INFORMATION LITERACY: LEARNING TO LEARN AND TEACHER TRAINING
BİLGİ OKURYAZARLIĞI: ÖĞRENMEYİ ÖĞRENME VE BECERİLERİ DEĞERLENDİRME

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ABSTRACT

In recent years, one of the important characteristics that an individual of the modern society should have is information literacy. Information literacy is an ability to manage information effectively. This skill includes reaching all kinds of information, distinguishing the information that is necessary, combining it with his/her own information and evaluating, using and re-organizing this information. These skills can be considered as the abilities to learn how to learn. These skills can be taught to students by teachers. However, for teachers to teach their students the abilities to find and use information, the teacher themselves should be proficient in this issue; in other words, they should be information-literate. For this reason, teachers should also be trained on the issue of information literacy. The aim of this study, considering the concepts of information literacy, learning to learn and teacher training all in a relation with each other, is to examine how information literacy can be handled in teacher training programs, depending on the related literature.

Key words: *Information literacy, learning to learn, teacher training.*

ÖZ

Son yıllarda, çağdaş toplumdaki bireylerin sahip olması gereken önemli özelliklerden birisi de bilgi okuryazarlığıdır. Bilgi okuryazarlığı, bilgiyi etkili biçimde yönetebilme becerisidir. Bu becerinin içerisinde, her türlü bilgiye ulaşma, bu bilgilerin içinden gerekli olanları ayırt etme, kendi bilgileri ile birleştirme, değerlendirme, kullanma ve yeniden düzenleme yer almaktadır. Bu beceriler, öğrenmeyi öğrenme becerileri olarak da görülebilir. Bu beceriler, öğrencilere öğretmenler tarafından kazandırılabilir. Ancak, öğretmenlerin bilgiyi bulma ve kullanma becerilerini öğrencilerine kazandırabilmeleri için kendilerinin de bu konuda yeterli olmaları, başka bir deyişle bilgi okuryazarı olmaları gereklidir. Bu nedenle öğretmenlerin de bilgi okuryazarlığı konusunda eğitilmeleri gereklidir. Bu çalışmanın amacı, alanyazına dayalı olarak, bilgi çağı ile birlikte üzerinde sıkça durulan bilgi okuryazarlığı, öğrenmeyi öğrenme ve öğretmen eğitimi kavramlarının bir ilişki ağı içerisinde ele alınıp, öğretmen eğitimi programlarında bilgi okuryazarlığının nasıl ele alınabileceğinin irdelenmesidir.

Anahtar Kelimeler: *Bilgi okuryazarlığı, öğrenmeyi öğrenme, öğretmen yetiştirme*

INTRODUCTION

The amount of information the human of this modern era is continuously increasing. Information becomes old-fashioned so rapidly that it may sometimes be difficult for individuals to reach the newer information. Therefore, being literate is not itself sufficient for people. Besides the significance of literacy, it is also quite important for individuals to learn how to find information. Alvin Toffler defines future illiterate people as "those who do not know how to reach information" not as "those are just illiterate" (Tonta, 2002). Learning does not end when the school finishes; rather, it is a life-long process. For this, students should be prepared for the whole world, and they should be taught how to learn (Barton, 2000). In other words, individuals

should be educated during their school years in a way that they will gain the ability to use information.

INFORMATION LITERACY AND LEARNING TO LEARN

While educating individuals, it is essential that they gain the necessary information, skill and attitudes which will enable them to easily follow the current developments and, accordingly, to do the necessary arrangements in their lives. These qualifications can be stated as follows (TÜSİAD, 1999):

- Being in harmony,
- Establishing communication,
- Reaching the proper information,
- Decision taking,
- Taking responsibility,
- Being creative,
- Being co-operative,
- Problem solving,
- Knowing complex systems and
- Developing oneself.

In order to determine the human profile in 2000s in USA, the skills and qualifications that individuals should have are reported under three headings in the study carried out by SCANS. These are (SCANS, 1991):

- Basic skills: Communication, reading, writing and speaking.
- Thinking skills: Problem solving, learning to learn, creating new ideas, determining the goals and choosing the best alternatives.
- Personal qualifications: Taking responsibility, self-confidence, socialisation, managing oneself, reliability and honesty.

Individuals who do not have these qualifications will have difficulty in doing the requirements of the information society. In short, in this process, it has become a necessity for individuals to own such skills as critical thinking, problem solving and decision taking. For all these to come true, it is necessary for individuals to learn how to learn and know how to reach related information as well as to benefit from this information (Güven, 2004; Özer, 1998). The key concept in learning to learn is "information literacy" (ALA, 1989).

Information literacy can be defined as having information about how learning is, how information will be organized and about how information will be used in different ways. Based on these, information literacy can also be defined as learning to learn (ALA, 1989). An information-literate individual is someone who has learnt how to learn as s/he knows how information is organized and used. S/he also has the ability of life-long learning since s/he can always find the information that s/he will need in doing a job, solving a problem s/he meets or taking a decision (ALA,1989).

Information literacy is the total of skills that individuals need for the awareness of the necessity for information, for the maintainance, evaluation and effective use of this information. In other words, information literacy covers upper-level thinking skills. Students who are information-literate have various sources for the use and evaluation of information (Barton, 2006). Furthermore, information literacy means the harmonious use of a number of skills (Bruce, 1999).

INFORMATION LITERACY STANDARDS AND STUDENT CHARACTERISTICS

A study titled Information Literacy Standards for Higher Education was published by ACRL in 2000. The basic skills that an information-literate student should have are considered as 5 standards.

1. An information-literate student determines the structure and dimension of the information s/he needs. If the performance indicators are below this standard, then s/he should clearly state and define the information s/he needs and determine various types and forms of information sources.
2. An information-literate student reaches the needed information actively and effectively, chooses most of the appropriate research methods or of the information-gathering systems, chooses well-designed research strategies and takes, files and manages the information.
3. An information-literate student critically evaluates the information and its sources and combines the information chosen with his/her own information. Moreover, this proficieny covers the application criteria for the evaluation of information, the synthesis of information for the comprehension of new concepts, comparison of the new information with the old, explanation of information and approval of comprehension through discussions with others.
4. An information-literate student uses information effectively for the purpose of achieving a goal. This includes such skills as putting the old and new information into practice,

creating a product and performance and establishing an effective communication between the product, or the performance, and others.

5. An information-literate student can understand the moral and legal aspects of the use of information and its relation with financial, social and legal issues about the use and approval of the information. Accordingly, the student can follow the legal regulations and decisions related to the use of information sources.

They also published Information-Literacy Standards of Council of Library, Australia University in 2001. According to this, Things that an information-literate person should do are as follows:

- Feeling the need for information.
- Determining the dimension of the information they need.
- Evaluating information and information sources.
- Combining the information chosen with theirs.
- Using information effectively in order to reach their goals.
- Understanding legal, social, financial and cultural issues related to the use of information.
- Regarding information as legal and ethical and uses it.
- Classifing, storing, using and reshaping the information gathered or revealed.
- Being aware of the fact that information-literacy is the basis for life-long learning.

In fact, the 5 basic standards mentioned previously are similar to these standards published by the Council of Library, Avustralia University. Therefore, these standards can be said to cover each other. The common point of these standards related to information-literacy is that they comprise the learning skills of individuals.

Depending all of these, an information-literate student can (Doyle, 1992):
- Decide intelligently on the exact and perfect information.
- Determine the information that s/he needs.
- Organize his/her need for information with questions.
- Determine the appropriate information sources,
- Develop successful research strategies,
- Accept information from computers and other technologies,
- Evaluate the information obtained,
- Organize the information for practical applications,

- Combine his/her present information with the new and
- Use information effectively for problem solving and critical thinking.

The skills that students have related to information-literacy constitute their proficiency in learning. In this process, the students can easily create and find the new information. The process of creating information consists of the following:

- Discovering
- Explaining
- Creating new ideas

A student searches, finds and recognizes the related information. S/he combines the information s/he has recognized with his/her own information, and depending on these, s/he makes an explanaition. Finally, s/he puts forward new ideas based on all the information s/he has used.

However, information-literacy is generally limited to certain basic subjects. For instance, it can be considered as reaching some sources, being dependent on the library or finding the information that is being searched for. Information-literacy covers all these things as a whole (Breveik, 1982). In addition to this, according to Shapiro ve Hughes cited in Radcliff (2005), it is streesed that information-literacy is closely related to other certain literacies. These literacies can be stated as follows:

- Tool-literacy: It is related to the ability to use electronic sources and outputs.
- Source-literacy: It is related to the ability to understand the ways of placing and accepting information sources.
- Literacy in social structure: It is knowing the social structure of information and how its production is (it also includes understanding the process of the preparation of school publications).
- Research literacy: It comprises the comprehension ability and the use of research and information technology tools that include softwares related to disciplines.
- Publication-literacy: It includes the ability to report the research findings as a text or in a multiple-environment.

INFORMATION LITERACY AND TEACHER TRAINING

In the light of all these explanations, it can be said that it is of great importance to have individuals gain the qualities related to information-literacy. Information-literacy training should

now be a part of the education of individuals. As the number of literate and well-educated individuals increases in the society, the opportunities of leading a happy and comfortable life will also increase.

The importance of the role of technology in teacher training programs has considerably increased with the existence of information-literacy, and the need for a change in learning and teaching has come forward. Technology leads to a more powerful information input. These changes can be stated as follows:

- Learning in a multiple-environment: The student learns not consecutively but interactively,
- Teaching based on structuring and discovering rather than direct teaching: The student structures the information on his/her own and maintains learning in the same way instead of the information provided by the teacher.
- Student-centered education rather than teacher-centered education: The focus in on the learner rather than on the teacher. The teacher helps new information be created and structured in class instead of transforming information to the student.
- Discovering information about the subject rather than selecting the truths: This requires high thinking skills such as analysis and synthesis.
- Life-based education rather than school-based education: Knowledge of learners is based on the regularly-revised life experience, and the school prepares students for future.
- Learning appropriate to the characteristics of students rather than single-type education: Students find their own ways of learning (learning style).
- Turning learning from torture into entertainment: It is encouraging students for learning and helping them to take responsibility for development in learning.
- A helping teacher rather than a teacher transforming information.

These changes are the main causes of the source-based approaches. Depending on this, as the society and the world change, the duties and responsibilities attributed to a teacher increase. The role of teachers has changed with the information era. Teachers are expected to carry out the requiremenets of the information era. As reported by ALA (1989), teachers should organize environments in which students can gain competence in learning on their own. A qualified teacher with the desired qualifications is the one who can reach any kind of information s/he wants at any time and can combine the information s/he has found with his/her own and use it

again (Sağlam, 1999). Teachers should encourage their students, have their students ask questions, enrich their learning environment, help their understanding of communication and have them the own the ability to organize their own learning. Paykoç (2004) state the qualifications that a teacher should have as follows:

- Appreciating human
- Being in a affective development
- Being an effective participant in the process of decision-taking
- Attaching importance to co-operation/solidarity in human relations
- Being a guide in reaching information
- Continuously examining his/her place and that of the school in the society
- Helping with the process and environment necessary for learning
- Supporing life-long development
- Being a guide in the development of human/school

Unless the teachers train their students on the issue of information-literacy, they will have difficulty understanding how information will be find and used (Adıgüzel, 2005;Carr, 1998). This makes it necessary for teachers to have the skills of information-literacy and to direct their students towards this issue. Here, teachers have a very important role. The way doing so is teacher training. It is quite significant to increase the quality of teacher training. Therefore, the standards related to information-literacy should be determined for teacher training. With the following points, Shinew and Walter (2003) explain why teaching information-literacy is necessary for teachers:

- Information era
- Critical thinking
- Life-long learning
- Instructional colloborator
- Reflective applications
- Instructional leadership

In fact, each of these items can be said to be related to the teacher qualifications mentioned above. Consequently, subjects about information-literacy should take place in both pre-service and in-service training programs of teachers. Moreover, Shinew and Walter (2003) mention three aspects of information-literacy for teachers. According to these aspects, a teacher is regarded as a student, a teacher and an instructional collaborator as follows:

1. Information-literate student

2. Information-literate teacher

3. Instructional colloborator

1. Information-literate student: Teaching information-literacy is to provide students with the abilities to determine, accept, evaluate and synthesize their future information needs. This consists of pre-service and in-service lessons for students and of activities that will help them to become effective in learning.

*2. Information-literate teacher: T*eaching information-literacy comprises the abilities of accepting information skills and real-teaching and accepting both of these together or co-operating with experts from the school library. These include direct teaching and evaluation of information-literacy and teaching and evaluation of information-literacy integrated with content-based teaching.

3. Instructional colloborator: Teaching information-literacy is to gather instructional sources such as school libraries with instructional collaborators such as librarians. In this gathering, teaching methods or program activities are discussed, or conclusions are drawn related to field experience in school libraries.

As can be seen, teaching information-literacy makes a teacher become a student, a teacher as well as an instructional collaborator. This is regarded as three essential parts of teaching information-literacy.

INFORMATION LITERACY EDUCATION

Essentially, the process of life-long learning has made it a must for every student to have information-literacy education. As explained previously, information-literacy is closely related to the process of learning to learn. The skill of learning to learn includes such skills as reaching information through various sources and evaluating and using the information, and the skill also makes it compulsory to use information and communication technologies (Akkoyunlu & Kurbanoğlu, 2001). Due to this, in many countries, especially in USA, information-literacy education has started to take place in education programs (Ala, 2000; Doyle, 1994). On the other hand, this is a new issue currently being mentioned in Turkey. It is required that individuals especially gain the skill of information-literacy so that they can successfully use the tools

necessary for the information they need throughout their personal and academic lives and during their career. In this way, they can gain the ability of life-long learning.

Information-literacy education is carried out in different ways and mostly in the period of higher education. Allen (2000) explains these practices as education integrated with lessons organized for first-grade university students, general education or main courses or with subject-based lessons. Kasowitz-Scheer (2002) regards information-literacy education in higher education as in-library education periods related to the lesson, projects related to the lesson, on-line education and as private lessons. According to Vander Meer, on-line teaching tools – web-based guide – can be used to give information to students about information-literacy (Vander Meer, 2000). According to Donaldson (2000), as another tendency, interactive information-literacy lessons can be given together with information-literacy concepts and information sources through web-based programs. In addition, special courses on information-literacy are organized in some institutions. These courses can be organized as courses with or without a credit, optinal or obligatoy courses and face-to-face or distant education. They include general information skills or courses or disciplines integrated with the main program. Course activities are carried out with intensive education or superficial research skills (Kasowitz Scheer, 2002; Frantz, 2002; Donelly, 1998). Besides these, related to teachers, Carr (1998) claims that pre-service and in-service teachers can gain information-literacy skills through education related and integrated with lessons and through individual workshops. O'Hanlon (1988) states for candidate teachers that information-literacy education can be organized with attempts that depend on collaboration and that include problem-solving activities. The basis of the model is grounded on Bloom's Taxonomy and real-life experience.

Consequently, students can acquire information-literacy skills through information-literacy courses, courses integrated with various other coursesof content, private courses and through on-line education. Depending on these teaching methods related to information-literacy education, the basic ones can be stated with the following headings (Polat, 2005; Fullerton & Leckie, 2002; Spitzer, Eisenberg & Lowe, 1998):

1. Independent Courses: These courses are related to information-literacy and can be organized through education with or without credit, optional/obligatory or distant or face-to-face (Kasowitz, Scheer, 2002). The responsibility of the program is on the librarians, and the evaluation of subjects necessary to be found in the program and of the program itself is also carried out by the librarians (Ocotillo Report'94, 1994).

Because independent courses can be optional, some of the students might not choose these courses. As this means that not all of the students will benefit from these courses, it can be regarded as a negative situation (Polat, 2005).

2. Education Integrated with Courses: Students can acquire information-literacy skills in a private course of any discipline or in a general course for all disciplines (scientific research methods, etc.). It is executed by librarians or by those expert on the subject (Polat, 2005).

Information is provided in the program about how a study will be carried out in any discipline and how the elements found will be used effectively. Moreover, students learn how they can benefit from information sources in their future lives.

In order to increase the effectiveness of this program, it is a must that the academicians and the librarians collaborate with each other. Furthermore, attempts should be taken so that studies of better quality on information-literacy can be carried out.

In addition, information-literacy education can also be provided by experts in the field. These experts determine what is important among the subjects, how the content will be determined and how the flow of the course will be. The organization of information-literacy activities is a difficult process. Therefore, it is necessary to be proficient for an effective preparation.

As information constantly increases, how this increasing information will be given to students especially in some disciplines is a problem that we meet. Especially, we may not find enough materials and time to transmit this information to students. In this respect, it is necessary to prepare students for this process. In other words, this process requires more efforts.

3. Education Integrated with the Education Program: This is one of the most effective ways of teaching information-literacy. Here, the education program of a certain discipline is combined with information-literacy skills as a whole. There is a continuous collaboration between the library and the faculty, and information-literacy is a constant part of the program. Successful practices of this program can be seen especially in health sciences. Education integrated with the education program is effective in providing students with the skills of critical thinking and research.

In this education, information-literacy skills that students gain are at a higher level than the previous year. While the education program is prepared, academicians and librarians should make this program have better quality through a constant collaboration (Polat, 2005; Fullerton & Leckie, 1999).

4. Web-based On-line education: In recent years, web-based on-line education has started to have a very important and effective place in the education system, and information-literacy education aiming at the effectiveness of the student has been started to be given on the web. Information-literacy skills were previously applied to distant-education students. Later on, such activities became more and more widespread and were organized for all university students.

While web-based information-literacy education is given, according to Dewald, Scholz-Crane, Booth and Levine (2000), student motivation, the organization of information-literacy modules and their interation levels should be taken into consideration. Weston, C., Gandell, T., McAlpine, L. & Finkelstein (1999) mention that such issues should be paid great attention to as the educational approach to be used, ordering of the subjects, how the presentation will be done, the student's computer-literacy besides the language elements, the student's opportunities of access, the sub-structure of the hardware and the software prepared, mutual interaction and as the validity and currency of the content.

Web-based on-line information-literacy education can be given more effectively according to the learning characteristics of individuals. Web-based education is one of the best educational ideas as it is independent of time and place. The reason is that in this process, the student puts forward his/her own materials and subjects to be learnt. Moreover, the student can directly reach the sources on the web. Web-based education also enables the new learning methods to be used in the process. 24-hour education is possible, and the users can reach the sources most suitable for the subject (Dewald, Scholz-Crane, Booth & Levine 2000).

In addition, there are similar applications related to information-literacy education for teachers and candidate teachers. Therefore, the headings explained above can also be applied for teachers and candidate teachers during the pre-service and in-service periods.

Especially, there are some changes in today's teacher training programs. In general, teacher training, library education and technology education are carried out separately in universities. However, this situation is not enough for students who are in need of information-literacy. Riedling (2002) stresses those individuals should have success, skills and performance related to the systematic use of information. The author suggests about the issue that the instructors in the teacher training program and people working in the library come together and make attempts beneficial for the candidate teachers and their students. Information-literacy skills include research, determination of the need for information, research for information, evaluation of the information, ethical use of information and effective use of information in future. Information-literacy is a life-long learning process, and candidate teachers should acquire these skills. The

process of acquisition of these skills can be maintained through collaborative information-literacy programs, general information-literacy programs and through information-literacy education.

Sample studies are carried out on information-literacy education of teachers all around the world. One of these sample applications related to information-literacy education is a program carried out by the faculty members and the people working in the library at Niagara University. This program was called The Information Literacy Instruction Modules (ILIM). This collaboration constituted an effective model for candidate teachers in information-literacy education. In this application, it was not only emphasized that information-literacy skills should not be considered just as a short-term tool that can be used in the education of candidate teachers, but also stated that information-literacy skills should be regarded as a goal for candidate teachers in all studies. This model applied in Niagara University was a great success. The headings and content of the modules in this program, which is an effective sample are as follows (Crouse & Kasbohm, 2004):

ILIM 1 : Introduction to Research Diciplines
- Students should be told to take research help in several ways and be informed about connecting with the librarians for special subjects in the program.
- Information about the information organization accepted in various ways in different disciplines should be given to students.
- The differences between popular sources and the school sources should be told to students.
- Students should gain the ability to understand the meaning of a citation.
- The ability to basicly search the journal literature and to extend the information in the field should be explained to students.
- Students should acquire the ability to set the key words that will be used to search in a database and the ability to determine the terms.
- The limits of an academic research class and educational news and opportunities should be told to the students.
- Students should be explained how they will reach sources existing or non-existing in the library, how they will determine the periodicals present in the library and how they will obtain the whole texts.
- Students should be made aware of other library services (such as electronic sources).

ILIM 2: Introduction of ERIC Date System
- Students should be explained what ERIC is, why it is important and how it covers information more comprehensive than general data in educational fields.
- Students should be explained what review of literature is.
- Students should be explained the differences between ERIC documents and articles in journals.

- Students should gain the ability to use such more complex data-related tools as index of concepts, class-level brackets and document-type brackets.
- Students should be made aware of such other databases supporting educational research as PsycINFO.

ILIM 3: Introduction of On-line Book Catalogue.
- Students should be explained books of different types that are likely to be found in the library. Collections of books in the library should be told to students.
- Students should be able to set up research strategies appropriate to a book catalogue and develop strategies for finding a book different from research strategies for finding an article.
- Students should be aware of other databases for books.

ILIM 4: Introduction of the Theses found
- Students should be explained what a thesis is and how they can reach the thesis abstracts.
- Students should be explained how they will reach the theses found in national libraries.

ILIM 5: Appropriate And Ethical Use of Information
- Students should be explained how information is used appropriate and ethical ways.

ILIM 6: Introduction of World Web DataBases for Educational Research
- Students should be explained the differences between the databases of books and use of journals and the nature of world web databases that constitute the source of educational research.
- Students should be made aware of program standarts and educational statistics given in Web sites.
- Students should be explained how they will use the information they have found.
- Students should be able to evaluate Web sites.
- Students should be able to determine the tools that they will use on the Web and to choose and classify the data.

CONCLUSION

In recent years, modern human model is a frequently-mentioned issue who has effective communication skills, who has the ability to learn on his/her own, who has such social skills as taking responsibility, who can make a team-work, who has the abilities of problem-solving and critical-thinking, who can reach and use information and produce new information and who has the proficiency of life-long learning. As required by this era, individuals are supposed to have these qualifications (Sağlam & Kürüm, 2005). In this way, they will be able to easily keep up with the information era and information society.

Information-literacy has become one of the important literacies necessary for individuals with the information era. Information-literacy can be defined as the ability to reach and use

information (AASL, 1998). Individuals can easily gain the qualifications determined for a modern human model through with the help of information-literacy. In other words, individuals that have information-literacy skills can easily carry out the things expected from a modern human model.

Information-literacy and the ability of learning to learn are complementary concepts. The reason is that learning to learn is a concept related to an individual's reaching, using and evaluating various sources by taking the responsibility of learning. Therefore, the basic skills of learning to learn and information-literacy can not be regarded separately.

Information-literacy is a skill that individuals should gain. Individuals should take this education so as to meet the expectations of the contemporary society. Information-literacy education can only be given to individuals at schools. Teachers can do this at schools. The traditional roles of teachers have changed. Now, they are in a position in which they "direct information" rather than in a position in which they "transmit information." In order for teachers to have their students gain the information-literacy skills, the teachers should be trained on these skills. This should be reflected on both pre-service and in-service trainings of teachers. Students, candidate teachers and teachers can gain information-literacy skills through independent information-literacy courses, education related with courses, education integrated with the education program and through web-based on-line education. However, for the success of these educations, it is quite significant for academicians and librarians to collaborate with each other.

For the acquisition of information-literacy skills, individuals should be made to do as many practices as possible. The reason is that information-literacy is life-long learning process. Only through theoretical information is it difficult to carry out this. The more the practices and experiences increase, the easier it will be for individuals to reach, choose and use information and to produce new information.

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