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IMPACT OF SCHOOL LIBRARY SERVICES ON ACHIEVEMENT AND LEARNING

**Critical literature review of the impact
of school library services on achievement and
learning to inform the work of the DfES Task
Group set up to implement actions contained in
the Government's response to "Empowering the
Learning Community".**

by
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ABSTRACT

This critical literature review examines research linking educational attainment and school library use at secondary level. The study was funded by Resource: The Council for Museums, Archives and Libraries to inform the work of the DfES Task Group set up to implement actions contained in the Government's response to "Empowering the Learning Community". The work was conducted during the last three months of 2001.

The aims of the literature review were to examine evidence from research conducted in the UK and abroad linking learning, in its widest sense encompassing processes and attitudes, and library provision, including the type of resources, nature of access and staffing of provision. The evidence was then analysed in relation to its applicability to school libraries and Schools Library Services in England; methodologies that could be used to assess impact of library provision on learning; and any gaps in the research.

There was a body of research supporting the view that school libraries can have a positive impact on academic achievement, particularly at the primary and early secondary level and with appropriate action to ensure the service delivery is efficient and effective. However, much of this evidence was from countries where school librarians also have teaching training and more research would be needed to determine the extent to which the evidence is transferable. There is limited but significant research demonstrating the view that school libraries have the potential to impact on the broader aspects of learning, including vulnerable or special needs students.

Where there is evidence of impact on learning, there are associated key factors of collection levels, library staffing levels and collaboration between the librarian and teacher. Training of teachers and librarians is demonstrated to raise mutual understanding of each other's contribution and roles within the school library setting and training should include information skills development, collection mapping, planning and evaluation.

There is no clear evidence to indicate the contribution made to learning by the various models of school library provision, although flexible scheduling appears to be an important factor in encouraging student use. The presence of a librarian and the quality and frequency of their instructional input has an impact on learning but the relationship between this and qualifications and personal attributes and experience is less clear. However, school librarians who take a professional and proactive approach to their role within the school can cite evidence of their impact on teaching and learning; and are more able to reflect, self-evaluate and develop further.

The report recommends that:

- Consideration is given to the pre-service and professional development training of both teachers and librarians in order to develop greater understanding of the respective professional contributions to learning in school libraries and to encourage reflection and increase the ability to provide evidence.
- Funds are made available to sustain the quality of collections.
- Consideration should be given to whether the emphasis in developing the links between the school library and learning are more appropriately begun with the primary sector.
- A longitudinal approach, in association with appropriate interventions, is taken to examine the impact of school libraries on learning.

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1 INTRODUCTION

The Task Group, set up under the auspices of the Department for Education and Skills (DfES) to implement actions outlined in the Government's response to "Empowering the Learning Community"¹, require a critical review of the literature which exists relating the links between educational attainment and school library use. This review of literature will be used to inform the work of the task group in their consideration of:

- existing research linking educational attainment and school library use;
- levers which support the development of school libraries;
- raising awareness of what works best by disseminating the results of a series of pilot studies.

1.1 Aims

The purpose of this study was to undertake a critical review of literature in order to:

- Identify research which has been undertaken on the impact of the school libraries on attainment and learning. The review considers whether research has been done to answer a series of questions identified by Resource. Where work has been done in these areas the review summarises the key points covered in the research and the conclusions reached.
- Analyse the applicability of the research to school libraries and Schools Library Services in England.
- Identify gaps in the research and suggest areas for further research.
- Identify methodologies which school libraries and Schools Library Services (SLS) in England can use to assess the impact they have on attainment and learning.

1.2 Rationale

1.2.1 Empowering the Learning Community

One of the recommendations set out by the Education and Libraries Task Group in the document "Empowering the learning community"² stated that "*consideration should be given to making provision of school library and information services a statutory requirement*". It is important therefore to ensure that research provides sufficient evidence in support of the argument that libraries can and do support effective learning. The Government's response was not convinced that a statutory approach was necessarily the most appropriate way forward but wished "*to investigate ways of sharing good practice between school libraries, so that overall standards rise and demand from teachers is stimulated*"³. From that viewpoint, the Task Group has set out to look at the research that exists on the links between educational attainment and school library use.

Although there has been extensive research carried out in the UK on school libraries, the links with attainment have not been clearly made. However, there has been a move across

¹ DfEE/DCMS. *The Government's response to the report of the Education and Libraries Task group: Empowering the Learning Community* [online]
<http://www.lifelonglearning.co.uk/etlc/front/htm> [June 2001]

² Library and Information Commission. *Empowering the learning community*. Report of the Education and Libraries Task Group to the Secretaries of State for Culture, Media & Sport and for Education & Employment. London: Library and Information Commission, March 2000. [online]
<http://www.lic.gov.uk/publications/policyreports/empower/index.html> [May 2000].

³ DfEE/DCMS, op. cit. 1

international information and library sectors to examine effective library use more closely. It is important, therefore, to examine such evidence and its applicability to England.

1.2.2 *Learning and raising standards*

The foreword of the Government's response to "Empowering the learning community" states that "*Libraries have a vital role to play in underpinning education in the broadest sense*"⁴ but goes on to indicate that the review of literature should examine links between educational attainment and use of the school library⁵. This emphasises the importance of recognising and clarifying the distinction between attainment, in the form of national or local test results, achievement, which reflects individual ability, and learning in its broadest sense, which Williams and Wavell⁶ suggest encompasses motivation to learning, progress in learning, independence in learning and interaction in learning. New OFSTED guidelines for inspectors⁷ consider the contribution of school libraries and learning resource centres to library and information retrieval skills; literacy across the curriculum; and promoting the reading of fiction. Although the DfES is concerned with developments in England and it is recognised that education systems and curricula differ between nations, it is important to understand what lessons can be learned from researchers working in other countries addressing similar questions. For example, it became apparent during work on the impact of the school library resource centre on learning project⁸ that there is a need for greater clarity over information handling skills and roles for delivery of instruction. Work being carried out in USA⁹ and Australia¹⁰ on information literacy standards could provide a useful starting point for education and library practitioners to examine information literacy at a more local level and thus address some of the issues in the current National Literacy Strategy, where the programme has been extended to Key Stage 3 (11-14 year olds). These issues are particularly relevant to the specific stated aims of the critical review, in which the way models of library provision, the role and backgrounds of staff and the methods of teaching impact on effective learning and achievement were examined from the literature.

1.2.3 *Evidence-informed policy and practice*

Evidence-informed or evidence-based policy and practice is a key component of the Government's approach to improving standards in education by establishing what works and why¹¹. Therefore, alongside the drive for raising attainment is the need to ensure that standards of teaching are high to encourage and support learning in the most effective ways. This is reflected in the TTA statement that it is "*active in supporting the Government in its drive to promote teaching as a research and evidence-based profession as a means of improving teaching and learning and raising standards*"¹² and in the establishment of research units such

⁴ DfEE/DCMS, op. cit.1, p.1

⁵ Ibid., p.5

⁶ Williams, D & Wavell, C, op. cit. 5

⁷ OFSTED (Aug. 2001) [online]

<http://www.ofsted.gov.uk/about/update/update36/frame.htm> [09-01]

⁸ Williams, D & Wavell, C, op. cit. 5

⁹ AASL & AECT (1998) *Information Power: Building Partnerships for Learning*. Chicago: American Library Association.

¹⁰ Council of Australian University Librarians. (2001). *Information Literacy Standards*. Canberra, Council of Australian University Librarians. [online]

http://ilp.anu.edu.au/Infolit_standards_2001.html [20-07-01]

¹¹ Blunkett, D (2000) "Influence or irrelevance: can social science improve government?" *Research Intelligence*, 71, pp.22-9.

¹² TTA (undated) *Promoting Research and Evidence Based Practice (REBP)*. [online]
<http://www.canteach.gov.uk/research/index.htm> [09-01]

as the EPPI-Centre. However, as already stated, policy and practice has to be supported by evidence from reliable research.

1.2.4 Accountability to stakeholders

There is a general climate of transparency and accountability to stakeholders within all public sectors, including the education and library professions, which requires organisations and individuals within those organisations to explain the impact of their actions and expenditure. Within education, devolved school management has resulted in delegation of the annual revenue budget and, increasingly, the capital funding enabling governors and headteachers to invest in ICT, books and the physical environment. However, this increases the need for schools to access information to support their decision-making on expenditure and this in turn has implications for funding provided for and distributed between services at local authority level. The provision of school library services in England is already varied across the authorities and the need to justify and keep a tight control on expenditure, establishes a need to clarify the important ingredients and models of school library provision to ensure maximum impact across the country as a whole.

Libraries and schools are used to collecting data in a variety of forms but in recent years the emphasis has shifted to consider the efficient use of expenditure and resources to ensure effective impact in terms of *outcomes* and not outputs. This poses new challenges for demonstrating impact in areas such as attainment and learning. The Information Management Strategy for schools and LEAs has been set up by the DfES, formerly DfEE, as a means of improving the management of information about schools, teachers and their pupils and the aim is to give better quality information in a more efficient manner so that greater time and energy can be used to raise standards within the classroom. A series of research studies conducted in the USA used this type of centrally collected data to link school library provision to attainment and with the introduction of the Common Basic Data Set (CBDS) it may be possible this will provide the means to apply a similar methodology in England in future. However, the variety of library provision for secondary schools will make this challenging and at present the most appropriate data is not necessarily recorded.

There has been an increasing interest in the issue of standards and performance indicators in all public sectors, including library and information services. CoSLA's Standards for School Library Services in Scotland¹³ and the performance indicator document "Taking a closer look at the school library resource centre"¹⁴ have begun the process of addressing some of the quality assurance issues in school library provision in Scotland but there remains a lack of guidance on the how to tackle the performance indicator "quality of learning". The preliminary work on an Access and Learning Standard for Museums, Archives and Libraries¹⁵ suggests that learning outcomes are problematic but as work progresses it is expected that this might provide some clarity to the quality assurance mechanisms on libraries and learning, in schools as well as wider educational settings. Again work in USA on literacy standards¹⁶, preliminary work on

¹³ CoSLA (1999) *Standards for School Library Resource Services in Scotland a framework for developing services*. Convention of Scottish Local Authorities.

¹⁴ SOED/SCCC/SLA/SLIC (1999) *Taking a Closer Look at the School Library Resource Centre Self-Evaluation using Performance Indicators*. Scottish Office Education & Industry Department/Scottish Consultative Council on the Curriculum/Scottish Library Association/Scottish Library & Information Commission.

¹⁵ Resource (2001) *Inspiring Learning: A Framework for Access and Learning in Museums, Archives and Libraries*. London: Resource, September 2001. [online]

<http://www.resource.gov.uk/action/learnacc/insplearn00.asp> [11-2001]

¹⁶ AASL & AECT, op. cit. 13

indicators of impact on learning¹⁷ and work on outcome and process indicators¹⁸ provide the foundation for establishing quality assurance for effective learning in the school library. This work continues in parallel with the standards procedures set up in schools for formal assessment targets.

1.2.5 LLL, community access, partnerships

Support and early intervention in the use of information through ICT and libraries is expected to have a direct bearing on other Government target areas of Lifelong Learning (LLL) and community access. Work is being carried out within other areas of the library and education sectors to encourage learning partnerships, to develop LLL and social inclusion but educational scaffolding is needed within the school environment to support these initiatives if they are to prove successful in the long term.

1.3 Methodology

The study took the form of a desktop critical review bringing together the findings from a range of research reports and literature detailing research investigating the relationship between libraries and educational attainment and learning conducted in the UK and worldwide.

*“Systematic review methodology is currently the most advanced for reviews that ask “what works” questions, that is, ones that assess the relative impact of specific educational approaches.”*¹⁹. This methodology was therefore appropriate for the review question “What is the impact of school library services on attainment and learning of those using the school library?” This project had time limitations which did not allow for a full systematic review as defined by the EPPI-Centre Social Science Research Unit but wherever possible the methodology of this critical review followed the guidelines set out in the EPPI-Centre Review Group Manual²⁰.

There has been a growing awareness amongst educational researchers in recent years of the need for a more thorough approach to critical reviews of research in order to support evidence-informed policy and practice. This has its origins in the use of systematic reviews of research by health care professionals and managers to ensure clinical decision-making is based on sound evidence of effectiveness of clinical practice. The DfES has funded the Evidence Informed Policy and Practice in Education Initiative set up to put research at the heart of educational reforms and the EPPI-Centre Social Science Research Unit provides a centralised resource for those undertaking and/or using systematic reviews. According to the EPPI-Centre Manual *“Literature reviews traditionally introduce a topic, summarise the main issues and provide some illustrative examples”* and *“Systematic reviews aim to identify research reports of defined topics and to examine them in explicit and standard ways so as to produce accessible and useful syntheses of research findings.”*²¹. Thus a systematic review is characterised by clarity and openness to enable users to assess the scope and quality of the review itself. In a systematic review the search and inclusion criteria need to be explicit, all the literature found and those included in the in-depth review need to be detailed. Two researchers are required to work in

¹⁷ William, D & Wavell, C. op. cit. 5

¹⁸ Markless, S & Streatfield, D. op. cit. 6

¹⁹ EPPI-Centre. (2001). *Review Group Manual Working Document*. London: Evidence for Policy and Practice Information and Co-ordinating Centre, pp.13-14. [online]
http://eppi.ioe.ac.uk/downloads/RG_manual_version_1_1.pdf [09-2001]

²⁰ EPPI-Centre, op. cit. 20

²¹ Ibid., p.5

tandem to select and code the documents to minimise discrepancies and bias and to ensure the research review is reliable and rigorous in its methodology. This strategy was adopted for this critical review of literature, wherever the time frame allowed, in order to provide a reliable synthesis of research finding on which to base informed decision making.

1.4 Scope of the Review

The scope of the project was defined by Resource and outlined in the briefing notes for the study. The identification of research undertaken on the impact of school library services on attainment and learning is a broad topic when learning is taken in its widest context to include attitudes and enrichment as well as achievement and attainment in the form of progress in learning and test results. The scope of the review is further widened to take account of the current variation in school library provision, as well as the variation in support given by a non-statutory LEA Schools Library Service, as recognised in the Government's response to "Empowering the Learning Community"²². Thus, the key questions for this review, as identified within the specification for this research, examine impact on attainment and learning in comparative terms which take account of the current variation in services, roles and background of staff. The Task Group agreed to limit the review to documents published after the introduction of the National Curriculum in 1988.

Although the initial review question implies a focus on secondary school libraries, studies which look at a wider range of related contexts have been included if the studies provide findings relevant to secondary education. The analysis of the individual reports/articles and synthesis of findings provides a state-of-the-art review of relevant research knowledge while also considering the applicability of the research to school library services in England and highlighting methodologies which school library services can use to assess the impact they have on attainment and learning in their own situation.

²²DfEE/DCMS, *op. cit.* 1

2 THE REVIEW OF THE LITERATURE

2.1 Approach

The aim of this critical review of literature is to examine research from across the world that links educational achievement and school libraries. The Task Group, set up to implement actions outlined in the UK Government's response to "Empowering the Learning Community"²³, is interested in applying the lessons from this research within the English educational context.

The Task Group recognises the importance of learning in its widest sense and therefore the review sought a broad definition of learning to encompass not only academic attainment but also the aspects of learning reflected in processes and attitudes. The definition defined by The Campaign for Learning neatly encompasses this range of learning experiences:

*"Learning is a process of active engagement with experience. It is what people do when they want to make sense of the world. It may involve an increase in skills, knowledge, understanding, values and the capacity to reflect. Effective learning leads to change, development and a desire to learn more."*²⁴

The questions raised by the Task Group in the project specification are discussed below under the broad themes of:

- impact on academic attainment, i.e. performance in formal, national or local curricular tests;
- impact on broader learning issues, i.e. personal achievement in other areas of learning;
- service provision, i.e. the type of services provided by any model of school library, Schools Library Service, or joint public/school library; and
- professional expertise, i.e. the professional qualifications, training, experience and attitudes of the person in charge of the library provision for schools.

In the conclusions and recommendations section, the findings are analysed in relation to:

- the applicability of the research to school library services in England;
- any gaps in the research and suggestions for areas where further research is needed;
- strategies identified in the literature that have the potential for adoption within the English school library context; and
- potential methodologies which school library services in England can use to assess the impact they have on attainment and learning.

The annotated bibliography is a list of the key research mentioned in the review. The annotations give brief descriptions of the document and its significance to this review.

The extended bibliography lists all the works mentioned within the review as well as documents identified as of potential interest but not directly related to the research question of the impact of the school library service on learning at secondary level. This includes: a limited number of articles relating to the key documents in this area, e.g. Library Power; standards and evaluation methods; and other documents considered of interest but not studied in-depth. This latter

²³ DfEE/DCMS, op. cit.1

²⁴ [©1998-2001]Campaign for Learning Home Page [online]
<http://www.campaign-for-learning.org.uk/> [07-11-01]

category includes documents that were unobtainable (Inter-Library Loans (ILL) not received within the timescale - dissertations accounted for a number of these), or did not meet the review criteria of date, quality primary research, and a major focus on school libraries and learning. A number of documents on information literacy have also been included here as these were considered to make an important contribution to establishing definitions and relationships with learning, while not always related to the library.

The search protocol has been included at the end of the document to enable the Task Group or other interested bodies to assess the extent of search. All search strategies emphasised the school library context, and while alternative terms for 'school library' were included, general educational works that may make some reference to the school library will not always have been uncovered and therefore are not necessarily included in the review. Some references have been identified during the examination of documents or through contacts and these have been included when appropriate.

Due to the restrictions on time, analysis of research has sometimes been conducted through secondary sources reporting on primary research (e.g. journal articles). In these circumstances, it has not necessarily been possible to establish the quality of the research due to lack of detail provided about methodologies and sample sizes.

The terminology used within the report uses school library, librarian and other recognised English terms. Schools Library Service (capitalised) is used to mean centralised authority Schools Library Services (SLS). The annotated bibliography may contain references to terminology used within the specific study and appropriate to the country of study.

2.2 General Observations

The search identified over 6000 potentially useful references from:

- ten library and educational databases within Dialog;
- bibliographies and references;
- contacts; and
- documents already known to the reviewers.

Stage I of the exclusion process removed duplicates and obviously irrelevant documents.

Stage II of the exclusion process was a more thorough selection of potentially significant documents and produced approximately 600 documents.

Stage III considered these documents in more detail for selection for ILLs and in-depth analysis. Many of the documents studied in-depth cited further potentially useful documents, some of which could not be pursued in the very tight timescale. These have been included in the extended bibliography.

The search identified a number of interesting documents that were not obviously research based, including:

- less scholarly descriptive articles relating to the major studies;
- resource items for practical use by teachers and librarians;
- general articles and research on information literacy and reading strategies that made no explicit reference or link to the library.

Many of these documents would be of interest to school librarians and teachers using the library (particularly for staff development) but did not contribute evidence for this review of literature.

There are a great number of dissertations written by students in the USA which relate to school libraries, many of which are highlighted by Ken Haycock in his regular feature "What Works" in the journal *Teacher Librarian*. These were often unobtainable through normal ILL channels or within the timescale of the review.

Many of the excluded documents were also outside the scope of this review because of the agreed 1988 cut-off. This date marks the introduction of the National Curriculum in England. Although a few of these studies will have lasting relevance, many will have been superseded by more recent studies in different educational settings.

Many articles have been written about the roles of school librarians and the need for, or methods of developing, collaboration with teachers. However, only a few studies link this directly to the impact on learning.

Less has been written about the various models of service provision, such as joint school and public libraries or Schools Library Services and their impact on learning.

The review has examined a great many documents in a very tight timescale and it is intended that this report conveys the complex relationship of learning and school libraries and the many issues that need careful consideration before embarking on any one course of action. While this review draws out the most significant issues in relation to the research questions, each major study reviewed contains a wealth of more minor details which could be of further interest as developments progress.

2.3 Impact on Academic Attainment

2.3.1 Introduction

Academic attainment, in this context, considers formal learning associated with the set curriculum and performance in formal national or local tests. This includes processes associated with reading literacy, attainment of subject knowledge, and information literacy. The discussion examines the research to establish what the link is between school libraries and academic attainment and whether school libraries have an impact on the raising of students' attainment in schools.

2.3.2 Discussion

The studies by Keith Lance (Lance, et. al., 1993, 2000a, 2000b, 2000c) in the USA are significant. They use statistical data to examine the impact of the school library on academic achievement. These can be considered as a group because, although the factors used within the correlation analyses vary and become more comprehensive with each study, the methodology is basically the same and the conclusions of each support the others to a greater or lesser degree. Each study was undertaken across a range of educational levels which meant the actual sample sizes for each level (including the UK secondary equivalents) were very small. When considered against the overall percentage of the school population represented by the participating schools, these samples represent a small percentage of the test population at any given level. All the studies sought to ensure that community poverty, education and ethnic mix were taken into account in the analysis of the findings and that the school characteristics of teacher-student ratio, teacher qualifications; and student characteristics (similar to the community data) were also accommodated. The three later studies (Lance, et. al., 2000a,b,c)

considered common sets of library issues drawn from the Information Power standards (AASL, 1998): staffing levels; time spent on a variety of staff activities; collection holdings by format; usage levels; and available technology. The early Colorado study (Lance, et. al., 1993) used fewer library characteristics during the analysis and drew from the earlier version of Information Power (1988). The findings from the later studies are similar but the emphasis on the type of library data found to be the predictors of academic achievement vary between the states and between the grade levels and therefore the findings are not necessarily transferable across educational levels. Other factors such as the type of schooling within a state, may also have influenced the results. Notwithstanding these limitations the level of development of the library in terms of collection and staffing; staff activities in terms of leadership, collaboration and technology; and the levels of usage and technology are the factors that show most significance to test scores in these studies.

The first of these studies in Colorado (Lance, et. al., 1993), sought to address three specific questions:

- whether there is a relationship between expenditure on the school library and test performance, particularly when the community and school economic factors are controlled;
- if test scores vary with expenditure, are there areas within the library expenditure (such as staffing or collection levels) that can be linked to test performance?
- does the instructional role of the librarian and the amount of collaboration between the librarian and teacher help predict test scores?

The study used a sample of 221 self-selected public schools that were verified as representative within Colorado using state statistics in terms of school levels, enrolment age and school setting. The Iowa Tests of Basic Skills (ITBS) for grades levels one, two, four, five and seven (primary and early secondary) and Tests of Achievement and Proficiency (TAP) for grade ten (secondary) were analysed against data relating to the resource inputs and service outputs from the school library, using the schools as the unit of analysis rather than the students. This methodology allowed the use of readily available statistical data. The findings showed that throughout the grade levels the better readers were also better users of language and the library. The findings also verified that students in schools with better funded libraries tend to achieve higher average test scores, independent of economic status of the community economic or the educational background of the adults. The size and variety of the collection and the instructional role of the librarian, either identifying materials or planning instructional units with teachers, were also found to be important factors in the test scores. This first Colorado study had admitted limitations in the sampling and data collected but has proved significant enough to generate further research using adaptations of this methodological model. It is these later studies that provide more compelling evidence.

Lance himself repeated the study in Colorado in 1999 (Lance, et. al., 2000a) with a modified methodology. The samples in this study covered fourth grade (Year 4, age 9) and seventh grade (year 7, age 12) and were treated as separate samples. This study therefore focuses on a younger age range and earlier educational level than is the focus of this review and, while the study methodology and findings are still considered significant, the findings are not necessarily applicable to secondary education, especially when the very different teaching methods are taken into account. The data gathered related to the hours of operation of the library; the numbers of staff, their hours worked, their instructional activities and their professional level; the number of computers meeting various descriptions; usage of the services provided; resources collection; annual expenditures and management structures. Data collected was more comprehensive than the previous study. Demographic data, where possible, was gathered at school community level and included projected median family income for 1999, percentage of

population below the poverty line and percentage of minority population. The findings concluded that test scores did increase with professional library staffing hours at 7th grade; with print, periodical and electronic reference titles; and with library expenditure per student. Networked computers linked to the library from classrooms and labs enabling access to library resources, licensed databases and the Internet also raised reading test scores. The report does not discuss to what extent these resources were used by students or whether ICT skills which are unrelated to the library might have a bearing on test scores. The middle schools (7th grade) which reported higher numbers of individual visits to the library tended to have higher test scores but it should be pointed out that there are other teaching factors that might account for differences in this area as well as flexible library scheduling. Collaborative working, i.e. identifying materials and/or planning, between the teacher and librarian was reported to be an important factor, as was the time librarians spent training teachers. These are also areas of importance for secondary school librarians in England but collaboration and training raise issues concerning the roles and status of school librarians, which will be covered in a later section. The research also highlights areas that do not have a direct impact on test scores but have been found to have an impact on successful collaboration, such as regular meetings with management, inclusion in curriculum and standards meetings, and contact with other members of staff.

Two further studies were conducted in Alaska in 1997-8 (Lance, et. al., 2000b) and Pennsylvania in 1999 (Lance, et. al., 2000c). The review of literature in the Alaska study is comprehensive but the references to previous research identifying links between academic achievement and libraries (many of which pre-date 1988) are nearly all focused on the primary level students. The Alaska study gathered data about the libraries from a survey and used available data from existing demographic statistics, wherever possible, at the local school level to give community information; from the education department for school data and California Achievement Tests Version 5 (CAT5) test score data for reading, language arts, and mathematics on the fourth (primary), eighth and eleventh (secondary) grades. The research is sound and, although samples are small, Lance describes the analysis in detail. The relationship between staffing and student performance was explored. The conditions of library operation considered as potential predictors of academic achievement and used in the correlation analysis were: staffing levels, hours of operation, staff activities, usage, technology, policies and cooperation with public libraries. The findings provide evidence to support the relationship between staffing of the library and student performance and highlight activities that are most likely to impact directly or indirectly on academic achievement, such as collaboration between librarian and teaching staff and instruction planning and teaching by the librarian. Although Lance investigates how the librarians make a difference by including these characteristics, the underlying concern is that this statistical approach does not fully explain the qualitative factors at work in these complex learning environments.

The Pennsylvania study (Lance, et. al., 2000c) uses a larger sample of participating schools. The tests used in this study were the Pennsylvania System of School Assessment (PSSA) reading scores. As in the Alaska study, the secondary level students were represented at the eighth and eleventh grade (Years 8 and 11, ages 13 and 16), as was the fifth grade (Year 5, age 10). Similar community, school and library data were gathered as in the other studies.

Other researchers have used Lance's quantitative model to examine the impact of the library on academic achievement in other states, such as Hall-Ellis (1995) and Smith (2001) in Texas and Baughman (2000) in Massachusetts. These studies cover a range of test levels, some primary, some secondary and some mixed. Several are also linked to the standards developed within individual states or in Information Power (1998). Each study developed the model to support the

specific aims of the research conducted, and refinements have been made to ensure the methodology is increasingly sound. The Texas research (2001) is the most recent and significant. The study had three objectives:

- to examine school library resources, services and use, on the basis of the Texas standards (School Library Programs: Standards and Guidelines for Texas, 1997);
- to determine the impact that school libraries have on student performance as measured by the percent of students who met minimum expectations on the reading portion of the statewide standardised test, the Texas Assessment of Academic Skills (TAAS); and
- to highlight library practices in the best performing schools.

The study used a random sample of 600 Texas school library (% of the total population is not made clear) of elementary, middle and high schools. This sample is more reliable than the sample used in some of the other studies. The findings of the Texas study did conclude that performance was higher in schools with librarians than in schools without librarians. The study also showed that socio-economic factors explained most of the difference in TAAS performance levels and that these factors were even more significant at secondary level than at primary level. The library variables explained a smaller but still significant portion of the variation. There were differences in how the library variables influenced attainment within the different school levels: elementary level was affected by collection expenditure and Internet and software packages; in middle schools the influence was predominantly information skills instruction and identification of instruction units developed by teachers (this has implications for the upper primary/lower secondary roles in information literacy development); and at high school level the variables found to be most influential were library staffing levels, collection (including subscriptions) and planning instruction units with teachers and providing staff development to teachers. The overall finding was that the statistical analysis was not conclusive without combining the results with evidence based on the experiences of librarians. The study also concludes that libraries play a very special role in providing enrichment to students from disadvantaged backgrounds by providing additional help to develop skills to succeed. The study used data on the 1999-00 Texas Education Agency's Public Education Information Management System (PEIMS) on school characteristics. If this type of statistical analysis was deemed appropriate for future use in England, the data management system being developed for primary and for secondary education could be an appropriate source of information. Any form of large-scale statistical research looking at the impact of school libraries on academic achievement would need to examine the database structure to ensure suitability and appropriateness of information included.

Influenced by Lance's work, Vallender attempted to examine whether current performance data in English secondary schools offer a basis for assessing impact of school library use on attainment. Her unpublished Masters research (2000) is particularly significant in the context of this review in its applicability to English secondary education. The study concludes that the evidence of the contribution made by the school library is not effectively revealed through the statistical analysis of examination achievement. Her work also suggests that OFSTED reports are capable of identifying a library that is performing effectively but cannot evaluate how this performance impacts on teaching and learning. Vallender discusses the qualitative evidence that stakeholders value the contribution of the library to school objectives but points out the limitations of the library contribution if it is not adequately integrated into teaching and learning within the school. This is a recurring theme in much of the research and is an area that needs addressing not only by the school library profession but also by the education profession. Training is required to ensure both professions have a common understanding of the learning processes associated with the school library, such as information literacy, and more clarity is required to ensure both professions understand how their professional roles contribute to this.

These issues need to be addressed both at the level of the professions as a whole and at the practical school level to account for local circumstances.

Although the Vallender study is only one small piece of research conducted in one school in England, it does highlight interesting issues of methodology worth noting, such as the need for qualitative evidence to be taken into account and the value of analysis that takes account of differing curriculum requirements of the school library. This is particularly significant when considered with the Olen study and the intervention model of the Library Power project. Olen (1995a) studied the frequency of school library use in South Africa to examine the effect on academic success at tertiary level. This study did not find evidence that frequency of use in itself had an impact but proposed that future research should investigate the type of use and the programmes of study covered by students during secondary school. The Olen and Vallender studies were both concerned with investigating the impact of the school library provision which was current within South Africa and England at the time of their studies - highly variable provision in the case of England as is shown below. Other key studies in the USA have taken a deliberately interventionist approach, using Information Power (AASL, 1998) and the Texas state standards for libraries which include information literacy and library provision to provide a useful development tool and a basis for ongoing evaluation and reflection by practitioners thus ensuring maximum effectiveness.

The Library Power (Tallman & Tastad, 1998; Tastad & Tallman, 1997; Hopkins, 1999; Kuhlthau, 1999; Oberg, 1999; Webb & Doll, 1999; Zweizig & Hopkins, 1999) studies are also a significant group of research projects. Library Power uses an intervention approach in which a substantial amount of private investment (approximately \$40 million) allowed the participating elementary schools to develop or upgrade school library provision. The report is not explicit as to whether the funds were directed solely at elementary schools, but the articles reporting on the project focus on this level of education. However, there are issues within the evaluation that would be equally applicable to secondary education. The grants required significant contributions from participating schools, in terms of staff and collections as well as a commitment to training, collaborative working and flexible scheduling. The evaluation studies investigate the impact of Library Power on a number of elements of library provision and use such as: collections, use, collaboration, curriculum, instruction, school reform, professional development and institutionalisation (whether the changes are sustainable). The ultimate aim of the whole project was to improve the quality of education and therefore references are made to learning, in particular information skills and literacy development. The methodology used in the Library Power evaluation was both quantitative and qualitative. The evidence from the school observations suggests that improvements to the library facilities and collection and an emphasis on collaboration between the librarian and teachers are contributing factors to the impact on academic achievement, but that school readiness to accept changes of roles and teaching styles also play a part in sustaining the impact. Oberg (1999) describes a Library Power case study and documents changes in learning and attitudes during the intervention. Oberg reports that the librarian and principal of the school concerned used the Tennessee Comprehensive Assessment Program (TCAP) in conjunction with library data to provide evidence to teachers that library use was related to student learning. The librarian compiled library use statistics for each classroom and compared these data with the average TCAP scores for each classroom. The findings showed that reading and reference scores began to climb as library use increased. The report also mentions a noticeable shift in the nature of students' selection of material for personal reading from fiction to non-fiction and also a change in teachers' practice and beliefs about the library. However, as this case study was conducted in a primary school, more research would be needed to provide convincing evidence that this is transferable to the KS3 stage in secondary education.

Farmer (2001) reports on a piece of action research in a Californian school already engaged in a five year funded project to encourage reform to meet district outcomes in reading, communication and mathematics. The librarian (the author) was incorporated into this project in order to support teachers in their delivery of information literacy programmes. This support involved researching rubrics and standards, writing guidelines for staff and students and conducting staff development workshops. Although impact on learning was a major part of the action research very little evidence was reported. However, references were made to improvements in information skills and an indirect result of the study identified those students from feeder (primary) schools with qualified librarians as performing better in their first year than those without this input.

A qualitative approach was taken by Williams & Wavell (2001) in a study using a small sample of secondary schools in Scotland to investigate the impact of the school library on learning. Focus group discussions with teachers and pupils and interviews with librarians identified the perceived impact of the school library on learning. Case studies were conducted looking at a variety of curriculum-related library activities across a range of age groups, such as research work, a skills course, reading promotion as well as activities relating to the broader learning experience which are reviewed in section 2.4. Indicators of learning, developed from the focus group discussions, were used during observation, discussion with students, teachers and librarians, and students' work was examined to establish whether the perceptions of impacts on learning expressed by the groups in the initial stage were indeed happening. These indicators provide preliminary examples of learning experiences that could be looked for in the library setting. The indicators were developed under the themes:

- motivation (for learning), such as expression of enthusiasm, absorption in the task;
- progression (in learning), specific skills relating to information handling, ICT, reading, study skills, and new knowledge, such as the ability to make notes, cite references, etc. These skills needed greater clarification on the lines of Information Power (AASL & AECT, 1998);
- independence (in learning), which was described as following from progression after the mastery of a task or skill and included confidence and competence to continue and progress with task unaided, transfer of skills from elsewhere in curriculum, confidence to seek help and increased self-esteem;
- interaction (in learning), which was described as both a means of learning and a learning experience in its own right, such as peer co-operation, discussion about a task, use of appropriate behaviour.

The librarian and teachers found these indicators difficult to get to grips with because, it was suggested, they had not previously thought about learning in the library in this way.

Kuhlthau (1999), when reporting on the Library Power evaluation, was also conscious of initial difficulties librarians had defining learning in relation to the library. However, she found that librarians' understanding and awareness of learning increased during the programme and higher level indicators of learning were increasingly reported over the years of the Library Power Annual Survey. Kuhlthau coded the librarians' responses to the questions: "How did you know something new was learned? What stands out in your mind that made it a good learning experience?" under five levels:

- input - when emphasis was on what the librarian did, not on the students' learning;
- output - when a quantitative measure of student use was emphasised (i.e. more visits)
- attitude - when the description included a change in student attitude (i.e. increased enthusiasm);

- skills - when resource location skills or use of technology was reported;
- utilization - when the emphasis was on content learning. (Kuhlthau, 1999, p83)

Streatfield & Markless (1994) attempted to examine the contribution of school libraries to learning. The evidence is not conclusive, however their research did highlight factors that influence effective use, such as different styles of teaching and attitudes of teachers towards the library. In their later research conducted in college libraries, Markless & Streatfield (2000a) attempted to overcome some of the difficulties of looking at and measuring impact encountered in their previous research, i.e. the difficulty faced by librarians in distinguishing between process indicators and outcome indicators. Their work again stresses the importance of taking account of qualitative evidence and it is interesting to note that training of librarians was found to be important in enabling them to engage with the identification of indicators.

The findings of all of these studies suggest that there is a great deal of learning associated with the use of the library but that teachers and librarians are not yet in a position to capture the evidence of learning. The Williams & Wavell study (2001) also concluded that a number of factors outside the library condition the extent to which learning takes place. These influencing factors include: interest and enthusiasm shown by members of staff and peers; appropriate and timely intervention to ensure progress can proceed; foundation of necessary knowledge and skills to proceed; understanding of the individual tasks as well as the main objective of the activity; opportunity to try again and build on understanding; new stimuli, for instance the use of computers.

The promotion of reading and how the school library impacts on reading development is the focus of a number of documents, though only a few present primary research as the basis of the discussion and evidence. The Krashen review (1993) provides evidence that readers use libraries and libraries can support reading development through the book stock and initiatives such as book flood and shared reading schemes. An international literacy study, sponsored by the International Association for the Evaluation of Educational Achievement, conducted by Elley (1992), used controlled experimental case studies in order to determine the average level of reading literacy of nine and fourteen year olds in thirty-two countries and aimed to identify important factors relating to initial reading and reading development. The UK was not included in this study and the major focus of this study is reading literacy. However, a comparison between the participating countries in the IEA study and their relative scores in reading achievement shows a positive relationship between the number of library resources provided and student literacy score. The study also considered a number of other literacy factors that impact on the reading levels and further analysis would be needed to assess to what extent the teaching activities and librarian involvement have a bearing on the findings. Novljan (1998) discusses the Slovenian experience of this international study and concludes that the librarian is significant in the successful functioning of an extensive library collection, however the teachers did not appear to differentiate between their preference for a qualified or unqualified librarian when requiring assistance. Once again, the focus of Novljan's discussion is on the primary age group. Other studies which contributed to the evidence within the IEA study include those of Martin & Morgan (1994) and Froese (1991). Martin & Morgan discuss reading literacy in Irish schools and acknowledge the complexity of the factors associated with reading development (1994, p.90). Froese (1991), using the IEA reading literacy study figures, explores reading literacy in the international context with particular attention to school and classroom libraries as well as classroom teachers' practices in relation to library use. Williams & Wavell (2001) investigate the reading promotion instigated by a secondary school librarian in one of their case study schools and found that intervention from initiatives introduced by the librarian increased motivation to try a variety of different genres and authors. Questioning of pupils indicated that

intervention had changed the attitude of some reluctant readers to reading, at least in the short term, but the case study did not look at the reading levels and a longitudinal approach would be required to produce more substantial evidence. The involvement of the librarian in the research project did stimulate interest by the librarian in continuing the data gathering on a more regular and systematic basis.

Information literacy is the focus of a great deal of research. Gordon (1999, 2000) studies the process of information literacy and the impact on information skills on learning rather than the impact of the library on learning but this raises issues of roles and how the information skills are delivered and by whom. Kuhlthau has done a great deal of work in this area and other researchers, such as Mancall, Stripling, and Moore to mention just a few have taken up the challenge of investigating how secondary (and primary) students use information and whether a knowledge of the process helps their learning. This work has not focused up to now on the impact of the library on learning but on the impact of information skills on learning, therefore, it is not directly central to this review. In the UK, this research is taken up by the education profession investigating thinking skills. There is little direct research linking the thinking and information processing skills to the use of the library resources, however this is an area of research that is likely to become increasingly significant.

2.3.3 Findings

The studies examined reveal some of the complexity of considering the impact of the library on academic attainment. Close comparison of the different studies and their findings reveals that many variables have not been catered for within the statistical analysis. Much of the useful data within all these studies is collected by qualitative methods. The qualitative studies, conducted by researchers such as Streatfield & Markless, Williams & Wavell, the Library Power evaluation team, and individual pieces of action research, begin to reveal many of the potentially significant factors and characteristics within the school library environment that could impact on learning. These studies provide a variety of useful tools and methodologies for adoption in future research in England.

The majority of evidence for positive impact from these studies emerges from primary level students. The studies that include secondary students are in the minority and the samples of students studied are small. This makes generalisation to the secondary level difficult given the very different teaching styles, curriculum emphasis and interaction between students and staff.

The studies from the USA cite the significance of information literacy standards either as a basis for data gathering within the research or indicating how the research findings demonstrate empirical support for the standards. The Library Power interventions use Information Power: Building Partnerships for Learning (1998) as the foundation for developing and enhancing school libraries and their use by teaching staff and students. Although the individual case studies show varying degrees of success in establishing a library culture, the overall intervention approach based on the implementation of the standards was shown to be sound.

Lance provides a useful model of research which could be adapted for use in England in order to track patterns using a longitudinal approach. Care would need to be taken to use the most appropriate data sets. Vallender's research would suggest that OFSTED reports used during the study (HMSO, 1998), did not discuss in enough detail what the contribution of the library should be nor did they provide sufficient detail to support of highlighted deficiencies and thus be of value in development. The most recent update on Inspecting School Libraries and Learning Resource Centres (OFSTED, 2001, Appendix D) does address some of these issues and could provide a means of examining impact in the future. However, some form of pilot study would

need to be conducted to establish the overall effectiveness of the reports as a consistent means of analysis. The evidence from Vallender's study using GCSE and A level examination results may not have been conclusive in establishing a link between library use and performance, however, the correlation analysis methodology has the potential for adaptation for use as a means of tracking evidence over time, although not, as Vallender points out, on a yearly basis within individual schools. Care would need to be taken to ensure the curriculum requirements of the school library are considered in the analysis. The SATs at KS1 and KS2 would provide a more direct comparison with the tests used in the Lance studies and the KS3 SATs have the potential to provide a starting point for any pilot study using this type of quantitative methodology, especially if one study was conducted to provide a base level before any new school library intervention was introduced. The Colorado studies (Lance, et. al, 1993 and 2000a) and the Texas study (Smith, 2001) use a variety of subject specific tests at various levels, some levels were just tested on reading while some were tested on a variety of reading, mathematics or science and social studies. More detailed analysis would be required to establish which tests would be the most appropriate for any English study.

A pattern emerging from these studies is the importance of taking account of qualitative evidence in any future evaluation of impact of the school library. In particular the value of examining the process of information and library use in relation to factors such as development of skills and attitudes to learning is stressed by researchers. This has implications not only in terms of the methods used in collecting and analysing appropriate data but also for the professional skills and knowledge base of library and teaching staff. In terms of achieving impact as well as assessing impact it is important that both professions develop a clearer understanding of the relationship between the work of the library and the learning process.

This section of the review on the impact of school libraries on academic attainment examines and answers the following specific questions outlined by the Task Group:

What is the link between school libraries and achievement/attainment in schools?

What impact do school libraries have on raising pupils' attainment in schools?

A link between school libraries and achievement/attainment can be made at primary level and in certain circumstances this can be demonstrated through formal test results and more informal examination of the quality of students' work.

A less conclusive link can be made at secondary level but the research suggests that input in the form of non-statutory standards as a framework for development and training is required in order to establish significant change in impact over time.

The existing research, much of it from the USA, concentrates on the attainment of reading and information literacy in primary and lower secondary level students. It points to the fact that the school library can have a positive impact on attainment as measured by a variety of standard tests of attainment in reading proficiency and subject related tests. The key factors in achieving a positive impact relate to collection levels, library staffing levels, and collaboration between librarian and teacher in the planning of resources and instructional design as well as provision by librarians of training for teachers.

KS3 Literacy Strategy should provide a useful base of data for research and ongoing evaluation in English schools as well as opportunities to explore further the relationship between the library and learning.

2.4 Impact on Broader Aspects of Learning

2.4.1 Introduction

This section considers the impact of the school library on broader aspects of learning, such as attitude to learning, personal confidence, social development, enrichment of the curriculum and recreational or non-directed learning.

This area of learning tends to be the focus of small-scale action research or is identified within the context of research with a wider focus or where the major focus is on academic attainment. The research only begins to identify appropriate tools for measuring the evidence of impact on this type of intangible learning.

2.4.2 Discussion

There is little research which covers the broader aspects of learning as a major focus but there are passing references within documents to encouraging a positive attitude towards the library itself and to self-confidence and personal development. As already reported in section 2.3 in relation to more formal curriculum-related activities, Williams & Wavell (2001) identified the potential the library has to impact on the learning experience in terms of motivation, progression, independence and interaction. What became apparent was that the same learning principles apply within the library environment as in the classroom, and therefore the library has the potential to develop these broader learning experiences given favourable conditions. As in other educational and social environments conditioning factors are also at work which may limit or enhance the impact on learning. Nevertheless, the relative freedom of the library environment, when compared with constraints imposed by the classroom, gives the librarian scope to exploit this to encourage personal and less formal learning.

The Williams & Wavell (2001) case study of volunteer student librarians found evidence of a great deal of learning taking place within this group and that this was extended to their peers, particularly in the form of ICT skills. There was also limited evidence from teachers and the librarian that one pupil in particular had displayed an increase in self-esteem, an improved attitude to work and had matured. The teacher was wary of committing all this directly to the influence of the library but agreed that being a volunteer librarian had contributed. Dyer (2001), a Library Assistant working in an Australian high school, describes a piece of action research which aimed to give effective support for student volunteer librarians. The article does not detail the evidence but states that examples of increased self-esteem and maturity were documented for poor achievers or students with low self-esteem, and identified broad categories within which learning had occurred: community service, information management and retrieval; computer skills and cognitive development. It was also reported that the status of the role of volunteer student librarians increased within the school.

Balaam (1997) describes the learning and development of a student volunteer with special educational needs. The pupil himself is aware of his problems but is determined to progress through the levels of certification (developed by the librarian) and the librarian recorded that while on duty in the library, his attention span and concentration is better than in the classroom. However, the librarian, working closely with the learning support assistant, indicates that constant support and adjustments are required to encourage and enable progression. This amount of attention to detail is characteristic of the reports of action research by individual

librarians and reflects the observations made by Kuhlthau (1999) that once librarians (and teachers) begin to critically examine their actions in relation to learning, understanding of the processes and adjustments required begin to emerge.

A study, reported by Hopkins (1989), investigated the role of the library in promoting 'positive self-concepts' in children, which are defined as the individual's perception of their self-worth and abilities. The observational case study approach used in the research was conducted in three primary level libraries. In particular the library can impact positively on pupils' self-concepts through the factors of: cooperation, independence, success, challenge, feeling of value, and creating a positive atmosphere. The results showed that the library has the potential to play an enhancing role in developing students' positive self-concepts and thus help them achieve academically.

The library has a role to play in fostering independence in disabled students, according to research conducted by Murray (1999) in fourteen primary and secondary schools in Australia. This longitudinal study used a case study approach to investigate the contribution given by the school library to encouraging the integration of disabled students into the mainstream schooling. Supported by evidence from interviews with school librarians, special educators and disabled students, Murray reports that the case study libraries did contribute to some of Hopkins' six factors of 'positive self-concept' (1989): in particular by "providing opportunities for collaboration and teamwork, in exercising independence, and in creating perceptions of value and acceptance" (Murray, 1999, p.7). It was also found that the librarians with developed managerial and communication skills were more successful in their delivery of support for disabled students. The report suggested that the development of learning support centres, with the amalgamation of special education, information technology support and school library services would enable school librarians to become involved in the personal growth of disabled students. Evans & Heeks (1997), in the discussion of research undertaken to examine the learning support given to students with special needs, suggest that libraries have the potential for a greater role in supporting the needs of this group of students, including the gifted and talented.

The importance of cooperation, independence and motivation are developed in the study by Williams & Wavell (2001), and Small (1998, 1999) has explored motivation strategies to be used by librarians through research and practical examples. Small's work focused on the identification of strategies used which resulted in on- and off-task behaviour in students. Although this research focused on the lower secondary and primary students, the need for motivational strategies were seen by Williams & Wavell (2001) to be required in all year groups studied in their research.

Williams & Wavell (2001) attempted to investigate ad hoc use of the library and special events in order to understand the impact such educationally informal activities have on student learning. This proved a difficult exercise and was not fully explored but there was little doubt from the informal observations and discussions that these activities do have some impact on learning. However, the nature of these activities means the impact generally goes unnoticed or unacknowledged. The anecdotal evidence gathered during the Newspaper Day covered in one case study school is corroborated by informal observations made during a similar event reported by McNicol (1999). McNicol suggests learning occurred in the form of using library resources effectively, ICT skills, journalistic skills, collaborative working to meet a strict deadline, and critical examination of newspapers.

The Conference proceedings of CHILIAS (Children's libraries - information - animation - skills) project (1999) brought together the experiences of a number of participating European

children's libraries. The project aimed to encourage the acquisition of information and learning in the changing information society by using the Internet. The review did not detail a full evaluation but the anecdotal evidence from participating school librarians, teachers and secondary school students suggest that the project contributed to student learning by motivating students, developing ICT skills, reading and writing development.

There are studies which evaluate educational initiatives, such as "The Impact of Study Support" (MacBeath, et. al., 2001) and within these reports there is recognition of school library (and public library) support and involvement. However, these studies which take a more holistic view of student learning within the school environment have not been reviewed in-depth because the library contribution is often only a minor focus. Indeed any contribution from an individual element cannot easily be separated from other significant inputs unless the evaluation is specifically designed to do this. However, the recommendations acknowledge the need for joint training provision for such initiatives.

2.4.3 Findings

It is apparent from the small-scale action research in this area that the school library has a role to play in the development of wider aspects of learning. In order to be seen as successfully contributing in this area, some librarians have taken a systematic approach in order to:

- identify individual needs;
- ensure the library contribution is aligned to any form of school policy or development action (such as the schools accreditation system); and
- ensure there is some form of evaluation and analysis of success of both the projects and the student learning.

This type of action research should be encouraged in individual schools through external and internal staff development training and reviews in order to ensure that the school library as a department can provide evidence to support work within the development plan. If, in the future, this type of evidence is gathered routinely, then it has the potential to provide a more cohesive data set to be used in larger scale evaluation of the impact of school libraries on broader learning experiences.

Murray (1999) suggests a need for close collaboration between the learning support units and the school librarian and anecdotal evidence suggests that is a useful alliance. Another avenue for more formal alliance is with the Heads of Year who maintain individual Records of Achievement. This has potential for further consideration and future research or development. The draft framework for a learning standard for museums, archives and libraries (Resource, 2001) recognises the need to develop partnerships within and outwith the organisation.

This section of the review on the impact of school libraries on broader issues of learning, examines and answers the following specific questions outlined by the Task Group:

*Can a link be made between school libraries and enrichment of the curriculum?
What impact do school libraries have on pupils' attitudes to learning (or confidence in learning)?*

What research has been previously done on school libraries' impact on whole school provision? (i.e. impact of life of the school as a whole including curricular, inter-curricular and extra-curricular activities)

An important, if poorly researched, link can be made between school libraries and enrichment of the learning experience within the curriculum. Research covering this area is limited in both the scale and type. Action research contributes important but poorly documented evidence on specific contributions to particular areas, such as vulnerable students seeking refuge as volunteer librarians or disadvantaged students, i.e. those with special needs.

Several reports mention some evidence of an improvement in students' attitudes to learning when specific activities encourage the use of the school library. The review does suggest that where there is intervention by the librarian or teacher to enhance the effectiveness of the library experience, the implementation of the intervention has the effect of increasing knowledge, understanding and awareness of the issues involved which impacts on the quality of the resources or teaching and indirectly increases student stimulation and motivation. However, the review has not identified research in which the major focus has contributed consistent evidence to support the fact that the school library impacts on students' attitudes to learning.

The review has not identified any research where the major focus is on school libraries' impact on whole school provision. However, a minor focus within larger studies has demonstrated that the school library has a role within whole school efforts to encourage or improve cross-curricular or extra-curricular activities. It is important for the school library's potential contribution to be recognised both within the school and by Government when initiatives and training are introduced.

2.5 Service Provision

2.5.1 Introduction

This section considers the impact of service provision on student learning. Service provision has been taken to mean the different types of services provided by the various models of school library, i.e. the library within a school, a combined public/school service, or provision by a centralised Schools Library Service.

The review identified research in relation to collections and library instruction and collaborative planning. There is research on how the curriculum changes or other initiatives impact on service provision. However, there is a gap in the research on how the different models of library service impact on learning.

2.5.2 Discussion

There have been few studies describing the various models of service of school library provision in the context of the impact on learning. The Survey of Secondary School Libraries prepared for The Library Association (Survey & Statistical Research Centre, 2000) gives a statistical analysis of the current (1999) secondary school library provision within the UK. The survey was sent to a sample of 2041 secondary schools across the country and the overall response rate was 48%. The findings provide an indication of the collection, opening hours, loans, staffing type and levels and to a certain extent good practice. The survey highlights the range of salaries and hours worked and suggests this gives an indication of the varying importance and roles of the librarians in schools and that firm guidelines should be developed (Survey & Statistical Research Centre, 2000, p9). While not directly addressing the issue of impact on learning, the survey data indicates that there is variation in factors which Lance and others (see section 2.3) consider significant in determining the impact of the library.

The survey also gives an indication of the level of support from Schools Library Services. The production of broad countrywide surveys on a regular basis provides useful statistical evidence to examine trends. However, until there is a clearer indication from qualitative data of how the services of the school library are integrated into the teaching and learning, this evidence is of limited value in assessing their impact. Streatfield & Markless (2000) report on the state of Schools Library Services in relation to the current Government pressures of information initiatives and funding and conclude that the SLS are in no better position to demonstrate effectiveness in support of student learning, school improvement or social inclusion than individual school libraries.

The LISU survey of Library Services to Schools and Children (Creaser, 2000) provides a similar view of mixed provision from centralised Schools Library Services to schools. There is only brief statistical data on joint school and public library services.

Fitzgibbons (2000) does review types of cooperative relationships between school and public libraries in the USA, both historical and current, and discusses the advantages and disadvantages, the unique and common goals. While this article provides useful information for parties considering cooperation in a variety of ways, the author refers only obliquely to the potential impact, both positive and negative, on student learning. The State Library of Queensland (State Library of Queensland, 1997) has guidelines and standards for the joint-use public/school library but these are service directed and do not include outcome indicators in relation to learning.

There has been extensive interest in the type and quality of service provided in individual school libraries in the USA and the majority of the main statistical and Library Power evaluation studies make some reference to the impact quality provision makes on student learning. Hopkins (1999) considers the Library Power role in building collections and, although this was primary level, the experiences of training librarians and teachers in collection development in relation to the curriculum and the collaboration involved was considered a significant contribution of the Library Power project. The collections were more relevant, collaboration meant that teachers were aware of the stock and used the resources more and this was mentioned in responses by participants as one of the most valuable contributions of their involvement. Lance and the other statistical studies explore the relationship of the size and type of collection; and librarian instructional input into the curriculum in relation to academic attainment (Lance, et. al., 1993, 2000a, 2000b, 2000c; Hall-Ellis, 1995; Baughman, 2000; Smith, 2001). The staffing levels and qualifications of staff are also significant in these studies. There does appear to be a link between the quality and type of these service inputs and both academic attainment and broader learning achievements as indicated in the research about student librarians' self-esteem and interventions to promote reading changing attitudes and increasing motivation. However, much more research is needed to obtain more cohesive evidence to both these and other aspects of learning and particularly in England where the staffing structure is not entirely comparable.

Several articles and conclusions from research mention the librarians' service in providing support and training for teaching staff. In some cases this is formal in-service training for ICT, collection evaluation or information skills, as included in some of the Lance and Library Power studies, whereas in other research, such as the article by Gordon (2000), the librarian's input into a school literacy action group is more informal and is described as sourcing rubrics, standards, guidelines and materials to enable teachers to implement effective information skills programmes. This is particularly important if research in Scotland (Wilson, 1997) which shows limitations in teachers' understanding and confidence in information skills is also applicable to England (and there is no reason to suggest otherwise). Similar parallels can be made with the

role librarians have taken to introduce aspects of ICT within the school environment. Both Wilson (1997) and Doiron (1999) discuss the implications for initial teacher training in Scotland and Canada in this respect.

An observation by the review team does suggest that major studies have been conducted in states in the USA where there is a strong central education and/or library authority. Many of these states recommend the use of Information Power or have developed their own state standards for school libraries and/or information literacy. It has not been established to what extent these states also provide training and support in terms of resources but this is an area of potential interest for further research, i.e. do the authorities with high profile Schools Library Services have an impact on student learning through their commitment to schools?

There is also evidence that central services, either through public libraries or Schools Library Services, do have a role to play in extra-curricular activities and social inclusion. However, this research does not focus specifically on the library provision within school and therefore has not been reviewed in-depth. The framework for learning standards for museums, archives and libraries will provide one approach by which this kind of activity can be studied. The research into school libraries indicates that standards can be used to increase awareness and encourage good practice and evaluation of impact can more easily be determined within a framework of standards. This is discussed more fully in section 3.

2.5.3 Findings

This section of the review considers the impact of library services on student learning and examines and answers the following specific questions outlined by the Task Group:

How do services provided by the school libraries vary from school to school and what is the impact on pupils' learning?

Is there evidence suggesting which model of school library provision produces the best results in terms of pupils' experiences and levels of achievement, attainment and attitude to learning?

The review identified research examining the provision of services in school libraries. It becomes apparent from the national surveys and from research looking at other issues that not all school libraries offer the same services. The emphasis of existing research in this area, as it relates to student learning, is on flexible scheduling, i.e. whether the library operates a system allowing student access on a need basis, and the quality and variety of resources, including ICT provision. The services provided by the librarian, such as instruction to students or training for staff is also the focus of research, although the latter is generally a minor focus within a study. There is evidence that:

- the quality and variety of the collection is a significant factor in student learning and therefore adequate funding needs to be available to maintain current resources that are curriculum related and of general interest for student reading;
- collaboration between the librarian and teachers on collection development, increases teacher awareness of the resources and as a consequence increases student use of resources;
- flexible scheduling encourages student use;
- the quality and frequency of librarian instructional input has an impact on learning.

The review did not identify research that studied which model(s) of school library provision, i.e. a library within the school, support from a Schools Library Service or a joint public/school library, produces the best results in terms of pupils' experiences and levels of achievement.

There is limited research which investigates the various advantages and disadvantages of a variety of models of partnership between public and school libraries but the research does not discuss the pros and cons in terms of students' learning. Some American states, especially Texas, provide greater support through websites for their school libraries and the same situation is known to be the case with Schools Library Services in England but the review has not revealed research which studies the impact of regional support on student learning.

2.6 Professional Expertise

2.6.1 Introduction

This section considers the professional expertise of the person in charge of the school library, in relation to student learning.

How do the professional knowledge, skills and qualities of the school librarian relate to the impact on learning?

Research discussed below from the USA provides evidence that qualifications of the staff managing the library have an indirect impact on student learning. There is strong qualitative evidence that the experience and personal qualities and attributes of the librarian also impact on student learning.

2.6.2 Discussion

The importance of the presence of a librarian, library staffing levels, and collaboration between librarian and teaching staff has already been highlighted in relation to the impact of the library on attainment in the USA and elsewhere (see 2.3). However, the staffing situation in other countries where research has been conducted is different to that in England and it is not always clear which are the elements of a librarian's expertise which are most likely to have an impact on learning.

The research from the USA (Lance, et. al., 1993, 2000a, 2000b, 2000c; Smith, 2001) highlights the need for professionally qualified librarians in the school library but it should be remembered that the training is different from that in England. In fact the professional qualifications of school librarians varies across the world: in Scotland the school librarian is typically a qualified librarian; in the USA the school library media specialist may or may not have the qualifications and status of a teacher but in both countries the information and library courses are usually the same as those offered to the full range of information professionals. In Australia and Canada the teacher-librarian is trained, and has practised, as a teacher with an additional qualification offered by either a faculty of education or library and information studies. In New Zealand, the school libraries are typically staffed by class teachers with an extra library duty. In England the situation is more mixed with qualified librarians, paraprofessional librarians and teachers with library duties taking on the role of school librarian (Henri & Oberg, [in press]). Recent figures indicate that in England, 40% of school libraries are run without full-time or part-time librarian or teacher involvement. 29.3% are managed by a full-time chartered librarian, 12.8% have full-time teacher involvement and 31% are managed by a library assistant or clerical officer (Survey & Statistical

Research Centre, 2000). There is no clear evidence of the extent to which these variations in qualifications and professional experience impact on the attainment and learning of students.

The collaborative working partnership of the librarian and the teacher is cited in much of the research from the USA as an important factor in the impact of the library on attainment (see 2.3). The training and support given to American librarians in educational aspects of the role may not make the integration of the two professions any smoother but does give the librarians the flexibility of the instructional role. The findings from research in the UK and observations would suggest that librarians do not necessarily have the educational knowledge or desire to become involved in the instructional process. As part of a wider international research project into the school principal's role in supporting the school library, Herring (in Oberg, et. al., 1999) surveyed a small sample of Scottish headteachers and librarians. The results revealed significant differences in belief:

- "Headteachers agreed that school librarians should have dual qualifications but school librarians did not agree
- Headteachers believed that cooperative planning and teaching should take place in the library and in the classroom
- Headteachers did not agree that the school librarian should be an IT leader in the school." (Oberg, et. al., 1999, p170.)

Herring found this surprising and expressed the need for a wider survey to establish whether these are widespread beliefs. Anecdotal evidence in England suggests that school librarians differ in opinion between those who embrace the instructional role and those who are reluctant (for whatever reasons) to take on that role. If a larger survey revealed similar results this would have implications for the training of school librarians and raising awareness of headteachers of what school librarians can contribute in ICT, as well as other areas of support.

Competencies for Teacher-librarians in the 21st Century (Haycock, 1997) is a document endorsed by the Association for Teacher-librarianship in Canada (ATLC) and the Canadian School Library Association (CSLA) giving clear professional and personal competencies expected of the professional teacher-librarian and is based on research such as that of Lance, showing that a qualified teacher-librarian has a positive impact on school culture and student achievement. The State of Kentucky has produced standards for the evaluation of school librarians and this might provide a useful means by which senior management could understand the role of the librarian within the school.

Tallman & Tastad, (1997, 1998) describe case studies of involvement in the Library Power project, with the focus on the instructional partnership and teaching roles of the librarian and whether schools could make systematic changes in the way the curriculum planning took place and how long it would take to establish this in the culture of the school. The researchers identified positive changes across the school in terms of attitude to the role and status of the librarian as well as reporting more integration of information literacy skills. Webb & Doll (1999) found that collaboration increased through the Library Power intervention and concluded that librarians need to take a leadership role in identifying opportunities for collaboration and staff training. This research also identified levels of collaboration that could be used in future research.

Although, the article is not research-based, Crowley (1995), argues the case for school librarians who take a leading role in the professional development of teaching staff by highlighting current research in education, digesting the relevant literature for communication to the most appropriate person within the organisation. Anecdotal evidence would suggest that this

is an area where librarians in this country are divided on how they define their role. Some embrace the role of managing the staff development resources while others prefer to view their role as supporting student learning rather than teacher learning.

In terms of personal qualities and attributes there is little research directly relating to the impact on student attainment and learning. Research has been carried out by Goulding (Goulding et al., 1999) to determine UK employers' perceptions of the most desirable personal qualities of recruits to the library and information profession across a variety of sectors and the extent to which recruits conform to these expectations. This research did not include the school library sector but highlights discrepancies between the employers, students and library school educators perception of the importance of qualities such as flexibility, commitment and reliability that are required but lacking in new recruits.

Studies which consider particular learning aspects of the school library often mention the experience and attitude, personality and commitment of the school librarian in relation to the activities and it is clear from the literature that this is of fundamental importance. The report by Bates (2000) on a study undertaken in three UK secondary school libraries investigating the impact of promotional strategies on children's reading habits, was thought to be less significant in relation to the findings on reading than in its coverage of three models of library management. One school was managed by a teacher librarian with help from a part-time, unqualified library assistant; another was managed by a full-time paraprofessional librarian with occasional help from adult volunteers and the third school library was managed by a full-time qualified librarian with help from a part-time library assistant. The study investigated the various reading promotional activities undertaken and surveyed a sample of pupils for their perceptions of the school library and the strategies employed to promote reading. The article does not specifically consider the impact on learning nor does it attempt to relate the qualifications and training of the librarians to good practice. However, the research did find evidence on what students perceived to be important personal attributes of library staff: friendly, supportive, willing to help. This was borne out by the focus group discussions in the early phase, and observation and discussions in the later phase, of the Williams & Wavell study (2001). The Bates research also stressed that all three types made considerable professional commitment to the role in terms of involvement in curriculum planning, support to staff on library matters and staff development, as well as personal commitment in terms of time for promotion and management of the school library.

Research by Bell & Totten (1991a, 1991b) in Texas investigates the cooperation between professional and paraprofessional librarians and teachers in relation to personality traits. The two groups of librarians showed significant differences on only four traits that were considered likely to influence the operation of the service provided and found that these did not impact on the degree to which their cooperation was sought on hypothetical instructional problems. However, the study did conclude that where cooperation is high the status of the librarian within the school environment is increased and the instructional elements are more likely to be cohesive.

In the early 1990s in Washington State, Christensen carried out a study of the professional qualities of school librarians managing exemplary school library services. The research used an evaluative checklist developed by the Association for Educational Communications and Technology (AECT) for self-evaluating the school library service and a personality questionnaire to analyse taped interviews with librarians and other members of the school community. The findings are summarised in ten conclusions which discuss key elements required for successful school libraries and include administrative commitment and support in terms of physical facilities, finance, staffing and inclusion in the curriculum processes. The school librarians

studied had professional qualifications beyond degree level and sufficient experience in the same school to develop their role and expertise. They were committed to quality service provision and developed professionally and the service beyond their contractual time. These school librarians were also proactive within the school and in the wider profession. None of these studies attempted to examine the impact of personal attributes on learning/attainment.

This introduces the question of standards and evaluation mechanisms and the way these relate to the knowledge, expertise and role of school librarians. Vallender's dissertation expresses the desire to align library impact on student performance to school measures, the line Lance and others have taken. However, this has proved of limited value for describing the way different practice and approaches impact on learning. A more qualitative method is needed to understand the how and why. The Scottish school library self-evaluation document (1999) is an attempt to utilise more qualitative indicators but is modelled on the school evaluation method which may or may not be appropriate depending on the perception of the role for the school librarian. The Inspiring Learning framework is geared more towards the public sector of museums, archives and libraries but provides a good framework to consider learning in the less formal setting than the classroom. It could be argued that this is one approach that could be taken within school libraries given the emphasis it places on partnership. It would relate well to a situation in which the teacher takes on the instruction role of information literacy and the librarian develops partnerships to support teacher selection of materials and staff development with appropriate new advances on educational matters.

The introduction of standards and evaluation mechanisms also has implications for training of school librarians. Studies such as those of Kuhlthau (1999) and Williams and Wavell (2001) have identified the importance of librarians' understanding and engagement in the learning process if the effectiveness and impact is to be maximised. The plethora of practical guides and articles written in the professional journals, as well as the training provided as part of the Library Power initiative, would suggest that many school librarians might also benefit from increased training in the understanding and delivery of information literacy. Kuhlthau's research would also suggest that much can be achieved through the introduction of evaluation frameworks and standards, supported by appropriate inservice training. She found that librarians' understanding and awareness of the learning process increased as a result of engaging with the Library Power programme, evidenced by their increasing ability to identify appropriate ranges of indicators of learning for use in evaluation.

2.6.3 Findings

The review of the literature would suggest that further research is required to determine the extent to which professional experience and personal attributes impact on student learning. The willingness and ability to work collaboratively with teachers is a key factor but it is not clear whether this is dependent on the nature of the librarian's pre-service training and qualifications.

Research from USA indicates that collaboration with teachers in the instructional role of information skills has a positive impact on both teaching practice and achievement. American school librarians have an educational element to their training which makes them, in theory, more able to take on this role. Research in Scotland (Oberg, et. al., 1999) and anecdotal evidence in England suggests that school librarians differ in opinion between those who embrace the instructional role and those who are reluctant (for whatever reasons) to take on that role. This raises questions about the relative roles of teachers and librarians in delivering information literacy. The review has not highlighted research which compares the effectiveness and impact of information literacy delivery by librarians with that delivered by teachers.

There is evidence that collaboration between the librarian and teachers in collection development in relation to the curriculum and support for sourcing reference material to enhance teaching both impact on student learning. The collaborative role also has an indirect impact on librarian status within the school.

The role of leadership as a necessary quality in a school librarian is the subject of discussion in the American research. A leadership role which also embraces staff development for teachers has not been the main focus of research but is mentioned in the more recent Lance studies and this would suggest that it is becoming significant but more research is needed in this area.

The Library Power evaluation provides evidence that targeted training of school librarians can have an indirect impact on student learning. There are, however, significant gaps in the training of librarians in terms of evaluating the learning process and teachers and Senior Management require additional training in how the school library can provide effective support for teaching and learning, particularly in relation to information literacy skills.

This section of the review, on the impact staff qualification and experience have on student learning, examines and answers the following specific questions outlined by the Task Group:

What role does the school librarian (professional librarian, teacher or volunteer) undertake in the school? Is there a link to good teaching practice and achievement?

To what extent to the different backgrounds of the staff responsible for managing the school library and its resources limit or increase its effectiveness as a learning resource?

There is a link between the role of the school librarian and good teaching practice and achievement. There is evidence that school librarians who take a professional and proactive approach to their role within the school can cite evidence of their impact on teaching and learning. The statistical evidence from research conducted abroad indicates that professionally qualified school librarians have a positive impact on student achievement. However, further research into this subject is required in England as the qualifications required of librarians working in England are different from those required in other countries.

The research is also not conclusive to what extent personal attributes are significant to student learning, however there is limited evidence to suggest that they are significant.

3 CONCLUSIONS

3.1 Summary of Evidence

The critical review of literature has demonstrated that there is evidence to support the view that:

- school libraries can have a positive impact on academic achievement, particularly at the primary and early secondary level and with appropriate action to ensure the service delivery is efficient and effective. However the library support for primary education in England is different to that in countries where the more substantial research has been undertaken and more research would be needed to determine the extent to which the evidence is transferable to English secondary education;
- school libraries can play a significant role in the broader aspects of student learning, including motivation and this is particularly evident when a systematic approach is taken to accommodate this type of learning;
- there is limited evidence of the potential for impact on the learning experience of vulnerable or disadvantaged students, on student attitude to learning, or in areas such as cross-curricular and extra-curricular learning – this is an area which would benefit from further research;
- where an impact on achievement and learning has been demonstrated, the key factors are collection levels, library staffing levels, and collaboration between librarian and teacher;
- libraries have greatest impact when teachers and librarians collaborate, particularly on collection development, in the planning of resources and instructional design, as well as provision by librarians of training for teachers;
- the quality and variety of the collection is a significant factor in student learning and therefore adequate funding needs to be available to maintain current resources that are curriculum related and of general interest for student reading and provide personal stimulation;
- there is no clear evidence to indicate the contribution made to achievement and learning by the various models of school library provision, however flexible scheduling appears to be an important factor in encouraging student use;
- the quality and frequency of librarian instructional input has an impact on learning;
- the presence of a librarian has an impact on student achievement and learning, but how this relates to the nature of the librarian's professional qualifications is less clear;
- personal qualities and attributes are likely to have an impact but more research would be needed to clarify this relationship;
- school librarians who take a professional and proactive approach to their role within the school can cite evidence of their impact on teaching and learning; and are more able to reflect, self-evaluate and develop further;
- training is required to ensure mutual understanding amongst librarians, teachers and senior management of the library contribution and librarian and teacher roles; this should include information skills development, collection mapping (resources match curriculum requirements), planning and evaluation;
- the training of teachers and librarians is demonstrated to raise awareness of each others' roles in the school library setting.

3.2 Applicability of the Research to School Libraries & Services in England

There are problems with making generalisations from the American (or other) studies to secondary schools in England. Much of the research has been undertaken with primary level students and more research is needed generally at the secondary level. However, the concentration of evidence of the potential impact on primary level, suggests that the secondary sector should not be looked at in isolation from the impact which a school library may have at other levels, including tertiary education. Lessons from USA and other countries could not be applied in any holistic sense in England because of the differences in staffing levels and qualifications. These factors as well as the role of the school librarians needs clarification in relation to their impact on learning and achievement in English schools. Thus, the research is neither sufficiently cohesive nor comprehensive enough to provide a clear single direction for the future development of school libraries in England. Some of the recommendations below relate to the need to generate more applicable evidence in key areas.

Nevertheless, the review of available research evidence gives clear pointers to the likely areas in which the school library may make an impact on achievement and learning as well as suggesting some useful strategic approaches to future development of services.

What is clear from the research, is that there is a fundamental need to address the issues of alignment and role of school library provision in relation to information literacy, resourcing and wider partnerships. Such consideration will influence the interpretation and implementation of the specific recommendations.

3.3 Gaps in the Research & Suggestions of Areas where Further Research is Needed

The research gaps and potential areas for further research identified in the review of existing evidence can be summarised as:

- the impact of different models of library provision for schools on learning;
- the impact of personal characteristics, qualifications and roles undertaken by school librarians on learning;
- high quality research into the impact of the library on broader learning experiences, e.g. confidence, attitudes to learning;
- methods for collecting qualitative data associated with the less tangible learning experiences;
- the most effective role for the librarian within the school and educational setting, particularly in relation to information skills development and instruction.

Much of the literature and research originates from the USA where standards are available upon which to base practice, however, the literature still demonstrates that there is much work still to be done in order to understand the causal relationships between teaching, resources, personality factors on learning. There is research that links achievement in learning with school libraries, however, this research cannot take account of all the other factors at work, such as teaching styles and school ethos and there is little doubt that significant learning takes place without the input of a school library. There are pointers to possible impact of the school library in support of students with particular learning needs and consideration could be given to the amalgamation of school libraries into a learning support system to ensure the development of individual needs of all students in the broader learning issues. However, this again is an area where the evidence is sketchy and would merit further research in an English school context.

More research is required to establish how the different models of School Library Service, combined school and public service, and the different service provision and roles undertaken by the school librarian impact positively on the learning process. In order to achieve this, there needs to be some clear method of evaluating impact on learning and training to encourage school librarians (and teachers) to adopt a more reflective and evaluating attitude to their role in the learning process. Without the evidence of what does and does not work, there can be no consistent means of ensuring input is geared towards effective outcomes.

Further research is required to clarify the most effective and appropriate role for school librarians and the findings of future research will determine the most appropriate pre-service and continuing professional development training for both teachers and librarians.

3.4 Strategies

The review shows the value and importance of appropriate *interventions* as an approach to development and evaluation of the role and impact of school libraries in achievement and learning. Two current initiatives offer important opportunities to begin to examine these issues in relation to schools in England. The current New Opportunities Fund ICT training for teachers and librarians has the potential to raise awareness of information handling skills within both professions. This training is seen as a starting point for ongoing development within schools. As long as the focus is on information handling rather than the use of IT alone, this initiative offers opportunities to identify and define the relationship between information literacy and learning in schools. As this review has already highlighted, this kind of understanding is necessary if the contribution of a library to learning and achievement is to be understood and maximised.

The Literacy Strategy, also places school priorities firmly in an area of learning and achievement which has been seen to be a key area for school library contribution in other countries. The KS3 Literacy Strategy could provide an appropriate vehicle to train teachers (and librarians) in how the school library can support information and reading literacy. These two major interventions offer the kind of foci for evaluation, reflection and development which have proved so important in school library developments in the USA.

Standards can provide the basis for establishing a coherent, systematic and planned approach to developing and maintaining an efficient and an effective service, however they also need to be flexible enough to allow for local circumstances and emphasis as well as being adaptable for changes in the future education environment. Traditionally standards have been concerned with inputs and outputs, performance indicators and benchmarking and are the cause of uncertainty and suspicion by the workforce. However, standards are increasingly concerned with processes and outcomes and can be used as a practical tool to provide structure for developments and working practices. Included in the extended bibliography are a number of examples of standards used or proposed for use in school libraries or public libraries. These include standards for the efficient management of the service, for professional development, for information literacy and the latest in England for access and learning in museums, archives and libraries. Examples which could and should be considered prior to developing standards for England are the Scottish school library standards and self-evaluation tools (SOEID et. al., 1999), Inspiring Learning: a framework for Access and Learning in Museums, Archives and Libraries (Resource, 2001), Information Power (AASL & AECT, 1998) and the Texas Standards (School Library Programs: Standards and Guidelines for Texas, 1997).

Such standards all have a place within the learning environment, however, before any standards can be adopted greater clarity is required on what role the school library should play

within the school and education as a whole. Should school libraries be taking a proactive educational role, in which the librarian participates actively in information literacy instruction? Should the role be as a supportive information service in which the librarian directs students and teachers to the most appropriate sources for their needs? Should school libraries provide a combination of both roles? The decisions made on the predominant role the school library should take will impact on staffing and the training of staff.

While this review suggests that the introduction of standards has a role to play, it is recommended that any introduction of standards be seen as a framework or tool to aid professional development not as a statutory imposition. It would be important to ensure base level data is collected prior to introducing future interventions such as library and information literacy standards.

There is evidence from this review that *appropriate* resources are important. In order to be effectively used, large numbers of resources need *efficient management*. In order to impact on learning, the resources need to be *used effectively* to support teaching and learning. The current research does not give clear evidence to support any one approach in order to achieve this but suggest a number of possible causal relationships which need clarification.

It is therefore not possible from current research to recommend that all secondary schools require a qualified librarian or that a school library requires a specific budget per capita. However, the research does indicate that the resources within schools need to be relevant to the curriculum, broad enough to encompass a variety of learning levels and personal interests and that more tools and training are required to ensure that these resources are effectively integrated into the formal and informal learning of the school community. This requires a commitment to funding.

3.5 Methodologies which School Libraries & Services in England can use to Assess the Impact they have on Attainment & Learning

The quantitative methodology used by Lance and in the Texas study could be adapted for use in England, particularly to clarify any broad relationship between the varying models of library staffing and impact on achievement. However this type of study is limited in value to academic attainment and identification of broad trends and will not help with the longer term sustainability of impact or help to maximise the impact. To enable such an approach to be useful in England, data sets need to be clearly established for ease of collection on a regular basis, using indicators of achievement which can be related to libraries. KS3 SATs are thought to provide a useful starting point for pilot studies.

OFSTED inspections are not yet an appropriate means of establishing impact because libraries are not statutory and are only mentioned in some reports. However, after further research to clarify the contribution school libraries can make, inspectors could be armed with clearer guidelines to make inspection a more useful evaluation tool.

A more constructive tool for the ongoing evaluation and development of school libraries needs to take account of qualitative evidence. A qualitative tool is needed to establish indicators of learning or to enable librarians to establish their own indicators and this information is most useful at an internal level to establish why impact is or is not taking place. The work of Streatfield and Markless in the UK; Williams and Wavell in Scottish schools; and Kuhlthau in the USA may all be useful in developing an appropriate framework. It is important, however, that the development of appropriate indicators is done in the light of decisions and clarification on

the role of school libraries, the introduction of appropriate standards, and training to ensure both teaching and library professions are working with understanding towards the same goals.

4 RECOMMENDATIONS

The review team recommends that:

- Consideration needs to be given to ensure pre-service training and professional development training of both teachers and librarians addresses the need for greater understanding of the professional contributions to learning in school libraries.
- Training is given a high priority to ensure action research is encouraged as this enhances awareness, encourages reflection and provides evidence.
- A longitudinal approach, in association with appropriate interventions, is taken to examining the impact of school libraries on learning.
 - The Lance and Texas model is adapted for use with KS3 SATs and piloted to establish whether the methodology is transferable to the English secondary education context and to provide base level evidence before intervention research is conducted. Authorities with strong SLSs with collaborative links with the education department are considered the most appropriate candidates for pilot studies.
 - A working group should be formed to examine the range of existing process and outcome standards that could be applicable to school libraries, including information literacy standards, standards for service provision and professional expertise, e.g. AASL & ACET, 1998; SOEID et. al., 1999; Resource, 2001; Kentucky School Media Association, 1999.
 - The selected standards should be piloted using an experimental approach in order to establish their effectiveness in improving library service, library use by teaching staff and in raising achievement.
 - Training about the effective use of the school library should be provided for both librarians and teachers in the pilot schools. This should include collection mapping, information skills, planning, collaboration and evaluation of both student learning and course delivery.
 - This pilot study should look at the range of indicators already identified in research to determine the most appropriate qualitative indicators of learning for further development.
 - An adapted Lance model is used again after intervention to identify any differences as a result of the intervention. A qualitative evaluation of the intervention using the standards and any indicators developed should be conducted alongside this quantitative survey, using Library Power evaluation as a model.
- Consideration should be given to whether the emphasis in developing the links between the school library and learning are more appropriately begun with the primary sector.
- Funds are made available to sustain the quality of collections.

5 ANNOTATED BIBLIOGRAPHY

5.1 Impact on Academic Attainment

Baughman, J.C. (2000) School Libraries and MCAS Scores. In: Anonymous *MCAS and School Libraries: Making the Connection, a Symposium sponsored by the Graduate School of Library and Information Science (Simmons College, Boston, Massachusetts: October 26th 2000)*, <http://artemis.simmons.edu/~baughman/mcas-school-libraries/Baughman%20Paper.pdf> [20/11/01]

SUMMARY: The document reviewed is a preliminary edition of a paper presented at a symposium at Simmons College, Boston and is widely cited. It reports on a study (the Simmons Survey) conducted in pre-secondary and secondary schools in the USA which suggests a link between school libraries and academic achievement. One thousand eight hundred and eighteen questionnaires were mailed to schools across Massachusetts and 519 were returned (289 elementary, 89 middle/junior and 108 high school). Detail about the content of the survey is not clearly provided but discussion of findings indicates that it was similar to that used by Lance et. al. in the Colorado studies. Survey data was then related to the MCAS (Massachusetts Comprehensive Assessment System) test scores. At each grade level, schools with library programs, with a higher book count, with increased usage, and with more open hours were found to have higher MCAS scores. At the elementary and middle/junior high school levels, the average MCAS scores are higher in schools where there is a library instruction programme, where there is a larger expenditure per pupil for school library materials, where there is a full-time school librarian and non-professional help. At elementary level the test scores are higher when the library is aligned to the state curriculum framework and at high school level when the collection is automated. The study indicates a need for automation in secondary schools and for professionally managed libraries with non-professional help, extended hours, frequent visits and that the achievement is related to expenditure on the collection.

Elley, W.B. (1992) *How in the World Do Students Read? The Hague: International Association for the Evaluation of Educational Achievement.*

SUMMARY: This work investigating the reading literacy of nine and fourteen year olds in 32 countries is widely referenced. Experimental case studies were conducted in order to identify the average level of reading literacy of the children and it was intended that factors relating to initial reading and reading development would be identified. Comparison between the participating countries and their relative scores in reading achievement shows a relationship between the number of library resources and higher achievement. RESERVATIONS/COMMENTS: 1. The study considers a number of other literacy factors and further analysis would be required to ascertain the extent to which teaching activities and librarian involvement might also have a bearing on the findings; 2. The UK was not involved in the study. See also Martin & Morgan, 1994 and Novljan, 1998.

Farmer, L. (2001) Information Literacy: a whole school reform approach. In: Anonymous *Libraries and Librarians: making a difference in the knowledge age. 67th IFLA Council and General Conference (Boston, USA: August 16-25, 2001)*. http://www.ifla.org/IV/ifla67/papers/019_106e.pdf [July 2001]

SUMMARY: This paper reports on a piece of action research conducted at an American high school already engaged in a five year funded project to encourage reform to meet district outcomes in reading, communication and mathematics. The library was incorporated into the reform within a faculty Research Strategies Study Group to look at the question of student research within the school as a whole, which provided a baseline of tasks and outcomes. The library media specialist provided professional development backup by identifying relevant research and practical examples of information literacy rubrics and standards, wrote guidelines

for students and teachers and conducted inservice workshops. Students were also involved in the process of reform and identified what was being taught in middle school. This prompted discussions with feeder schools through which it was concluded that students from feeder schools with credentialed librarians were performing better in their first year than those without this input. The Group identified the need for students to improve skills and for teachers to improve their instruction and to co-ordinate their efforts. The library media specialist ensured co-ordination across the faculties and the experience produced a greater trust between colleagues to reinforce each others efforts. RESERVATIONS/COMMENTS: This research suggests the need to consider primary provision within a research exercise. It illustrates how success can be achieved when an initiative is developed as a school need identified beyond the library. However in the English context, the librarian may not be in a position to develop the co-ordination and information literacy role to the same extent as they are not part of the teaching profession. If this approach was applied in England, therefore, there might be a need for preliminary investigation into librarian readiness and/or ability to develop research skills.

Froese, V. (1997) The Relationship of School Materials and Resources to Reading Literacy: an international perspective. In: Lighthall, L. and Haycock, K., (Eds.) *Information Rich But Knowledge Poor? Emerging Issues for Schools and Libraries Worldwide: Research and Professional Papers Presented at the 26th Annual conference of the International Association of School Librarianship (IASL) held in Conjunction with the Association for Teacher-librarianship in Canada (Vancouver, British Columbia, Canada: July 6-11, 1997)*, pp. 283-303. Seattle, Washington:IASL

SUMMARY: This paper uses the data gathered in the IEA reading literacy study (Elley, 1992) to explore reading literacy across the 27 countries included in the study. Particular emphasis is placed on school and classroom libraries and classroom teachers' practices in relation to library use. The paper also focuses on the nine-year-old age group within the IEA study. In the context of this review a couple of findings are of particular interest: 1. the number of resources in the school libraries does not effect reading achievement although children's estimates of the books in their homes was found to have a positive effect (the author suggests that this finding could have been misleading due to the difficulty in estimating the school library collection size); 2. while the extent to which books are borrowed from the school library shows a strong relationship with reading achievement, borrowing books from classroom libraries does not. The author concludes "evidence from this study indicates that the relationships are not simple or as direct as one might hope" (p300). RESERVATIONS/COMMENTS: Data and analysis of the impact on achievement is restricted to Canada due to the lack of availability of detailed data for the other countries involved.

Hall-Ellis, S.D. and Berry, M.A. (1995) School Library Media Centers and Academic Achievement in South Texas. *Texas Library Journal* 71 (2):94-7.

SUMMARY: This journal article reports on a study which provides evidence of the positive impact of library media centres (LMCs) on academic achievement in 79 South Texas public schools during the 1991-92 school year. The study replicated Colorado and it was admitted that the sample was not ideal in terms of size or across the school levels (i.e. elementary, middle, high). Schools, rather than students, were used as units of study and service outputs as well as resource inputs were considered. The methodology used ruled out the effects of selected schools and the poverty or education of the community. The findings show a relationship between expenditure and academic achievement and conclude that the size of staff and collection are the best predictors of academic achievement. The instruction role of the LMS was found to be important in shaping the collection, identifying items and collaborating with teaching staff on their use. RESERVATIONS/COMMENTS: It was not clear whether other spending in the schools was considered as a factor in academic achievement, e.g. pupil/staff ratio. Texas has high profile library support and it would be worth investigating whether the states where this type of research is conducted and positive impact is found are also library orientated.

Hopkins, D.M. (1999) The School Library Collection: an essential building block to teaching and learning. *School Libraries Worldwide* 5 (2):1-15.

SUMMARY: Library Power funding aimed to develop or enhance library collections and the use of Information Power Guidelines (1988) and Standards (1998) stressed the need for collection development to support the curriculum, involving both librarian and teachers. Library Power provided staff development in collection selection, evaluation and mapping to the curriculum (supported by Loertscher) aimed at collaboration. It was found that the involvement of teachers in collection development increased use of resources in instruction and planning with the librarian. It is also suggested that there is evidence of a link between a collaborative role in collection development and the contribution made to teaching, increased student use and attitudes towards the library. Evidence that it helped research and reading initiatives was also provided.
RESERVATIONS/COMMENTS: Part of the Library Power review funded by DeWitt Wallace-Readers Digest. Focus on pre-secondary schools in the US.

Kuhlthau, C.C. (1999) Student Learning in the Library: what library power librarians say. *School Libraries Worldwide* 5 (2):80-96.

SUMMARY: This journal article reports on a study that involving a number of schools that had taken part in the Library Power Programme. Methodology consisted of two approaches: an open ended survey question prompting librarians to describe a critical incident which illustrated a student learning experience (requested once a year over three years), and case studies of three Library Power libraries. Responses to the open ended survey question increased each year, provoking 331 responses in year 1; 405 responses in year 2 and 495 responses in year 3. Critical incidents were coded as follows:

Level 1: *Input* - emphasis on what the librarian did, not on students, i.e., adding to the collection

Level 2: *Output* - emphasis on quantitative measure of student use, i.e., more visits, more use of materials

Level 3: *Attitude* - emphasis on change in student attitude, i.e., increased interest and enthusiasm

Level 4: *Skills* - emphasis on location of resource and use of technology, i.e., locating books

Level 5: *Utilization* - emphasis on content learning, i.e., using resources to learn through inquiry in content areas of the curriculum.

For each year, approximately 85% of responses were coded at levels 3-5, however progression is shown through the fact the highest levels of response in the first year were coded at Level 3, in the second year at Level 4 and in the third year at Level 5. The author interprets this movement as a sign of the librarians' increased ability to recognise learning styles rather than actual improvement in students' use of the library. Improvement to students' learning or attainment was not directly addressed, however, from the librarians' responses, the researchers identified ten indicators of learning (p86) which ranged from those that could be broadly categorised as "intuitive observation" to "documentable evidence" (p87). These could be usefully applied in future studies of the impact of the library on student learning. Three case study schools were selected from the original sample and were used to explore differences in library programmes in order to address reasons for varying levels of success with the Library Power programme. It was concluded that Library Power was most effective when there was "a commitment to an inquiry approach to learning shared by the librarian, teachers, and administrators". The library has to be fully integrated into the learning process.

Lance, K.C., Hamilton-Pennell, C. and Rodney, M.J. (2000b) Information Empowered: The School Librarian as an Agent of Academic Achievement in Alaska Schools. Revised edn, Juneau: Alaska State Library.

SUMMARY: This study assesses the impact of Alaska school librarians on academic achievement in the state's public schools. and is based on "The impact of school library media centers on academic achievement" (Lance, et al, 1990). It demonstrates empirical support for the principles of "Information Power: building partnerships for learning" (1998). The relationship between staffing and student performance is investigated and staff activities that affect test scores are identified. A range of conditions of library operation were considered as potential predictors of academic achievement. During 1997-98, library media centers in 211 Alaska public schools were surveyed about their staffing levels, hours of operation, staff activities, usage, technology, policies and co-operation with public libraries. This data were added to the

percentage of grade four, eight and eleven students from these schools who scored below proficient, proficient and above proficient in the California Achievement Tests (CATS). In very simplified terms the research findings state that test scores tend to be higher: with a full-time librarian; higher level of staffing; higher levels of student usage; when higher levels of staff activity were directed to providing instruction to students, co-operative planning with teachers and providing in-service training to teachers; the more students received information literacy instruction in which the library media staff were involved. There was also a correlation between higher test scores and cooperative relations with the public library, online information access and a collection development policy. Additionally the study examined wider community and school conditions that might have an impact. While it was recognised that community factors have the strongest impact, wider school factors were less significant. RESERVATIONS/COMMENTS: However, the report does not address some of the school ethos and teaching culture which might help explain the findings - for instance a school which supports its library may also have a culture of good staff moral, quality teaching. The schools taking part in the study were also in part self-selecting. Although there are educational differences and the librarians in the USA are dual-qualified there are important lessons to be learned from the study. It is clearly indicated that the activities of the librarian are important to the academic achievement of students. The use of standard tests (SATS) might be applied to a similar model.

Lance, K.C., Rodney, M.J. and Hamilton-Pennell, C. (2000a) How School Librarians Help Kids Achieve Standards: the second Colorado study. U.S., Colorado: Hi Willow Research and Publishing.

SUMMARY: Report of the second Colorado study. Building on the findings of the first Colorado study (Lance, 1993), key differences include: 1. a focus on the impact of library media specialists and the Library Media Centre's (LMC) services rather than the LMC as a specific place; 2. use of standard-based tests to measure student performance (as opposed to the norm-referenced test used in the first study); 3. the role of technology was explored to a greater extent. The method of sample selection is not absolutely clear, but the final sample included 144 schools (124 serving the fourth grade, 76 serving the seventh grade, 56 serving both). Questionnaires were completed by these schools and included questions relating to the following key areas: Library Media Centre Hours; Library Media Staff (e.g. types of staff, what qualifications they hold, how many hours they work); Paid Staff Activities (e.g. instruction, in-service training for teachers); Library Media Technology (e.g. number of networked computers, numbers with access to the WWW, library catalogues, processor/connection speeds); Usage of Library Media Services (e.g. interaction with users, circulation figures); Library Media Resources (e.g. inventory of holdings by format); Annual Operating Expenditure and Capital Outlay for the Library Media Centre; School Library Media Management (e.g. presence of advisory committee, how budget is requested/received). The study found that Colorado Student Assessment Program (CSAP) reading scores increase with increases in the following characteristics of library media (LM) programs:

- *LM program development*;
- *Information Technology*: test scores found to increase with increases in library access to networked computers (linking the libraries with classrooms), particularly when they provide access to Internet and WWW, licensed databases & LMC resources;
- *Collaboration*: test scores increase with increased library media specialist/teacher collaboration, and increased involvement of the library media specialist in provision of in-service training for teachers;
- *Flexible Scheduling*: A link was found between individual visits to the library and increased test scores;
- *Indirect Effects*: Leadership involvement was not found to have a direct effect on test scores, however it does have an impact on collaboration which itself has been shown to have an impact on achievement;

Additionally, it is asserted that the predictors of academic achievement outlined above can not be explained away by:

- school district expenditures per pupil;
- teacher/pupil ratio;
- the average years of experience of classroom teachers;

- their average salaries;
- adult educational attainment;
- children in poverty;
- racial/ethnic demographics.

Lance, K.C., Rodney, M.J. and Hamilton-Pennell, C. (2000c) *Measuring Up to Standards: the impact of school library programs & information literacy in Pennsylvania schools*. Pennsylvania: Pennsylvania Department of Education's Office of Commonwealth Libraries.

SUMMARY: This study followed a realisation by Pennsylvania Department of Education's Office of Commonwealth Libraries that the impact of a school library needed to be demonstrated to school decision-makers. The study replicated the first "Colorado study" (Lance, 1993). The study sought to confirm the findings of the "Colorado study" and to consider the impact of: specific activities of certified school librarians; the principal and teacher support for library programmes; and information technology, in particular licensed databases and the Internet. The study relates the findings to the American Association of School Librarians' 1998 standards, "Information Power: Building Partnerships for Learning". The findings indicate that Pennsylvania System of School Assessment (PSSA) reading scores increase with higher levels of staffing, information technology and the integration of information literacy into the curriculum. It was also found that as these factors rise, so does the involvement of the librarian in teaching students and teachers how to find and assess information. The relationship between staffing and test scores is not explained away by other school or community conditions. One of the major findings of this study is the importance of an integrated approach to information literacy teaching and must be part of the school's approach to both standards and curriculum. The indirect effects were found to be that higher levels of school library staffing, particularly certified staff, predict higher expenditures, more varied collections, increased access to information technology and more integrated approaches to information literacy, standards and curriculum. **RESERVATIONS/COMMENTS:** 1. It is not clear from the methodology how the participating schools were selected and this has a bearing on the data analysis. If the majority of participating schools were already aware of the need for quality library provision, they are likely to be providing quality in other areas of the school. 2. The study was funded by Library Services and Technology Act (LSTA) grant.

Lance, K.C., Welborn, L. and Hamilton-Pennell, C. (1993) *The Impact of School Library Media Centers on Academic Achievement*. Castlerock, Colorado: Hi Willow Research and Publishing.

SUMMARY: This study conducted in the 1988-89 school year and sometimes referred to as the first Colorado study, was designed to develop evidence of the impact of the school Library Media Centre (LMC) on academic achievement. The sample of 221 schools was self-selected to some extent, though comparison with state statistics showed it to be representative of Colorado schools in terms of school levels, enrolment age, and school district setting (urban, rural, etc). Other factors that might be assumed to have an impact in academic achievement were also explored and addressed in the analysis. Main findings include: 1. where LMCs are better funded, academic achievement is higher, whether their schools and communities are rich or poor and whether adults in the community are well or poorly educated; 2. better funding for LMCs fosters academic achievement by providing students access to more library media staff and larger and more varied collections; 3. among predictors of academic achievement, the size of the LMC staff and collection is second only to the absence of at risk conditions, particularly poverty and low educational attainment among adults; 4. library media expenditures and staffing tend to rise and fall along with those of other school programs; 5. the instructional role of the library media specialist shapes the collection and in turn academic achievement; 6. collaboration between library media specialists and teachers is affected by the ratio of teachers to pupils. **RESERVATIONS/COMMENTS:** 1. Self-selection (but shown to be representative); 2. Sample size.

Markless, S. and Streatfield, D. (2000a) *The Really Effective College Library* (Library and Information Commission Research Report 51). Twickenham: Information Management Associates for the Library and Information Commission.

SUMMARY: This document reports on the second phase of a two-stage project conducted in the Further Education context. The first phase had consisted of a review of library support to support teaching and learning conducted from 1995-97, while phase 2 (1997-99) involved the development and monitoring of a series of library support initiatives aimed at enhancing teaching and learning in a variety of settings. Performance indicators were also developed by college librarians in order to review the results of the initiatives. To encourage the adoption of good practice revealed through the project, practitioner workshops were developed for college librarians, curriculum managers and teachers. In summary, phase 2 aimed to provide answers to the key questions: "What can librarians and learning resource centres really do to support teaching and learning? Does this make any difference and how can we tell the what difference?". Seven case study colleges were selected based on five models developed in the first phase of the study. Key policy documents for each institution were obtained and interviews with managers, teachers, librarians/learning centre managers and selected students were conducted towards the end of the project to gather people's views on innovations introduced as part of the project. A number of levers to effectiveness were identified from the project, including: a clear focus for development; maintaining a distinction between information and knowledge (helping learners to make sense of information); operating at a strategic level (ensuring library representation on curriculum planning committees, being proactive with college-wide initiatives etc); measuring the impact of the library (librarians involved in the project worked on the development of impact and achievement indicators); staffing (developing roles and skills); development of students' key skills. The work carried out with the participant colleges in developing performance indicators highlighted a number of issues including: baseline information was not available from the outset; traditional performance indicators/targets and benchmarking are useful in assessing the efficiency of the library as an operating system, but reveal little about impact or achievement; a balance between performance targets and impact targets is desirable. RESERVATIONS/COMMENTS: Post-secondary level focus.

Martin, M.O. and Morgan, M. (1994) *Reading Literacy in Irish Schools: a comparative analysis. The Irish Journal of Education* **28** 1-101.

SUMMARY: This was a special edition of the Irish Journal of Education which was devoted to findings of the IEA Reading Literacy Study and related research. The IEA survey (see Elley, 1992) looked at a range of factors that had the potential to impact on the reading literacy of 9 and 14 year olds. The complexity of assessing the impact of these factors is acknowledged. However, analysis revealed that a large school library consistently relates to high mean achievement (both before and after controls for social and economic development were applied) (p88-89).

Novljan, S. (1998) *Pupils' Reading is Better in Schools with a Librarian: evidence from Slovenia. Journal of Research in Reading* **21** (3):228-31.

SUMMARY: Discussion of the Slovenian experience of the international IEA study (Elley, 1992) concluding that the librarian is significant in the successful functioning of an extensive library collection. Teachers, however, showed no preference for a qualified or unqualified librarian when requiring assistance. RESERVATIONS/COMMENTS: The focus of Novljan's discussion is on the primary age group.

Oberg, D. (1999) *A Library Power Case Study of Lakeside Elementary School, Chattanooga, Tennessee. School Libraries Worldwide* **5** (2):63-79.

SUMMARY: This journal reports on a case study of Lakeside Elementary School, Chattanooga, Tennessee, which focuses on the impact of the Library Power Program on the school. Primarily a description of how the program was successfully implemented, evidence of success and the reasons behind it are also discussed. Impact on academic achievement is illustrated through improvements in TCAP results (Tennessee Comprehensive Assessment Program). Through comparison of library use statistics with TCAP results for each classroom, the librarian was able

to illustrate that reading and reference scores improved as library use increased. It is also noted that there "was evidence of changes in teachers' practice and belief" (p73). While it is acknowledged that other factors (e.g. leadership roles of principal, librarian, teachers; reform efforts already in place; the school's culture and the coherence of Library Power with other reform initiatives) have a key role in school achievement, it is also emphasised that without the benefits brought by Library Power, these key factors would have had less of an impact.

RESERVATIONS/COMMENTS: 1. As a case study of just one school, findings are not fully generalisable; 2. As acknowledged in the article, it is difficult to assess to exactly what extent improvements in pupils' attainment and changes in teaching styles are attributable to the implementation of Library Power.

Olen, S. (1995a) Academic Success and School Library Use. *School Libraries Worldwide* 1 (1):69-79.

SUMMARY: Journal article reporting on a longitudinal survey of students undergoing initial teacher education (conducted in South Africa). The survey looked at the frequency of students' school library use and their subsequent academic success at tertiary level. No association was found but the study was undertaken at a time when the under-utilisation of school libraries was a concern. The depth of the role of the school library in information literacy or other learning activities is not explained in full within the article. RESERVATIONS/COMMENTS: 1. Focuses on tertiary education so not directly relevant to this review, however it is interesting in terms of methodology for looking at academic achievement deriving from use of the school library; 2. Also interesting in terms of transfer of skills across educational levels and developing life-long learning; 3. The research acknowledges the need for qualitative research to look at the type of programmes offered.

Smith, E.G. (2001) Texas School Libraries: standards, resources, services, and students' performance. [Texas]: EGS Research & Consulting for Texas State Library and Archives Commission. <http://www.tsl.state.tx.us/ld/pubs/schlibsurvey/index.html> [23-10-01].

SUMMARY: This study, conducted in Texas with funding from Texas State Library and Archives Commission, investigated the Texas school library standards and had three objectives:

- to examine school library resources, services and use on the basis of the School Library Programs: Standards and Guidelines for Texas and determine the need for updating these standards and guidelines so that they better serve communities across the State;
- to determine the impact that school libraries have on student performance as measured by the percent of students who met minimum expectations on the reading portion of the state-wide standardised test, the Texas Assessment of Academic Skills (TAAS);
- to highlight library practices in the best performing schools.

Data were collected from a random sample of 600 Texas school libraries and a variety of other state statistical databases and the study employed more than 200 school, library and community variables in examining the relationship between libraries and TAAS performance. The findings demonstrated a higher TAAS performance at all educational levels in schools with librarians than in schools without librarians. The study showed that socio-economic variables such as the percentage of ethnic groups and economically disadvantaged students explain most of the variance in performance. However, the library variable explained a smaller, but still significant, portion of performance variance. The library variable was also found to be more significant than school variables. The library variables revealed a different emphasis between the three school levels: elementary - volumes purchased, operational expenditures per student, library internet connection, software packages; middle/junior - collating material for instructional units, providing information skills; and high - library staff, staff hours, hours of library operation, number of volumes, current subscriptions, planning instructional units with teachers, providing staff development to teachers. While causal relationships cannot be unequivocally proven through correlational studies such as this one, nevertheless recommendations may be made by combining these results with experiences of librarians to consider future course of action. This study demonstrated that libraries can play a very special role in enriching the experience of

students from economically disadvantaged backgrounds who may need additional help to develop skills to succeed. RESERVATIONS/COMMENTS: This study is very significant in taking the Lance studies forward and giving a clear picture of methodology. It was prompted by standards already in place.

Streatfield, D. and Markless, S. (1994) *Invisible Learning? The Contribution of School Libraries to Teaching and Learning* (British Library Research and Development, Library and Information Research Report 98). London: British Library Research and Development Department.

SUMMARY: The aims of this project include: to identify the main elements of the school library contribution to the learning and development of pupils and staff; to investigate different models of school library or other forms of resource provision, in order to determine which combinations of resources, staffing and activities are effective in supporting learning; to prepare performance indicators as a help in assessing the effectiveness of school libraries and suggest strategies for adapting the performance indicators to meet the requirements of the particular schools and LEAs; to identify and describe examples of good practice; and to make suggestions to support the improvement and future development of school libraries. Multi-site case studies (3 primary schools and 3 secondary schools) and workshops for invited experienced library practitioners were used to gather data. Case studies combined interviews with staff and pupils, library and classroom observation, and analysis of school development plans and other relevant documentation. Participants of the first workshop were invited to share ideas of what makes an effective school library and how effectiveness can be assessed. Participants of the later workshops provided feedback on findings to date and explored ideas about developing performance indicators. It was found that "the single most important factor leading to effective use of libraries [...] was a positive attitude by teachers". It is also suggested the library managers also have an important role in encouraging a positive attitude in teachers, however, the importance of support from senior managers of the school (e.g. time and financial resources). Teachers, and many students, indicated that they felt that the library did make a significant difference to teaching and learning, although models of service provision varied widely, particularly at secondary level, and teachers' perceptions of how they could support their teaching varied correspondingly. A series of recommendations are drawn from the project for school managers, school library managers, school library services staff and OFSTED inspectors.

Tallman, J.I. and Tastad, S. (1998) *Library Power: a potent agent to change in media programs*. *School Libraries Worldwide* 4 (1):33-49.

SUMMARY: This journal article reports on the changes made as a result of the Library Power initiative in two schools in a large urban district. Focus is on the instructional partner and teaching roles of the librarian. The key areas of investigation were: 1. whether schools could make systematic changes in the way the curriculum planning took place in the school, particularly in reference to the role of the Library Media Specialist (LMS) (would there be a noticeable change in the way the curriculum units were planned and taught, would there be a noticeable change in the way the staff views the LMS as a planning and teaching partner, would there be a noticeable change in the kinds of activities designed for student learning); 2. how long it would take to institutionalise these changes in the school. Individual interviews with LMSs and principals, and focus interviews with teachers were carried out at various intervals over the three years of the project. The project team also acted as participant observers in the library media centres for a period of time in each year. The researchers identified some very positive changes across the school in terms of: the attitude to the role of the LMS; the nature of collaboration between the LMS and the rest of the school (particularly in instructional partner/teacher roles); teaching and learning styles; higher use of resources; increased opportunities to teach information literacy skills in a fully integrated way; LMS status; and the LMSs' own attitude to their role. E.g. "we observed that the staff of these schools learned how to create units that offered students more active learning and development opportunities for their personal research processes." "the program brought changes in the environment by strengthening the place of the media center in student learning as well as strengthening the role of the LMS as a partner in curriculum design

and teacher of integrated information literacy skills." "At both schools, the role of the LMS deepened into a truer partnership with the classroom teachers in each school. One of the LMSs became the central facilitator and leader of interdisciplinary planning for all grade-level sessions held by her faculty. The other LMS progressed from the role of isolated resource provider and from a peripheral place on the faculty to fuller participation in curriculum planning sessions and to a respected provider of resources." The researchers identified extensive staff development programmes on team building and collaborative planning as key to the success of the Library Power initiative. RESERVATIONS/COMMENTS: 1. As there were only two schools involved, it is difficult to generalise findings (this is conceded by the authors). 2. This study is strengthened by its longitudinal nature: observations and other data collection methods in the first year revealed that, in one school in particular the staff (particular the library media specialist) found the program rather overwhelming and little change in the behaviours and attitudes of the staff was observed. However, by the time that the series of visits in the second year were conducted, significant changes were noted. This finding should be remembered when considering similar studies with a shorter timescale.

Tastad, S. and Tallman, J. (1997) Library Power as a Vehicle for the Evolution of Change. In: Lighthall, L. and Haycock, K., (Eds.) *Information Rich But Knowledge Poor? Emerging Issues for Schools and Libraries Worldwide: Research and Professional Papers Presented at the 26th Annual conference of the International Association of School Librarianship (IASL) held in Conjunction with the Association for Teacher-Librarianship in Canada (Vancouver, British Columbia, Canada: July 6-11, 1997)*, pp. 153-161. Seattle, Washington: IASL.

SUMMARY: For details, see the paper on the same project by Tallman and Tastad (1998)

Vallender, E.J. (2000) Measuring the Contribution of a Secondary School Library to Successful Teaching and Learning. University of Plymouth . Unpublished Master of Education (MEd) dissertation.

SUMMARY: This study adapted the methodology of Lance's Colorado studies to an investigation of the impact of the school library in the English context. Two conflicting propositions are put forward and qualified: 1. That the contribution made by the school library must be measured by the same definable outcomes of performance as the school if it is to develop its central role in teaching and learning. These are established to be OFSTED and examination achievement. 2. That this process is unlikely to reveal evidence of the true contribution of the school library. The study inspected one school library using OFSTED and examination achievement as impact criteria. The quantitative methods of questionnaires and correlation analysis were used. Further evaluation of the contribution of the school library to a broader view of teaching and learning used school documentation and questionnaires and interviews to identify the perceptions of its stakeholders. It is concluded that evidence of the contribution made by the school library is not effectively revealed through OFSTED inspection reports and examination achievement. There is a negligible relationship between use of the school library and examination achievement and although OFSTED identify the library to be performing better than the national example it does not evaluate how this performance effects teaching and learning. The perceptions of the school stakeholders provide evidence of the contribution of the library to overall school objectives.

RESERVATIONS/COMMENTS: 1. This research suggests that quantitative methodology incorporating OFSTED reports and examination achievement is not the best approach to investigate the impact on the school library on learning. 2. The author suggests that correlation analysis with experimental methodology as a means of controlling the variables would improve the methodology.

Webb, N.L. and Doll, C.A. (1999) Contributions of Library Power to Collaborations between Librarians and Teachers. *School Libraries Worldwide* 5 (2):29-44.

SUMMARY: One of the goals of Library Power was to increase collaboration between the librarian and teaching staff. This article concludes that Library Power was successful in achieving this goal and collaboration was identified in planning instruction and developing the collection.

Data from over 400 schools was gathered through collaboration logs (completed by librarians) and questionnaires completed by principals, librarians and teachers. Analysis of data available indicated that there was evidence of an increase in collaboration, including those schools that had a history of collaborative behaviour. Collaborative logs supported the conclusion that library skills had been integrated into the curriculum at all grade levels.

Williams, D. and Wavell, C. (2001) *The Impact of the School Library Resource Centre on Learning*. Aberdeen: The Robert Gordon University for Resource The Council for Museums, Archives and Libraries.

SUMMARY: This research, carried out in secondary schools across Scotland, investigated the impact of a School Library Resource Centre (SLRC) on learning in its broadest sense. A two phase approach was used which consisted of: 1. Focus group discussions with teachers and pupils and interviews with librarians (to identify their perceptions of how the SLRC can contribute to learning); 2. Case study research using a framework developed in the first phase to identify learning experiences that the SLRC impacted upon, investigate indicators to be used as evidence of learning, and examine the process of assessing the impact of the SLRC on learning. The schools taking part in the research were largely self selected, being chosen from responses to a flier and brief questionnaire from the research team which sought participants for the study. Ten schools took part in the first phase and six of those also took part in the second phase. The learning experiences explored were grouped under four broad learning themes (currently used in evaluation guidelines for Scottish schools): Motivation, Progression, Independence and Interaction. Evidence for each of these areas was found across the case studies and potential indicators for each were developed during the course of the study. A number of useful methods for monitoring impact on learning in the SLRC were identified and a series of factors that were seen to influence effective learning are listed. In conclusion, the report highlights a number of key issues: the need for collaboration in planning and decision-making; the need for a greater understanding of information skills and mutual co-operation between librarians and teachers; and the importance of being aware of impact factors beyond the SLRC.

RESERVATIONS/COMMENTS: 1. There is a difficulty in identifying impact on skills, particularly reading skills using these methods 2. It could be useful for future research to test the indicators developed.

Zweizig, D.L. and Hopkins, D.M. (1999) *Lessons from Library Power. Enriching Teaching and Learning. An Initiative of the DeWitt Wallace-Reader's Digest Fund*. Englewood, Colorado: Libraries Unlimited, Inc.

SUMMARY: Library Power was an initiative begun in 1988 when the DeWitt Wallace-Reader's Digest Fund invested almost \$45 million in elementary school libraries to improve the library programmes, teaching and learning. The goals of the funding were to use Information Power (AASL, 1988) guidelines to: encourage library use and expectations; create exemplary models of library programmes; strengthen the role of the librarian; encourage collaboration; demonstrate contributions that library programmes can make; and encourage partnerships. The funds were used to provide leadership at district level; professional development programmes to help the instructional roles of librarians and to encourage collaboration with teachers. The funds also helped build or strengthen existing library collections and improve facilities to enable multiple use. The participating schools provided a full-time librarian, funds for collection development, open access to the library throughout the school day and agreed to promote use and collaborative planning. Data gathered through surveys and case studies suggested that strengthening collections improved collaboration between librarian and teachers, ensured more curriculum relevance and increased teacher use. The collection was cited as a major contribution of the initiative by teachers and principals. The Library Power initiative encouraged major changes in the way the library was used to support instruction but the move to flexible scheduling was challenging and more progress was thought to be required. Collaboration was interpreted in different ways by individuals and participating groups (principals, teachers and librarians). Librarians reported more participation in planning for instruction but the major focus of their role was still perceived to be on the identification and gathering of resources and the teaching of

information skills. Teachers recognised collaborative planning, but tended to focus on the collection. Different levels of collaboration were identified and included working in parallel, working in a co-ordinated manner, working interactively, and full sharing of responsibility of the students' and their own learning. Library Power contributed to changes in the intended curriculum and rethinking the learning goals. It was also concluded that professional development was an important ingredient in achieving the goals of Library Power. RESERVATIONS/COMMENTS: 1. Unlike the statistical studies of Lance, this study examined qualitative data in depth and established the importance of school culture and ethos on the ability of staff to respond to changes and challenges; 2. While collaboration is shown to be important, and the training librarians took part in contributed to successful collaboration, turnover of staff and relationships within the school make any developments challenging to maintain; 3. Adoption of methods in the UK: the introduction of initiatives such as the Literacy Strategy, the Inspiring Learning framework (see Resource, 2001 in extended bibliography) or some form of self-evaluation standards could provide the basis for a similar longitudinal study in England, beginning with some form of baseline data collected prior to implementation. In the case of the Literacy Strategy a comparative study could be adopted with librarians who are actively involved and those who are not.

5.2 Impact on Broader Aspects of Learning

Balaam, A. (1997) A Student Librarian with Special Educational Needs. *School Librarian* 45 (4):180-1.

SUMMARY: A school librarian describes her experience of working with a student volunteer librarian with special educational needs. She noted and provides examples of how the experience has raised the student's confidence levels and self esteem.

Dyer, J. (2001) Library Volunteer and Service Providers: a prototype for creating a 'grace space'. In: Anonymous *An Information Odyssey: 11th National Library Technicians Conference: 21-24 (Hobart, Southern Tasmania: August 2001)*, <http://www.alia.org.au/groups/libtnat/conferences/2001/papers/12.dyer.html> [30-08-01]

SUMMARY: Paper describing an action research project in Australia. The aim of the project was to offer volunteer library assistants an effective support mechanism within the library and coincided with the International year of Volunteers which promoted the need for recruitment, recognition, training, and motivation. The librarians developed a training programme with outcomes incorporated into five broad categories:

- Support for Administration
- Social Support Mechanism
- Work Experience Program
- Information Skills Program/Numeracy and Literacy Support, and
- School Information Resource and Newsletter Article Writers.

Focusing on the functions of the library within the school community helped the librarians to improve the service provided and opportunities offered to students. It was also considered that the constant observation and feedback involved were "key elements in securing a sound working system where constant modifications need to be made to allow for ongoing changes that occur." Librarians involved in the project documented examples of poor achievers or students with low self-esteem who developed and matured, and it was observed that the status of the role of volunteer librarians rose within the school. Broad categories of where learning had occurred were also identified: community service; information management and retrieval; computer skills and cognitive development. The author states the need for documentation within which to let the student grow and motivate themselves. The need for a charter and some form of recognition of achievement is also stated. RESERVATIONS/COMMENTS: This study is relevant for schools in the UK who are involved in similar initiatives. The librarian identified impact within the library context, while, success was viewed beyond the library by teachers and parents.

Evans, M.K. and Heeks, P. (1997) Providing Potential for Progress: learning support for students with special educational needs. In: Lighthall, L. and Haycock, K., (Eds.) *Information Rich But Knowledge Poor? Emerging Issues for Schools and Libraries Worldwide: Research and Professional Papers Presented at the 26th Annual conference of the International Association of School Librarianship (IASL) held in Conjunction with the Association for Teacher-Librarianship in Canada (Vancouver, British Columbia, Canada: July 6-11, 1997)*, pp. 272-282. Seattle, Washington: IASL.

SUMMARY: This paper reports on the British Library LESSEN (Learning Support for Special Education Needs) Project. The focus was on students aged 11-12 in ten secondary schools who were identified as having learning difficulties (they were on the Special Educational Needs (SEN) register). Case studies were undertaken in 10 schools located in 5 English Local Education Authorities (LEAs). Interviews were undertaken both within schools and with LEA and Schools Library Services staff, and further data collected from documents and observations. There was also an action research element to the project: work with individual children was undertaken with the research team providing support both within subject lessons and at the SEN base. Assistance in the library was also provided by the researchers. Varying levels of staffing were found and recommendations for future progress were made which consisted of: the librarian's awareness of school aims and initiatives, and of education developments nationally; the librarian's knowledge

of both the children served and the resources appropriate to them; a library development plan which is linked to the school development plan; staffing structures which encourage collaboration; a library environment which is both welcoming and stimulating; a wide range of stock relevant both to the formal curriculum and to children's personal interests; programs which assist development of information skills across the curriculum; and a library culture of co-operation and collaboration.

Hopkins, D.M. (1989) Elementary School Library Media Programs and the Promotion of Positive Self- Concepts: a report of an exploratory study. *The Library Quarterly* 59 (2):131-147.

SUMMARY: This article reports on a study which aimed to identify the role of the library in promoting 'positive self-concepts' in children. Positive self-concepts are defined as the individual's perceptions of themselves, particularly of their value and abilities. Case studies of three elementary school library media centres conducted and data gathered through observation, diaries and interviews. Earlier research is cited that links academic achievement to a child's positive self concept, and this study explored the level to which factors that contribute to self concept existed in the library media centres. These factors (as identified in an earlier study by the author) were described as: co-operation; independence; success; challenge; feeling of value and positive atmosphere. Results provide "evidence of the positive role that the school library media centre, meeting certain criteria, can play in enhancing the school's objectives of helping students develop positive self-concepts and achieve academically." (pp146-147)

RESERVATIONS/COMMENTS: 1. Focus was on whether factors were present in schools rather than whether they had an impact on self-concepts (though it is suggested that this was concluded in a previous study) or whether self-concepts have an impact on achievement (though this is covered by previous research cited); 2. Research is conducted on pre-secondary schools in the US.

Kuhlthau, C.C. (1999) Student Learning in the Library: what library power librarians say. *School Libraries Worldwide* 5 (2):80-96.

SUMMARY: This journal article reports on a study that involving a number of schools that had taken part in the Library Power Programme. Methodology consisted of two approaches: an open ended survey question prompting librarians to describe a critical incident which illustrated a student learning experience (requested once a year over three years), and case studies of three Library Power libraries. Responses to the open ended survey question increased each year, provoking 331 responses in year 1; 405 responses in year 2 and 495 responses in year 3. Critical incidents were coded as follows:

Level 1: *Input* - emphasis on what the librarian did, not on students, i.e., adding to the collection

Level 2: *Output* - emphasis on quantitative measure of student use, i.e., more visits, more use of materials

Level 3: *Attitude* - emphasis on change in student attitude, i.e., increased interest and enthusiasm

Level 4: *Skills* - emphasis on location of resource and use of technology, i.e., locating books

Level 5: *Utilization* - emphasis on content learning, i.e., using resources to learn through inquiry in content areas of the curriculum.

For each year, approximately 85% of responses were coded at levels 3-5, however progression is shown through the fact the highest levels of response in the first year were coded at Level 3, in the second year at Level 4 and in the third year at Level 5. The author interprets this movement as a sign of the librarians' increased ability to recognise learning styles rather than actual improvement in students' use of the library. Improvement to students' learning or attainment was not directly addressed, however, from the librarians' responses, the researchers identified ten indicators of learning (p86) which ranged from those that could be broadly categorised as "intuitive observation" to "documentable evidence" (p87). These could be usefully applied in future studies of the impact of the library on student learning. Three case study schools were selected from the original sample and were used to explore differences in library programmes in order to address reasons for varying levels of success with the Library Power programme. It was concluded that Library Power was most effective when there was "a commitment to an inquiry

approach to learning shared by the librarian, teachers, and administrators". The library has to be fully integrated into the learning process.

Murray, J. (2000a) How School Librarians Can Contribute to the Personal Growth of Students with Disabilities. *Orana: Journal of School and Children's Librarianship* **36** (2):5-11.

SUMMARY: Journal article reporting on the case study aspects of a project conducted in Australia. The case studies were conducted in a total of 14 primary and secondary schools, although it is not specified how the sample was broken down between the two sectors. However, it is stated that the schools were selected from a range of socio-economic areas within the metropolitan districts of Sydney and Melbourne. The study was conducted over four years and each school was visited several times in this period. Interviews were conducted with a range of people in each school: library staff, special education staff and students with disabilities. Observations of the librarian at work were recorded. The author refers to Hopkins (1989) and the six factors she identified as contributing to positive self-concepts in students: opportunities for collaboration or teamwork with other students; independence; success; a positive and welcoming learning environment; challenge in learning situations and a feeling of personal value or acceptance. Murray found that the case study libraries did contribute to positive self-concepts in some of these areas, namely: providing opportunities for collaboration and teamwork; exercising independence; creating perceptions of value and independence; and providing a welcoming, comfortable and accessible environment. It was also found that those librarians who had good managerial and communication skills were the ones who delivered services successfully to students with disabilities. It is suggested that the development of learning support centres which are an amalgamation of special education, information technology support and school library services would be a positive step in involving the school librarians in the personal growth of disabled students. RESERVATIONS/OBSERVATIONS: 1. It is not known how many secondary schools were included in the study, therefore it is difficult to conclude to what extent the findings are transferable; 2. The details of the methodology are not provided in full, particularly in terms of the observation work.

Small, R.V. (1998) Designing Motivation into Library and Information Skills Instruction. *School Libraries Media Quarterly* **1** <http://www.ala.org/aasl/SLMQ/small.html> [27/03/01].

SUMMARY: Exploration of motivation through research and practice. This journal article: describes some theories and concepts of motivation and how they relate to library and information skills instruction; presents a systematic model for designing motivating instruction; describes ways to integrate and apply motivation theories and models to library and information skills instruction, and identifies relevant areas of future research on motivation in this context.

Small, R.V. (1999) An Exploration of Motivational Strategies Used by Library Media Specialists During Library and Information Skills Instruction. *School Library Media Research Online* **2** <http://www.ala.org/aasl/SLMR/vol2/motive.html> [22/11/01].

SUMMARY: This journal article describes a study conducted in central New York State investigating motivational strategies used by library media specialists, and resulting on- and off-task behaviour of students. The two main research questions were: "1. What types of motivators (as categorised by ARCS, intrinsic versus extrinsic, and controlling versus informational) are used most and least by library media specialists (LMSs)? 2. What is the relationship of ARCS strategies used by LMSs during library and information skills instruction and the resulting on-task and off-task student behaviours?" The research team investigated the integrated library and information skills programs of eight LMSs who had been chosen using the following criteria: three or more years of experience; an established integrated library skills instructional programme; a programme was aimed at elementary or middle school level students. Observations documented LMS actions and statements, and student behaviours, during teaching episodes. Additionally pre- and post-observation interviews were carried out with the LMSs. These provided information on the school setting, individual teaching philosophy and background of each LMS. In answer to the first research question, the main findings were that attention-focusing strategies were used most often, and that middle school LMSs used more attention, relevance, confidence, and total

motivation strategies while elementary LMSs used more satisfaction strategies. Overall, middle school LMSs used more motivation strategies, and more extrinsic than intrinsic strategies were used by all LMSs. In answer to the second research question it was found that most of the students behaviours (83%) were considered to be on-task. Mapping of behaviours to the most recent motivation strategy employed before the behaviour, it was found that attention strategies preceded most instances of on-task behaviour, although this could be due to the high overall number of attention strategies used by LMSs. It was also found that off-task behaviours frequently occurred following an unstructured break (e.g. stopping the lesson to hand out worksheets), after over-using a particular motivation strategy, or using a strategy in an inappropriate way (e.g. using adult examples that students don't comprehend).

Williams, D. and Wavell, C. (2001) *The Impact of the School Library Resource Centre on Learning*. Aberdeen: The Robert Gordon University for Resource The Council for Museums, Archives and Libraries.

SUMMARY: This research, carried out in secondary schools across Scotland, investigated the impact of a School Library Resource Centre (SLRC) on learning in its broadest sense. A two phase approach was used which consisted of: 1. Focus group discussions with teachers and pupils and interviews with librarians (to identify their perceptions of how the SLRC can contribute to learning); 2. Case study research using a framework developed in the first phase to identify learning experiences that the SLRC impacted upon, investigate indicators to be used as evidence of learning, and examine the process of assessing the impact of the SLRC on learning. The schools taking part in the research were largely self selected, being chosen from responses to a flier and brief questionnaire from the research team which sought participants for the study. Ten schools took part in the first phase and six of those also took part in the second phase. The learning experiences explored were grouped under four broad learning themes (currently used in evaluation guidelines for Scottish schools): Motivation, Progression, Independence and Interaction. Evidence for each of these areas was found across the case studies and potential indicators for each were developed during the course of the study. A number of useful methods for monitoring impact on learning in the SLRC were identified and a series of factors that were seen to influence effective learning are listed. In conclusion, the report highlights a number of key issues: the need for collaboration in planning and decision-making; the need for a greater understanding of information skills and mutual co-operation between librarians and teachers; and the importance of being aware of impact factors beyond the SLRC.

RESERVATIONS/COMMENTS: 1. There is a difficulty in identifying impact on skills, particularly reading skills using these methods 2. It could be useful for future research to test the indicators developed.

5.3 Service Provision

Baughman, J.C. (2000) School Libraries and MCAS Scores. In: Anonymous *MCAS and School Libraries: Making the Connection, a Symposium sponsored by the Graduate School of Library and Information Science (Simmons College, Boston, Massachusetts: October 26th 2000)*, <http://artemis.simmons.edu/~baughman/mcas-school-libraries/Baughman%20Paper.pdf> [20/11/01]

SUMMARY: The document reviewed is a preliminary edition of a paper presented at a symposium at Simmons College, Boston and is widely cited. It reports on a study (the Simmons Survey) conducted in pre-secondary and secondary schools in the USA which suggests a link between school libraries and academic achievement. One thousand eight hundred and eighteen questionnaires were mailed to schools across Massachusetts and 519 were returned (289 elementary, 89 middle/junior and 108 high school). Detail about the content of the survey is not clearly provided but discussion of findings indicates that it was similar to that used by Lance et. al. in the Colorado studies. Survey data was then related to the MCAS (Massachusetts Comprehensive Assessment System) test scores. At each grade level, schools with library programs, with a higher book count, with increased usage, and with more open hours were found to have higher MCAS scores. At the elementary and middle/junior high school levels, the average MCAS scores are higher in schools where there is a library instruction programme, where there is a larger expenditure per pupil for school library materials, where there is a full-time school librarian and non-professional help. At elementary level the test scores are higher when the library is aligned to the state curriculum framework and at high school level when the collection is automated. The study indicates a need for automation in secondary schools and for professionally managed libraries with non-professional help, extended hours, frequent visits and that the achievement is related to expenditure on the collection.

Creaser, C. (2000) A Survey of Library Services to Schools and Children in the UK 1999-2000. Loughborough: Library and Information Statistics Unit (LISU).

SUMMARY: Statistical data collected about public and school library services to children. Covers the period from 1st April 1999 to 31st March 2000.

Fitzgibbons, S.A. (2000) School and Public Library Relationships: essential ingredients in implementing educational reforms and improving student learning. *School Library Media Research Online* 3

http://www.ala.org/aasl/SLMR/vol3/relationships/relationships_main.html [22.11.01].

SUMMARY: The research on which this article reports is a scholarly review of a range of successful, co-operative relationships between public libraries and school library media centres funded by US Department of Education. The advantages and disadvantages of combined or co-operative school and public library service provision are explored. The article refers only obliquely to potential impact on learning and the primary focus lies with the attitudes of staff and practical issues of implementation and execution. Unique and common goals, and the types and relative merits of co-operative relationships are discussed. Potentially useful research on the subject is highlighted. Suggestions are also made concerning the development of successful partnerships.

Hall-Ellis, S.D. and Berry, M.A. (1995) School Library Media Centers and Academic Achievement in South Texas. *Texas Library Journal* 71 (2):94-7.

SUMMARY: This journal article reports on a study which provides evidence of the positive impact of library media centres (LMCs) on academic achievement in 79 South Texas public schools during the 1991-92 school year. The study replicated Colorado and it was admitted that the sample was not ideal in terms of size or across the school levels (i.e. elementary, middle, high). Schools, rather than students, were used as units of study and service outputs as well as resource inputs were considered. The methodology used ruled out the effects of selected schools and the poverty or education of the community. The findings show a relationship between expenditure and academic achievement and conclude that the size of staff and collection are the

best predictors of academic achievement. The instruction role of the LMS was found to be important in shaping the collection, identifying items and collaborating with teaching staff on their use. RESERVATIONS/COMMENTS: It was not clear whether other spending in the schools was considered as a factor in academic achievement, e.g. pupil/staff ratio. Texas has high profile library support and it would be worth investigating whether the states where this type of research is conducted and positive impact is found are also library orientated.

Hopkins, D.M. (1999) *The School Library Collection: an essential building block to teaching and learning. School Libraries Worldwide* 5 (2):1-15.

SUMMARY: Library Power funding aimed to develop or enhance library collections and the use of Information Power Guidelines (1988) and Standards (1998) stressed the need for collection development to support the curriculum, involving both librarian and teachers. Library Power provided staff development in collection selection, evaluation and mapping to the curriculum (supported by Loertscher) aimed at collaboration. It was found that the involvement of teachers in collection development increased use of resources in instruction and planning with the librarian. It is also suggested that there is evidence of a link between a collaborative role in collection development and the contribution made to teaching, increased student use and attitudes towards the library. Evidence that it helped research and reading initiatives was also provided.

RESERVATIONS/COMMENTS: Part of the Library Power review funded by DeWitt Wallace-Readers Digest. Focus on pre-secondary schools in the US.

Lance, K.C., Hamilton-Pennell, C. and Rodney, M.J. (2000b) *Information Empowered: The School Librarian as an Agent of Academic Achievement in Alaska Schools. Revised edn, Juneau: Alaska State Library.*

SUMMARY: This study assesses the impact of Alaska school librarians on academic achievement in the state's public schools. and is based on "The impact of school library media centers on academic achievement" (Lance, et al, 1990). It demonstrates empirical support for the principles of "Information Power: building partnerships for learning" (1998). The relationship between staffing and student performance is investigated and staff activities that affect test scores are identified. A range of conditions of library operation were considered as potential predictors of academic achievement. During 1997-98, library media centers in 211 Alaska public schools were surveyed about their staffing levels, hours of operation, staff activities, usage, technology, policies and co-operation with public libraries. This data were added to the percentage of grade four, eight and eleven students from these schools who scored below proficient, proficient and above proficient in the California Achievement Tests (CATS). In very simplified terms the research findings state that test scores tend to be higher: with a full-time librarian; higher level of staffing; higher levels of student usage; when higher levels of staff activity were directed to providing instruction to students, co-operative planning with teachers and providing in-service training to teachers; the more students received information literacy instruction in which the library media staff were involved. There was also a correlation between higher test scores and co-operative relations with the public library, online information access and a collection development policy. Additionally the study examined wider community and school conditions that might have an impact. While it was recognised that community factors have the strongest impact, wider school factors were less significant. RESERVATIONS/COMMENTS: However, the report does not address some of the school ethos and teaching culture which might help explain the findings - for instance a school which supports its library may also have a culture of good staff moral, quality teaching. The schools taking part in the study were also in part self-selecting. Although there are educational differences and the librarians in the USA are dual-qualified there are important lessons to be learned from the study. It is clearly indicated that the activities of the librarian are important to the academic achievement of students. The use of standard tests (SATS) might be applied to a similar model.

Lance, K.C., Rodney, M.J. and Hamilton-Pennell, C. (2000a) *How School Librarians Help Kids Achieve Standards: the second colorado study. U.S., Colorado: Hi Willow Research and Publishing.*

SUMMARY: Report of the second Colorado study. Building on the findings of the first Colorado study (Lance, 1993), key differences include: 1. a focus on the impact of library media specialists and the Library Media Centre's (LMC) *services* rather than the LMC as a specific place; 2. use of standard-based tests to measure student performance (as opposed to the norm-referenced test used in the first study); 3. the role of technology was explored to a greater extent. The method of sample selection is not absolutely clear, but the final sample included 144 schools (124 serving the fourth grade, 76 serving the seventh grade, 56 serving both). Questionnaires were completed by these schools and included questions relating to the following key areas: Library Media Centre Hours; Library Media Staff (e.g. types of staff, what qualifications they hold, how many hours they work); Paid Staff Activities (e.g. instruction, in-service training for teachers); Library Media Technology (e.g. number of networked computers, numbers with access to the WWW, library catalogues, processor/connection speeds); Usage of Library Media Services (e.g. interaction with users, circulation figures); Library Media Resources (e.g. inventory of holdings by format); Annual Operating Expenditure and Capital Outlay for the Library Media Centre; School Library Media Management (e.g. presence of advisory committee, how budget is requested/received). The study found that Colorado Student Assessment Program (CSAP) reading scores increase with increases in the following characteristics of library media (LM) programs:

- *LM program development*;

- *Information Technology*: test scores found to increase with increases in library access to networked computers (linking the libraries with classrooms), particularly when they provide access to Internet and WWW, licensed databases & LMC resources;

- *Collaboration*: test scores increase with increased library media specialist/teacher collaboration, and increased involvement of the library media specialist in provision of in-service training for teachers;

- *Flexible Scheduling*: A link was found between individual visits to the library and increased test scores;

- *Indirect Effects*: Leadership involvement was not found to have a direct effect on test scores, however it does have an impact on collaboration which itself has been shown to have an impact on achievement;

Additionally, it is asserted that the predictors of academic achievement outlined above can not be explained away by:

- school district expenditures per pupil;

- teacher/pupil ratio;

- the average years of experience of classroom teachers;

- their average salaries;

- adult educational attainment;

- children in poverty;

- racial/ethnic demographics.

Lance, K.C., Rodney, M.J. and Hamilton-Pennell, C. (2000c) *Measuring Up to Standards: the impact of school library programs & information literacy in Pennsylvania schools*. Pennsylvania: Pennsylvania Department of Education's Office of Commonwealth Libraries.

SUMMARY: This study followed a realisation by Pennsylvania Department of Education's Office of Commonwealth Libraries that the impact of a school library needed to be demonstrated to school decision-makers. The study replicated the first "Colorado study" (Lance, 1993). The study sought to confirm the findings of the "Colorado study" and to consider the impact of: specific activities of certified school librarians; the principal and teacher support for library programmes; and information technology, in particular licensed databases and the Internet. The study relates the findings to the American Association of School Librarians' 1998 standards, "Information Power: Building Partnerships for Learning". The findings indicate that Pennsylvania System of School Assessment (PSSA) reading scores increase with higher levels of staffing, information technology and the integration of information literacy into the curriculum. It was also found that as these factors rise, so does the involvement of the librarian in teaching students and teachers how to find and assess information. The relationship between staffing and test scores is not explained

away by other school or community conditions. One of the major findings of this study is the importance of an integrated approach to information literacy teaching and must be part of the school's approach to both standards and curriculum. The indirect effects were found to be that higher levels of school library staffing, particularly certified staff, predict higher expenditures, more varied collections, increased access to information technology and more integrated approaches to information literacy, standards and curriculum. RESERVATIONS/COMMENTS: 1. It is not clear from the methodology how the participating schools were selected and this has a bearing on the data analysis. If the majority of participating schools were already aware of the need for quality library provision, they are likely to be providing quality in other areas of the school. 2. The study was funded by Library Services and Technology Act (LSTA) grant.

Lance, K.C., Welborn, L. and Hamilton-Pennell, C. (1993) *The Impact of School Library Media Centers on Academic Achievement*. Castlerock, Colorado: Hi Willow Research and Publishing.

SUMMARY: This study conducted in the 1988-89 school year and sometimes referred to as the first Colorado study, was designed to develop evidence of the impact of the school Library Media Centre (LMC) on academic achievement. The sample of 221 schools was self-selected to some extent, though comparison with state statistics showed it to be representative of Colorado schools in terms of school levels, enrolment age, and school district setting (urban, rural, etc). Other factors that might be assumed to have an impact in academic achievement were also explored and addressed in the analysis. Main findings include: 1. where L MCs are better funded, academic achievement is higher, whether their schools and communities are rich or poor and whether adults in the community are well or poorly educated; 2. better funding for LMCs fosters academic achievement by providing students access to more library media staff and larger and more varied collections; 3. among predictors of academic achievement, the size of the LMC staff and collection is second only to the absence of at risk conditions, particularly poverty and low educational attainment among adults; 4. library media expenditures and staffing tend to rise and fall along with those of other school programs; 5. the instructional role of the library media specialist shapes the collection and in turn academic achievement; 6. collaboration between library media specialists and teachers is affected by the ratio of teachers to pupils.

RESERVATIONS/COMMENTS: 1. Self-selection (but shown to be representative); 2. Sample size.

Smith, E.G. (2001) *Texas School Libraries: standards, resources, services, and students' performance*. [Texas]: EGS Research & Consulting for Texas State Library and Archives Commission. <http://www.tsl.state.tx.us/ld/pubs/schlibsurvey/index.html> [23-10-01].

SUMMARY: This study, conducted in Texas with funding from Texas State Library and Archives Commission, investigated the Texas school library standards and had three objectives:

- to examine school library resources, services and use on the basis of the School Library Programs: Standards and Guidelines for Texas and determine the need for updating these standards and guidelines so that they better serve communities across the State;
- to determine the impact that school libraries have on student performance as measured by the percent of students who met minimum expectations on the reading portion of the state-wide standardised test, the Texas Assessment of Academic Skills (TAAS);
- to highlight library practices in the best performing schools.

Data were collected from a random sample of 600 Texas school libraries and a variety of other state statistical databases and the study employed more than 200 school, library and community variables in examining the relationship between libraries and TAAS performance. The findings demonstrated a higher TAAS performance at all educational levels in schools with librarians than in schools without librarians. The study showed that socio-economic variables such as the percentage of ethnic groups and economically disadvantaged students explain most of the variance in performance. However, the library variable explained a smaller, but still significant, portion of performance variance. The library variable was also found to be more significant than school variables. The library variables revealed a different emphasis between the three school

levels: elementary - volumes purchased, operational expenditures per student, library internet connection, software packages; middle/junior - collating material for instructional units, providing information skills; and high - library staff, staff hours, hours of library operation, number of volumes, current subscriptions, planning instructional units with teachers, providing staff development to teachers. While causal relationships cannot be unequivocally proven through correlational studies such as this one, nevertheless recommendations may be made by combining these results with experiences of librarians to consider future course of action. This study demonstrated that libraries can play a very special role in enriching the experience of students from economically disadvantaged backgrounds who may need additional help to develop skills to succeed. RESERVATIONS/COMMENTS: This study is very significant in taking the Lance studies forward and giving a clear picture of methodology. It was prompted by standards already in place.

Streatfield, D. and Markless, S. (2000) Are Schools Library Services Equipped to Survive in the Age of Information? *Information Research* 5 (4): <http://InformationR.net/ir/5-4/paper84.html> [06/09/01].

SUMMARY: This article provides an insight into the current state of the Schools Library Services and the challenges they face. The aim of the project on which it reports was to assess the key factors behind the survival and growth of School Library Services (SLS) provision at a time of uncertainty due to the impact of the government 'Fair Funding' legislation. The project was conducted in three main phases: case studies of 15 SLSs; a questionnaire survey across all public library authorities in England and Wales; a preliminary review of the issues through a invitation seminar. Findings were summarised as follows: there were 23 authorities where there was no SLS; most services were not in a position to offer evidence of the effectiveness of their provision in terms of government or schools agenda (e.g. school improvement, enhancement of student learning, social inclusion, contribution to economic regeneration, improved access to electronic information) though it is suggested that work carried out to develop impact and achievement indicators could provide a solution in this area; overall, SLSs were resilient to local government cuts, although some SLSs seemed to show little awareness of the potential changes which would follow Fair Funding legislation. Finally, it was concluded that future success is likely to depend on active promotion and marketing and willingness to meet changing demands.

Survey and Statistical Research Centre (2000) Survey of Secondary School Libraries: main findings (a report prepared for the Library Association). Sheffield: Survey and Statistical Research Centre, Sheffield Hallam University. http://www.la-hq.org.uk/directory/prof_issues/ssl/ssl99.pdf [20/11/01].

SUMMARY: The aim of the research on which this document reports was to provide a picture of secondary school library provision, in order to identify good practice and resourcing implications for secondary schools. A questionnaire was sent to 2041 secondary schools across the UK, 48% of which were returned (a lower return rate than the 1997 survey [http://www.la-hq.org.uk/directory/prof_issues/ssl/ssl97.html]). It is not clear how the sample was chosen. The questionnaire sought details on: school profile, library access, bookstock and other resources, borrowing, staffing, spending, curriculum development, inspection and IT. Findings of particular note include: an increase in library opening hours compared with the previous survey; 16.7% were open 41 hours per week or longer; 80% of libraries were used for other purposes (this included use of the library for planned classes); 40% of school libraries are run without full-time or part-time librarian or teacher involvement; only 21% of schools had a library committee; the range of salaries and modes of attendance suggested that there was much variation in terms of the importance of the roles of librarians in schools (it is suggested that guidelines should be developed); 53% of schools reported pupil volunteer assistance; 61.4% of libraries featured in the school development plan (compared with 68.6% in the previous survey); only 22.7% worked closely with all departments (27.2% in previous survey) and 12.3% worked closely with *no* department (an increase from 5.1% in the previous survey); 41% of schools attempt to teach specific information skills systematically as a whole school approach.

5.4 Professional Expertise

Bates, P. (2000) The Role of Secondary School Libraries in the Promotion of Reading. *New Review of Children's Literature and Librarianship* **6** 155-76.

SUMMARY: Journal article reporting on a study that aimed to investigate the impact of promotional strategies on children's reading through case studies conducted at three secondary schools in the UK. Questionnaires were circulated to pupils in years 7 & 9 of the case study schools and interviews were conducted with Librarians, Heads of English and Headteachers. Evidence was reported concerning what students perceived to be important personal characteristics of the librarian: friendliness, supportiveness and a willingness to help. It is also stated that the librarians at each school (one a qualified librarian, one a teacher librarian and one a paraprofessional librarian) were equally committed to their role in curriculum planning, supporting other school staff with library matters and professional development and devoting time to the promotion and management of the library. RESERVATIONS/COMMENTS: 1. the study appears to explore pupil's attitudes to the library and their reading habits rather than the impact of one on the other; 2. a series of recommendations are included towards the end of the article, but underlying evidence for them is not identified; 3. while those responsible for the libraries in the case study schools intentionally included one qualified librarian, one teacher librarian and one paraprofessional librarian, no conclusions about the impact of these backgrounds on the improvement of reading skills were drawn.

Bell, M. and Totten, H.L. (1991a) Interactional Patterns of School Media Specialists With School Instructional Staff. *Library & Information Science Research* **13** (4):367-384.

SUMMARY: Reports on the same project as Bell & Totten, 1991b

Bell, M. and Totten, H.L. (1991b) School Climate Factors Related to Degrees of Cooperation Between Public Elementary School Teachers and School Library Media Specialists. *Library Quarterly* **61** (3):293-310.

SUMMARY: This journal article reports on a study which tested a series of null hypotheses related to teacher co-operation with school library media specialists. A total of 1079 teachers and librarians from 39 Texas elementary schools similar in wealth, size and student demographic characteristics were included in the study. Nineteen schools in the sample ranked in the top 25% of all Texas elementary schools and 20 schools ranked in the bottom 25%. Results from the Texas Education Assessment Minimum Skills Test (TEAMS) were used to identify these schools. Teachers in the study were asked to complete a Sociometric Choice questionnaire in which they had to identify, referring to a list of names of their professional colleagues, the individuals they would consult for help and co-operation in solving school-related problem. Librarians were asked to complete Cattell's Sixteen Personality Factor Questionnaire. While the research did not look directly at the impact of different levels of co-operation on academic achievement, it was found that "academically highly effective public elementary schools, as opposed to academically ineffective schools, are more instructionally cohesive" (p305) and that school media specialists are more likely to be chosen by teachers for co-operation on instructional problems in the effective schools. The connection between school academic success and the involvement of the school librarian in the instructional program is therefore highlighted. However no connection was found between personality characteristics of the school library media specialists and the extent to which they are approached by teachers for advice. It is also interesting to note that teachers were likely to co-operate in instruction with their school librarians at least as much, and in some cases more, than they were with their teacher colleagues. RESERVATIONS/COMMENTS: 1. Research was conducted at elementary schools; 2. Link between school libraries and academic achievement not *primary* focus 3. See also Bell & Totten, 1991b.

Christensen, P.M. (1991) Characteristics of Library Media Specialists Who Have Exemplary High School Library Media Programs. *School Library Media Quarterly* **19** (4):247-252.

SUMMARY: Journal article reporting on a study investigating the link between school library media specialists and programmes that have been recognised as exemplary. The presence of

key elements identified in an evaluative checklist developed by the Association for Educational Communications and Technology (AECT) for school libraries was investigated and a personality questionnaire was used to analyse taped interviews with librarians. Ten conclusions discussing key elements required for the successful school library. These include administrative commitment and support in terms of physical facilities, finance, staffing and inclusion in the curriculum processes.

Kuhlthau, C.C. (1999) Student Learning in the Library: what library power librarians say. *School Libraries Worldwide* 5 (2):80-96.

SUMMARY: This journal article reports on a study that involving a number of schools that had taken part in the Library Power Programme. Methodology consisted of two approaches: an open ended survey question prompting librarians to describe a critical incident which illustrated a student learning experience (requested once a year over three years), and case studies of three Library Power libraries. Responses to the open ended survey question increased each year, provoking 331 responses in year 1; 405 responses in year 2 and 495 responses in year 3. Critical incidents were coded as follows:

Level 1: *Input* - emphasis on what the librarian did, not on students, i.e., adding to the collection

Level 2: *Output* - emphasis on quantitative measure of student use, i.e., more visits, more use of materials

Level 3: *Attitude* - emphasis on change in student attitude, i.e., increased interest and enthusiasm

Level 4: *Skills* - emphasis on location of resource and use of technology, i.e., locating books

Level 5: *Utilization* - emphasis on content learning, i.e., using resources to learn through inquiry in content areas of the curriculum.

For each year, approximately 85% of responses were coded at levels 3-5, however progression is shown through the fact the highest levels of response in the first year were coded at Level 3, in the second year at Level 4 and in the third year at Level 5. The author interprets this movement as a sign of the librarians' increased ability to recognise learning styles rather than actual improvement in students' use of the library. Improvement to students' learning or attainment was not directly addressed, however, from the librarians' responses, the researchers identified ten indicators of learning (p86) which ranged from those that could be broadly categorised as "intuitive observation" to "documentable evidence" (p87). These could be usefully applied in future studies of the impact of the library on student learning. Three case study schools were selected from the original sample and were used to explore differences in library programmes in order to address reasons for varying levels of success with the Library Power programme. It was concluded that Library Power was most effective when there was "a commitment to an inquiry approach to learning shared by the librarian, teachers, and administrators". The library has to be fully integrated into the learning process.

Lance, K.C., Hamilton-Pennell, C. and Rodney, M.J. (2000b) Information Empowered: The School Librarian as an Agent of Academic Achievement in Alaska Schools. Revised edn, Juneau: Alaska State Library.

SUMMARY: This study assesses the impact of Alaska school librarians on academic achievement in the state's public schools. and is based on "The impact of school library media centers on academic achievement" (Lance, et al, 1990). It demonstrates empirical support for the principles of "Information Power: building partnerships for learning" (1998). The relationship between staffing and student performance is investigated and staff activities that affect test scores are identified. A range of conditions of library operation were considered as potential predictors of academic achievement. During 1997-98, library media centers in 211 Alaska public schools were surveyed about their staffing levels, hours of operation, staff activities, usage, technology, policies and co-operation with public libraries. This data were added to the percentage of grade four, eight and eleven students from these schools who scored below proficient, proficient and above proficient in the California Achievement Tests (CATS). In very simplified terms the research findings state that test scores tend to be higher: with a full-time librarian; higher level of staffing; higher levels of student usage; when higher levels of staff activity were directed to providing instruction to students, co-operative planning with teachers and

providing in-service training to teachers; the more students received information literacy instruction in which the library media staff were involved. There was also a correlation between higher test scores and co-operative relations with the public library, online information access and a collection development policy. Additionally the study examined wider community and school conditions that might have an impact. While it was recognised that community factors have the strongest impact, wider school factors were less significant. RESERVATIONS/COMMENTS: However, the report does not address some of the school ethos and teaching culture which might help explain the findings - for instance a school which supports its library may also have a culture of good staff moral, quality teaching. The schools taking part in the study were also in part self-selecting. Although there are educational differences and the librarians in the USA are dual-qualified there are important lessons to be learned from the study. It is clearly indicated that the activities of the librarian are important to the academic achievement of students. The use of standard tests (SATS) might be applied to a similar model.

Lance, K.C., Rodney, M.J. and Hamilton-Pennell, C. (2000a) How School Librarians Help Kids Achieve Standards: the second colorado study. U.S., Colorado: Hi Willow Research and Publishing.

SUMMARY: Report of the second Colorado study. Building on the findings of the first Colorado study (Lance, 1993), key differences include: 1. a focus on the impact of library media specialists and the Library Media Centre's (LMC) *services* rather than the LMC as a specific place; 2. use of standard-based tests to measure student performance (as opposed to the norm-referenced test used in the first study); 3. the role of technology was explored to a greater extent. The method of sample selection is not absolutely clear, but the final sample included 144 schools (124 serving the fourth grade, 76 serving the seventh grade, 56 serving both). Questionnaires were completed by these schools and included questions relating to the following key areas: Library Media Centre Hours; Library Media Staff (e.g. types of staff, what qualifications they hold, how many hours they work); Paid Staff Activities (e.g. instruction, in-service training for teachers); Library Media Technology (e.g. number of networked computers, numbers with access to the WWW, library catalogues, processor/connection speeds); Usage of Library Media Services (e.g. interaction with users, circulation figures); Library Media Resources (e.g. inventory of holdings by format); Annual Operating Expenditure and Capital Outlay for the Library Media Centre; School Library Media Management (e.g. presence of advisory committee, how budget is requested/received). The study found that Colorado Student Assessment Program (CSAP) reading scores increase with increases in the following characteristics of library media (LM) programs:

- *LM program development*;

- *Information Technology*: test scores found to increase with increases in library access to networked computers (linking the libraries with classrooms), particularly when they provide access to Internet and WWW, licensed databases & LMC resources;

- *Collaboration*: test scores increase with increased library media specialist/teacher collaboration, and increased involvement of the library media specialist in provision of in-service training for teachers;

- *Flexible Scheduling*: A link was found between individual visits to the library and increased test scores;

- *Indirect Effects*: Leadership involvement was not found to have a direct effect on test scores, however it does have an impact on collaboration which itself has been shown to have an impact on achievement;

Additionally, it is asserted that the predictors of academic achievement outlined above can not be explained away by:

- school district expenditures per pupil;

- teacher/pupil ratio;

- the average years of experience of classroom teachers;

- their average salaries;

- adult educational attainment;

- children in poverty;

- racial/ethnic demographics.

Lance, K.C., Rodney, M.J. and Hamilton-Pennell, C. (2000c) *Measuring Up to Standards: the impact of school library programs & information literacy in Pennsylvania schools.* Pennsylvania: Pennsylvania Department of Education's Office of Commonwealth Libraries.

SUMMARY: This study followed a realisation by Pennsylvania Department of Education's Office of Commonwealth Libraries that the impact of a school library needed to be demonstrated to school decision-makers. The study replicated the first "Colorado study" (Lance, 1993). The study sought to confirm the findings of the "Colorado study" and to consider the impact of: specific activities of certified school librarians; the principal and teacher support for library programmes; and information technology, in particular licensed databases and the Internet. The study relates the findings to the American Association of School Librarians' 1998 standards, "Information Power: Building Partnerships for Learning". The findings indicate that Pennsylvania System of School Assessment (PSSA) reading scores increase with higher levels of staffing, information technology and the integration of information literacy into the curriculum. It was also found that as these factors rise, so does the involvement of the librarian in teaching students and teachers how to find and assess information. The relationship between staffing and test scores is not explained away by other school or community conditions. One of the major findings of this study is the importance of an integrated approach to information literacy teaching and must be part of the school's approach to both standards and curriculum. The indirect effects were found to be that higher levels of school library staffing, particularly certified staff, predict higher expenditures, more varied collections, increased access to information technology and more integrated approaches to information literacy, standards and curriculum. RESERVATIONS/COMMENTS: 1. It is not clear from the methodology how the participating schools were selected and this has a bearing on the data analysis. If the majority of participating schools were already aware of the need for quality library provision, they are likely to be providing quality in other areas of the school. 2. The study was funded by Library Services and Technology Act (LSTA) grant.

Lance, K.C., Welborn, L. and Hamilton-Pennell, C. (1993) *The Impact of School Library Media Centers on Academic Achievement.* Castlerock, Colorado: Hi Willow Research and Publishing.

SUMMARY: This study conducted in the 1988-89 school year and sometimes referred to as the first Colorado study, was designed to develop evidence of the impact of the school Library Media Centre (LMC) on academic achievement. The sample of 221 schools was self-selected to some extent, though comparison with state statistics showed it to be representative of Colorado schools in terms of school levels, enrolment age, and school district setting (urban, rural, etc). Other factors that might be assumed to have an impact in academic achievement were also explored and addressed in the analysis. Main findings include: 1. where LMCs are better funded, academic achievement is higher, whether their schools and communities are rich or poor and whether adults in the community are well or poorly educated; 2. better funding for LMCs fosters academic achievement by providing students access to more library media staff and larger and more varied collections; 3. among predictors of academic achievement, the size of the LMC staff and collection is second only to the absence of at risk conditions, particularly poverty and low educational attainment among adults; 4. library media expenditures and staffing tend to rise and fall along with those of other school programs; 5. the instructional role of the library media specialist shapes the collection and in turn academic achievement; 6. collaboration between library media specialists and teachers is affected by the ratio of teachers to pupils. RESERVATIONS/COMMENTSL: Self-selection (but shown to be representative); Sample size.

Oberg, D., Hay, L. and Henri, J. (1999) *The Role of the Principal in an Information Literate School Community: Findings from an International Research Project.* In: Lighthall, L. and Howe, E., (Eds.) *Unleash the Power! Knowledge - Technology - Diversity: Papers Presented at the Third International Forum on Research in School Librarianship, at the 28th Conference of the International Association of School Librarianship (IASL) (Birmingham, AL: November 10-14, 1999),* pp. 163-178. Seattle, Washington: IASL

SUMMARY: This paper describes a study conducted across seven countries (Australia, Canada, Finland, France, Japan, Scotland and South Korea) that looked at the role of the principal in encouraging or enhancing information literacy. Questionnaires (including both open and closed questions) were used to establish principals' and librarians' perceptions and beliefs about the library and the librarian, school library data on support mechanisms and librarians methods for eliciting involvement from other school staff. Overall mean scores on present and future perceptions suggested that in five of the six countries (French data not available at the time) principals and librarians are well-aligned in their beliefs about the role of the principal; the exception was Scotland where school librarians are not qualified teachers. The school librarians and headteachers differed in three areas:

- headteachers thought that school librarians should be dually qualified whereas school librarians did not
- headteachers believed that co-operative planning and teaching should take place in the library and the classroom
- headteachers did not agree that the school librarian should be an IT leader in the school.

"These disagreements are surprising to the author [James Herring] and it would be interesting to see if the same results occurred from a larger response. If it is true that headteachers favour dual qualifications for Scottish school librarians, then this would raise an issue that has lain dormant in the UK for a number of years. The school librarians' disagreement on the issue of co-operative planning and teaching in the library and the classroom is surprising and, if this reflects a wide held belief, is worrying. School librarians are encouraged to plan co-operatively with teachers and not just with regard to the library. Also, if headteachers *do* believe that school librarians should not be IT leaders in the school, then school librarians need to make headteachers more aware of their IT skills."

It was found that the survey instruments acted as an awareness-raising exercise for the principals as to the potential support they could give their librarian. It is also interesting to note that the majority of the participants from Finland suggested that there would be little impact on teaching and learning if the librarian was absent for more than two weeks. RESERVATIONS/COMMENTS:

1. Not strictly within the remit but provides some useful evidence on professional expertise in relation to the school principal.
2. The Scottish response is particularly relevant to the question of qualifications of the school librarian.
3. The discussion list sln has revealed a difference of opinion on whether the librarians should be and/or are involved in the KS3 Literacy Strategy.
4. See also: Scottish report of same study:

http://farrer.riv.csu.edu.au/principal/survey/report/paper_SC.html [27-11-01].

Smith, E.G. (2001) Texas School Libraries: standards, resources, services, and students' performance. [Texas]: EGS Research & Consulting for Texas State Library and Archives Commission. <http://www.tsl.state.tx.us/ld/pubs/schlibsurvey/index.html> [23-10-01].

SUMMARY: This study, conducted in Texas with funding from Texas State Library and Archives Commission, investigated the Texas school library standards and had three objectives:

- to examine school library resources, services and use on the basis of the School Library Programs: Standards and Guidelines for Texas and determine the need for updating these standards and guidelines so that they better serve communities across the State;
- to determine the impact that school libraries have on student performance as measured by the percent of students who met minimum expectations on the reading portion of the state-wide standardised test, the Texas Assessment of Academic Skills (TAAS);
- to highlight library practices in the best performing schools.

Data were collected from a random sample of 600 Texas school libraries and a variety of other state statistical databases and the study employed more than 200 school, library and community variables in examining the relationship between libraries and TAAS performance. The findings demonstrated a higher TAAS performance at all educational levels in schools with librarians than in schools without librarians. The study showed that socio-economic variables such as the percentage of ethnic groups and economically disadvantaged students explain most of the variance in performance. However, the library variable explained a smaller, but still significant,

portion of performance variance. The library variable was also found to be more significant than school variables. The library variables revealed a different emphasis between the three school levels: elementary - volumes purchased, operational expenditures per student, library internet connection, software packages; middle/junior - collating material for instructional units, providing information skills; and high - library staff, staff hours, hours of library operation, number of volumes, current subscriptions, planning instructional units with teachers, providing staff development to teachers. While causal relationships cannot be unequivocally proven through correlational studies such as this one, nevertheless recommendations may be made by combining these results with experiences of librarians to consider future course of action. This study demonstrated that libraries can play a very special role in enriching the experience of students from economically disadvantaged backgrounds who may need additional help to develop skills to succeed. RESERVATIONS/COMMENTS: This study is very significant in taking the Lance studies forward and giving a clear picture of methodology. It was prompted by standards already in place.

Survey and Statistical Research Centre (2000) *Survey of Secondary School Libraries: main findings* (a report prepared for the Library Association). Sheffield: Survey and Statistical Research Centre, Sheffield Hallam University. http://www.la-hq.org.uk/directory/prof_issues/ssl/ssl99.pdf [20/11/01].

SUMMARY: The aim of the research on which this document reports was to provide a picture of secondary school library provision, in order to identify good practice and resourcing implications for secondary schools. A questionnaire was sent to 2041 secondary schools across the UK, 48% of which were returned (a lower return rate than the 1997 survey [http://www.la-hq.org.uk/directory/prof_issues/ssl/ssl97.html]). It is not clear how the sample was chosen. The questionnaire sought details on: school profile, library access, bookstock and other resources, borrowing, staffing, spending, curriculum development, inspection and IT. Findings of particular note include: an increase in library opening hours compared with the previous survey; 16.7% were open 41 hours per week or longer; 80% of libraries were used for other purposes (this included use of the library for planned classes); 40% of school libraries are run without full-time or part-time librarian or teacher involvement; only 21% of schools had a library committee; the range of salaries and modes of attendance suggested that there was much variation in terms of the importance of the roles of librarians in schools (it is suggested that guidelines should be developed); 53% of schools reported pupil volunteer assistance; 61.4% of libraries featured in the school development plan (compared with 68.6% in the previous survey); only 22.7% worked closely with all departments (27.2% in previous survey) and 12.3% worked closely with *no* department (an increase from 5.1% in the previous survey); 41% of schools attempt to teach specific information skills systematically as a whole school approach.

Tallman, J.I. and Tastad, S. (1998) *Library Power: a potent agent to change in media programs*. *School Libraries Worldwide* 4 (1):33-49.

SUMMARY: This journal article reports on the changes made as a result of the Library Power initiative in two schools in a large urban district. Focus is on the instructional partner and teaching roles of the librarian. The key areas of investigation were: 1. whether schools could make systematic changes in the way the curriculum planning took place in the school, particularly in reference to the role of the Library Media Specialist (LMS) (would there be a noticeable change in the way the curriculum units were planned and taught, would there be a noticeable change in the way the staff views the LMS as a planning and teaching partner, would there be a noticeable change in the kinds of activities designed for student learning); 2. how long it would take to institutionalise these changes in the school. Individual interviews with LMSs and principals, and focus interviews with teachers were carried out at various intervals over the three years of the project. The project team also acted as participant observers in the library media centres for a period of time in each year. The researchers identified some very positive changes across the school in terms of: the attitude to the role of the LMS; the nature of collaboration between the LMS and the rest of the school (particularly in instructional partner/teacher roles); teaching and learning styles; higher use of resources; increased opportunities to teach information literacy

skills in a fully integrated way; LMS status; and the LMSs' own attitude to their role. E.g. "we observed that the staff of these schools learned how to create units that offered students more active learning and development opportunities for their personal research processes." "the program brought changes in the environment by strengthening the place of the media center in student learning as well as strengthening the role of the LMS as a partner in curriculum design and teacher of integrated information literacy skills." "At both schools, the role of the LMS deepened into a truer partnership with the classroom teachers in each school. One of the LMSs became the central facilitator and leader of interdisciplinary planning for all grade-level sessions held by her faculty. The other LMS progressed from the role of isolated resource provider and from a peripheral place on the faculty to fuller participation in curriculum planning sessions and to a respected provider of resources." The researchers identified extensive staff development programmes on team building and collaborative planning as key to the success of the Library Power initiative. RESERVATIONS/COMMENTS: 1. As there were only two schools involved, it is difficult to generalise findings (this is conceded by the authors). 2. This study is strengthened by its longitudinal nature: observations and other data collection methods in the first year revealed that, in one school in particular the staff (particular the library media specialist) found the program rather overwhelming and little change in the behaviours and attitudes of the staff was observed. However, by the time that the series of visits in the second year were conducted, significant changes were noted. This finding should be remembered when considering similar studies with a shorter timescale.

Tastad, S. and Tallman, J. (1997) Library Power as a Vehicle for the Evolution of Change. In: Lighthall, L. and Haycock, K., (Eds.) *Information Rich But Knowledge Poor? Emerging Issues for Schools and Libraries Worldwide: Research and Professional Papers Presented at the 26th Annual conference of the International Association of School Librarianship (IASL) held in Conjunction with the Association for Teacher-Librarianship in Canada (Vancouver, British Columbia, Canada: July 6-11, 1997)*, pp. 153-161. Seattle, Washington: IASL.

SUMMARY: For details, see the paper on the same project by Tallman and Tastad (1998)

Webb, N.L. and Doll, C.A. (1999) Contributions of Library Power to Collaborations between Librarians and Teachers. *School Libraries Worldwide* 5 (2):29-44.

SUMMARY: One of the goals of Library Power was to increase collaboration between the librarian and teaching staff. This article concludes that Library Power was successful in achieving this goal and collaboration was identified in planning instruction and developing the collection. Data from over 400 schools was gathered through collaboration logs (completed by librarians) and questionnaires completed by principals, librarians and teachers. Analysis of data available indicated that there was evidence of an increase in collaboration, including those schools that had a history of collaborative behaviour. Collaborative logs supported the conclusion that library skills had been integrated into the curriculum at all grade levels.

Williams, D. and Wavell, C. (2001) The Impact of the School Library Resource Centre on Learning. Aberdeen: The Robert Gordon University for Resource The Council for Museums, Archives and Libraries.

SUMMARY: This research, carried out in secondary schools across Scotland, investigated the impact of a School Library Resource Centre (SLRC) on learning in its broadest sense. A two phase approach was used which consisted of: 1. Focus group discussions with teachers and pupils and interviews with librarians (to identify their perceptions of how the SLRC can contribute to learning); 2. Case study research using a framework developed in the first phase to identify learning experiences that the SLRC impacted upon, investigate indicators to be used as evidence of learning, and examine the process of assessing the impact of the SLRC on learning. The schools taking part in the research were largely self selected, being chosen from responses to a flier and brief questionnaire from the research team which sought participants for the study. Ten schools took part in the first phase and six of those also took part in the second phase. The learning experiences explored were grouped under four broad learning themes (currently used in

evaluation guidelines for Scottish schools): Motivation, Progression, Independence and Interaction. Evidence for each of these areas was found across the case studies and potential indicators for each were developed during the course of the study. A number of useful methods for monitoring impact on learning in the SLRC were identified and a series of factors that were seen to influence effective learning are listed. In conclusion, the report highlights a number of key issues: the need for collaboration in planning and decision-making; the need for a greater understanding of information skills and mutual co-operation between librarians and teachers; and the importance of being aware of impact factors beyond the SLRC.

RESERVATIONS/COMMENTS - 1. There is a difficulty in identifying impact on skills, particularly reading skills using these methods 2. It could be useful for future research to test the indicators developed.

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APPENDIX

Research Protocol

Two researchers searched in tandem according to a pre-defined format and regular contact was maintained to ensure reliability and rigour. It is necessary to avoid bias either in selecting studies already known to the researchers or selecting literature that reports research in a biased manner. The use of two researchers, following sound systematic review practise, helped to ensure that the search process and inclusion criteria are applied in an objective manner.

Explicit Search Strategy

The key questions were set out by the Task Group (in the project brief) and these have been used to define search terminology:

- 1) What is the link between school libraries and achievement/attainment in schools? Can a link be made between school libraries and enrichment of the curriculum?
- 2) What impact do school libraries have on raising pupils' attainment in schools?
- 3) What impact do school libraries have on pupils' attitudes to learning?
- 4) How do the services provided by the school libraries vary from school to school? What is the impact on pupils' learning?
- 5) Is there evidence suggesting which model of school library provision produces the best results in terms of pupils' experiences and levels of achievement, attainment and attitude to learning?
- 6) What role does the school librarian (professional librarian, teacher or volunteer) undertake in the school? Is there a link to good teaching practice and achievement?
- 7) To what extent do the different backgrounds of the staff responsible for managing the school library and its resources limit or increase its effectiveness as a learning resource?
- 8) What research has been previously done on school libraries' impact on whole school provision?

The research questions expressed by the Task Group were adapted for use in the search strategy (the applicable numbers of original question indicated in the brackets following):

- i. What is the link between school libraries and achievement/attainment in schools? (1, 2)
- ii. What is the link between school libraries and enrichment of the curriculum? (1)
- iii. Is there a link between school libraries and good teaching practice? (1, 6)
- iv. What impact do school libraries have on pupils' attitudes to learning? pupils' confidence in learning? (3)
- v. What range of services are offered by school libraries? e.g. information literacy initiatives, reading initiatives (4, 5)
- vi. How does each of these services impact on pupils' learning? (4, 5)
- vii. What different models of school library services are there? e.g. centralised school library service? (5)
- viii. Which model produces the best results in terms of pupil experiences, achievement, attainment and attitude to learning? (5)
- ix. What are the different roles that a school librarian might occupy? e.g. professional librarian, teacher, volunteer? (6,4,5)
- x. Is there a link between each of these roles and good teaching practice? (6)

- xi. Is there a link between each of these roles and pupil achievement/attainment? (1, 6)
- xii. Is there a link between each of these roles and its effectiveness as a learning resource (6, 7)
- xiii. To what extent does a librarian's past experience limit or increase the library's effectiveness as a learning resource? (7)
- xiv. What is the impact of the school library on the broader school experience? On extra-curricular learning? On the school ethos? (8)

Summary of Research Questions

The key questions cover four broad areas of interest and these were used to structure the final report:

- School libraries and academic attainment
 - 1 What is the link between school libraries and achievement/attainment in schools? (i, iii, ix)
 - 2 What impact do school libraries have on raising pupils attainment in schools? (i)
- School libraries and learning in its broadest sense (personal development & confidence)
 - 1 Can a link be made between school libraries and enrichment of the curriculum? (ii, iii)
 - 3 What impact do school libraries have on pupils' attitudes to learning (or confidence in learning)? (iv)
 - 8 What research has been previously done on school libraries' impact on whole school provision (i.e. impact of life of the school as a whole including curricular, inter-curricular and extra-curricular activities)? (xii)
- Service provision
 - 4 How do services provided by the school libraries vary from school to school? (v, vii)
 - 4 What is the impact on services provided on pupils' learning? (vi)
 - 5 Is there evidence suggesting which model of school library provision produces the best results in terms of pupils' experiences and levels of achievement, attainment and attitude to learning? (v, vi, vii)
- Professional expertise
 - 6 What role does the school librarian (professional librarian, teacher or volunteer) undertake in the school? (vii)
 - 6 Is there a link to good teaching practice and achievement? (iii, viii, ix, x)
 - 7 To what extent does the different backgrounds of the staff responsible for managing the school library and its resources limit or increase its effectiveness as a learning resource? (x, xi)

The following electronic databases were searched for research reports and journal articles relating to research relevant to the questions:

- ERIC (dialog number 1)
- Social SciSearch (dialog 7)
- Dissertation Abstracts Online (dialog 35)
- British Education Index (dialog 121)
- Education Abstracts (dialog 437)
- Wilson Social Sciences (dialog 142)
- LISA including Current Research in Library and Information Science (dialog 61)
- ISA (dialog 202)
- Library Literature (dialog 438)
- Inside Conferences (dialog 65)

Dialog (www.dialogweb.com) was searched using each database individually, thus allowing for differences in commands and ease of transfer of data to the ProCite management system.

The research team already had experience of the topic from a previous report²⁵ and therefore, knowledge of appropriate terminology for the search strategy.

Each database was searched with the search terms identified to cover the key questions.

All the references returned from each search enquiry were downloaded onto ProCite. This required saving the references as a text file in full-tagged format and transferring them to a ProCite database.

The ProCite database required modification to enable easy transfer of information in the most appropriate format. The database was backed up on a regular basis. ProCite gave standard bibliographic information for each type of resource and additional information was included in the note section for inclusion in the annotated bibliography.

The initial selection of potentially relevant documents was carried out from the information downloaded from the online databases. Some records were fuller than others and in order to ensure documents are selected early, the initial selection was made on the available information.

Criteria for inclusion or exclusion considered:

- relevance to research topic (school libraries and learning, and secondary education);
- type of document (research reports and primary source articles were included, and secondary source articles, books, resources were considered only if particularly relevant);
- date (discussion with the Task Group set a date of limit of 1988, this was when the National Curriculum was introduced, pre-1988 material was included only if highly relevant to the topic);
- availability of document (it was not possible to obtain dissertations through normal ILL channels in the timescale) and language (only documents in English were included).

Documents not included in this initial round were transferred to a reject database. Documents not included in later selections were transferred to the reject database but grouped in such a way as to establish at which stage a document was excluded.

Documents considered for in-depth analysis had the following information recorded:

- search process (database(s) and search number, citation, handsearch, unknown);
- topic focus or relevant key questions (the four key areas are: impact on attainment, impact on broader learning, library provision and professional expertise);
- educational setting (pre-secondary, secondary, post-secondary);
- document type (primary report, secondary report, resource, policy document);
- type of study (outcome evaluation, process evaluation, economic evaluation, intervention description, methods, needs assessment, review, descriptive study, forecasting study);
- robustness (high, medium, poor quality, not enough information);
- country of study and funding body.

Documents were obtained locally, ordered through ILL or printed, if possible.

Once the document was available it was examined for robustness and quality using an adaptation of the General Teaching Council²⁶ critical appraisal framework.

²⁵ Williams, D. and Wavell, C. (2001). *The Impact of the School Library Resource Centre on Learning*. Aberdeen: The Robert Gordon University for Resource The Council for Museums, Archives and Libraries.

²⁶ General Teaching Council for England. (undated) *'Research of the month' critical appraisal framework*. [online] <http://www.gtce.org.uk/pdfs/appframe.pdf> [10-08-01].

The electronic search was expected to account for the majority of the research reports and journal articles. However, additional limited searches were carried out using:

- references and bibliographies;
- hand searches of known internet sites and journals;
- contacts.

Inclusion criteria for in-depth review of documents

The documents of high and medium quality were examined in-depth for their relevance to the key questions and their applicability to English school library services and curriculum. Less rigorous research, or research of unknown quality was mentioned only if it had particular relevance to this review.

Synthesis of findings

Each included study was briefly described in the annotated bibliography and the findings of all the in-depth reviewed studies were synthesised so that conclusions could be drawn about:

- the impact of the school library on learning;
- any gaps in the research; and
- methodologies the Task Group might adopt to obtain evidence of how school libraries help attainment.

This formed the basis of the final report.