually all schools now have ready internet access for staff and students. While English and language have increasingly been the main focus for the integration of ICT and learning, Halliday (2001) reported (on the basis of a sampling of 24 Auckland secondary schools) a 'relatively low level of use of ICT for all year levels with the majority of teachers reporting using ICT only once a term or less' (p 32). Most writers in this issue highlighted teacher professional development as a key issue. As a number of studies have also indicated (for example, Morgan, 1995), teachers will only be receptive to such professional development if they see it as desirable that their own reading practices change in response to new textual forms.

In England, Ofsted, the Office for Standards in Education (2001, 2002) has published reviews on the impact of government initiatives on standards and on literacy. It concluded (2001, p 2) that there is 'emerging evidence of a link between high standards across the curriculum and good ICT provision' but that the 'contribution of ICT to the raising of standards in individual subjects remains variable'.

What appears to be emerging is a picture suggestive of a disjunction between policy and practice, with governments advocating increased ICT 'take up' and a classroom reality where ICT integration has been piecemeal and sometimes lacking in terms of a rationale. The three-volume report on the state of ICT integration in Australian schools, *Digital Rhetorics* (Lankshear *et al.*, 1997), suggests a picture of this kind for that country. Interestingly, we found little in the report suggesting a relationship between ICT and literature-based literacy, despite the hallowed place of literary study in the English curricula of English-speaking countries. Such an absence bears further reflection and will be taken up later in this review.

The focus of this review, then, is a particular body of texts that continues to feature as a major literacy focus in all English-speaking, educational settings. Literature teaching has an assured place in virtually all literacy and English programmes. More than any other part of the programme, however, it is beset with uncertainty in respect of its status, its character as text and textual practice and its susceptibility to technological mediation. This review, at least in part, offers a way of finding a shape for these uncertainties. For this reason, it should be of interest to schools, teachers, educators and policy-makers.

## 1.4 Research background

We are not aware of any systematic or non-systematic literature reviews that have dealt specifically with the research question under consideration here. With a national survey of Australian schools indicating relatively little use of computers in teaching literary texts (Durrant and Hargreaves, 1995), we did not expect the field to be rich in research on the impact of ICT on literature-related literacies. This expectation was fulfilled. What a rich field might look like in the future will be discussed later in this review.

## 1.5 Authors, funders and other users of the review

The authors, Locke and Andrews, have a background in literary study and teaching. Locke has three books of poetry to his name, has edited or co-edited three

anthologies of poetry, and has written two senior secondary teaching texts, *Stranger than Fiction: New Zealand non-fiction for senior students* (Auckland: Longman Paul) and *Close Up on Literary Text* (Auckland: Addison, Wesley, Longman). He has a particular interest in the relationship between particular constructions of reading practice (in respect of 'literary' texts) and classroom pedagogy. Andrews has edited *The Comedy of Errors*, *Hamlet* and Amy Tan's *The Joy Luck Club* for Cambridge University Press, as well as a number of poetry anthologies. His interest in literature derives from an undergraduate degree that allowed him to take a rhetorical, or political literary critical approach to fictional and other literary texts. Both have an interest in ICT's relationships with literacy and literature teaching.

Their interests are supported by others members of the review team and by members of the Advisory Group.

The review is being done at this time because the explosion of ICT software in the field of literature in the 1980s and 1990s has not been, in the view of the authors, adequately researched; in particular, the application of such technologies in the classroom and their impact on reading practices (and vice-versa) are in need of closer examination.

There was no extra funding for this review beyond what was provided for the generic review (DfES via EPPI-Centre, University of York Innovation and Research Priming Fund and Department of Educational Studies).

## 1.6 Review questions

The research question for this review is: 'What is the impact of ICT on literature-related literacies in English 5-16?' This research question was developed because of the prominent (if not central) role accorded literary study in secondary school English classrooms and the wide use of children's literature ('literary' texts for younger readers) in primary literacy programmes.

The question acknowledges that the term 'literature-related literacy' is a contestable one. It also deliberately views 'impact' as an outcome that is emergent rather than predetermined and anticipated. This is because we see literature-related literacy/ies as not static but as something susceptible to transformation under the pressure of ICT both in the classroom and as affecting textual practices in the world at large.

## 1.7 Structure of review

The structure of this review is unusual in that it includes a *two-stage* 'mapping' process, followed by an in-depth review.

In the **descriptive map of the overarching review**, the process of identifying, including and characterising the studies for the systematic review of the *impact* of the ICT on literacy learning is described. This map is an updated version of the original map described in Andrews *et al.*, 2002. In total a series of five sub-reviews have been undertaken to address aspects of the original research question. In the present review, the **literature-based literacies map** describes the process of identifying, including and characterising the studies for one of the five sub-reviews.



## 2. METHODS USED IN THE REVIEW

The review uses systematic research review methodology developed by the EPPI-Centre. Details are set out in the various sections below.

### 2.1 User involvement

In accordance with the other reviews conducted by the English Review Group in 2002 and 2003, users such as teachers and school governors were involved at three stages of the research: in determining the research questions and refining the protocol; in mapping the field; and in commenting on the draft report. In addition, a meeting of teachers, students and other interested parties was held to discuss the draft report.

#### 2.1.1 Approach and rationale

In addition to the above, a dissemination strategy was devised in early 2003 for this particular review and for others emerging from the work of the English Review Group. This strategy includes website dissemination, the submitting of articles based on various aspects of the research, and the publication of a chapter in a forthcoming book by RoutledgeFalmer.

#### 2.1.2 Methods used

Methods included consultation via meetings, issuing of drafts for comment and discussion as to the best means of dissemination. In this regard we acknowledge the advice and help of Nancy Rowland, Director of Dissemination for the NHS Centre for Reviews and Dissemination.

### 2.2 Identifying and describing studies

#### 2.2.1 Defining relevant studies for the descriptive map of the overarching review: inclusion and exclusion criteria

In order to be included in the mapping section, studies had to meet the following inclusion criteria:

- They had to be one of the following study types: an exploration of relationships, an evaluation (naturally-occurring or researcher manipulated) or a systematic review.
- They had to have as their main focus ICT applications to literacy development.
- They had to focus on literacy learning and teaching in schools and/or homes.
- They had to be about the impact of ICT on literacy development.
- They had to be published in English, in the period 1990-2002.
- They had to look at literacy and ICT in English-speaking countries.
- They had to be completed studies.
- They had to be studies whose participants/study population includes children at ages 5-16 and young people.

- They were not to be opinion pieces or studies of other excluded study types.

The English Review Group working document for the inclusion and exclusion of potentially relevant studies (see Appendix 2.1) was updated to reflect the changes made to the keywording sheets, both generic and review specific (see appendices 2.4 and 2.5) since the 2000-2002 review. In terms of the generic keywording sheet, the main differences for 2002-2003 are the changes made to question 10 on study type. In terms of the review specific keywording sheet, the main differences for 2002-2003 are the streamlining of the literacy, learning and ICT focus keywords (question 12), and the inclusion of a glossary sheet to clarify definitions for all the review specific keywords (see Appendix 2.6).

### **2.2.2 Defining relevant studies for the 'literature-based literacies map': inclusion and exclusion criteria**

The following are the inclusion and exclusion criteria used to define those studies deemed relevant to the research question.

#### ***Inclusion criteria***

- Type of intervention: any intervention which involves the utilisation of ICTs in some way in teaching/learning contexts where the object of study is literature and which analyses in some way the impact of one or more ICTs on the development of literature-related competences (and vice versa)
- Study types: case studies (where these include evaluation), explorations of relationships and both 'naturally-occurring' and 'researcher-manipulated' evaluations
- A focus on the development of literature-related literacies in both home and school settings
- Papers (published or unpublished): 1990-2002. 1990 is generally considered to be the date at which the internet began to affect teaching and learning in language and literature studies.
- Studies to be undertaken in English-speaking countries and be written in the English language
- Studies whose participants/study population includes children at ages 5-16

#### ***Exclusion criteria***

- Not ICT or literature-related literacy
- Not children aged 5-16
- Not concerned with the impact of ICT on literature-related literacy (or vice versa)
- The following: editorials, commentaries, book reviews; policy documents; prevalence or incidence of ICT in literacy learning; non-evaluated interventions; surveys examining a range of curricular activities; resources; bibliography; theoretical paper; methodology paper; non-evaluative case studies
- Settings in which a language other than English is being used as a primary medium for literacy learning

### **2.2.3 Identification of potential studies for the descriptive map of the overarching review: search strategy**

The potential studies for this review were identified through an updating of the original electronic searches and handsearches. In August 2002, Julie Glanville (NHS CRD at the University of York) re-ran the electronic searches on PsycINFO, ERIC, BEI, SSCI, SIGLE, C2-SPECTR and Dissertation Abstracts using the original search strategies (see Appendix 2.2). In addition, members of the Review Team and advisory body who handsearched key journals in the field for the 2001-2002 review undertook handsearching of the same journals for the period July 2001 to October 2002 in order to identify any other potentially relevant studies not retrieved through the updated electronic searches (see Appendix 2.3). All potentially relevant studies were sent for.

#### **2.2.4 Identification of potential studies for the literature-based literacies map: search strategy**

The systematic review of the Impact of ICT on literacy learning in English (Andrews *et al.*, 2002) mapped the research on the impact of ICT on literacy learning in English, 5-16. The relevant research was searched for, located, sent for and mapped for the years 1990-2001. Research studies were identified, screened and keyworded with respect to the research question of the impact of ICT on literacy learning (5-16) in general. Studies were keyworded according to study type. A research question looking at the impact of ICT on literature-related literacies would therefore include studies keyworded with such indicators as 'literature' and 'literary'. Searches were updated to locate any further relevant studies that were undertaken after 2000 and re-keywording using EPPI-Centre (2002a). The keyword 'literature' was used to identify any potentially relevant studies from the updated database.

#### **2.2.5 Screening studies for the descriptive map of the overarching review: applying inclusion and exclusion criteria**

The updated database for 2002-2003 that included potentially relevant studies published after October 2001 was screened by a member of the review team (CT) using titles and abstracts and the updated working document with inclusion and exclusion criteria. Any potentially relevant studies were sent for through library interlending. Finally the original database was merged with the updated database.

#### **2.2.6 Screening studies for the literature-based literacies map: applying inclusion and exclusion criteria**

All studies keyworded as literature-related were re-screened to ensure that they fulfilled the inclusion criteria for the map, which provides readers with a description of the range of literature encountered during the actual review process. Essentially, a map charts the overall landscape of the field by listing the topic areas, numbers of reports found, source of the reports and other information arising from the research strategies used in the systematic review. The map from which the present in-depth review derives is set out in the generic part of this report.

#### **2.2.7 Characterising included studies in the descriptive map of the overarching review: EPPI-Centre and review-specific keywording**

All the studies included in the original database from the review of 2001 were re-keyworded by members of the Review Team, using the new guidelines from the EPPI-Centre (EPPI-Centre, 2002a). The studies retrieved for the updated database were keyworded by a member of the Review Team (CT), with assistance from other members of the team and the EPPI-Centre where there was any doubt about keywording. The database was fully annotated with the keywords (AR). For pragmatic reasons the database for 2002 was closed on 30 November 2002. Any studies received after that time will be included in the next update.

### **2.2.8 Characterising included studies in the literature-based literacies review: EPPI-Centre and review-specific keywording**

The included studies were characterised using the EPPI-Centre and review-specific keywords.

### **2.2.9 Identifying and describing studies in the descriptive map of the overarching review: quality assurance process**

For the purposes of quality assurance two members of the Review Team (RA and SB) and one member of the EPPI-Centre (DE) screened a random sample (10%) of the studies in the updated database. Screening was undertaken independently, using the inclusion/exclusion criteria working document (Appendix 2.1). After double-screening, the inter-rater reliability scores between CT and RA, CT and SB, and CT and DE were calculated using the Cohen's Kappa. For the purposes of quality appraisal, a random sample of 18 papers was double re-keyworded by two members of the EPPI-Centre (DE and KS).

### **2.2.10 Identifying and describing studies in the literature-based literacies map: quality assurance process**

Two reviewers (TL and RA) independently re-screened the studies retrieved from the database and then compared results. All disagreements were resolved without recourse to EPPI-Centre advice or mediation.

## **2.3 In-depth review**

### **2.3.1 Moving from broad characterisation (mapping) to in-depth review**

For a study to be included in the in-depth review, it had to deal with an intervention utilising ICT in some way in teaching/learning contexts where the object of study is literature and which analyses in some way the impact of one or more ICTs on the development of literature-related competences (or which began with the identification of specific literature-related competences and studied ways in which ICT could foster the development of these). Study types included case studies (where these included evaluation), explorations of relationships and both 'naturally-occurring' and 'researcher-manipulated' evaluations. In the final screening process which occurred immediately prior to the data-extraction process, a number of studies which had been thrown up by the prior

mapping procedures were excluded. These were mostly studies where it was considered that the texts used as a focus had not been selected on the basis of their being 'literary'. If, for example, a study referred to texts that might be classified as children's literature, but were used to foster generalised reading comprehension rather than literary response, they were excluded. For final inclusion, a focus, implicit or explicit, on literature-related literacy had to be a characteristic of the selected studies.

### **2.3.2 Detailed description of studies in the in-depth review**

Data-extraction was undertaken by two reviewers working independently. The included studies were data-extracted and quality appraised using the EPPI-Centre guidelines (EPPI-Centre, 2002b). Any disagreements between the reviewers were discussed and resolved. Any included studies that were data-extracted for the 2001-02 review on networked technologies (Love, 1998) were re-data-extracted according to the new guidelines for this review.

### **2.3.3 Assessing quality of studies and weight of evidence for the review question**

EPPI-Centre guidelines as set out in section 7 of the revised data-extraction tool (September 2002) were used to gauge the methodological quality (A) of each study. The weight of evidence instrument further applied the following criteria to the studies identified as relevant to this particular review:

- appropriateness of research design (including analysis) for addressing the question of this specific review (B)
- relevance of particular focus of the study (including sample and measures) for addressing the question of this specific systematic review (C)
- overall weight of evidence that the results of the study provide to answer the review question considering soundness of study, appropriateness of research design to review question, and relevance of study focus of this specific systematic review (D)

In respect of the second bullet point, because the term 'literature-related literacies' itself is problematic, then the question of impact (in respect of ICTs) becomes problematic. The following outcomes, i.e. research goals, are indicative of the focus of this particular review and were used as an aid in deciding whether a study was relevant to the review question:

- an evaluation of the impact of a particular ICT-based intervention or practice on one or more aspects of literature-related literacy as conceptualised by the researchers
- the last, but coupled with a comparison with the impact of, say, print-based texts
- an evaluation of the impact of a particular ICT-based intervention or practice on a literature-related pedagogy as conceptualised by the researchers
- the last, but coupled with a comparison with the impact of, say, a print-based pedagogical practice
- an evaluation of ways in which literature-related literacies are being affected or re-conceptualised under pressure from the 'new' technologies and the text types (genres and hybrids) they have spawned

### **2.3.4 Synthesis of evidence**

A narrative synthesis of the included studies was undertaken, using such grounds for comparison as the following:

- the study design
- the aims of the study
- the population or sample of the study
- how the sample was studied
- results and conclusions

The EPPI guidelines were used to establish the relative 'weight of evidence' to be ascribed to each study included (A, B, C and D). This evaluation was taken into account in the narrative synthesis.

### **2.3.5 In-depth review: quality assurance process**

Two reviewers (TL and RA) independently screened all studies initially identified and selected them for inclusion or exclusion on the basis of the criteria detailed above. These reviewers data-extracted independently the studies selected for in-depth review and only later and in collaboration decided on a 'consensus' version of this data-extraction.

### 3. IDENTIFYING AND DESCRIBING STUDIES: RESULTS

This chapter sets out the results of the study, beginning with the process of retrieval of reports in the mapping study and tracking the progress toward the total of twelve papers identified from searching and screening and finally to the seven identified as appropriate for the in-depth study.

#### 3.1 Studies included from searching and screening

Table 3.1 illustrates the process of identifying, obtaining and describing reports for the current review. Unless otherwise stated, each report contains only one study<sup>1</sup>.

A revised version of the mapping study retrieval process reported in Andrews *et al.* (2002) is shown in column 1. The revisions were the result of further de-duplication of the database (four papers deleted), annotation of reports received outside of the review's original timeframe ( $n = 8$ ), and re-keywording of included reports in accordance with EPPI's revised guidelines (EPPI-Centre, 2002a), which led to further exclusions ( $n = 8$ ). In addition, five papers originally excluded at the second stage were included in the current review following re-keywording. Column 2 shows the mapping study retrieval process for those additional reports identified by an update of the electronic and handsearches. The final column merges the original mapping study retrieval process with the update to show the process of retrieval of the reports in the mapping study for the current review.

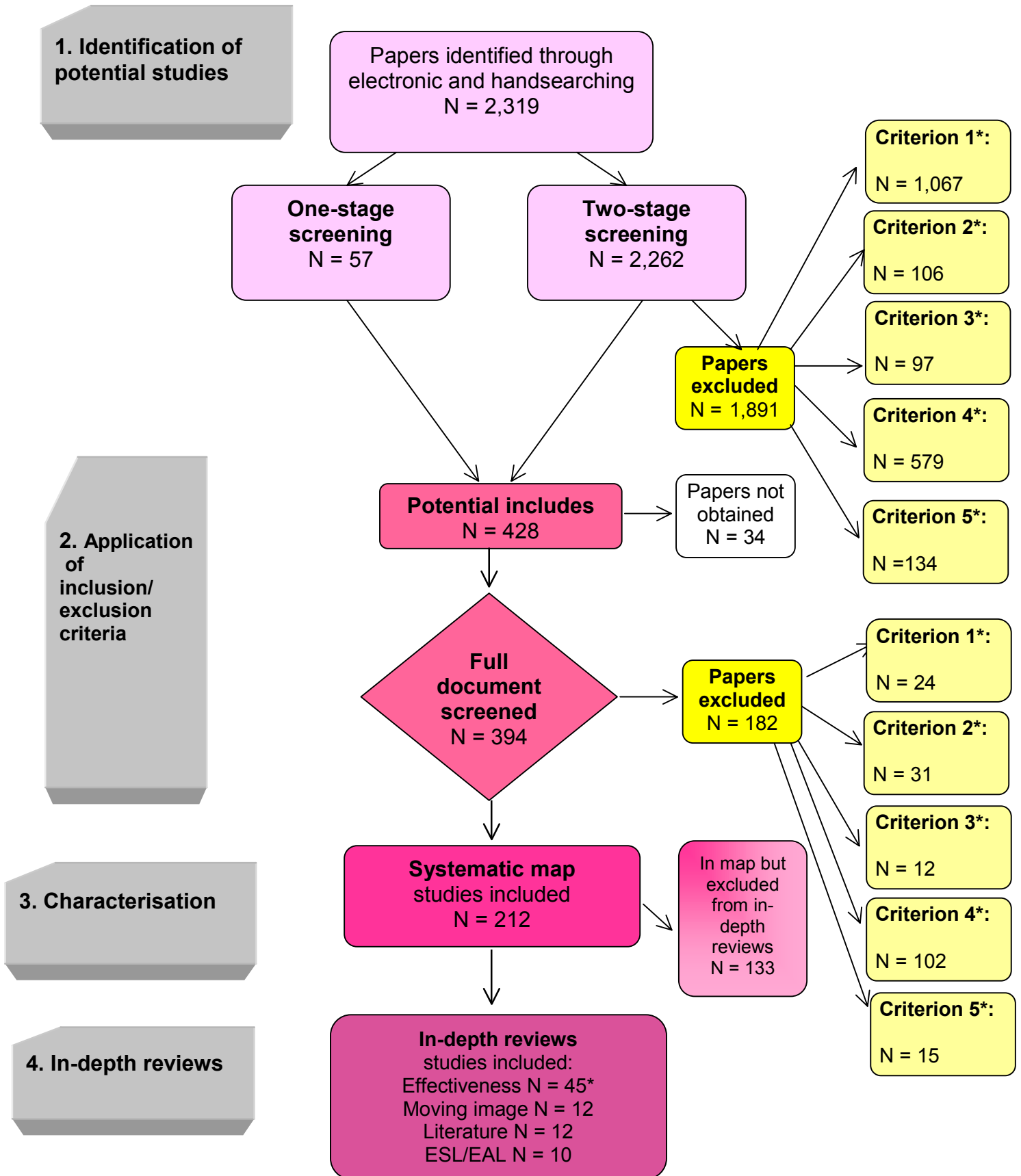
A total of 2,319 potentially relevant reports were identified for the current review. Of these 2,319 reports, 1,891 (just over 81%) were excluded by screening titles and/or abstracts and 428 were sent for. Of the 428 reports, 34 (fewer than 8%) were not received within the timeframe of the review or were unavailable. A reading of the full paper resulted in the exclusion of a further 182 studies, leaving a total of 212 that met the criteria for inclusion in the mapping study. This information is presented in Figure 3.1.

**Table 3.1:** The process of retrieval of the reports in the mapping study

	Andrews <i>et al.</i> (2002, revised)	Review update	Current review
Total number of 'hits'	1,867	452	2,319
Met mapping study inclusion criteria on the basis of the title or abstract	358	70	428
Not received or unavailable	22	12	34
Full reports available	336	58	394
Full reports that did not meet mapping study inclusion criteria	159	23	182
Met mapping study inclusion criteria and keyworded	177	35	212

<sup>1</sup> It is possible, for instance for a report (article, report, book) to include more than one study. This was the case in one of the reports we reviewed.

Figure 3.1: Filtering of papers from searching to map to synthesis – generic review



\*Criteria for exclusion are not mutually exclusive



Table 3.2 presents the origin, by database or other method of retrieval, of all the 212 reports included in the mapping study. It also shows the process of retrieval for each database.

The majority of the reports found to meet the mapping study's inclusion criteria (187: 88%) were found with the database searches. Handsearching found an additional 24 (11%). The checking of citations (systematic review bibliographies and citations in the text of full reports) and reviewers' searches of their own shelves identified a further four and one relevant report respectively. No reports were identified solely through C2-SPECTR or web page searches.

**Table 3.2:** Origin of reports in the mapping study

	Found	Included
PsycINFO	849	97
ERIC	880	62
BEI	295	20
SSCI	59	2
Cochrane	26	0
SIGLE	48	2
C2-SPECTR	49	0
DisAbs	56	2
Handsearch	43	22
Citation	8	4
Website	3	0
Contact	3	1
<b>Total</b>	<b>2,319</b>	<b>212</b>

**Note:** Reports could originally have more than one origin but a hierarchy of databases and other sources was created resulting in each category being made mutually exclusive.

The remaining tables in this section present analyses of the included and keyworded studies contained in the 212 reports.

Table 3.3 shows the number and proportion of studies according to the country in which they were conducted. Most (63%) were conducted in the US. A total of 39 (18%) were from the UK. In three cases (2%), it was not possible to determine where a study had taken place. These figures may reflect bias within the bibliographic sources searched towards reports published within the North America, Australasia and the UK.

**Table 3.3:** Study country

	Number
USA	134
UK	39
Australia	17
Canada	15
New Zealand	2
Sweden	1

	Number
Netherlands	1
Not stated	3

**Note:** All studies were conducted in one country only.

Table 3.4 describes the educational setting for the studies. A study could be conducted in more than one setting. Primary education was the most frequently studied (66 percent of reports look at this kind of setting, compared with 34 percent that look at secondary settings). A total of 32 studies were conducted in both primary and secondary settings. Thirty studies were conducted in other settings, including independent schools, special needs schools and the home.

**Table 3.4:** Educational setting

	Number
Primary education	140
Secondary education	74
Other	30

**Note:** A single study could be conducted in more than one type of educational setting.

Table 3.5 presents the number of studies that conceptualised literacy in psychological and/or social/cultural/critical terms and the number that focused on reading and/or writing. Of the studies identified, about two-thirds (62%) assume a psychological representation of literacy. One-third (34%) adopts a more sociological conception of the practice. Two-thirds (62%) focus on writing, graphical or pictorial production, whereas half (50%) have an interest in reading. Studies could have more than one focus with respect to both of these dimensions of literacy. For both dimensions there were a number of studies where reviewers were unable to categorise the aspect of literacy under study.

**Table 3.5:** Principal aspect(s) of literacy

	Number
<i>Conceptualisation of literacy</i>	
Psychological aspects or representations	131
Social representations and/or cultural/critical representations	73
Unclear	21
<i>Reading/writing</i>	
Writing print and graphical or pictorial representation	131
Reading print and graphical or pictorial representation	106
Unclear	5

**Note:** Studies could theoretically focus on two to four of these aspects of literacy.

Table 3.6 shows the overall distribution of reports according to study type. Most (179) of the 212 reports meeting the inclusion criteria for the mapping study evaluated outcomes; of these, 169 were researcher-manipulated and 10 were naturally-occurring. Of the 169 researcher-manipulated evaluations, 45 were RCTs, 84 were trials and 41 were other types of evaluation. One report contained both an RCT and a trial.

**Table 3.6:** Study type

	Number
Evaluation: researcher-manipulated	169
RCT	45
Trial	84
Other	41
Evaluation: naturally-occurring	10
Exploration of relationships	29
Description	3
Review	6
Systematic review	5
Other review	1

**Note:** Studies could be defined as more than one type.

The type of ICT focused on by the identified studies is illustrated by Table 3.7. This shows the relative popularity of 'stand-alone' ICT as a topic of study in comparison with networked ICT systems. The use of email was studied more frequently than internet use.

**Table 3.7:** Type of ICT

	Number
Computer – stand-alone (software)	191
Computer – networked (email and/or internet)	24
Computer – networked (email)	20
Computer – networked (internet)	11

**Note:** Studies could focus on more than one aspect of ICT.

Table 3.8 illustrates the process of identification by keyword of reports for inclusion in the four specific in-depth reviews. Each report was subject to the inclusion/exclusion criteria of the specific in-depth review for which they were identified. This process is described in the individual review reports contained in sections 4(a) to 4(d).

**Table 3.8:** Identification of reports for inclusion in the specific in-depth reviews

Keyword	Total reports
RCT	45
Moving image	12
Literature	12
ESL/EAL	10

**Note:** Reports could be included in more than one in-depth review.

A total of 12 papers deemed pertinent to the specific review question were identified from the updated database, using the keyword 'literature'.

## 3.2 Characteristics of the included studies (systematic map of sub-review)

The systematic map was based on the keywording (EPPI generic keywording and review specific keywording) of the 12 studies.

Most of the twelve studies were identified by handsearching.

**Table 3.9:** Origin of identified studies

	Number
PsycINFO	3
ERIC	1
Handsearch	8
<b>Total</b>	<b>12</b>

The studies were evenly split between Australia and the US with one from Canada. The number of Australian studies is perhaps an indication of the strength of the debate around various aspects of literacy that has characterised that country in the last 20 years.

**Table 3.10:** Countries where studies were undertaken

	Number
USA	6
Australia	5
Canada	1
<b>Total</b>	<b>12</b>

Studies were evenly divided between older and young children, perhaps reflecting a strong sense that children's literature is a 'legitimate' focus for literary study.

**Table 3.11:** Age of participants

	Number
5 to 10 only	6
11 to 16 only	4
5 to 10 and 11 to 16	2
<b>Total</b>	<b>12</b>

Most of the studies investigated mixed sex classes or groups. Where participants were one sex only, there was generally a lack of rationale for the choice (i.e. gender was incidental).

**Table 3.12:** Sex of participants

	Number
Male	3*
Female	2

	Number
Mixed	6*
Not stated	2
<b>Total</b>	<b>13*</b>

**\*Note:** In the Morgan (1995) study, two teachers came from an all boys' school and one came from a co-ed school.

The educational settings again reflect the sense that literary study is appropriate focus for both primary and secondary education.

**Table 3.13:** Educational setting of studies

	Number
Primary school only	6
Secondary school only	4
Primary and secondary school	2
<b>Total</b>	<b>12</b>

Not unexpectedly, the majority of the studies approach literary-related literacy from a social/cultural rather than a psychological/cognitivist perspective. (However, in later discussion, the point will be made that these two perspectives are not necessarily mutually exclusive.)

**Table 3.14:** Principal aspects of literacy

	Number
Psychological aspects or representations	0
Social representations and/or cultural/critical representations	7
Psychological aspects AND socio/cultural/critical representations	5
<b>Total</b>	<b>12</b>

As can be seen, the systematic map includes a range of study types.

**Table 3.15:** Types of study

	Number
Exploration of relationships	4
Evaluation (researcher-manipulated)	5
Evaluation (naturally-occurring)	3
<b>Total</b>	<b>12</b>

### 3.3 Identifying and describing studies: quality assurance results overarching descriptive map

#### **Screening**

The inter-rater reliability score between CT and RA was 0.65 (good); the inter-rater reliability score between CT and SB was 0.39 (fair); and the inter-rater

reliability score between CT and DE was 0.36 (fair). CT and RA were initially less inclusive, possibly because of greater experience of screening educational databases. SB and DE were consistently more cautious in excluding papers in the initial screening, including papers where there was any doubt.

**Keywording: EPPI-Centre generic keywording sheet**

Inter-rater agreement was very high. Out of a total possible 180 'keywords', disagreement occurred in only 30 keywords (i.e. 16.7%). Most of these disagreements (19) were in the area of study topic (keyword 6) where the EPPI-Centre members were consistently more inclusive. Review Team members coded all 18 papers as 'curriculum'. The two EPPI-Centre members coded these 18 papers as 'curriculum' but in all cases also coded them as 'assessment' and/or 'teaching and learning'. The other 11 disagreements were mainly omissions, and disagreement on educational institution and age.

**Keywording: English Review Group ICT and literacy keywording sheet**

Agreement was again very good. Out of a total possible 794 keywords, disagreement occurred in 88 cases (i.e. 11%). Most of the disagreements were additions by members of the EPPI-Centre in keywords 14 and 17 (again due to them being more inclusive), and omissions by the members of the EPPI-Centre in keyword 16 where members of the Review Team tended to apply a keyword to both a *and* b. In addition there were a few disagreements on study type. It was anticipated that these disagreements would be resolved at data-extraction stage. The results of this quality assurance exercise highlight the importance of including a glossary for review specific keywords.

### **3.4 Identifying and describing studies: quality assurance results literature-based literacies map**

Both reviewers agreed on the basis for retaining the 12 studies identified in the systematic map.

## 4. IN-DEPTH REVIEW: RESULTS

### 4.1 Selecting studies for the in-depth review

Five of the studies included in the systematic map were excluded from the in-depth review. Of these, four (Lankshear *et al.*, 1997; McKeon, 2001, McKeon and Burkey, 1998; Moore and Karabenick, 1992) were excluded because their focus was on general literacy (reading and writing or attitudes to these) rather than literature-related literacy. The fifth (McClay, 2002) was excluded because it was a descriptive study of one student's experimentation with 'new' literary writing forms but lacked an evaluative element (see Table 4.1).

**Table 4.1:** All studies keyworded as literature-related indicating studies included and excluded (including reasons for exclusion)

	Number
Total number of studies initially mapped as literature-related	12
Studies excluded as insufficiently literature focused: <ul style="list-style-type: none"> <li>• Lankshear <i>et al.</i>, 1997</li> <li>• McKeon, 2001</li> <li>• McKeon and Burkey, 1998</li> <li>• Moore and Karabenick, 1992</li> </ul>	4
Studies excluded as insufficiently concerned with evaluation: <ul style="list-style-type: none"> <li>• McClay, 2002</li> </ul>	1
Studies included in in-depth review <ul style="list-style-type: none"> <li>• Chu, 1995</li> <li>• Love, 1998</li> <li>• Morgan, 1995</li> <li>• Meskill and Swan, 1996</li> <li>• Meskill and Swan, 1998</li> <li>• Nettelbeck, 2000</li> <li>• Wild, 1995</li> </ul>	7

### 4.2 Further details of studies included in the in-depth review

Appendix 4.1 provides details on each of the studies included in the in-depth review in respect of study design, study aims, object of study, methodology, and results and conclusions.

The following tables provide information on the studies included in the in-depth review and in the main match those found in section 3.2 of this report.

All but one of the included studies were identified by handsearching, a statistic indicating handsearching as more than just a check on electronic searching.

**Table 4.2:** Origin of identified studies

	Number
ERIC	1
Handsearch	6
<b>Total</b>	<b>7</b>

The studies were evenly split between Australia and the US (see comment in section 3.2.).

**Table 4.3:** Countries where studies were undertaken

	Number
USA	3
Australia	4
<b>Total</b>	<b>7</b>

As indicated in 3.2, studies were evenly divided between older and young children.

**Table 4.4:** Age of participants

	Number
5 to 10	3
11 to 16	3
5 to 10 and 11 to 16	1
<b>Total</b>	<b>7</b>

Most of the studies investigated mixed sex classes or groups. Where participants were one sex only, there was generally a lack of rationale for the choice (i.e. sex was incidental). In Love's (1998) study, the focus of choice of subject was Katrina, not the school she was teaching in. In Chu's (1995) study, the subjects were not chosen on the basis of sex.

**Table 4.5:** Sex of participants

	Number
Male	2*
Female	1
Mixed	5*
<b>Total</b>	<b>8*</b>

**\*Note:** In the Morgan (1995) study, two teachers came from an all boys' school and one came from a co-ed school.

The educational settings reflect the sense that literary study is appropriate focus for both primary and secondary education

**Table 4.6:** Educational setting of studies

	Number
Primary school	3
Secondary school	3



	Number
Primary and secondary school	1
<b>Total</b>	<b>7</b>

As in the systematic map, the majority of the studies approach literary-related literacy from a social/cultural rather than a psychological/cognitivist perspective.

**Table 4.7:** Principal aspects of literacy

	Number
Psychological aspects or representations	0
Social representations and/or cultural/critical representations	5
Psychological aspects <i>and</i> socio/cultural/critical representations	2
<b>Total</b>	<b>7</b>

As can be seen in the table below, most studies were researcher-manipulated evaluations.

**Table 4.8:** Types of study

	Number
Exploration of relationships	1
Evaluation (researcher-manipulated)	4
Evaluation (naturally-occurring)	2
<b>Total</b>	<b>7</b>

Table 4.9 provides summary information on these studies in respect of educational setting, ICT focus and aspect of literature-related literacy focused on.

**Table 4.9:** Studies included in in-depth review with educational setting, ICT focus and literary focus

Author, date	Educational setting	ICT focus	Literary focus
Chu, 1995	Primary	Electronic books	Reading
Love, 1998	Secondary	Word-processing, multimodal presentational software, WWW	Reading Composition Research Critical literacy
Meskill and Swan, 1996	Primary/Secondary	Multimedia software	Reading
Meskill and Swan, 1998	Primary	Multimedia software	Reading Writing
Morgan, 1995	Secondary	CD Rom	Reading Critical literacy
Nettelbeck, 2000	Secondary	Online discussion	Reading
Wild, 1995	Primary	Electronic books	Reading

## 4.3 Synthesis of evidence and findings

Table 4.10 provides an overview of the studies included in the in-depth review in terms of the weight of evidence criteria outlined in section 2.3.3 of this report. What follows is a narrative which synthesises the evidence contained in the selected studies (taking account of the weight attributed) and the findings provided.

**Table 4.10:** Studies included in in-depth review showing weight of evidence attributed

<b>Study</b>	<b>A</b> Methodological soundness of study	<b>B</b> Appropriateness of research design (including analysis) for addressing the question of this specific review	<b>C</b> Relevance of particular focus of the study (including sample and measures) for addressing the question of this specific systematic review	<b>D</b> Overall weight of evidence that the results of the study provide to answer the review question considering soundness of study, appropriateness of research design to review question, and relevance of study focus of this specific systematic review
Chu, 1995	Medium	Medium	High	Medium/high
Love, 1998	Medium	Medium	Medium	Medium
Meskill and Swan, 1996	High	Medium	Medium	Medium/high
Meskill and Swan, 1998	High	High	High	High
Morgan, 1995	High	High	High	High
Nettelbeck, 2000	Medium	High	High	High/medium
Wild, 1995	Medium	Low	Medium	Medium/low

### 4.3.1. Methodological soundness (weight of evidence A)

This section briefly summarises the reviewers' assessment of the included studies in terms of methodological soundness. These weightings played a part in our considerations of overall weighting, but were not the sole determinant.

Two studies, Meskill and Swan (1998) and Morgan (1995), were deemed to be highly sound, with Nettelbeck (2000) rated medium; Meskill and Swan (1996) rated high and Chu (1995) rated medium.

A number of factors affected Morgan's rating: its sensitivity to ethical issues, its rationale, the appropriateness of its research design, its approach to reliability and validity issues, its degree of generalisability. Its trustworthiness was reinforced by Morgan's willingness to adjust her own position.

The rating given to Meskill and Swan's (1996) study was complicated by the dual focus of the study: developing a way of evaluating commercially available literature software packages and having some of these packages trialled in

classrooms. In respect of the former, the reviewers considered the research design sound in most respects. However, in respect of the latter, we found the research design wanting. Put another way, we deemed the study highly trustworthy in addressing the following (implicit) research questions: 1. How do the current range of commercial, multimedia software products for literature teaching and learning suit (match) a response-based pedagogy? 2. How might the use of these packages (as they exist now) be envisioned by practising language arts educators? However, the study was deemed to have a low trustworthiness in terms of the third implicit research question identified by the reviewers: do field trials indicate a potential, even for (some) current packages, to enhance a response-based pedagogy of literature teaching and learning? What weakened this study in terms of this aspect of its focus was the informality and unsystematic nature of the classroom trials, the findings from which have to be read as no more than suggestive vignettes of constructive ways of integrating ICTs in the teaching/learning of literature-based literate practices.

In respect of Meskill and Swan's (1998) study, the reviewers considered that the study provided a rich account of the data on which the findings were based and made very clear links between the findings as reported and the research questions as formulated and saw it as highly trustworthy. This was an overall rating, made despite some questions being raised about validity and in recognition of the fact that the study was presented as a pilot study and made no claims to generalisability.

Three studies were deemed to have medium methodological soundness: Chu (1995), Love (1998), and Nettelbeck (2000). Chu's (1995) study can be commended for its rationale, its reliability and validity in terms of data-collection and the validity of its data-analysis. All of its subjects were exposed to the same controlled intervention. A general point might be made here, which notes that Chu was operating from a particular discourse in interpreting the data collected. A different construction of what constitutes a 'literary response' might have led to a different reading, that is, it is not possible to separate validity issues from the theoretical basis for interpretation (i.e. discourse) issues. Chu's study, as the researcher her/himself admitted, had an insufficient sample in terms of size and sex composition to allow for generalisability and this was the primary factor that determined this study's soundness rating.

Love's (1998) study was a case history that was clearly rationalised and designed. There was some attempt to address the reliability and validity of data collection and issues of validity in data-analysis were addressed in the way that Love is careful to make her own theoretical position clear and to make links with relevant conceptualisations in the literature. That is, she deals with the validity question by spelling out the bases upon which she makes her interpretations. The reviewers' attribution of medium trustworthiness was affected by the researcher's willingness to have her interpretation gauged on the basis of the rich account that is provided to underpin it.

Nettelbeck's (2000) study is sound in terms of its rationale, the reliability and validity of its data-collection and the validity of its data-analysis. 'Dr Love conducted pre-trial interviews with all staff and a group of students, a post-trial questionnaire was distributed to all participants and random focus groups were interviewed at the conclusion of the project which ran for about 5 weeks in Feb/March 2000' (2000, p 47). A strength of the project was that teachers involved in the intervention had been trained in the technologies involved and the intervention was highly specific and contained. Teachers themselves doubled as researchers and had ownership of the trial and an interest in its findings. More

detail, however, could have been provided on how those involved went about interpreting the data collected. The sample was a large one (a whole Australian Year 11 cohort) and, on this basis, the study was seen as relatively generalisable, despite a sense that the clientele at the school in question was probably a privileged one. More detail on the actual data collected would have made this study more trustworthy.

Wild's (1995) study was crucially affected by the nature of the genre or 'text-type' in which the study was reported. The reviewers gave this study a medium level of trustworthiness, despite omissions in the report in respect of data collection and analysis methodology. Strengths of the study included the size of the sample and the duration of the intervention.

### 4.3.2. Relevance of focus (weight of evidence C)

Two studies at primary level and two at secondary level were deemed by the reviews to have had a high degree of relevance in terms of their focus. Chu (1995) and Meskill and Swan (1998) both had a primary setting. The former clearly conceptualised an understanding of literature-based literacy, albeit within a particular response-based tradition (Rosenblatt, 1978). Moreover, it viewed the 'literary experience' as something wider than print-mediated (p 354). In terms of the problematic issue of measures, it developed a series of categories (retelling, comparing, judging, inferencing and rationalising) through which active, response-based transactions with literary texts might be tracked. In short, the study provided an interesting and helpful way of conceptualising what literature-based literacy might mean for very young readers. The latter study also clearly located its understanding of literature-based literacy within the response-based tradition. This study also systematically developed a series of measures aimed at enabling a description and evaluation of the responses of the primary students to the software developed.

Nettelbeck's (2000) secondary-based study also had a highly relevant conceptual focus. The study had a clear sense of what it meant by literature-related literacy and was sharply focussed on a single, identified, desirable pedagogical practice, namely, the facilitation of text-based response where students 'contribute to a discussion, present evidence and respect and respond to the views of others' (p. 46). The context had ecological validity in that it was a real school, with real teachers engaged in finding ways of integrating ICTs into an English programme with a thought-out approach to literary study in the wider context of an educational system that had a set of defined outcomes for how it had, in its turn, constructed literary study.

Morgan's (1995) was seen as highly relevant for a different reason, one related to the indeterminacy of the term 'impact' discussed earlier in this report. Her focus enabled the establishment of findings that showed, for example, that 'impact' is mediated in important ways by the manner in which teachers themselves construct 'literature-related literacies'. It was also pertinent because of Morgan's initial disposition to view technologies in a somewhat deterministic light as having the potential to lead users to change their constructions of literate practice. 'I wondered...whether the CD would lead them to redefine the nature of texts and reading more generally' (p 9). One of Morgan's own discoveries from the study was that '...electronic text doesn't necessarily change our ways of reading and thinking about reading' (p 16). That being the case, electronic text '...won't necessarily change our ways of teaching reading' (p. 11). That is, technology does not necessarily change practice (in significant ways).

The earlier Meskill and Swan study included (1996) was somewhat compromised in terms of its relevance because of its dual focus. Certainly, as far as the specific research question is concerned, this study is highly relevant and disciplined in terms of its firm commitment to a model of literature teaching and learning (response-based practices) which the study both described and theorised in relation to its specific ICT focus (commercially available multimedia literature software packages). Concerned as it is with evaluating available software, its development of assessment criteria and scenarios are useful examples of pedagogical 'envisionings'. This study also developed an understanding of what 'impact' might mean. 'This article explores the potential of a complementary relationship between the learning and teaching of literature and characteristics specific to multimedia instructional delivery systems. Our research is designed around and is driven by the assumption that the medium potentially represents a powerful means of promoting and enhancing the processes of literary understanding' (p 218). The study makes it clear that complementarity can work two ways. It can enhance aspired-to pedagogical practice or it can construct pedagogical practice in undesirable ways (via what the article terms a 'mismatch' (p 219)).

Like Chu (1995), Wild (1995) is also concerned with the response of young children to electronic books. Working with a larger sample, the relevance of his study (at least as reported) is weakened by its being insufficiently conceptualised. For instance, it is unclear whether the researchers are addressing questions of reading comprehension in general or reading as it pertains to what we might call 'literary engagement'. The only clue that the latter might have a presence is in the mention of traditional 'literary' categories such as 'plot, characters and events' and an undeveloped suggestion (but a tantalising one all the same) that there are particular forms of cognitive attention that a storybook (print) can engender. Moreover, in contrast to Chu (1995), this study omits to spell out measures in terms of which literary response might be described and evaluated.

In Love's study (1998), the focus of what we will call the study's narrative is on a student teacher's attempts at integrating ICTs into a classroom environment where students had had very little exposure to them. They had had some familiarity with word-processing, but no experience of PowerPoint nor the Internet. Despite this limitation, however, there are sections of the account where the spotlight does settle on the review question. Specifically:

- An intervention designed to have students compose directly on to the screen could be seen to suggest an impact on writing as a material practice and also perhaps on cognition (see Haas, 1996). There was also a suggestion of impact in terms of writing as a more socialised, collaborative endeavour when focused on a computer screen. However, the focus here was not on the writing of 'literary' texts, but on writing as a more generic category.
- While word-processing was used to complete an assessment task oriented to a novel, there was no suggestion that the task itself was altered by the use of the technology. (What could have been handwritten was presented as a word-processed document.) The same applied to Katrina's (the student's teacher's) use of PowerPoint.
- There was a suggestive vignette which was not substantially theorised in the discussion on formatting which showed how formatting tools could be used to 'reconstruct' (our term) a literary text and thereby affect its impact on readers. (Love writes: 'Katrina's students were learning to identify the impact of basic multimedia design features and build a critical language for talking about its impact' (p 69).

- It was clear from the study that by making the WWW available to her students' study of the film version of *Little Women*, Katrina was able to teach the text in ways which highlighted the cultural context of its production (a requirement, for example, in critical literacy approaches to literary texts). In this respect, then, it could be seen that the ICT intervention impacted on both pedagogy and the construction of reading literary texts as a practice. Such a construction also raised problems of e-credibility (see Haas and Wearden, 2003), an issue identified and also dealt with by Katrina in her classroom practice.

Something which emerges from the preceding discussion is a suggestion of the possibility of differing emphases on what constitutes literature-based literacy across different English-speaking educational constituencies (specifically the US and Australia). Certainly, Wild (1995) appears to follow the American emphasis on response-based conceptualisations of literature-based literacy. However, Love (1998), Morgan (1995) and to some extent Nettelbeck (2000) all, in different ways, find a place for critical literacy approaches to literature in the way they focus on this topic.

### 4.3.3 Appropriateness of research design (weight of evidence B)

In general, the studies selected for in-depth review performed slightly less well in terms of appropriateness of research design to the review question.

Two of the studies deemed highly appropriate in terms of research design were researcher-manipulated evaluations. Meskill and Swan (1998) were concerned to test the effectiveness of literature-related software package (*Kid's Space*) they had themselves developed in four elementary classrooms at different levels in two contrasting American schools. In addition to a highly developed conceptualisation of literature-related literacy and impact (detailed above in section 4.3.1), the study was characterised by the deliberateness in design of the intervention itself, in its choice of a range of classrooms and teaching styles, and in its use of a wide range of data-gathering tools. The study also utilised a range of measures to enable a description and evaluation of the ways in which students (and teachers) made use of the software in question. Nettelbeck's (2000) study was concerned to evaluate student uptake of online discussion in responding to a literary text. The appropriateness of the research design was underlined by the fact that there was among the teacher/researcher team some commonality in terms of how literature-related literacy might be described (i.e. in terms of a model of constructivist, response-based learning). That is, the design was underpinned by an agreed concept of what literature-based literacy entailed. Issues of validity had been thought through but were also seen as relative (i.e. as related to goals for learning established and hence constructed by a state-ordained qualification, the VCE).

Morgan's (1995) study was the one study selected for inclusion that the reviewers described as an 'exploration of relationships'. Essentially, Morgan was concerned to explore the three-way relationship between text (as technologised), reading (including literary response) as a practice and pedagogy. This case study examined the use made of contrasting text-types on a similar theme by three Australian Year 9 English teachers. The focus of the highly relevant study design was on teachers' constructions of literature-related literacies, although it needs to be recognised that Morgan's selection of four texts was not on the basis of 'literariness' as commonly understood. The study as set up allowed conclusions

to be drawn in respect of ways in which these constructions *mediated* the 'impact' of ICTs (in this case a CD-ROM) on classroom planning and practice. It effectively provided a methodology for discovering: for example, reasons why the mere provision of ICTs might have absolutely no impact on literature-related literacies as developed in classrooms. It also provided a methodology for discovering how teacher constructions of literate practice mediated the uses to which ICTs might be put and the extent to which they, *in themselves* (as technologies) might determine literate practices.

Love (1998) was also a case study, focusing on a single instance of a student teacher's (Katrina's) attempts at implementing ICTs in a Year 8 English programme in a Catholic, single-sex Australian school. In keeping with the action research aspect of the design, Katrina had 'solved' the problem of ICT integration by devising (in consultation with her mentor and presumably with Love, herself) a three-term programme, with each based around a literary text (novel or film – here treated as a literary text) and with each involving an ICT intervention. Again, in keeping with action research methodology, data-collection was very much in terms of Katrina's own documentation, i.e. her planning and her 'reflective journal' (p. 68). Despite Love's use of the words 'track' and 'observe', there was no mention of her actually being present to view Katrina in her class. Presumably Katrina's mentor, Hilda, would have been present, but there was no account from her in this study to complement the data.

As suggested previously, the analysis and trial of multimedia software packages vis-à-vis their place in the response-based literature classroom by Meskill and Swan (1996), was a well-designed study in respect of its careful conceptualisation of literature-based literacy. The action research paradigm also fitted well with the desired outcomes: '1. Imagine roles for the technology and accompanying software characteristics that would be supportive of response-based practices; and 2. Generate scenarios for using many of the commercial applications reviewed despite their design weakness' (p 220). The size of the sample of teachers gave weight to the appropriateness of the software evaluation criteria developed (at least in respect of response-based approaches to literature). However, as indicated previously, this study was inadequate in terms of the detail it actually provided in respect of the field-testing. In the section of the article on possible software package usage (pp 235-238) it was often difficult to differentiate between actual and envisioned classroom uses.

Chu (1995) was another study of which the research design and analysis were considered to be medium in terms of appropriateness. A special instrument was developed to record the hands-on interaction with the computer and two types of 'literary responses' (p 356). 'Both quantitative and qualitative methods were used to analyse the data' (p 356) which was reported fully and included rich vignettes of the subjects' responses to the intervention. However, only one literature-based computer program was used (Discis Books) and there was no attempt to compare responses of the same students to differently technologised literary texts.

The one study deemed to be low in terms of appropriateness of design and analysis was Wild (1995) which, like Chu (1995), was a study of the role electronic books might play in the developing ability of young children to read and respond to children's literature, but was of longer duration. A number of Wild's perfectly appropriate research questions called for a need for specified measures to be developed and applied: does the use of storybooks lead to significant improvements in children's reading performance when compared with their reading of traditional books? Does the use of storybooks as a strategy for

teaching reading encourage reluctant readers to demonstrate more positive attitudes towards reading? Are the attitudes developed by both reluctant and willing readers when they use storybooks more positive than those demonstrated towards their traditional reading material? Such measures, had these been spelled out in the report, would have allowed a better gauge of this study's design appropriateness. However, as indicated earlier, the report on which this analysis is based contained huge gaps in the account of the actual research design and its implementation.

#### 4.3.4. Overall weight of study results (weight of evidence D)

In this section, we will be taking into account weight of evidence considerations in providing an overview of the extent to which the studies included in this in-depth review serve to illuminate the research question. For reasons that will be spelled out, only two of the studies scored highly in terms of overall weight. One was deemed to be 'high/medium', two were judged to be 'medium/high', one 'medium' and one was considered 'medium/low'. For comparative purposes, the following discussion groups the studies thematically.

The two studies by Meskill and Swan (1996, 1998) are both concerned with multimedia packages and the role these might play in the response-based literature classroom. Both scored a medium rating in terms of overall weight with the reviewers. As discussed previously, the earlier study developed a convincing set of review criteria and classroom envisions for such packages (at least in terms of response-based construction of literature-based literacy). However, the trialling aspect of this study was considerably weaker in terms of its design and generated little more than random but suggestive vignettes of constructive ways of integrating ICTs in the teaching/learning of literature-based literate practices. These vignettes included non-motivated readers and ESL children being motivated to read through the use of electronic and interactive storybooks (p 235) and an increase in motivation in a ninth-grader exposed to the audio track of 'The Best of Edgar Allen Poe'.

As the researchers themselves acknowledged, there were two problems in execution that limited the extent and value of the findings of the later (1998) study. The first problem related to the hardware available for use. The second problem arose from the predispositions of the four teachers involved. None of the four elementary teachers viewed technology as something to be integrated into the general classroom programme and all appeared to believe that '...computer-based learning is somehow self-contained' (p 361). Findings on the utility of the software package was limited then by the dispositions of the teachers and their ability to guide their students in ways that might utilise the various features of the programme.

As far as the findings themselves are concerned, these fell into three categories. The first, Patterns of Use, described the extent to which students used *Kid's Space* as it had been envisioned despite 'teacher misdirection' (p 359). The second, Classroom Contexts, described aspects of the classroom context that facilitated or impeded the use of the package (in ways intended). This section was descriptive, but had an evaluative edge in that it clearly identified teacher practices deemed as desirable or undesirable in terms of the intended use of the package. The last section of findings, probably the most pertinent to the review question, provided a number of vignettes indicating ways in which students used the programme and the extent to which their uses facilitated literary understanding. These were moderately rich descriptions but were not extensive. There is a sense that there was not a great store of data to choose from and that



the programme needed a longer period of 'integration' for an adequate evaluation to occur. For these reasons, findings of an evaluative nature made by the researchers were somewhat tentative with verb modalities prominent in the formulation: 'There is some reason to believe the Communications Space could support extended conversations about literature (p 362). 'Another good indication that *Kid's Space* could support the development of literary understanding can be found in the very positive ways the writing spaces, especially Cricket Village, were used... These writing samples suggest that the Cricket Village scenes helped students to focus on details of setting and character in developing well-constructed plots' (pp 362-363).

Rather than drawing conclusions, the authors include a rather circumspect section called 'Prospects' where they conclude:

- Given the right conditions, children write creatively in response to visual and auditory stimuli as well as to each other.
- Effective methods of integrating and valuing online work are essential for the software to be used by students as intended.

As reviewers, we considered this diffident tone to be justified. The researchers were claiming no more than was justified by the data. It is also interesting to note that the strongest claim suggested the need for a professional development agenda.

As indicated previously, the studies by Chu (1995) and Wild (1995) were also concerned with young primary children and were concerned with the role electronic books might play in the development of children's reading of children's literary texts; Wild uses the term 'traditional books'. Chu (1995) was considered 'medium/high' and Wild (1995) 'medium/low' in terms of overall weight.

Chu's (1995) study had a number of design strengths, but also a number of salient weaknesses, especially in respect of the sample used and its range of texts. It was these acknowledged factors that led us to give this study an overall medium rating. However, the reviewers found the findings of this study and its discussion full of interest, especially in the light of the study's replicability. For a start, the boys in this small sample 'showed high interest in reading the computer books' (motivational). The experience was 'exciting', meaningful, and, most of all, enjoyable' (p 361). Secondly, the reading behaviours of the pupils showed them to be active in the reading process and as having their own 'individual, unique' responses (p 361). 'The selective retelling and idiosyncratic way of inferencing told us that they were successful sub-creators of their own literary worlds... They were not merely passive recipients of a technological presentation; instead, they were actively involved in the meaning constructing and responding process' (p 362). This active response included the non-verbal. (Critical literacy as a discourse is markedly absent in the analysis.) Thirdly, the subjects were described as generally reducing 'their hands-on interaction with the computer after the first few books' (p 361). The author's discussion of possible explanations for this finding was interesting for its attempt to explore the relationship between the technologised form of the text and the reading experience. Fourthly, the discussion introduced a notion of 'intertextuality' (couched in terms of reader-response theory) and indicated that it can be a practice demonstrated by very young readers of 'literary' texts (p 363). Finally, the discussion highlighted ways in which responses in a group setting effectively construct what Chu called an 'interpretative community' (p 363).

In terms of research design, the studies of Wild (1995) and Chu (1995) are significantly different in terms of sample size, range of texts used and duration of exposure to the intervention. As discussed previously, Wild's (1995) study, at least as reported, has gaps in respect of its design. However, what Wild terms its 'initial results' are interesting and invite comparison with those of Chu (1995). In the light of Chu's report of subjects generally reducing their hands-on interaction with the computer after the first few books, it is interesting to note Wild's account of the preference of able readers for traditional reading materials and their reported sense that electronic storybooks distracted them from 'their enjoyment and their reading rhythm'. The point about the reading experience was taken up again, in a more speculative way, towards the end of the article, where the writer suggested that (electronic) storybooks can *help* students in the process of forming 'a mental model of the story which they are reading'. There may well be a kind of contradiction occurring here (vis-à-vis what was reported earlier), because it *may* be that it is this very feature of such storybooks that more able readers find invasive and distracting. Other 'initial results' had a bearing on reading comprehension in general, but were not specifically oriented to the research question of the present systematic review.

Of the remaining three studies, Love (1998) was considered 'medium', Nettelbeck (2000) 'high/medium' and Morgan (1995) 'high'. All were based in a secondary school setting.

Of these three, Nettelbeck (2000) was the most specific in terms of an ICT intervention, involving as it did an entire cohort of Year 11 students (around 312 students) at a private co-educational school in Melbourne, Australia using online, web-based threaded discussions as a learning strategy in the study of a particular novel. The reviewers considered this study to have been a useful contribution to the review question. However, there are a number of aspects that would have strengthened it as a study:

- The researchers could have discussed or spelled out more fully the question of what is meant by 'quality' (p 46) in student response. Although there was no use of quantitative measures, some sense of criteria used would have been useful.
- These could have been used as a basis for analysing the sample extract which is offered without direct comment.
- More such samples would have provided a richer picture and given some sense of the range of discussion.
- The study detailed findings in respect of a discussion in response to just one text. The writer indicated that the intervention would continue with other literary texts being brought into the frame. Certainly, a study which included a wider range of texts and with a clearer sense of how the online discussion linked with other literature-related pedagogical practices would be useful.

Nonetheless, the points that Love (the outside study evaluator) makes in her findings are pertinent and reasonably persuasive. These include the following:

- Online discussions are a valid pedagogical tool in respect of the text response outcomes of the VCE English curriculum. 'The mode of online discussion offered a means that had been hitherto unavailable for students to formulate and reformulate their thinking about literary text' (p 48).
- Online discussions were successful in encouraging students to 'engage in a reflective activity with someone outside of their normal social groups' (p 48).

- 'Online discussions not only provided all students with an additional mode of expression in text response, but also made available to some students a preferred mode of expression' (p 48).

Love (1998) was also a Melbourne-based study and was an evaluation of what might be considered a series of naturally-occurring interventions in that Love is tracking, commenting upon and to some extent evaluating a series of interventions designed by the student teacher as she attempted to integrate ICT into her Year 8 English programme. The pertinence of some of these interventions has already been detailed in section 4.3.1 of this report. The reviewers deemed this study to have a medium overall weight because of the extent to which it presents a rich and authentic account of Katrina's (the teaching student's) experience. This was in part due to the quality of the teacher/subject's own self-reflective attitude and willingness, for example, to acknowledge a range of limitations exposed in her planning of ICT-based interventions.

Morgan's (1995) case study of three teachers has already been discussed in terms of its pertinence to the review question. The design of the study was considered adequate in terms of its goals, as was the method of collecting data (via taping and transcribing). The writer (Morgan) made her own position clear throughout and was transparent in the way she identified her three subjects with particular discursive positions. Enough data were presented, however, for readers to draw their own conclusions in respect of these positions. More teachers, and more checks and balances on the interpretation would have been helpful. It would have been interesting, for instance, to have known how the teachers themselves, 'unassisted', might have reflected on whether the four texts encouraged them to read in different ways.

#### 4.3.5. Questions of impact

Literature-related literacies are a range of competences enabling one to read, interpret and critique literary texts and to engage in the production of such texts. As discussed elsewhere, the impact of a technology (electronic or otherwise) on both social and cognitive aspects of these competences is not a simple one (see Haas, 1996). Table 4.11 provides an overview of the studies selected for in-depth review in terms of their ICT focus and the literary activity/ies engaged in. The literary nature of the texts is taken here as a given.

**Table 4.11:** Studies included in the in-depth review, showing the particular ICT focus and the literary activities engaged in

ICT focus	Reading	Composing	Investigation
Word-processing	Love, 1998	Love, 1998	
Desktop publishing			
Multimodal software (CD-Roms, E-books, PowerPoint)	Chu, 1995 Love, 1998 Meskill and Swan, 1996 Meskill and Swan, 1998 Morgan, 1995 Wild, 1995	Love, 1998	
Email			
Web-based discussion	Nettelbeck, 2000		
Hypertext/WWW			Love, 1998

Among other things, Table 4.11 indicates a fairly predictable privileging of reading over writing and a significant lack of any studies researching students' responses to literary hypertext. What is not revealed is the extent to which 'impact' is mediated by discourse.

Classroom-based interventions were designed by the researchers themselves for three selected studies: Chu (1995), Wild (1995) and Meskill and Swan (1998). In respect of the first two, it might be argued that the researchers had control of the discourses in terms of which texts were selected (deemed as literary) and measures (deemed to indicate 'literary' response) determined. In the case of Meskill and Swan (1998), it is clear that a tension existed between the discursive position out of which the researchers were operating and the teacher subjects themselves. The call for teacher professional development that the researchers make at the end of their account might be seen as a desire to bring teachers into line in respect of such things as definitions of literary response and the role technology might play in mediating such responses.

In Nettelbeck's (2000) study, the tension between researchers and teachers is eliminated because teachers themselves designed the intervention with their own students, notwithstanding the guidance sought from the external evaluator, Love. These teachers were working within a framework (VCE English), which provided them with a discourse within which an understanding of literary response was implicit. In this sense, literary objectives and measures were not contentious, at least on the surface. The selected ICT intervention was able to be evaluated in a straightforward way regarding its capacity to enable students to meet the stipulated outcomes: for example, encourage students to engage in a reflective and thinking activity with someone outside their class, normal friendship group and normal comfort zone.

In the studies of Meskill and Swan (1996) and Love (1998), at least in terms of classroom intervention, the researchers take a back seat. Certainly, the former draw on personal growth and reader-response discourses as a basis for their development of evaluation criteria for multimedia software applications for literature. However, for the sketchily reported classroom trials, one must assume that the classroom teachers proceeded via their own discursive lights, but these were not spelled out. Love (1998) also takes a back seat beyond the design of a course on technology and English method, which Katrina (the student teacher) participated in prior to her trying out her own ideas in an English classroom. Because the study offers a rich account (and interpretation) of Katrina's experience, readers are able to obtain a sense of the discourses (somewhat eclectic with a leaning towards critical theory) which impact upon the ICT-based interventions this young teacher plans and implements.

Finally, and somewhat in contrast, Morgan's (1995) study in effect makes a virtue of proposing an intervention (the use of a CD-Rom) and leaving to it the three teachers who are subjects of this case study how they might construct it. In contrast with Meskill and Swan (1998), where in varying degrees the classroom teachers themselves might be viewed as found wanting, it is Morgan's initial hypothesis (that technologies might have a determining role in leading users to change their constructions of literate practice) that is found wanting by the reading and teaching practices of the teachers. Of all the studies included, Morgan's most clearly articulates the way in which reading practices (including literature-based ones), technologised practices and pedagogical practices are mediated by discourse.

## **4.4 In-depth review: quality assurance results**

Both reviewers were in accord in respect of the studies finally included in the in-depth review. These seven studies were independently data-extracted by Terry Locke (University of Waikato) and Richard Andrews (University of York). These data-extractions were then compared and all areas of disagreement and contention resolved. The English Review Group data-extraction for each of the seven literature-related studies was then uploaded.

## **4.5 Nature of actual involvement of users in the review and its impact**

(See section 2.1.)

The English Review Group as a whole, representing parent governors, teachers, local education authority advisors and with an external viewpoint from the National Health Service Centre for Reviews and Dissemination, was instrumental in selecting the sub-area for review from the map of the impact of ICT on literacy learning; and also in commenting on a draft of the present report.

## 5. FINDINGS AND IMPLICATIONS

It is a common strand in the research we have reviewed that rather than measure the impact of ICT on the learning of literature-related literacies in English for 5-16 year-olds, it has tended to come to the conclusion that it is teachers who matter more than the technology. 'Impact' is mediated by teachers.

### 5.1 Summary of principal findings: toward an overview

What follows is a brief account of the principal findings to emerge from the thematic overview of individual study findings in section 4.3.4 which we take to be the best synthesis we can forge in a diverse and complex field.

- Reading practices (including literature-based ones), technologised practices and pedagogical practices are mediated by discourse. The discourses of teachers have a centrally determining role in the 'impact' of ICTs on any literate practice, including literature-based literacy (Love, 1998; Meskill and Swan, 1998; Morgan, 1995).
- There tends to be a mismatch between commercially available multimedia literature software packages and theories of literature teaching couched in terms of (critical) reader response (Meskill and Swan, 1996).
- It appears possible to design multimedia literature-based software packages that encourage literary response and literary composition (Meskill and Swan, 1998).
- Electronic and interactive storybooks can be motivators to reading for young readers in general (Chu, 1995; Wild, 1995) and for non-motivated readers and ESL children (Meskill and Swan, 1996).
- Electronic and interactive storybooks can facilitate a range of active, 'literary' responses (Chu, 1995; Wild, 1995).
- At least for some readers, electronic storybooks may be demotivating after a period of time (Wild, 1995).
- Online discussion gives students a new means of formulating and reformulating their thinking in response to literary text and gives them the opportunity of sharing their thinking with a wider audience (Nettelbeck, 2000).
- Some studies present vignettes which are suggestive of impact but which do not really constitute firm findings: screen-based writing differs from pen/paper-based writing as a material practice and may have particular cognitive and social effects (Love, 1998); the multimedia design features of many software packages offer new possibilities for literary text production and text 'impact' (Love, 1998); and the worldwide web offers a powerful tool for researching the cultural backgrounds of literary texts but raises issues of e-credibility (Love, 1998).
- The presence of literature, however defined or problematised, is taken as a given within the language/English programme.

### 5.2 Strengths and limitations of this systematic review

This review has a number of limitations. In keeping with the inclusion/exclusion criteria, studies of the topic in languages other than English have been excluded. Yet clearly the topic is not one that is confined to English as a language. At seven, the number of studies that have been drawn upon here is a small one. Further limitations can be listed:

- As Table 4.11 indicates, there is an expected emphasis on reading as opposed to writing (or composition), with virtually no studies dealing with literary hypertext, as either read or composed.
- While some studies 'factor in' the discourse of the teacher in designing an intervention, others fail to do this.
- There is insufficient attention to matters of duration of exposure to an ICT-based intervention, i.e. there are really no longitudinal studies in this review
- Overall, questions of how data analysis should proceed and the bases for these procedures are not well handled.
- There is an unevenness in reporting style across these seven studies, with a marked contrast between studies reported in professional journals and those reported in academic ones.

Despite its limitations, however, this systematic review might be seen as having a number of strengths:

- It confirms a continuing place for literary study (variously) defined across a range of countries and at all levels of schooling.
- It suggests widespread endorsement of the idea that 'literary' texts can be multi-modal.
- It indicates a discursively complex picture of the ways in which classroom teachers construct such terms as 'literature' and 'literature-related literacy'.
- It indicates a discursively complex picture of the ways in which classroom teachers view ICTs as impacting upon textual practice and how ICTs might be integrated in a classroom literature programme.
- It shows the dependence of outcomes and measures on a developed view of what literature-based literacy comprise.
- It suggests the possibility of differing emphases on what constitutes literature-based literacy across different English-speaking educational constituencies, specifically the US and Australia (see section 4.3.2).
- It includes both researcher-designed interventions and naturally-occurring ones as well as studies that explore relationships. There was a determination on the part of the reviewers to ensure that the range of studies included was a broad one.

## 5.3 Implications

### 5.3.1 Policy

The rationale for this particular review lies in the fact that the study of literature (including literary texts aimed children and young adult readers) has a traditional place in the English curricula of all English-speaking countries. Although the character of literature as a category is contentious and problematic, there is currently a fair consensus that it is a discrete one. Ultimately, the continuing presence of literature in the intended curriculum of a particular country will be a matter of educational policy. In most, but not all, constituencies, this continued presence would appear to be secure. However, there is evidence that its nature

as a discrete textual category with special status may be under threat from critically theoretical approaches, which would view literary texts as cultural products alongside other texts.

As reviewers, we would make the following recommendations on the basis of the discussion that has occurred earlier in this systematic review:

- Curriculum planners need to acknowledge that the term 'literature' is, indeed, problematic. Different discursive positions define 'literature' and 'literature-related literacies' in different ways. Such diversity has the potential to enrich students' understanding of literature and literary study. There is no reason why the problematisation of the term itself cannot be made part of the curriculum.
- However 'literature' and 'literary study' become couched in curriculum documentation and in centrally produced resources, there needs to be an acknowledgement that textual practices surrounding literary texts are being affected by ICTs and that ICT-based technologies of production are impacting on the character of literary texts themselves (including the production of new forms).
- Problems can arise in an intended curriculum where learning outcomes are too narrowly defined (in a behavioural sense). The challenges revealed in the studies discussed in clearly articulating outcomes (especially measurable ones) is indicative of the higher-level thinking skills one would expect to be associated with literary study, however conceptualised. It may be that an intended curriculum advocating literary study would be better couched in terms of problem-solving or expressive outcomes rather than behavioural ones (Eisner, 2002).
- As a number of the included studies have indicated, intended outcomes are inevitably mediated by teacher intention (and the discourses that frame those intentions). Policy changes need to be informed by the current practices of teachers as well as set out to change these practices.

### 5.3.2 Practice

There is no doubt that the implications for policy-makers indicated in the preceding section have their equivalent in challenges for English teachers and teacher educators. It is clear that ICT is happening and central to this phenomenon is a radical transformation of text-based practices at all levels of society. Morgan's (1995) study pinpoints the need for an ideal of critically reflective practice to be fostered among teachers. This would involve teachers in conversations where the implications of ICT-mediated textual forms for reading practices and pedagogy are explored. Love's (1998) study shows what can happen when an adventurous young teacher, cued by a relevant teacher education programme, decides to take some risks and think through the implications of ICT for her own English teaching. Nettelbeck's (2000) study shows what an entire English department can do when it engages in reflective practice and makes a decision to act innovatively in consort.

Beyond these general points, a classroom literacy/ English teacher might consider the following suggestions:

- Couch at least some unit and lesson-planning objectives in 'expressive' and 'problem-solving' terms (Eisner, 2002).
- Following on from the last point, problematise terms such as 'literature' and 'impact' by having students actually explore ways in which, say, technology is



transforming print-based literary texts, or providing them with additional ways of engaging with literary texts, or transforming the way they read and write 'literary' texts when they are in digital forms.

- Have students review 'literary' texts in digital forms.
- Experiment with online discussion as a way of encouraging talk around literary texts.
- Collaborate with other teachers in finding ways of helping pupils use the internet to research the cultural contexts of literary texts as part of an approach to reading texts critically.
- Experiment with the use of digital and non-digital technologies for mediating different aspects of the writing process (planning, researching, editing, conferencing).
- Encourage students in experimenting creatively with digitally mediated and new literary forms (hyperfiction, hyperpoetry, multimedia texts of various kinds).

### 5.3.3 Research

As the preceding discussion has indicated, where literature-based literacy has been carefully conceptualised (Chu, 1995; Meskill and Swan, 1996; Meskill and Swan, 1998), the process of identifying clear outcomes and performance measures is made easier. However, researchers adopting the reader-response discourse underpinning these studies need to acknowledge that there are other and competing discourses with the potential to frame literature-based textual practice differently.

As reviewers, we acknowledge the need for conceptual studies in respect of this review question, where theorists engage in the task of constructing the nexus between ICTs and literacy-centred practices and project a vision of what a technology-infused classroom might look like (for example, Lankshear and Knobel, 1997), especially one in which hypertext is beginning to stretch definitions as to what constitutes a 'literary' text (for example, Snyder, 1996). Although such studies have fallen outside the scope of this systematic review, they have not been ignored in our attempt to describe the wider context within which included studies are located.

As Table 4.11 indicates, there are plenty of gaps indicating where a future research agenda, irrespective of study type, might focus itself. As the nature of literary study becomes affected by Cultural Studies, we would see a growing place for research into the role investigation plays in the study of literary texts in classrooms. There is clearly a place for research into ways in which the new technologies are impacting or can impact on students' production of literary forms, either as traditionally conceived or as generated courtesy of the ICT midwife.

There is, of course, room in the research field for various kinds of outcome evaluation, where a particular intervention is being trialled and its effect measured in some way (for example, Bain *et al.*, 2000). There is, however, also room for various kinds of descriptive study (case studies, educational critical studies) that provide rich descriptions and analyses of situations where ICTs are playing a role in literature-centred instruction. Such studies will not be necessarily evaluative (although they can be) and may utilise critical discourse analysis as a way of identifying underlying theoretical positions in respect of the study of literature and pedagogy (for example, Morgan, 2001).

As Donald Leu (2000) points out, it may be that it will be teachers themselves, exploring in their own classrooms hunches and intuitions about the implications for their teaching of the impact of ICTs on a range of literate practices, that provide the strongest lead as to how the future research agenda should be formulated. 'Our understanding,' he writes, 'may be informed more often by individuals who use various technologies on a daily basis and less often by traditional forms of research' (p 761). This focus will lead to individual teachers treating themselves as case studies and reflecting on their own experiments in using ICTs to further programme goals related to literary study (for example, Nelson, 1994).

## 6. REFERENCES

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*Studies selected for in-depth review are marked with an asterisk*

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## APPENDIX 2.1: Inclusion and exclusion criteria

### English Review Group Working Document

#### Systematic review on *The impact of ICT on 5-16 year olds' literacy in English*

#### Screening studies for inclusion in 'Mapping' section of review.

**Exclusion criteria: To be included, a study must NOT fall into any one of the following categories.**

**IF A STUDY IS TO BE EXCLUDED, RECORD REASON BY USING APPROPRIATE EXCLUSION CODE (ONE, TWO, THREE, FOUR, OR FIVE)**

#### EXCLUSION ON SCOPE

**ONE** Not ICT or literacy

*( Definition of ICT: ICT stands for 'information and communication technologies', networked technologies with a multimodal interface, ie. networked and stand-alone computers, mobile phones with the capacity for a range of types of communication, and other technologies which allow multimodal and interactive communication.*

*( Definition of literacy: Literacy can be defined narrowly, as the ability to understand and create written language. It is, however, frequently defined in two broader senses, and both are included in the present study. Firstly, the scope can be expanded so that written language becomes written language and graphical or pictorial representation. Secondly, the skill can be treated as social, rather than psychological; in this view literacy is the ability to operate a series of social or cultural representations. Since sets of expectations and norms differ depending on the situation, the social view of literacy entails a number of different 'literations'.*

**TWO** Not children aged 5–16, or main focus not children aged 5–16

**THREE** Not about the impact of ICT on literacy learning and/or teaching, or vice versa

*( Definition of the impact of ICT on literacy: Impact will be defined as the result on end-users (here children between 5 and 16) of an intervention aimed at improving the teaching or learning of literacy. It may also be the result of a non-intervention activity which could reasonably be expected to increase or decrease literacy. Either can be considered as 'literacy-related activities'. Entailment: A research study which focuses on teachers' or learners' perspectives, opinions or strategies, may be considered to deal with the impact of ICT on literacy as long as it refers to a specific literacy-related activity.*

#### EXCLUSION ON STUDY TYPE

- FOUR**
- (a) Editorials, commentaries, book reviews
  - (b) Policy documents
  - (c) Prevalence or incidence of ICT in literacy learning
  - (d) Non-systematic reviews
  - (e) Non-evaluated interventions
  - (f) Surveys examining a range of curricular activities
  - (g) Resources
  - (h) Bibliography

- (i) Theoretical paper
- (j) Methodology paper
- (k) Non-evaluated non-interventions\*
- (l) Dissertation abstracts (unless RCTs)

### **EXCLUSION ON SETTING IN WHICH STUDY WAS CARRIED OUT**

FIVE Settings in which a language other than English is being used as a primary medium for literacy learning, i.e. include ESL and EAL, exclude EFL.

Acknowledgements: This document was developed from the EPPI-Centre Working document on Inclusion Criteria for Mapping. Training and support are acknowledged.

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\* A non-evaluated non-intervention would typically describe a naturally-occurring phenomenon, rather than evaluating it. So an ethnographic case study of a classroom, or a learning site of some other kind, could fall into this category if it didn't attempt to evaluate processes or outcomes. Of course, all description is a kind of evaluation (as it will be based on selection according to certain principles); but if those principles aren't articulated, then it is hard to judge the work as research.

## APPENDIX 2.2: Search strategy for electronic databases

### ICT AND LITERACY – UPDATE SEARCHES

Searcher: Julie Glanville, NHS Centre for Reviews and Dissemination

Completed on 20 August 2002

#### 1. Databases

##### 1a. ERIC

ERIC was searched on 16 August 2002, using the BIDS Ovid interface. The database was searched for the period of updates May 2001 to June 2002 and 181 records were retrieved. The records were loaded into an Endnote library.

exp children/ or exp adolescents/  
exp early adolescents/ or exp late adolescents/  
exp preadolescents/ or exp secondary school students/  
students/ or elementary school students/ or high risk students/  
lower class students/ or middle class students/  
middle school students/ or special needs students  
exp special schools/ or disadvantaged youth  
exp early childhood education/  
exp elementary education/ or exp british infant schools/  
exp elementary schools/ or exp middle schools/  
exp public schools/ or exp secondary schools/ or exp state schools/  
or/1-11  
exp computers/ or computer centers/ or computer games/  
computer graphics/ or exp computer interfaces/ or computer managed instruction/  
computer mediated communication/ or exp computer networks/ or exp computer  
software/  
exp computer uses in education/ or exp expert systems/  
hypermedia/ or gateway systems/ or information systems/  
information technology/ or exp man machine systems/  
multimedia materials/ or natural language processing/  
exp optical disks/  
"screen design (computers)"/  
telecommunications/ or virtual reality/ or workstations/  
multimedia instruction/ or nonprint media/ or world wide web/ or internet/  
or/13-23  
12 and 24  
literacy/ or exp functional literacy/ or exp reading/ or "writing (composition)"/  
literacy education/ or exp reading skills/ or reading ability/  
reading failure/ or reading habits/ or reading improvement/  
exp reading instruction/ or basic writing/ or children's writing/  
creative writing/ or descriptive writing/ or exp handwriting/  
exp sentences/ or spelling/ or exp writing ability/  
writing exercises/ or writing improvement/ or writing instruction/  
sentence structure/ or syntax/ or alphabetizing skills/  
or/26-33  
25 and 34  
\*adult education/  
\*postsecondary education/ or exp \*adults/



\*adult learning/ or \*adult literacy/  
exp \*adult programs/  
\*adult basic education/ or \*workplace literacy/  
or/36-40  
35 not 41  
limit 42 to english language  
(computer\$ adj3 literacy).mp.  
(computer\$ adj3 literacies).mp.  
(computer\$ adj3 read).mp.  
(computer\$ adj3 reading).mp.  
(computer\$ adj3 spell).mp.  
(computer\$ adj3 spelling).mp.  
(computer\$ adj3 write).mp.  
(computer\$ adj3 writing).mp.  
(computer\$ adj3 learn).mp.  
(computer\$ adj3 learning).mp.  
(cal adj3 (read or reading or spell or spelling or write or writing or learn or learning)).mp.  
(cai adj3 (read or reading or spell or spelling or write or writing or learn or learning)).mp.  
(call adj3 (read or reading or spell or spelling or write or writing or learn or learning)).mp.  
(multimedia adj3 (read or reading or spell or spelling or write or writing or learn or learning)).mp.  
(ict adj3 (read or reading or spell or spelling or write or writing or learn or learning)).mp.  
(www adj3 (read or reading or spell or spelling or write or writing or learn or learning)).mp.  
(software adj3 (read or reading or spell or spelling or write or writing or learn or learning)).mp.  
or/44-60  
61 not (43 or 41)  
limit 62 to english language  
50 and 12  
63 and 12  
65 or 42  
65 or 43  
("200105" or "200106" or "200107" or "200108" or "200109" or "200110" or "200111" or "200112" or "200201" or "200202" or "200203" or "200204" or "200205" or "200206").em.  
67 and 68

### **1b. British Education Index**

The BEI was searched on 19 August 2002, using the BIDS Ovid interface. The database was searched for the updates first quarter 2001 to first quarter 2002 and 67 records were retrieved. The records were loaded into an Endnote library.

ict.mp.  
(information adj technolog\$).mp.  
(communication adj technolog\$).mp.  
(cal or cai or computer\$ or multimodal or multimedia).mp.  
(networked adj technolog\$).mp.  
(mobile adj phone\$).mp.  
(digital adj media).mp.  
(internet or cdrom or hypertext or www).mp.  
(world adj wide adj web).mp.

(worldwide adj web).mp.  
software.mp.  
"computer uses in education".sh.  
("computer assisted learning" or "educational software").sh.  
information systems/  
"educational technology".sh.  
exp "screens (displays)"/  
"electronic books".sh.  
"multimedia approach".sh.  
"computer games".sh.  
or/1-19  
(literacy or literacies).mp.  
"spelling teaching".sh.  
reading comprehension/  
reading skills/  
reading teaching/  
(learn adj4 english).mp.  
(learn adj4 read).mp.  
(learn adj4 reading).mp.  
(learn adj4 writing).mp.  
(learn adj4 write).mp.  
(learn adj4 spell\$).mp.  
(learning adj4 english).mp.  
(learning adj4 read).mp.  
(learning adj4 reading).mp.  
(learning adj4 write).mp.  
(learning adj4 writing).mp.  
(learning adj4 spell\$).mp.  
(teach\$ adj4 english).mp.  
(teach\$ adj4 read).mp.  
(teach\$ adj4 reading).mp.  
(teach\$ adj4 writing).mp.  
(teach\$ adj4 write).mp.  
(teach\$ adj4 spell\$).mp.  
(develop\$ adj4 english).mp.  
(develop\$ adj4 read).mp.  
(develop\$ adj4 reading).mp.  
(develop\$ adj4 writing).mp.  
(develop\$ adj4 write).mp.  
(develop\$ adj4 spell\$).mp.  
(reading adj3 disab\$).mp.  
reading ability/  
reading improvement/  
spelling/  
writing skills/  
reading difficulties/  
or/21-55  
computer assisted reading/  
computer assisted language learning/  
20 and 56  
or/57-59  
adult literacy/  
adult basic education/  
adult basic education.id.  
higher education.id.  
professional education.id.

or/61-65  
60 not 66  
("200101" or "200102" or "200103" or "200104" or "200201").up.  
67 and 68

### **1c. PsycINFO**

PsycINFO was searched on 19 August 2002, using the WEBSPIRS interface. The database was searched for the updates April 2001 week 1 to August 2002 week 1 and 122 records were retrieved. The records were loaded into an Endnote Library.

- #1 explode 'Computers-' in DE (222 records)
- #2 explode 'computer-applications' in de (1274 records)
- #3 'computer-games' in de (45 records)
- #4 explode 'computer-simulation' in de (751 records)
- #5 explode 'computer-software' in de (382 records)
- #6 'Electronic-Communication' in DE (231 records)
- #7 explode 'information-systems' in de (913 records)
- #8 'internet-' in de (771 records)
- #9 'word-processing' in de (18 records)
- #10 #1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 (2940 records)
- #11 'literacy-' in de (323 records)
- #12 'literacy-programs' in de (75 records)
- #13 explode 'language-arts-education' in de (307 records)
- #14 explode 'reading' in de (399 records)
- #15 'reading-development' in de (144 records)
- #16 explode 'reading-measures' in de (26 records)
- #17 explode 'reading-skills' in de (329 records)
- #18 'writing-skills' in de (179 records)
- #19 #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 (1394 records)
- #20 'computer-assisted-instruction' in de (365 records)
- #21 #10 or #20 (2940 records)
- #22 #19 and #21 (64 records)
- #23 (ict near (literacy or read or reading or spell or spelling or write or writing))  
in ti,ab (0 records)
- #24 (information technolog\* near (literacy or read or reading or spell or spelling  
or write or writing)) in ti,ab (5 records)
- #25 (communication technolog\* near (literacy or read or reading or spell or  
spelling or write or writing)) in ti,ab (3 records)
- #26 (cal near (literacy or read or reading or spell or spelling or write or writing))  
in ti,ab (0 records)
- #27 (cai near (literacy or read or reading or spell or spelling or write or writing))  
in ti,ab (2 records)
- #28 (networked technolog\* near (literacy or read or reading or spell or spelling  
or write or writing)) in ti,ab (0 records)
- #29 (multimodal near (literacy or read or reading or spell or spelling or write or  
writing)) in ti,ab (3 records)
- #30 (digital media near (literacy or read or reading or spell or spelling or write or  
writing)) in ti,ab (0 records)
- #31 (internet near (literacy or read or reading or spell or spelling or write or  
writing)) in ti,ab (42 records)
- #32 (cdrom near (literacy or read or reading or spell or spelling or write or  
writing)) in ti,ab (0 records)
- #33 (hypertext near (literacy or read or reading or spell or spelling or write or  
writing)) in ti,ab (5 records)

- #34 (wide web near (literacy or read or reading or spell or spelling or write or writing)) in ti,ab (13 records)
- #35 (www near (literacy or read or reading or spell or spelling or write or writing)) in ti,ab (1 record)
- #36 (worldwide web near (literacy or read or reading or spell or spelling or write or writing)) in ti,ab (0 records)
- #37 (software near (literacy or read or reading or spell or spelling or write or writing)) in ti,ab (33 records)
- #38 (computer\* near (literacy or read or reading or spell or spelling or write or writing)) in ti,ab (163 records)
- #39 (electronic near (literacy or read or reading or spell or spelling or write or writing)) in ti,ab (23 records)
- #40 #23 or #24 or #25 or #26 or #27 or #28 or #29 or #30 or #31 or #32 or #33 or #34 or #35 or #36 or #37 or #38 or #39 (236 records)
- #41 'adult-development' in de (253 records)
- #42 'adult-education' in de (48 records)
- #43 'adult-learning' in de (42 records)
- #44 (ADULTHOOD in AG:PY) or (AGED in AG:PY) or (MIDDLE-AGE in AG:PY) or (THIRTIES in AG:PY) or (VERY-OLD in AG:PY) or (YOUNG-ADULTHOOD in AG:PY) (45840 records)
- #45 #41 or #42 or #43 or #44 (45904 records)
- #46 #22 or #40 (258 records)
- #47 #46 not #45 (137 records)
- #48 #47 and (la='english') (133 records)
- #49 (20000809 in UD:PY) or (20000816 in UD:PY) or (20000823 in UD:PY) or (20000830 in UD:PY) or (20000906 in UD:PY) or (20000913 in UD:PY) or (20000920 in UD:PY) or (20000927 in UD:PY) or (20001101 in UD:PY) or (20001108 in UD:PY) or (20001115 in UD:PY) or (20001129 in UD:PY) or (20001206 in UD:PY) or (20001213 in UD:PY) or (20001220 in UD:PY) or (20001227 in UD:PY) or (20010103 in UD:PY) or (20010110 in UD:PY) or (20010117 in UD:PY) or (20010124 in UD:PY) or (20010131 in UD:PY) or (20010207 in UD:PY) or (20010214 in UD:PY) or (20010221 in UD:PY) or (20010228 in UD:PY) or (20010307 in UD:PY) or (20010314 in UD:PY) or (20010321 in UD:PY) or (20010328 in UD:PY) (5963 records)
- #50 #48 not #49 (122 records)

### **1d. Cochrane Library**

Issue 2002/2 of the Cochrane Library was searched. Three hundred and thirty-eight records were identified. As it is not possible to limit to a range of update periods, the records were handsifted by the information officer to exclude large numbers of records about computer-based training of health professionals. The resulting records (11) were loaded into an Endnote library.

COMPUTER\* near LITERACY  
 COMPUTER\* near LEARN\*  
 COMPUTER\* near SPELL\*  
 cOMPUTER\* near READ\*  
 COMPUTER\* near WRIT\*  
 hYPERMEDIA near LITERACY  
 hypermedia near LEARN\*  
 hypermedia near SPELL\*  
 hypermedia near READ\*  
 hypermedia near WRIT\*  
 SYSTEM\* near LITERACY  
 system\* near LEARN\*  
 system\* near SPELL\*

system\* near READ\*  
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 tECHNOLOG\* near LEARN\*  
 tECHNOLOG\* near SPELL\*  
 tECHNOLOG\* near READ\*  
 tECHNOLOG\* near WRIT\*MULTIMEDIA near LITERACY  
 MULTIMEDIA near LEARN\*  
 MULTIMEDIA near SPELL\*  
 MULTIMEDIA near READ\*  
 MULTIMEDIA near WRIT\*DISK\* near LITERACY  
 DISK\* near LEARN\*  
 DISK\* near SPELL\*  
 DISK\* near READ\*  
 DISK\* near WRIT\*TELECOMMUNICATION\* near LITERACY  
 TELECOMMUNICATION\* near LEARN\*  
 TELECOMMUNICATION\* near SPELL\*  
 TELECOMMUNICATION\* near READ\*  
 TELECOMMUNICATION\* near WRIT\*VIRTUAL near LITERACY  
 VIRTUAL near LEARN\*  
 VIRTUAL near SPELL\*  
 VIRTUAL near READ\*  
 VIRTUAL near WRIT\*WORKSTATION\* near LITERACY  
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 WORKSTATION\* near SPELL\*  
 WORKSTATION\* near READ\*  
 WORKSTATION\* near WRIT\*wide NEAR LITERACY  
 wide near LEARN\*  
 wide near SPELL\*  
 wide near READ\*  
 wide near WRIT\*WORLDWIDE near LITERACY  
 WORLDWIDE near LEARN\*  
 WORLDWIDE near SPELL\*  
 WORLDWIDE near READ\*  
 WORLDWIDE near WRIT\*WWW near LITERACY  
 WWW near LEARN\*  
 WWW near SPELL\*  
 WWW near READ\*  
 WWW near WRIT\*INTERNET near LITERACY  
 INTERNET near LEARN\*  
 INTERNET near SPELL\*  
 INTERNET near READ\*  
 INTERNET near WRIT\*ICT near LITERACY  
 ICT near LEARN\*  
 ICT near SPELL\*  
 ICT near READ\*  
 ICT near WRIT\*cal near LITERACY  
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 cal near READ\*  
 cal near WRIT\*cai near LITERACY  
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 cai near WRIT\*  
 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or  
 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or

31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54 or 55 or 56 or 57 or 58 or 59 or 60 or 61 or 62 or 63 or 64 or 65 or 66 or 67

### **1e. Canadian Business and Current Affairs (CBCA) Fulltext Education database**

Not available to CRD; not searched for update by CRD.

### **1f. Dissertation Abstracts**

Dissertation Abstracts was searched, using the Dialog Service. The search covered the period July 2001 to July 2002. Forty-five records were identified and the free formats were downloaded. These records give title and indexing only and should be scanned. Any of interest can then be sent back to the information officer who will obtain bibliographic details and abstracts.

```
1 S COMPUTER?
2 S EXPERT()SYSTEM? ?
3 S HYPERMEDIA OR INFORMATION()SYSTEMS
4 S INFORMATION()TECHNOLOGY
5 S MULTIMEDIA OR NATURAL()LANGUAGE()PROCESSING
6 S OPTICAL()DISK? ?
7 S TELECOMMUNICATIONS OR VIRTUAL()REALITY OR WORKSTATION?
?
8 S WORLD()WIDE()WEB OR INTERNET OR WWW
9 S ICT OR CAL OR CAI
10 S LITERACY OR READING OR WRITING
11 S SENTENCES OR SPELLING OR SYNTAX
12 S ADULT? ? OR POSTSECONDARY OR UNIVERSITY OR
HIGHER()EDUCATION
13 S S1:S9
14 S S10:S11
15 s s13(3n)s14
16 s S15 NOT S12
17 s S16/ENG
18 s UD='200107':UD='200207'
19 s S17 AND S18
```

### **1g. Social Science Citation Index**

This database was searched, using the Dialog service (file 7). This was used in preference to the Web of Science interface because it allows more focused searching. The database was searched for the period June 2001 to August 2002 week 3. Forty-two records were identified and the free formats were downloaded. These records give title and indexing only and should be scanned. Any of interest can then be sent back to the information officer who will obtain bibliographic details and abstracts.

```
1 S CHILDREN OR ADOLESCENTS
2 S SECONDARY()SCHOOL? ?
3 S ELEMENTARY()SCHOOL? ?
4 S MIDDLE()SCHOOL? ?
5 S SPECIAL()SCHOOL? ?
6 S CHILDHOOD
7 S ELEMENTARY()EDUCATION OR INFANT()SCHOOL? ?
8 S PUBLIC()SCHOOL? ? OR STATE()SCHOOL? ?
9 S COMPUTER?
10 S EXPERT()SYSTEM? ?
```

- 11 S HYPERMEDIA OR INFORMATION()SYSTEMS
- 12 S INFORMATION()TECHNOLOGY
- 13 S MULTIMEDIA OR NATURAL()LANGUAGE()PROCESSING
- 14 S OPTICAL()DISK? ?
- 15 S TELECOMMUNICATIONS OR VIRTUAL()REALITY OR WORKSTATION?  
?
- 16 S WORLD()WIDE()WEB OR INTERNET OR WWW
- 17 S LITERACY OR READING OR WRITING
- 18 S SENTENCES OR SPELLING OR SYNTAX
- 19 S ADULT? ? OR POSTSECONDARY OR UNIVERSITY OR  
HIGHER()EDUCATION
- 20 S ICT OR CAL OR CAI
- 21 S S1:S8
- 22 S S9:S16 OR S20
- 23 S S17:S18
- 24 S S22(3N)S23
- 25 S S24 NOT S19
- 26 S S25/ENG
- 27 S UD>200106
- 28 S S27 AND S26

### **1h. SIGLE**

The SIGLE database was searched, using the ARC WinSPIRS service. The database was searched from updates January 2001 to June 2002. Three records were retrieved and loaded into an Endnote library.

(ict near (literacy or read or reading or spell or spelling or write or writing)) in ti,ab  
(information technolog\* near (literacy or read or reading or spell or spelling or  
write or writing)) in ti,ab  
(communication technolog\* near (literacy or read or reading or spell or spelling or  
write or writing)) in ti,ab  
((cal or cai or networked technolog\*) near (literacy or read or reading or spell or  
spelling or write or writing)) in ti,ab  
((multimodal or digital media or internet) near (literacy or read or reading or spell  
or spelling or write or writing)) in ti,ab  
((cdrom or hypertext or wide web or www or worldwide web) near (literacy or read  
or reading or spell or spelling or write or writing)) in ti,ab  
((software or computer\* or electronic) near (literacy or read or reading or spell or  
spelling or write or writing)) in ti,ab  
#1 or #2 or #3 or #4 or #5 or #6 or #7

## **2. Internet**

A selection of key internet sites were searched. Given the largely unstructured nature of web pages, it is difficult to restrict searches to material added since a previous search. Where possible, pages visited previously were revisited and researchers will need to look through the printouts and downloaded files to identify new material.

### **2a. Voice of the Shuttle (<http://vos.ucsb.edu/>)**

Web page for humanities research. Accessed on 20 August 2002.

Search terms: literacy

The resulting pages of links were printed out for scanning by researchers.

**2b. British Educational Communications and Technology Agency  
(<http://www.becta.org.uk>)**

Accessed on 20 August 2002. Printed out web page on Literacy information (<http://www.becta.org.uk/start/literacy.html>) and other 'research-' oriented BECTA pages.

Followed links to Literacy Time website (<http://vtc.ngfl.gov.uk/literacy/index.html>). Printed out Research and Reports page ([http://vtc.ngfl.gov.uk/literacy/features/research\\_reports.html](http://vtc.ngfl.gov.uk/literacy/features/research_reports.html)).

**2c. OFSTED (<http://www.ofsted.gov.uk>)**

The A-Z of OFSTED Publications list was printed out on 20 August 2002. (<http://www.ofsted.gov.uk/public/index.htm>). In addition, the list of publications for 2002 was printed out separately.

**2d. National Literacy Trust (<http://www.literacytrust.org.uk>)**

This web site was searched on 20 August 2002.

Searched ICT subsections.

Searched Ongoing research database.

Searched Research Findings database using Subject heading assigned by NLT: "Information technology and literacy". Retrieved 1 record.

Searched literacy researchers list and printed out.

Printed out a wide range of bibliographies and links pages.

The web pages were saved as files nlt1.htm to nlt12.htm and will need to be scanned for new and relevant information.

**2e. Teachers Evaluating Educational Multimedia  
(<http://www.teem.org.uk>)**

Accessed the website on 20 August 2002. This website still focuses on case studies, teachers' evaluations of software and publishers' product information. No further information on research evidence was identified.



## APPENDIX 2.3 Journals handsearched

*All journals were searched for the period July 2001 to October 2002.*

Australian Journal of Language and Literacy

English in Australia

English in Aoteroa

Literacy Learning

Education Media International

Dyslexia

Reading and Writing

Education, Communication and Information

English in Education

Research in the Teaching of English

Journal of Educational Computing Research

Changing English

# APPENDIX 2.4: EPPI-Centre educational keywording sheet

V0.9.5 Bibliographic details and/or unique identifier.....

<p><b>1. Identification of report</b>                  Citation                  Contact                  Handsearch                  Unknown                  Electronic database                  (Please specify.) .....</p> <p><b>2. Status</b>                  Published                  In press                  Unpublished</p> <p><b>3. Linked reports</b>  <i>Is this report linked to one or more other reports in such a way that they also report the same study?</i></p> <p>Not linked                  Linked (Please provide bibliographical details and/or unique identifier.)                  .....                  .....                  .....</p> <p><b>4. Language</b> (Please specify.)                  .....                  .....</p> <p><b>5. In which country/countries was the study carried out?</b> (Please specify.)                  .....                  .....                  .....</p>	<p><b>6. What is/are the topic focus/foci of the study?</b>                  Assessment                  Classroom management                  Curriculum*                  Equal opportunities                  Methodology                  Organisation and management                  Policy                  Teacher careers                  Teaching and learning                  Other (Please specify.).....</p> <p><b>*6a Curriculum</b>                  Art                  Business studies                  Citizenship                  Cross-curricular                  Design and technology                  Environment                  General                  Geography                  Hidden                  History                  ICT                  Literacy – first language                  Literacy further languages                  Literature                  Maths                  Music                  PSE                  Physical education                  Religious education                  Science                  Vocational                  Other (Please specify.) .....</p> <p><b>7. Programme name</b> (Please specify.)                  .....</p>	<p><b>8. What is/are the population focus/foci of the study?</b>                  Learners*                  Senior management                  Teaching staff                  Non-teaching staff                  Other education practitioners                  Government                  Local education authority officers                  Parents                  Governors                  Other (Please specify.) .....</p> <p><b>*8a Age of learners (years)</b>                  0-4                  5-10                  11-16                  17-20                  21 and over  <b>*8b. Sex of learners</b>                  Female only                  Male only                  Mixed sex</p> <p><b>9. What is/are the educational setting(s) of the study?</b>                  Community centre                  Correctional institution                  Government department                  Higher education institution                  Home                  Independent school                  Local education authority                  Nursery school                  Post-compulsory education institution                  Primary school                  Pupil referral unit                  Residential school                  Secondary school                  Special needs school                  Workplace                  Other educational setting (Please specify.).....</p>	<p><b>10. Which type(s) of study does this report describe?</b></p> <p>A. Description                  B. Exploration of relationships                  C. Evaluation                      a. naturally-occurring                      b. researcher-manipulated                  D. Development of methodology                  E. Review                      a. Systematic review                      b. Other review</p> <p>Please state here if keywords have not been applied from any particular category (1-10) and the reason why (e.g. no information provided in the text)</p> <p>.....                  .....                  .....                  .....                  .....                  .....</p>
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# APPENDIX 2.5: EPPI English Review Group keywording sheet

KEYWORDS FOR ENDNOTE NO .....

<p><b>14. Focus of the report (Tick all that apply.)</b></p> <table> <tr> <td>literacy</td> <td>learning</td> <td>ICT</td> </tr> <tr> <td>genre</td> <td>assessment</td> <td>CAI/CAL</td> </tr> <tr> <td>literacies</td> <td>dyslexia/hypertext</td> <td>moving image</td> </tr> <tr> <td>literature</td> <td>learning difficulties</td> <td>multimedia</td> </tr> <tr> <td>multimodality</td> <td>learning disabilities</td> <td>word-processing</td> </tr> <tr> <td>reading</td> <td>motivation</td> <td></td> </tr> <tr> <td>spelling</td> <td>teaching</td> <td></td> </tr> <tr> <td>writing</td> <td>ESL/EAL</td> <td></td> </tr> <tr> <td></td> <td>audience</td> <td></td> </tr> <tr> <td></td> <td>comprehension</td> <td></td> </tr> </table>		literacy	learning	ICT	genre	assessment	CAI/CAL	literacies	dyslexia/hypertext	moving image	literature	learning difficulties	multimedia	multimodality	learning disabilities	word-processing	reading	motivation		spelling	teaching		writing	ESL/EAL			audience			comprehension		<p><b>15. Type(s) of intervention or non-intervention (Tick all that apply.)</b></p> <p>computer – stand-alone (software)          computer – networked (email)          computer – networked (internet)          mobile phone          other technology _____          (Please specify.)</p>
literacy	learning	ICT																														
genre	assessment	CAI/CAL																														
literacies	dyslexia/hypertext	moving image																														
literature	learning difficulties	multimedia																														
multimodality	learning disabilities	word-processing																														
reading	motivation																															
spelling	teaching																															
writing	ESL/EAL																															
	audience																															
	comprehension																															
<p><b>16. What principal aspect(s) of literacy is the study focused on increasing? (Tick all that apply.)</b></p> <p><b>16a.</b>      psychological aspects                        or representations                        social representations and/or                        cultural/critical representations</p> <p><b>16b.</b>      writing print and graphical                        or pictorial representation                        reading print and graphical or                        pictorial representations</p>	<p><b>17. Which outcomes are reported? (Tick all that apply.)</b></p> <p>test results - reading                            - writing                            - spelling</p> <p>examination results          motivation/engagement          self-esteem/attitude          quality of writing          increased awareness of process          quality of reading          quality of response to multimedia</p>	<p><b>18. If study type in question 10 is C.b. (researcher-manipulated), is it</b></p> <p>A.      RCT          B.      Trial          C.      Other?</p>																														

KEYWORDER .....

DATE .....

## APPENDIX 2.6: Glossary for review-specific keywords

### **Literacy**

The ability to read and write.

### **Genre**

Basically, a type or category of text. In the Australian tradition, it means ‘text-type’. In the North American sociological tradition, it means identifiable patterns of ‘social action’ grounded in texts.

### **Literacies**

*Literacy* can be defined narrowly, as the ability to understand and create written language. It is, however, frequently defined in two broader senses, and both are included in the present review. Firstly, the scope can be expanded so that written language becomes written language and graphical or pictorial representation. Secondly, the skill can be treated as social, rather than psychological; in this view, literacy is the ability to operate a series of social or cultural representations. Both these expansions of the narrow term ‘literacy’ can be termed ‘literacies’.

### **Literature**

Fictional, dramatic or poetic texts.

### **Multimodality**

The use of more than one mode of communication to convey ‘information’. All texts, in a sense, are multimodal in that printed writing is both visual and verbal. Multimodality is usually reserved for the combination of word and image and/or sound conveyed via the computer screen.

### **Reading**

The act of bringing meaning to print.

### **Spelling**

Orthographic representation of phonemes, morphemes and words.

### **Writing**

This term should be reserved for papers that study the impact of ICT on general writing skills and capabilities (e.g. the structure and expression of compositions).

### **ICT**

‘ICT’ is taken to include stand-alone computers, networked technologies with a multimodal interface, mobile phones with the capacity for a range of types of communication, and other technologies which allow multimodal and interactive communication.

### **CAI/CAL**

‘Computer-assisted instruction’ and ‘computer-assisted learning’. The former tends to be associated with self-supporting computer programs which replace the teacher, rather than complementing him/her.

### **Hypertext**

Computer-readable text which allows for extensive cross-referencing, particularly ‘vertically’: that is, it is possible to conceive of, and present, text in vertical layers rather than conventionally, in a horizontal plane.

**Moving image**

Film, video, animation.

**Multimedia**

The use of more than one medium of communication to convey information. Whereas multimodality refers to the combination of more than one mode of communication (e.g. the verbal and visual), multimedia is a more technical term referring to a range of media which can convey such modes of communication.

**Word-processing**

The composition of verbal language on screen, usually on computer and in substantial form – as opposed to ‘texting’.

**Learning**

The transformation from one state of personal knowledge to another.

**Assessment**

The measurement of learning performance, either ‘summative’ (at the end of a process of learning) or ‘formative’ (during the process of learning).

**Dyslexia**

Difficulty with learning to read or spell, arising from problems with grapho-phonemic equivalence. Also known as ‘specific learning difficulties’.

**Learning difficulties**

These are difficulties with learning encountered by any children or young people at any age, and are associated with a variety of barriers to learning that may be temporary and which may be overcome by teaching strategies, appropriate curricula, etc.

**Learning disabilities**

These are more profound and developed difficulties with learning encountered by children and young people at any age, and are associated with a variety of barriers to learning that are usually more permanent.

**Motivation**

The impulse and/or desire to learn.

**Teaching**

Teacher-centred strategies for encouraging, eliciting and developing learning in pupils and students.

**ESL/EAL**

‘English as a second language’ (as opposed to English as a foreign language) refers to the language as learnt and taught by people for whom English is not a first language or mother tongue, but is acquired (often with much teaching help) as a second language with distinct functions in society. ‘English as an additional language’ is now the preferred term, as it implies that English may be learnt not only as a second language, but as a third or fourth language in a culture.

**Audience**

This term can refer to an audience of one, as in a single respondent or listener, to an audience of inestimable size via the internet.

**Comprehension**

Understood by psychologists as a key activity in learning to read, and complementing 'decoding' of printed text. Understood by English teachers as a now outmoded form of textual analysis and appreciation in which text is subjected to a series of questions to elicit understanding.

## APPENDIX 4.1: Characteristics of studies included in the in-depth review

<i>Author, date and country</i>	<i>Study type</i>	<i>Aim(s)</i>	<i>What was studied (sample, intervention, control, outcomes, etc.)?</i>	<i>How it was studied</i>	<i>Results and conclusions</i>
Chu M 1995 USA	Researcher-manipulated evaluation: although mostly descriptive, this study evaluates the responses of readers to an ICT-based intervention.	‘to investigate the various types of reader behavior and literary responses to a computer-based literary experience’ (p 354)  ‘to] provide a better understanding of readers’ cognitive and emotional activities to [sic] such a non-traditional reading material’ (p 354)	Three Grade 1 (USA) boys from a public elementary school, all advanced readers functioning at grade level  Intervention via Discis Books	Via:  an instrument to record and quantify the ‘clicking’ actions at the computer  video-recording of ‘literary responses’  field-notes while the subjects were reading the books  transcription of group discussions	See detailed account in EPPI Reviewer. Essentially: In terms of hand-on interaction, the boys clicked most frequently on images, second on words, third on page corners and least frequently on the ‘sentence speaker’.  Utterances could be categorised as retelling, comparing, judging, inferencing and rationalising  Non-verbal behaviors [suggested] they had achieved a high level of literal understanding and were actively involved in their readings.  Overall weight of evidence is medium, on account of small sample, boys only and one literature-based computer program used.
Love K 1998 Australia	Evaluation: naturally-occurring (It is naturally-occurring in that Love is observing the outcomes of a programme designed by a student teacher, Katrina)	Love ‘decided to track Katrina’s experiences over a year as a beginning teacher coming to terms with the challenges of integrating computers into her English classroom’ (p 66)	The sample is at two levels: first, the individual teacher, Katrina; then, her class of Year 8 pupils.  The intervention was the use of wordprocessing, Powerpoint and the Internet on the teaching of a novel and film study.	Collection of curriculum-based assessment (ie pupils’ work)  Self-completion report or diary: a ‘self-reflection journal’  Katrina’s planning documentation	The ‘findings’, such as they are, are an account of a student-teacher’s experiences over three terms...A number of evaluative statements are made by Katrina on the connection between strategies and outcomes. For example, ‘Although some students’ keyboarding skills slowed them down, Katrina observed that the quality and quantity of most students’ work improved as a result of the ease with which they could edit, spell check and format their work’. The conclusions are procedural, specifying ‘needs’ for teachers in the light of the study.

Author, date and country	Study type	Aim(s)	What was studied (sample, intervention, control, outcomes, etc.)?	How it was studied	Results and conclusions
Morgan W 1995 Australia	Exploration of relationships	'I was interested in seeing whether the teachers' reading of that cluster of texts would highlight for them the way each was differently constructed; and whether this would also bring into sharper relief for them the different kind of reading practice each text encourages...And then, I wondered, what effects might such reading have on the teachers' curriculum planning' (p 9)	Three teachers and their secondary Year 9 English classes: two from independent boys' schools, one from a state co-educational school  The intervention was a cluster of texts (book, CD Rom, etc.) by a single author	Three case studies, using one-to-one interview, self-completion report or diary	The principal findings are that 'texts don't determine how they're read; readers do' and 'very persuasive paradigms of texts and reading and teaching' lead to different kinds of teaching, and hence 'different kinds of knowledge, and different kinds of knowers' (p 16)  Overall weight of evidence is high, although the sample is small. Because the study design is an exploration of relationships, it carries more weight than Chu, although not dissimilar in sample size.
Meskill and Swan 1996 USA	Researcher-manipulated evaluation	To explore '...the potential of complementary relationships between the learning and teaching of literature and characteristics specific to multimedia instructional delivery systems' (p 218)	Teachers and students participated.  The sample of teachers who developed the assessment criteria: 14  A second group who evaluated 49 software packages: 32 (16 pairs)  The smaller group that undertook field trials: 8  The sample of students involved is not indicated.  The intervention was in the form of software packages.	Via observation (videotapes) and interviews (group and one-to-one) in 'schools classrooms and laboratories (p 223)	'The impact of new technologies on literature learning and teaching is ultimately determined by how such systems impact classroom philosophies and practices' (p 238)  While the current stock of commercial applications reflect a pedagogy which positions students as 'passive recipients' of received wisdom, teachers <i>can</i> use this technology in ways which support and enhance response-based literature teaching.  Overall weight of evidence: medium, because, although conclusions seem sound, the data and data analysis are unclear. Good evidence for value and validity of assessment criteria; but scant evidence of enhanced pedagogical practice.
Meskill and Swan 1998 USA	Researcher-manipulated evaluation	'To determine how software that is specifically designed to complement response-based approaches to reading and writing...fared in four elementary	Four teachers in two different (one working-class Montessori, one 'suburban' middle and upper class) elementary schools; the number of students in each class is not specified.	Methods used included:  One-to-one interview (face-to-face or by	'Given the right conditions, children write creatively in response to visual and auditory stimuli as well as to each other.'  'Effective methods of integrating and valuing



Author, date and country	Study type	Aim(s)	What was studied (sample, intervention, control, outcomes, etc.)?	How it was studied	Results and conclusions
		classrooms' (p 339)  'Precisely what factors influence the ways in which software gets integrated into and used within diverse classroom contexts?' (p 339)	The intervention is Kid's Space.	phone)  Observation (videotape)  Self-completion report or diary (teacher logs)  Students' work saved in individual and collective Kid's Space files	online work are essential for the software to be used by students as intended.'  'The introduction of technology may...provide a nudge in the direction of thinking critically about what one does and might do differently to facilitate communication in reading and writing activities' (p 365).  Overall weight of evidence: high, although limited hardware is available for use and more importantly, predispositions of teachers were not taken into account.
Nettelbeck D 2000 Australia	Evaluation: researcher-manipulated	To evaluate aspects of the Victorian Certificate of Education statement of outcomes, specifically to see whether ICT is 'a valid learning tool in fulfilling some of the goals of the VCE Outcomes for English' (p 47)	About 312 students in all. 48 small groups of students from eight Year 11 English classes; one student from each of the eight classes was randomly allocated to a group of 6 or 7 students.  The 'intervention' was essentially that of the VCE. The teachers wished to invite a researcher/evaluator to assess the impact of ICT in their teaching of the new certificate.	Pre-trial interviews with all staff and a group of students  A post-trial questionnaire with all participants  Random focus groups at the conclusion of the project  A record of what each student wrote in threaded discussions	Results and conclusions are combined.  All Year 11 students attempted to use the online technology.  Online discussions proved to be a valid pedagogic tool in secondary English.  The mode of online discussion offered a means that had been hitherto unavailable for students to formulate and reformulate their thinking about literary text.  Online discussions encouraged students to engage in reflective activity with someone outside their normal social group, and, for some, it was a preferred mode of expression.
Wild M 1995 Australia	Evaluation: researcher-manipulated	What can be learnt about the reading strategies children apply when they use storybooks?	A larger group of 64 and a smaller one of 4, for in-depth study. It is not clear whether the sub-sample is from the sample of 64, or additional to it.	Not clear, but some form of evaluation of response took place early in the time	Those children who were initially motivated by the use of storybooks saw a decline in motivation over time.

<i>Author, date and country</i>	<i>Study type</i>	<i>Aim(s)</i>	<i>What was studied (sample, intervention, control, outcomes, etc.)?</i>	<i>How it was studied</i>	<i>Results and conclusions</i>
		<p>How do children interact with storybooks?</p> <p>Does the use of storybooks lead to significant improvements in children's reading performance when compared with the reading of traditional books?</p> <p>Does the use of storybooks as a strategy for teaching reading encourage reluctant readers to demonstrate more positive attitudes towards reading?</p> <p>Are the attitudes developed by both reluctant and willing readers when they use storybooks more positive than those demonstrated towards their traditional reading material?</p>	<p>The study set up two groups to be investigated in terms of their response to the introduction of electronic storybooks into their reading programme over a period of eightweeks.</p>	<p>period and 'towards the end' of the study.</p>	<p>All children classified as less able readers preferred to read storybooks rather than traditional reading materials.</p> <p>Although attitudes towards reading storybooks improved for all reluctant readers, this change only transferred to the reading of paper books for some children.</p> <p>Willing readers have maintained a willingness to read.</p> <p>It seems that storybooks do have a beneficial effect on the reading performances of all children: that is, the use of storybooks over time does lead children to develop a larger vocabulary, greater understanding of word meanings and a greater comprehension of plot, characters and events.</p>