# Value of a structured information literacy course: a case analysis

**Sajjad ur Rehman and Suha AlAwadhi**
Department of Library and Information Science,
College of Social Sciences,
Kuwait University, P.O. Box 68168, Safat 71962, KUWAIT
e-mail: rehman05@gmail.com; suhaaa93@yahoo.com

## ABSTRACT

*The College of Social Sciences at Kuwait University introduced a 3-credit hour formal course of information and computing literacy as a required course for the undergraduate students. Four years back, the course structure and content were revised and the component of inquiry was added to the same course. This course has been in place for more than a decade. This study was designed to assess the relevance and usefulness of this course for developing the needed computing, information and inquiry capabilities among students. The study was thus designed to investigate; firstly, whether the course had made any significant difference in the computing, information and research capabilities of students. Secondly, it assessed whether certain personal and social variables of students were associated with significance differences in student capabilities. A research instrument was designed around the constructs that had been defined in the course description and syllabi of 1380-131. This instrument was administered in the first week of the Semester 1 classes of the year 2009-10 in five sections of the same class. The same instrument, with changed facts and multiple-choice statements, was administered in the last week of the same semester in the same five sections. Students also provided information about personal and social variables. It was found that the students performed significantly better for the overall information literacy and for the three segments of information, computing and research. Academic majors of students, types of schools they had attended and mother's academic qualifications were found to be associated with significant differences in students' performance on information literacy measures.*

**Keywords:** Information literacy; Information skills; Computing skills; Research skills; Undergraduate students.

## BACKGROUND

Computing, information and research skills are crucial capabilities needed for students at all levels. These capabilities are interdependent. Research in initiatives can be conceived, developed or executed if the researchers are able to apply their information and research capabilities effectively. A term traditionally used in the literature has been library research, that denotes developing library-related or library-based skills that can be applied to the conduct of research. The term library research however referred to information resources, services, systems and tools that were used within the four walls of a library. Nevertheless the researchers seek information and knowledge in its wider domains; not confined to library parameters only. For this purpose, information literacy has been approached with a broader connotation; developing lifelong information behaviors of independent search, retrieval, access and use of this information for the conduct of research. These information and inquiry capabilities are developed and enhanced through the design of information literacy programmes and activities.

There has been an increased emphasis on developing information literacy skills among all those who might have a potential for seeking information or knowledge in their personal, professional and intellectual lives. The American Library Association has perhaps offered the most appropriate definition of the term information literacy. It is the ability to recognise information need and locate, understand, evaluate, and use the needed information effectively (American Library Association 1989). Cunningham and Lanning (2002) further elaborated the concept. They maintained that in order to be information literate, a person must be able to recognise when information is needed and have the ability to locate, evaluate, and use effectively the needed information. Information literacy could be approached from three perspectives of Information and Communication Technology (ICT), information resources, and information process. Information literacy poses special challenges in evaluating, understanding and using information in an ethical and legal manner (Boekhorst 2003; Bundy 2004).

Pennell (1999) found that information literate students were more competent and independent learners. They knew their information needs and actively engaged in the world of ideas. They displayed confidence in their ability to solve problems and knew what relevant information was. They held high standards for their work and created quality products. These skills are quite relevant and important for researchers. Loertscher and Woolls (1998) observed that in order to be information literate, students need both a basic understanding of the research process and the ability to develop their internalized strategies for finding, evaluating and using information.

Royce (1999) viewed that success in information literacy is dependent on information handling and technical skills. Brown (1999) argued that information literacy actually subsumes a wide variety of skills and abilities including critical thinking, problem solving, personal, social and communication skills, and library and computer literacy. Information literacy skills lead to independent and student-centric learning instead of relying on the teacher to provide answers to questions or problems. This also helps them become dynamic learners and thinkers who are creative, analytical and efficient (Intan and Shaheen 2006). These skills are very relevant for the research process. Information literacy education should create opportunities for self-directed and independent learning where students become engaged in using a wide variety of information sources to expand their knowledge, ask information questions, sharpen their critical thinking, and become life-long learners (Bundy 2004). There is a distinct difference between library and information literacy, as information literacy is more than locating books on the library shelf, searching through an online catalogue or other reference materials. Information literacy is not a technique, but a goal for learners (Eyre 2003). Eyre further emphasised that acquisition of information literacy involved mastery of certain skills and adoption of certain attitudes. For this purpose, the students needed to understand the range of resources in various formats for information-finding purposes, selection of tools such as indexes available to access information, organization of information as it is represented in various access tools, and using different means for dissemination of information.

The American Library Association (ALA) and Association for Educational Communication and Technology (AECT), back in 1998, presented a set of standards and indicators for student learning. The information literacy component was spelled out in 13 indicators. These serve as essential benchmark of information literacy for schools. These are as follows:

a) Access information efficiently and effectively
   Indicator 1: Recognises the need for information

Indicator 2: Recognises that accurate and comprehensive information is the basis for intelligent decision making

Indicator 3: Formulates questions based on information needs

Indicator 4: Identifies a variety of potential sources of information

Indicator 5: Develops and uses successful strategies for locating information

b) Evaluate information critically and competently

Indicator 1: Determines accuracy, relevance, and comprehensiveness

Indicator 2: Distinguishes among fact, point of view, and opinion

Indicator 3: Identifies inaccurate and misleading information

Indicator 4: Selects information appropriate to the problem or question at hand

c) Use information accurately and creatively

Indicator 1: Organizes information for practical application

Indicator 2: Integrates new information into one's own knowledge

Indicator 3: Applies information in critical thinking and problem solving

Indicator 4: Produces and communicates information and ideas in appropriate format

The ALA/AECT also provided guidelines for building and promoting partnerships for learning through collaboration, leadership and technology support. This way the students and staff are expected to be effective users of ideas and information. Arp and Woodard (2003) maintained that information literacy is achieved by coaching students over time through multiple information-seeking experiences. Information literacy is not a set of discrete, declarative skills that can be taught once and internalized by the learner. Rather, it has to be applied in a variety of situations. Rabin and Cardwell (2000) found that students who had taken another academic course with a basic information literacy component knew more than those who had not. A number of researchers (Bundy 2004; Bucher 2000; Todd 1995) supported the notion of integrated instruction by stating that information literacy should not be extraneous to the curriculum, but should be woven into its content, structure, and sequence. Information literacy is the cumulative experience from a range of subjects and learning experiences, which creates the information literate person.

In the context of Kuwait, Rehman and Mohammad (2001) examined the library skills of undergraduate students of the College of Science at Kuwait University and their relationship with selected personal and academic variables. The researchers had focused on library skills and found that the students were deficient in these skills. Age and type of library schools were found to be significantly related to the level of library skills. In another study, Rehman and Al-Faresi (2009) examined the information literacy skills of 11th grade school students in Kuwait. A cluster random sample was picked and the sample consisted of a total of 263 students. It was found that a majority of Kuwaiti high school students lacked skills in catalogue searching and use, selection of information sources, formulation of search strategies, and selection of pertinent sources. Similarly, a majority of them did not make effective use of their public or school libraries. Most of them had not borrowed a book for more than 13 weeks. These results indicated that the school students were deficient in library and information skills.

## RESEARCH PROBLEM AND OBJECTIVES

The need of developing information and research capabilities among undergraduate students has been emphasised in the literature. A variety of formal and informal information literacy programmes have been proposed by national, regional and international agencies of ALA, ALIA, CILIP, and IFLA. The universities have a tradition of offering credit and non-credit

courses for undergraduate students; as independent instructional units or by using an integrated instructional approach by coordinating with the instructor of foundation service courses. A number of studies have examined the efficacy and value of a variety of instructional programmes in enhancing information literacy capabilities among undergraduates.

Kuwait University, being the primary institution of higher learning in the city-state of Kuwait, introduced a mandatory 3-credit hour course of for information literacy. The course was introduced in 2004 in the College of Social Sciences, benefiting from an earlier experience of a 3-credit course required of students majoring in biology. The course was designed for having two equal components of basic computing skills and information literacy. In 2008, in response to the demands of the accreditation agency, the college redesigned this course as part of general education requirements of the college. The course was redesigned so as to include the three components of computing, information and inquiry skills. The revised course has been taught during the last four academic years. Although this course has been taught for about a decade, there has been no systematic assessment of the relevance and usefulness of this course for the information literacy capabilities of the students.

Based on these issues, this study was aimed at achieving the following objectives:
a)    To ascertain whether the capabilities of students in the areas of information, computing and research significantly differed if these were measured before and after taking the course; and
b)    To investigate if certain personal and socio-cultural variables of students were significantly related to the performance of students in information, computing and research capabilities.

The following main research hypotheses were formulated for the study:

H1:    The students perform significantly better after they have taken the required course in their computing, information and research capabilities.
H2:    There is a statistically significant differences in computing, information and research capabilities of the students in regard to their personal and socio-cultural variables.

For H2, the following sub-hypotheses were formulated:
H2.1    There is a statistically significant differences in the information, computing and research capabilities of the students.
H2.2    There is a statistically significant differences in the information, computing and research capabilities of the students in regard to their academic performance as indicated by their Grade Point Average (GPA).
H2.3    There is a statistically significant differences in the information, computing and research capabilities of the students in regard to their major.
H2.4:    There is a statistically significant differences in information, computing and research capabilities of the students in regard to the level of education of their fathers.
H2.5:    There is a statistically significant differences in information, computing and research capabilities of the students in regard to the level of education of their mothers.

For testing purposes, these hypotheses were converted into null hypotheses.

For this study, the term "information literacy capabilities" covers general capabilities related to seeking, searching, retrieval, access, use, and evaluation of information. Operationally, it covers those information skills that are used for conducting research using ICT applications

effectively. The term "information capabilities" refers to general information processes and how these are applied in library organization, treating them as one of the information institutions. These cover a variety of library and information tools, applications and services. The term "computing capabilities" means an effective use of ICT skills in information processes, covering databases, searching, and Internet applications for the information work. The term "research capabilities" covers those information skills that were needed in the process and conduct of research. It specifically covers literature searching and review and definition of conceptual constructs of research.

## METHOD

We used a quasi-experimental method for this study by using pre-and post-test. We prepared, pilot-tested, and used instruments for testing the computing, information and research skills of the students in the first and last weeks of the semester when they took 1380-131 class. This test was based on the modules that were covered in 1380-131, as evident from the course syllabi. This way we secured performance scores for both pre- and post- tests of the students.

For the purpose of this study, we gathered information about the following variables when we administered the test in the last week: academic achievement of every student as reflected in the overall Grade Point Average (GPA) of a student; year of studies a student had completed; type of high school the student had attended; educational qualifications of parents; and occupational status of parents. We input the data into the Statistical Products, Services and Solutions (SPSS) for the purpose of data analysis.

One critical aspect of the study was the design of the research instrument. We prepared a pool of statements for examining the capabilities of students in the areas of information, computing and research. It was important that these statements are valid and reliable measures for examining student capabilities. These also needed to be uniform and consistent. After a series of revisions and categorisation, we were able to identify an equal number of statements for the three aspects of the study. This instrument was then translated into Arabic language. This version was given to three faculty members of the Library and Information Science (LIS) graduate programme who had been teaching this course. Their suggestions were used in finalising the instrument.

The statements were then modified for second administration. We tried that the substance of the statements is not compromised while making changes in some names, issues and facts. This effort was made on the Arabic version and did not require any further pretesting.

The instrument was administered to five classes of the same course in one semester in the first week of the semester. The modified version was administered to the same classes during the last week of the semester. We explained the rationale, purpose and significance of the study in the presence of the concerned course instructor. The students were assured that the identity of an individual student shall not be revealed.

Those students who were willing to participate answered the questionnaire. On an average, it took about 15-20 minutes to complete the instrument. The questionnaire was administered to five classes of the same course offered in a semester in the first and last weeks of the semester. Total number of students in the five classes was 226. A total of 144 answered the pre-test and 177 answered the post test; having response rates of 63.7% and 78.3%, respectively. Thus the

total number of responses received from the pre- and post-tests were 324. For the purposes of tests we have used the total number.

## RESULTS

### Respondents' Profile

It is pertinent to have an analysis of the profile of the students. It was found that of the 324 respondents, 251 (77.5%) were female and 73 (22.5%) were male. Respondents majoring in psychology were 112 (34.6%), geography 31 (9.6%), sociology 73 (22.5%), social work 25 (7.5%), political science 63 (19.4%), and 14 (4.3%) of them had not yet declared their majors. Of the 324 respondents, 96 (29.6%) had GPA of 3.0 and above, 134 (41.4%) of 2.5-2.99, 69 (21.3%) of 2.0-2.49, whereas 12 (3.7%) had less than 2.0. An overwhelming majority of the respondent - 319 (98% - attended public high schools. Respondents were asked to indicate the educational level of their parents. Results showed that fathers of the majority of them 105 (32.4%) had bachelor degree whereas only 67 (20.7%) of the respondents' mothers held the same degree. Those respondents whose fathers and mothers had schooling of less than high school were 79 (24.4%) and 94 (29%) respectively. High school degree was held by 69 (21.3%) fathers and 75 (23%) mothers. Respondents' fathers and mothers holding postgraduate degrees were only 16 (4.9%) and 3 (0.3%) respectively.

### Significant Differences: Testing the Main Hypothesis

The primary hypothesis of the study was that the 3-credit hour course made a significant difference in the information, computing and research capabilities of the students. At a micro-level, there was a need to examine if significant differences existed for the three areas of capability related to information, computing and research. Table 1 gives the mean scores, standard deviations and *t* scores for four tests. For the results of this study the criterion was set to be .05. For the purpose of this analysis, we converted the performance of each student on all the statements into an overall score by getting aggregate scores. Then we conducted an independent *t*-test comparing the mean scores of the pre- and the post-tests for the overall skills of students. It was found that the mean scores for the two tests were 12.53, sd = 2.59 and 14.5, sd = 2.68, respectively. The *t* value was found to be -6.64 with a significance value of .00.

Likewise we computed separate tests for the two groups of statements focused on information, computing, and research skills. It was found that the mean scores for information skills were 3.44, sd = 1.22 a d 3.15, sd = 1.18. The *t* value of -2.13 had the significance of .03, significant at the criterion. On the other hand, students' research skills had the mean scores of 3.13, sd = 0.96 and 2.78, sd = 1. It had the *t* value of -3.24, significant at .001. The third component of computing skills had the mean scores of 7.92, sd= 1.5 and 6.6, sd = 1.52. We had *t*-test score of -7.7, significance at .00. The first hypothesis of the study premised that the conduct of 3-credit hour course had a significant difference in the level of capabilities of information, computing and research of these students. These results have supported this hypothesis, implying that those students who had taken the course performed significantly better for the three measures and in general they had better information literacy capabilities.

Table 1: Differences in Pre- and Post-Test

| Type of Information Literacy skills | Pre/post | Mean | Std. Deviation | t | Df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|
| Information Skills | pre | 3.15 | 1.182 | -2.138 | 319 | .033 |
| | post | 3.44 | 1.224 | | | |
| Research Skills | pre | 2.78 | 1.000 .965 | -3.243 | 322 | .001 |
| | post | 3.13 | | | | |
| Computing Skills | pre | 6.60 | 1.525 | -7.777 | 321 | .000 |
| | post | 7.92 | 1.504 | | | |
| Overall skills | pre | 12.53 | 2.594 | -6.643 | 319 | .000 |
| | post | 14.50 | 2.680 | | | |

## Testing Hypothesis 2: Association of Information Literacy Capabilities with Personal and Social Variables

The second hypothesis of the study was that certain personal and social variables were significantly associated with information literacy capabilities of the students. One of the sub-hypothesis was gender-based; with the null hypothesis that the two genders did not have any significant differences**.** We conducted a *t*-test for finding any significant differences. The results showed that there was no significant difference between the two genders. The null hypothesis was thus supported. Another null sub-hypothesis provided that there were no statistically significant differences in the level of information literacy capabilities of those who had attended public schools as compared to those students who had attended private schools. It is worth noting that private schools in the country are mostly using English language as the medium of instruction and they are generally considered to be offering quality education. We again conducted a *t*-test to test the null hypothesis. We did not find any significant differences in student capabilities except in their research capabilities. Those who attended private schools had the mean score of 4.0 with the standard deviation (s.d) value of .00, which was significantly greater than those who had attended public high schools with a mean of 2.97 and s.d of .995. The *t*-test score was 1.78, significant at .00.; implying that the null hypothesis was partially rejected and partially supported. The difference in the research capability was quite significant. The results of this test are shown in Table 2.

Table 2: Differences in the Information Literacy Skills based on School Type

| Type of Information Literacy skills | School Type | Mean | Sd | t-score | df | Sig. |
|---|---|---|---|---|---|---|
| Information skills | Public | 3.30 | 1.217 | -.042 | 317 | .967 |
| | Private | 3.33 | 1.155 | | | |
| Research skills | Public | 2.97 | .995 | -1.787 | 320 | . 000 |
| | Private | 4.00 | .000 | | | |
| Computing skills | Public | 7.35 | 1.647 | .365 | 319 | .715 |
| | Private | 7.00 | 1,732 | | | |
| Overall skills | Public | 13.62 | 2.818 | -.434 | 317 | .664 |
| | Private | 14,33 | 2.887 | | | |

Another null sub-hypothesis was that there were no significant differences in student capabilities in relation to their majors of studies. The students of this college majored in

psychology, political science, sociology, and geography. Some students had not declared their majors. For this purpose we conducted one-way ANOVA, given in Table 3.

Table 3: Student Majors and Information Capabilities

| Type of Information Literacy skills | df | Mean Square | F | Sig. |
|---|---|---|---|---|
| Information Skills | 5 | 3.353 | 2.367 | .040 |
| Research skills | 5 | .432 | .425 | .831 |
| Computing skills | 5 | 6.635 | 2.458 | .033 |
| Overall Skills | 5 | 11.248 | 1.417 | .218 |

Significant differences existed between the respondents' information and computing skills (F=2.36, p=.04 and F=2.45, p=.033). Post-hoc comparisons using the Tukey HSD test indicated that library skills were significantly higher for psychology students (M=.48, SD=.188, p<.010) while computer and searching skills were significantly higher for sociology students (M=1.4, SD=.698, p=.045). Thus null hypothesis was partially supported.

Two null hypotheses were related to the education of fathers and mothers. We would like to find out if the level of education of either parents was significantly related to the information capabilities of the students. It was interesting to note that there was no significant difference related to fathers, supporting the null hypothesis.

One-way ANOVA for mothers showed significant differences for information skills (F=2.49, p=.043). Further, it was found that significant differences existed for computing (F=3.15, p=.015). Post-hoc comparisons using the Tukey HSD test indicated that the information skills of respondents whose mothers had postgraduate degrees were better than those whose mothers had lower academic degrees (M=1.47, SD=.70, p=.37). Similarly, the computing skills of respondents were better for those whose mothers had postgraduate degrees than those whose mothers had lower academic degrees (M=1.14, SD=.58, p=.05). The Tukey HSD test also indicated that the computing skills of respondents were better for those whose mothers had bachelor degrees as compared to those who had lower academic qualifications (M=.62, SD=.26, p=.018). Most significantly, the overall skills of students were better for those whose mothers had bachelor degrees than those whose mothers got lower academic qualifications (M=1.01, SD=.45, p=.027). The null hypothesis could not be supported for 3 of the 4 measures or types of information literacy skills, indicating that mothers' level of academic qualification made a significant difference in information literacy capabilities of the students.

Table 4: Mothers' Education and Student Capabilities

| Type of Information Literacy Skills | df | Mean Square | F | Sig. |
|---|---|---|---|---|
| Information Skills | 4 | 3.605 | 2.495 | .043 |
| Research skills | 4 | 1.767 | 1.803 | .128 |
| Computing skills | 4 | 8.358 | 3.154 | .015 |
| Overall Skills | 4 | 30.994 | 4.051 | .003 |

## DISCUSSIONS AND CONCLUSIONS

We have been able to gather some important findings from this study that would have some bearing on the strategic value of formal information literacy instruction for the undergraduate students. This finding is more relevant in the context of developing nations where the high schools may not offer equitable opportunities for independent learning, open thinking, and critical inquiry. Most students in developing nations have low level of information literacy capabilities. The formal information literacy course designed at Kuwait University has largely been influenced by the accreditation specifications of the American Association of Liberal Education (AALE) that made it incumbent upon the College of Social Sciences of Kuwait University to have an integrated outlook for the instruction of these capabilities. This course specifically addressed these requirements. It is worthwhile to note that the College received its accreditation in 2010. The College made deliberate efforts of developing coursework that satisfied the critical requirements of General Education Requirements (GRE) and this course was a vital element in this GRE component. The College had been offering a required course since 2004, but the course was motley of computing and library skills. In the new approach information literacy has been integrated with essential ICT capabilities for its effective use in problem solving and formal research methods. The approach is now holistic and integrated in nature instead of producing fragmented skills of library use or computing. This study has proven the usefulness of this course in its overall approach toward information literacy as well as developing library skills, information searching, conducting searches on databases, documentation, and computing skills related to document generation, content analysis, information organization, evaluation, and presentation. The students are now required to work on academic projects that encompass intensive laboratory work and application of cognitive skills of inquiry.

It is never easy for the curriculum designers to have a 3-credit component for information literacy in their overall coursework scheme for undergraduate studies. There is a need of having a strong proprietary base for designing, managing, politicking, and making academic maneuvers for introducing such a course. In the case of Kuwait University, the Department of Library and Information Science of the same college was best positioned to champion this cause.

Some pertinent issues had to be addressed that included availability of adequate faculty, teaching assistants, computer laboratories, electronic classrooms, and overseeing its conduct. In this college we are offering 14-16 sections of the same course every regular semester in order to enable all students to register for this required course. Here, we have been able to manage these problems with tact, contacts and resourcefulness. During the last 5-6 years, we have been able to demonstrate the value of this course in a way that other colleges are now approaching us if we could design similar courses for the students of their colleges. Before making any commitment, we need to assess the availability of resources for additional undertaking. The wise approach is to be gradual and incremental in expanding the net of information literacy coursework in the university. That should help in producing a generation of independent thinkers who use the latest technologies for problem solving and conduct of systematic research.

Kuwait now has another vocational and degree awarding institution in the public sector named Public Authority for Applied Education and Training (PAEET), having the student strength of more than 20,000. In the private sector, five universities are offering both undergraduate and graduate education with varying enrollments. The higher education institutions in other five Gulf Cooperation Council (GCC) members of Saudi Arabia, United

Arab Emirates, Qatar, Oman and Bahrain have similar conditions, quite identifiable with the Kuwaiti environment. Their linguistic, geographic, socio-economic, religious, cultural and ecological resemblance makes them one natural entity. Their undergraduate students may have similar academic backgrounds, learning attitudes, and information behaviors. Findings of this study are expected to provide useful and pertinent insights and guidelines for the educators of these institutions. They may have indigenous issues that they need to address, keeping in view their own situational peculiarities for designing or offering an information literacy course for their undergraduate students.

This study was not experimental in nature and it was not possible to control the effect of extraneous or intervening variables when we were studying whether the course made any significant difference in developing academic, information and inquiry capabilities among undergraduate students. However, we made an effort to have a general understanding if any of personal and social variables made significant difference as independent influencers. It is useful to note that students majoring psychology performed better for research component. We understand that there is a distinct emphasis on the study of scientific research in this department and it should be no surprise that these students performed better for research skills than others. However, sociology students had better computing skills than others. Geography students are exposed to geographic information systems and other technological tools. One possible explanation is that these students might have not taken these courses at the time of this study.

An informative finding was that those students who had attended private schools for their secondary education performed significantly better in their information and inquiry skills than the graduates of public schools. It is commonly understood in this region that the private secondary schools provide better and quality education. They are expected to use project-based instruction, promoting the values of critical thinking, independent learning, problem solving, creativity and presentation. This may be manifest in the findings of this study.

An interesting finding of the study was that fathers' academic qualifications showed no significance for students' information literacy capabilities. However, it was the contrary in the case of academic qualifications of mothers. What does it mean in the Kuwaiti cultural context? Does it imply that fathers matter little whether they are highly educated or less educated? However, highly educated mothers positively influence the performance of undergraduate students. One explanation could be that fathers largely remain unengaged in the education of their children whereas highly educated mothers may be more engaged in the education of their children. Since this is not an experimental study and we are unable to control the effect of external variables, we are unable to make a definite proposition in this regard. But the isolated influence of the education of parents, as examined in this study, is interestingly intriguing. Additional focused studies should address this phenomenon.

It is highly desirable that an experimental study examines the effect of different variables in a controlled and systematic manner. That may explain the relative contribution of different variables in developing information literacy capabilities among undergraduate students.

## ACKNOWLEDGEMENT

**REFERENCES**

American Association of School Librarians & Association for Educational Communications and Technology. 1998. *Information power: building partnerships for learning*. Chicago: American library Association.

Arp, L. and Woodard, B.S. (Eds). 2003. Information literacy and instruction: information literacy in school libraries. *Reference & User Services Quarterly*, Vol. 42, no. 3: 215-223.

Boekhorst, A.K. 2003. Becoming information literate in The Netherland. *Library Review*, Vol. 52, no. 7: 298-309.

Brown, G. 1999. Information literacy curriculum and assessment: implications for schools from New Zealand. In Henri, J. and Bonano, K. (eds). *The Information literate school community: best practice.* Centre for Information Studies, Wagga Wagga, 57-77.

Bucher, K.T. 2000. The importance of information literacy skills in the middle school curriculum. *The Clearing House*, Vol. 73, no. 4: 217-220.

Bundy, A. (ed.) 2004. *Australian and New Zealand information literacy framework: principles, standards, and practice.* 2nd ed. Adelaide: Australian and New Zealand Institute for Information Literacy.

Cunningham, T.H. and Lanning, S. 2002. New frontier trail guides: faculty-librarian collaboration on information literacy. *Reference Services Review*, Vol. 30, no.4: 343-348.

Eyre, G. 2003. Back to basics: the role of reading in preparing young people for the information society. *Reference Service Review*, Vol. 31, no. 3: 219-226.

Intan, A.M. and Shaheen, M. 2006. Teaching information literacy for in-depth-knowledge and sustained learning. *Education for Information*, Vol. 24, no. 1: 31-49.

Loertscher, D.V., and Woolls, B. 1998. Current research. *Knowledge Quest*, Vol. 26, no. 2: 48-49.

Pennel, V. 1999. Advocating information literacy. In Henri, J. and Bonano, K. (eds). *The Information Literate School Community: Best Practice.* Wagga Wagga: Centre for Information Studies, 189-204.

Rabin, J. and Cardwell, C. 2000. Start making sense: practical approaches to outcomes assessment for libraries. *Research Strategies*, Vol. 17, no. 4: 319-35.

Rehman, S. and Al-Faresi, S. 2009. Information literacy skills among female students in Kuwaiti high schools. *Library Review,* Vol. 58, no.8: 607-616.

Rehman, S. and Mohammad, G. 2001. Relationship of library skills with selected personal and academic variables: a study of the undergraduate students of Kuwait University. *International Information and Library Review*, Vol. 34, no. 1: 1-20.

Royce, J. 1999. Reading as a basis for using information technology efficiently. In Henri, J. and Bonano, K. (eds). *The Information Literate School Community: Best Practice*. Wagga Wagga, Centre for Information Studies, 145-56.

Todd, R.J. 1995. Integrated information skills instruction: Does it make a difference? *School Library Media Quarterly,* Vol. 23, no. 3: 177-84.