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The development of the information literacy skills curriculum in the Sultanate of Oman

Dr. **May Moore**
LRC Consultant
Ministry of Education
Sultanate of Oman
Mayfay2001@yahoo.com

Abstract

New to the Sultanate of Oman and a part of its reform of education are Learning Resource Centers in its Basic Education schools, Cycle 1 and 2, with the mission to provide an educationally sound information literacy curriculum for developing the students of Oman into life-long learners, ones who would be able to use learning throughout their lives as a way to solve problems, act ethically, plan for the future, and prepare for change. Developed to provide lessons and activities to promote information literacy, a concept new to Oman, was the LRC Information Skills and Activities which is a progressive, continuous, and comprehensive curriculum. Stressed in this curriculum are the meta-cognitive skills of assessing and analyzing, organizing, communicating, and applying, all skills relevant to other curricula and thus emphasizing the holistic nature of the learning process so that most information literacy skills are not taught in isolation but rather integrated within other curricula. The purpose of this paper will be to discuss and illustrate the development of this information literacy curriculum framework and its learning outcomes and, as well, provide for each meta-skill samples of the activities and assessments designed to support them.

Introduction

“The provision of libraries in all Basic Education and Secondary level schools in the Sultanate of Oman is one of the key components of education reform. School libraries are recognized as essential school facilities.” (ECS, 1995, A10-1)

Thus begins the introduction of Library Resource Centers (LRCs) into the education planning of the Sultanate of Oman. Previous to this time, LRCs were not a part of the educational system in Oman. In fact, previous to 1970 there were no formal school buildings as education was conducted by leaders of mosques under trees. In 1970, there were only 3 schools in Oman with a total of 909 male students and about 30 teachers. With the advent of His Majesty Sultan Qaboos bin Said becoming the Sultan of Oman in 1970, education was decreed one of the most important priorities of his government. As a consequence of these governmental decisions, a foundation for the Ministry of Education's educational policies and plans was developed in a series of successive five-year development plans, each characterized by efficient and effective planning and implementation. The fifth Five-Year Plan which ran from 1996-2000 incorporated recommendations made by ECS as the one above about school libraries. During this time, a total of 107 new schools were built (Min, 2000, Oman). In the sixth Five-Year Plan, 2001-2006, so far about 350 new schools have been built. (Min, 2002, Pro) Replacing the former teacher-centered approach, this child-centered educational reform called Basic Education is broken down in First Cycle, Grades 1-4, and Second Cycle Grades 5-10. At present in 2004, Grade 8 in Basic Education will begin in September. Grades 11 and 12 comprise Secondary Education and reform of these grades is being studied.

So, as of thirty years ago there were no libraries in Oman although there might have been a few copies of the Koran in the mosques, but these copies would not have been accessible to the public. Today, along with the LRCs in the Basic Education schools and some secondary schools (grades 10-12), all the major educational institutions have libraries. As well, there are a few public libraries which are non-lending.

Developing an Information Literacy Skills Framework

As librarians and, as well, educators, we certainly know that students and others anywhere will need to engage in "continual learning (as it) will become a way of life for all those who wish to succeed." (Cetron, D/J 2004, EL) Futurists predict that by 2009, almost half of the work force in a country will be employed in information-based occupations—gathering, processing, retrieving and analyzing information. To Alvin Toffler, one of the leading futurists, the illiterate of the 21st century will not be those who cannot read or write but those who cannot learn, unlearn, and relearn. (Future, 1970) As well, the United States Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS) said that Information Literacy is one of five essential competencies for solid job performance. (SCANS, 1991, p. xviii)

Since as librarians we help promote continuous learning and because previous to my arrival in 2000 there was no library curriculum to develop information literacy skills, the development of such a program was essential to the Basic Education schools in Oman. The aim of introducing an information literacy skill curriculum was to provide students with lessons and activities which encouraged students to think rationally and creatively, to solve problems, to manage and retrieve information, to communicate effectively and to work independently or as a member of a group--all skills to help prepare Omani students for living and working in an information-based, ever changing world. So, in consultation with other Ministry personnel in the Educational Technology department, the decision to develop and implement a Basic Education information literacy skills curriculum was given the go ahead.

Consequently, the next step was to create a framework to present a context and process for creating the LRC curriculum. This framework, which would extend from Grades 1-10 and then 11-12, ensured that students in Basic Education would engage in challenging and purposeful learning that would blend their experiences with content knowledge and real-world applications. The scope and sequence of this framework was determined after reading and evaluating those of K-12 information studies from Colorado (1994), New Jersey (1996), North Carolina (1999), Ontario (1999), Rhode Island (1999), Utah (1996), and Virginia (1985). Four meta-cognitive skills, *assessing and analyzing*, *organizing*, *communicating*, and *applying*, were chosen and benchmarks created emphasizing student learning as well as reinforcing the holistic nature of the learning process by complementing the objectives of other curricula. As such, when classroom teachers require students, working independently or with others, to be able to synthesize information and construct meanings to solve problems, make decisions, and communicate ideas and information in a variety of formats to meet academic and personal needs, no matter the grade level, they are strengthening students' information literacy skills by helping them make the connection between their classroom learning and resources whether accessed in the classroom, LRC or community.

Further, these benchmarks embrace the following curriculum concepts:

1. learning to learn, learning to do and learning to work together (Rassekh,2001,Man,15)
2. the universality of education(Rassekh, 2001,Man,15)
3. equal opportunities for students in all regions of Oman
4. quality standards for all lessons
5. the relevance of education especially as it can apply to and utilize the culture of Oman
6. the importance of the continuity of learning, for now and in the future
7. a variety of learning and teaching methods such as Gardner's multiple intelligences, constructivism, co-operative grouping and collaborative planning
8. meaningful and challenging activities, ideas, and problems that students would find both interesting and intellectually demanding
9. the importance of students developing into socially responsible citizens who contribute to their communities
10. a partnership in a participative, interactive and collaborative way with other curricula teachers and Ministry curricula writers, school administrators, inspectors and other members of society such as parents to develop integrated lessons to fulfill the needs of students and different school contexts while meeting the changes occurring in the education system in the Sultanate of Oman
11. the cultural requirements, traditional values, and ways of conduct necessary for Omani students
12. resource-based learning.

Thus, if students in Basic Education, Cycle 1, Grades 1-4, are engaged actively in learning the sequential, continuous information literacy skills through the LRC teacher and other curricula teachers, those students by the end of Grade 4, should be successful in (Moore, 2001-2002, LRC):

1. defining an information problem
2. identifying information requirements
3. planning and choosing information sources

4. selecting different information sources and prioritizing them
5. finding information sources both physically and intellectually
6. finding, selecting, and focusing on information within sources
7. organizing information from multiple sources
8. presenting and communicating information
9. evaluating what they have done and applying their new knowledge
10. working as team players.

As well, students in Basic Education, Cycle 2, Grades 5-10, who review, expand upon, and learn new information literacy skills, should be successful in (Moore, 2002-2004, LRC):

1. defining and identifying information that is needed
2. identifying, locating, selecting, and evaluating resources
3. accessing and evaluating information within the resources
4. organizing, synthesizing and presenting information
5. evaluating the process of research and developing, if necessary, their best way of doing research
6. evaluating their products and that of others
7. reflecting on their learning and applying new knowledge when applicable
8. working as team players

Samples from the information skills curriculum learning outcomes for both Grades 3 and 7 can be found in Appendix A. It is hoped that one can see the progressive development of information literacy skills from comparing learning outcomes expected of a student in Grade 3 to those of a student in Grade 7. Samples from the assessment records of both Grades 3 and 7 are also included in Appendix A.

LRC Activities/Lessons

The benchmark or competency goals of each meta-cognitive skill provide the basis for each lesson or activity designed. These are compiled into LRC Information Skills and Activities books or CD-ROMs for each grade and include the following sections (Moore, 2001-2004, LRC):

1. Basic Information Literacy Skills
2. Other Information Literacy Skills
3. Assessment
4. Notes to the LRC Teacher-Librarian
5. Program Planning/Lesson Plan Unit
6. Worksheets

To illustrate here is a listing of some of the content of the Grade 3 curriculum of skills (Moore, 2002, LRC):

- Basic LRC Information Literacy Skills includes activities on Brainstorming, Dewey Decimal System: color codes, Fiction and nonfiction books, LRC equipment, Parts of a book, Index, Note-taking, and Question and the Quest.
- Other Information Literacy Skills includes activities for Reading Skills, Writing Skills, Verbal Skills Graphic Skills, and Thinking Skills.

- Assessment rubrics provide the teacher-librarian the means for evaluating how well a student might be doing in each of the four main meta-skills, projects, and group work. As well, student self-assessment worksheets are included.
- Notes to the LRC Teacher-librarian gives suggestions for the use of the activities/lessons or job-related information that teacher-librarians need to know such as book and story displays, classroom publishing, and discussion about organizing the LRC.
- Program Planning/Lesson Plan Unit lists lessons were prepared to be integrated with specific subjects. These include for example, for Arabic language, a lesson about using the alphabet; for Life Skills, a research unit on eyes and another on food; for Mathematics, an exercise on the Royal Omani Orchestra; for Science, exercises on animal characteristics; and for Social Studies, lessons on map reading.
- Worksheets are listed alphabetically for easy access by the teacher-librarian. Each worksheet is designated by subject (i.e. life skills, information literacy or life skills *and* information literacy) and includes an aim. If the activity is not self-explanatory, directions for how to use the activity are included in the separate section, Notes for the LRC Teacher-librarian. These activities are considered fluid and thus can be either used as is or as suggestions for lessons. But, it is hoped that the teacher-librarian will go beyond the scope of these activities/lessons and design ones suitable for their students and ones that reflect their region of Oman. As well, some of the worksheets can be used to challenge students who are working beyond others or can be used as review for those students or classes that need review work.

To further illustrate and to show the sequential and continuity development of the LRC curriculum of literacy skills here is a listing of some of the content of the Grade 7 curriculum of skills, many which have been built upon since Grade 1 (Moore, 2003, LRC):

- Basic LRC Information Literacy Skills includes activities on Bibliography Format, Dewey Decimal System, Main Idea, Keywords, Graphic Organizers, Fact and Opinion, Note-taking, Outlining, Primary and Secondary Sources, and Developing Research.
- Other Information Literacy Skills includes activities for Computers, Listening Skills, Organizational Skills, Reading Skills, Thinking Skills, Verbal Skills, and Writing Skills.
- Assessment rubrics provide the teacher-librarian the means for evaluating how well a student might be doing in each of the four main meta-skills, projects, and group work. As well, student self-assessment worksheets are included.
- Notes to the LRC Teacher-librarian gives suggestions for the use of the activities/lessons or job-related information that teacher-librarians need to know such as how to review resources, setting an atmosphere in the LRC, time management or suggested web sites for them to access.
- Program Planning/Lesson Plan Unit lists lessons that were prepared to be integrated with specific subjects. These include, for example, for Arabic language a lesson about biographies and autobiographies using as an example an Omani student who developed her own business web site; for computer studies, lessons on using the Internet as an information source; for English, reading lessons on scanning and skimming; for life skills,

a lesson on the Omani Association for the Disabled; for math, lessons on graphs; for science, a research unit on plants.

- Worksheets are listed for easy access by the teacher-librarian. Each worksheet is designated by subject (i.e. science, information literacy or science *and* information literacy) and includes an aim. If the activity is not self-explanatory, directions for how to use the activity are included in the separate section, Notes for the LRC Teacher-librarian. These activities are considered fluid and thus can be either used as is or as suggestions for lessons. But, it is hoped that the teacher-librarians will go beyond the scope of these activities/lessons and design ones suitable for their students and ones that reflect their region in Oman.

Role of LRC Staff

Of course, it is up to the LRC staff to teach the information literacy skills the students of Oman will need to be successful in their years to come. The Omani learners of today will handle vast amounts of information and have to deal with continual change and these will not be easy tasks for them as the implementation of formal education is only 34 years young and LRCs only 8 years young. Therefore, the LRC staff must be committed to helping students become the best they can be by helping them master the required information literacy skills. They can do this by (Moore, 2000, LRC--Framework):

- knowing and teaching the skills required for information literacy as presented in the Information Skills curriculum
- devising further formal and informal programs that encourage the transfer of information literacy skills and knowledge to real-life situations
- allowing students access to a wide range of materials for learning whether print, non-print, electronic or technological
- motivating students to be involved in their own learning by encouraging them to be creative, imaginative and curious
- teaching an information problem-solving process such as the “Question and the Quest” (see Appendix B) and then giving students the opportunity to devise their own research system that best fits their learning style
- using information technology
- developing student independence and self-confidence in resource activities
- helping students learn how to make decisions based on information provided
- developing safe, ethical, and responsible practices for acquiring, using and communicating information
- encouraging the enjoyment of reading and developing the ability to be critical readers
- developing the ability of students to be critical listeners
- developing the ability of students to be critical viewers
- providing students a means to assess their learning through self-assessment tools
- allowing flexibility so that students will be able to work alone or work cooperatively.

Role of LRC Staff and Subject Teachers

Therefore, the role of the LRC staff is certainly a vital one for overall student achievement. Yet, the role of the subject teacher cannot be overlooked. Research studies indicate that the development of student competence in information skills is most effective when integrated with

classroom instruction through cooperative program planning and team teaching by the LRC staff and the classroom teachers as two equal partners (Haycock, 1995:4). If we accept that knowledge is interrelated, thus, we can see that learning can be more efficient and more effective through this partnership. To help prove that the importance of integrating the instruction of library research skills with specific course requirements for any research, Benjamin Bloom as long ago as 1956 in Taxonomy of Educational Objectives stated that “our general understanding of learning theory would seem to indicate that knowledge which is organized and related is better learned and retained than knowledge which is specific and isolated.” (29) Further, Bloom stated that the process of “intellectual abilities and skills” (also labeled “critical thinking,” “reflective thinking,” and “problem solving”) showed evidence that students could do something with the knowledge that they had retained, specifically that they could apply it to new situations and problems. (29) So, by the LRC staff encouraging and working with subject teachers to integrate information literacy skills into specific curricular projects and activities (although certainly not every activity or topic in a subject area), together they can design lessons to include skills such as:

- brainstorming
- higher-order questioning and thinking
- using keywords and finding main ideas
- conducting interviews
- doing surveys
- creating graphic organizers
- understanding and using cartoons
- skimming and scanning for information
- using electronic equipment such as videos, audio cassettes, CD-ROMs, and DVDs
- evaluating information
- note-taking
- outlining
- comparing information in a print encyclopedia and on a CD-ROM encyclopedia
- using a scanner
- using Internet directories
- compiling a bibliography
- paraphrasing rather than plagiarizing
- knowing the difference between fact and opinion
- assessing their own knowledge and skills on topics such as working in a group, researching, writing and editing, or designing a final product.

Therefore, by integrating information literacy skills into topics studied in subject areas, these skills become a way to invigorate the learning of all subject areas and to provide learning and life skills that students can transfer to new situations. Thus, meaningful learning takes place within contexts in which students are familiar.

Role of Students in Achieving Information Literacy Skills

As well, it is important to look at what students must do to help achieve and develop their information literacy skills. Paramount, of course, is that they accept responsibility for their own learning, decisions, and actions and observe the rules of the school and cooperate in dealing with others. Students should be prepared with appropriate materials, have a positive attitude, and be

ready to learn. If possible, students should assist in defining what they want to achieve in learning and, as well, evaluating their progress—analyzing their strengths and working on their weaknesses. Further, they should try to use their new knowledge and apply it to their lives.

Evaluation of the LRC Information Literacy Curriculum

Ongoing evaluation of the LRC curriculum is essential. The LRC staff should reflect upon lessons taught by analyzing, summarizing, and assessing if the learning objectives were achieved. In other words, by formally and informally examining, and when necessary improving, the effectiveness of the LRC curriculum, the LRC staff will see what kind of impact it has on student learning thereby fulfilling the final goal of providing for all students a means of being successfully information literate.

Conclusion

Thus, with the advent of Basic Education in the Sultanate of Oman, came the creation of LRCs. To meet the changes and challenges in education, new curricula had to be created and teaching methods revised. One of these new programs created was the LRC information skills curriculum which was designed to provide a means for students to learn information literacy skills by giving them the means to acquire the ability to locate information quickly, to find what is useful and what is not, to locate information from a variety of sources, to process and record information, to share it and to be aware of their own learning processes and to apply what they have learned. Recognized too was the fact that when skills are taught in isolation students may find it difficult to understand the real value of them and how they can apply them to new situations. Thus, information literacy skills were integrated into as many different activities of subject areas as possible.

Internationally, it is now widely accepted that information literacy skills are necessary and play a vital role in helping to prepare students for the rapidly changing circumstances of the 21st century's globalized society. It is, therefore, hoped that through the Ministry of Education giving students the advantage of learning these skills, it is giving its students some of the tools they need to make the most of their opportunities in later life. In helping to create a population which is literate in information skills, the Ministry is also making a significant contribution to the future economic and social well-being of the country as a whole. Certainly the challenges of the next century will be met by obtaining economic value from knowledge and by ensuring that the workforce can contribute and perform. As Peter Drucker foresaw many years ago, "The most important thing (people) will have to learn is how to learn. The most important thing, in other words, is not specific skills, but a universal skill-- that of using knowledge and its systematic acquisition as the foundation for performance, skill and achievement." (Age, 1969) Thus, the skilled life-long learners in the Sultanate of Oman will add much to the dynamics of this ever evolving country.

Appendix A

Samples from the Grade 3 Information Skills Curriculum learning outcomes include (Moore, 2002, LRC) :

Assessing and Analyzing Skills

Students will:

- ask questions to clarify meaning and encourage responses
- observe LRC rules and respect materials
- distinguish between fact and fiction
- use a table of contents, index, and title page to locate information

Organizing Skills

Students will:

- sort pictures and facts into categories or main headings
- enter simple search words
- make notes using a fact sheet
- use titles for their project

Communicating Skills

Students will:

- complete simple response journals on reading or picture books
- create simple research reports
- participate in class discussion
- ask questions for clarification

Applying Skills

Students will:

- begin to think about problems and solutions in stories
- browse LRC collection to locate information and for pleasure
- identify connections from reading and researching to everyday life
- begin to develop their own opinions by considering ideas from various materials

Samples from the Grade 3 Assessment Record

The following are samples from the Grade 3 Assessment Record which is kept by the LRC teacher in each student's portfolio. Authentic assessment is the foundation for this assessment tool. Students are assessed with A=Excellent B=Good C=Needs More Time. Conferencing by the LRC teacher with the students is paramount to the value of assessment (Moore, 2002, LRC).

Projects

Students can:

1. Follow directions.
2. Organize the project.
3. Learning something from doing the project.
4. Evaluate his/her own work.

Group Work

Students can:

1. Plan with group members.
2. Contribute to the group.

3. Be responsible for his/her task.
4. Listen to others.

Assessing and Analyzing Skills

Students can:

1. Follow LRC rules of behavior.
2. 2. Ask questions to clarify meaning.
3. Distinguish between what is fact and what is fiction.
4. Use a table of contents.

Organizing Skills

Students can:

1. Create titles for a project.
2. Use simple search keywords.
3. Sort pictures into categories/main headings.
4. Sort facts into main headings.

Communicating Skills

Students can:

1. Ask questions for clarification.
2. Participate in class discussions
3. Create a simple research report.
4. Complete a simple response journal.

Applying Skills

Students can:

1. Recall successful ways of doing a task.
2. Come to conclusions about characters in stories.
3. Got to the correct area in LRC to find a book on a certain subject.
4. Identify what happens in stories to his/her life.

Samples from Grade 7 Information Literacy Skill learning outcomes include Moore, 2003, LRC) :

Assessing and Analyzing Skills

Students will:

1. Understand plagiarism and copyright.
2. Examine the usefulness of print and online resources.
3. Begin to use criteria to evaluate information.
4. Apply an understanding of the difference between primary and secondary sources.

Organizing Skills

Students will:

1. Use searching skills for automated catalogues and on-line searches including:
 - Alphabetizing skills
 - Searching with keywords
 - Narrowing or broadening keywords
 - Boolean searching
2. Develop a note-taking system that works best for them
3. Use electronic spreadsheets to organize numerical information

4. Learn how to break down large projects or activities into smaller more manageable parts.

Communicating Skills

Students will:

1. Listen to, acknowledge, and consider differing points of view.
2. Develop questioning skills so that he/she will know how to ask questions for any information needs.
3. Brainstorm.
4. Design, develop, and evaluate final products and solutions.

Applying Skills

Students will:

1. Analyze information gathered to draw conclusions or solutions to problems and apply these to next research project.
2. Use logic to analyze cause and effect in everyday life.
3. Explore a new multiple intelligence you want to try.
4. Keep a journal of reading, viewing, and listening experiences and share these experiences with others.

Samples from Grade 7 Assessment Record

The following are samples from the Grade 7 Assessment Record which is kept by the LRC teacher in each student's portfolio. Authentic assessment is the foundation for this assessment tool. Students are assessed with A= Excellent B=Very Good C=Good D=Acceptable E=Needs More Time. Conferencing by the LRC teacher with students is paramount to the value of this assessment (Moore, 2003,LRC).

Projects

Students can:

1. Define a question to be answered.
2. Focus in on the topic.
3. Synthesize/combine/draw conclusions from information.
4. Edit the final product.

Group Work

Students can:

1. Identify the strengths of others.
2. Share ideas and information.
3. Plan with group members.
4. Encourage others.

Assessing and Analyzing Skills

Students can:

1. Understand plagiarism.
2. Use criteria to evaluate print and online resources.
3. Know the difference between primary and secondary sources.
4. Use criteria for selecting resources for information needs.

Organizing Skills

Students can:

1. Take notes will listening.
2. Break down large projects into smaller parts.

3. Use search skills for on-line searching using a variety of search strategies.
4. Use electronic spreadsheets.

Communicating Skills

Students can:

1. Brainstorm.
2. Work in a group or with a partner effectively.
3. Understand evaluations by other students.
4. Decide if his work is suitable to hand in.

Applying Skills

Students can:

1. Draw conclusions from information.
2. Understand cause and effect.
3. Name a new multiple intelligence to try to develop.
4. Know what he/she would like to learn more about.

Appendix B

Introduction to Teacher-librarians on Question and the Quest (Moore, 2001, LRC)

Assessing information intellectually requires that students develop and apply information literacy skills. For students to do research, they need to follow some kind of sequence. The Question and the Quest gives them this sequencing.

As we want students to learn more than isolated facts about animals, plants, famous people or whatever else they are to research so we must help students make connections and find personal meaning in their research topic.

Researching is a collaborative process that requires cooperative planning, guidance and conferencing between the subject teacher, the LRC Staff, and the student. It is advisable for very young students to work together to support each other during the research process. In fact, Basic Education promotes group and partner work and so many of the exercises in the CD-ROM encourages this interrelationship among students.

Although the skills required to access information intellectually are clearly defined, the process in the Q&Q is not linear. There is a great deal of overlapping of steps. For instance, when students are selecting materials that are appropriate for their research needs, they are actually practicing analysis. Evaluation is ongoing throughout the process.

You, the LRC staff, must coach your students through each step of this Quest. Students need to be guided to achieve competency in each level. The teaching of these steps begins in Grade 1, and each succeeding school year should see students adding a new dimension to the steps. Thus, the projects or research students do in each grade will build on the skills they have learned previously. Processing information is relevant for all ages.

Not only do these steps pertain to a student doing research but they also pertain to ways we lead our lives and solve the every day problems we face. We might not name the steps, but we go through them. Thus, it would be beneficial for you as the LRC Staff to reinforce these steps with examples from the everyday life situations of the students.

The worksheets for the Q&Q are guidelines for what each step explains in the process. Take the time to learn each step so you can easily discuss the process with your students. Use the poster as part of your teaching plan. (A Q&Q poster of the steps was designed and sent to each LRC.)

Finally, remember the research process naturally encompasses and integrates:

- Time management
- Cooperative learning

- Critical thinking
- Subject content
- Traditional literacy
- Numerical literacy
- Information technology
- Information literacy

Steps included for Grade 1-4 are:

1. Question
2. Choose
3. Plan
4. Find
5. Select and Focus
6. Understand the best information
7. Organize
8. Edit
9. Communicate

Steps include for Grade 5-12 are:

1. Question
2. Choose
3. Plan
4. Find
5. Select
6. Focus
7. Understand
8. Evaluate
9. Synthesize
10. Organize
11. Edit
12. Communicate

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