

Innovations and Challenges in Early Childhood Education for Sustainable Development



Editor
Prof. Abdülkadir KABADAYI

Innovations and Challenges in Early Childhood Education for Sustainable Development

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INNOVATIONS AND CHALLENGES
IN
EARLY CHILDHOOD EDUCATION
FOR
SUSTAINABLE DEVELOPMENT

Editor

Prof. Abdülkadir KABADAYI



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FOREWORD

The theme of this year's book is *Innovations and Challenges in Early Childhood Education for Sustainable Development* with many types of research now taking on global dimensions; it is imperative to discuss innovations and challenges in early childhood education for sustainability including the best research integrity practices. I believe that this book could catalyze strengthening international cooperation on the transfer of innovative approaches towards early childhood education for sustainability.

The challenges and innovations in early childhood education are both difficult and interesting. Academicians are working on them with enthusiasm, tenacity, and dedication to develop new methods of analysis and provide new solutions to keep up with the ever-changing world. In this new age of global interconnectivity and interdependence, it is necessary to provide security practitioners, both professionals, and students, with state-of-the-art knowledge on the frontiers in early childhood education. This book is a good step in that direction.

This volume contains 9 of the chapters that were presented to editorial boards. In keeping with the formatting of the book, the papers are published in English. This year's book received a considerable number of submissions investigating a wide variety of fields in early childhood education topics.

This book provides a valuable window on early childhood education and covers the necessary components of early childhood education related to recent developments in this field. *Innovations and Challenges in Early Childhood Education for Sustainable Development* address

especially educators, researchers, academics, postgraduate, parents, students, pre-service teachers, teachers, and school leaders' development. It makes recommendations to educators, parents, researchers, academics, postgraduate students, pre-service teachers, teachers, school leaders, and policymakers, and so on.

The editor would like to thank all of the authors who made this book so interesting and enjoyable. Special thanks should also be extended to the reviewers who gave their time to evaluate and to give feedback to authors of the record number of submissions with tenacity and dedication. Especially to the LVRE DE LYON Publishing House, we owe a great debt as this book would not have been possible without their consent efforts.

At this juncture, I would like to thank the authors for all of their cooperation. We hope that all of those reading enjoy these chapters of the book as much as possible.

Editor

Prof. Dr. Abdülkadir KABADAYI

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Chapter VI

INFORMATION LITERACY STANDARDS IN EARLY CHILDHOOD

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Introduction

It is known that since the beginning of humanity the accumulated knowledge is transferred to the next generations first through verbals and gestures and then through symbols that were created on different materials with the discovery of writing. For many years, very few people have benefited from all kinds of knowledge that have been revealed in different ways in different places through experiences since the first ages. Therefore, the spread of knowledge to people has been little and slow. Recording the findings and information obtained through experimental studies after the discovery of the manuscript has cumulatively expanded the field of knowledge. The recent spread of formal education has contributed to the delivery of information to more people in a more systematic and written form.

At the beginning of human life, the individual is born without any experience, and their movements are only based on reflexes. The individual, who makes sense of stimuli such as objects, developing

events, situations and phenomena over time, organizes the information by recording them in memory and using them. According to Yılmaz (2009), one of the most important characteristics of human beings is the urge to reveal, acquire and use in order to adapt to the environment, satisfy their curiosity and meet various needs that make their life easier.

Modern learning and knowledge acquisition approaches have gradually differentiated and now learning, which is based on lifelong learning, has been replaced by the understanding of self-directed, self-controlled and strategic learning (Adıgüzel, 2011). Knowing what kind of information they need, scanning the sources, finding the right information, selecting from the obtained data, evaluating, organizing and sharing effectively have become indispensable skills not only for researchers and academics, but also for ordinary people. It can be said that equipping all segments of society with these skills is one of the important factors in shaping the future of a country. According to Önal (2010), the Republic of Turkey presents an integrated rapidly progressing structure thanks to lifelong learning, and it is on the way to becoming an information society. In this context, some public and private institutions and non-governmental organizations, especially the Ministry of National Education, universities, municipalities, carry out various programs within the scope of lifelong learning.

It is argued that modern people should have certain skills in order to survive, adapt to nature and changing conditions, be successful and stay safe in the presence of competition. As of the 2000s, it has become impossible for a person to follow, receive and learn the rapid changes in information, technology and all other fields. It can be said that people must have the skills called “21st Century Skills” in order to use the needed information, technology and other opportunities in the most efficient way. From this point of view, as Anagün et al. (2016) stated these skills should be included in education programs so these individuals can acquire 21st-century skills in formal education. In this context, generally individuals who are with 21st century skills, can gain skills such as having inquiring and questioning structures, thinking critically and productively, producing solutions suitable for different and changing conditions and making the right decisions. Based on the fact that these skills can be acquired in a process, it is clear that this process should start

with a quality preschool education that are given in the early childhood years. It would be appropriate to establish early childhood education programs which cover 21st century skills.

The basic principles of the latest pre-school education program, which has been updated and created in Turkey, are inclusive of 21st century skills. In the table below, skills belonging to different classifications that can be associated with the basic principles specified in the Ministry of National Education (MEB) 2013 Pre-School Education Program are compared (MEB, 2013). From this point of view, it can be concluded that the MEB 2013 pre-school education program, when implemented properly, supports the skills within the scope of 21st century skills.

Table 5: Basic Principles of MEB 2013 Pre-School Education Program – Matching 21st Century Skills

MEB 2013 Basic Principles of Preschool Education	Related 21st Century Skill
It must be suitable for individual differences	personal development
It must support all areas of development	All skill categories
Democratic education approach must be adopted	Personal, social and civic responsibility
Individual interests and environmental opportunities must be taken into account.	Adaptation - Coping with challenges
Learning by doing and experiencing is essential.	Entrepreneurship and Self-Management
It must be given importance to speak Turkish correctly and beautifully.	Communication skills
Positive behaviors based on values must be developed.	Personal, social and civic responsibility
Education must give the child self-control.	Self-management – Self-regulation
All activities must be game based	Life skills – Cooperation and interpersonal relationships
Family and environment must be taken into consideration.	Cultural sensitivity - Social skills

MEB 2013 Basic Principles of Preschool Education	Related 21st Century Skill
Children and families must actively participate in the education process.	Interactive communication/ Collaboration, interpersonal relations
Guidance services must be integrated with the education process.	Teamwork - Planning and consequence management
Harmful behavior must be avoided in communication.	Interactive communication
Entrepreneurship must be supported with a reassuring approach.	Entrepreneurship and Self-Management
Individual must be aware of his/her own and others' feelings.	Compatibleness – Personal and social responsibility
The child's development/program must be evaluated continuously.	Planning and consequence management
Evaluation results must be used for the development of the children, teacher and program.	Lifelong learning – self-regulation
Children's imagination, creative and critical thinking skills, communication and expressing their feelings must be developed.	Critical thinking - Problem Solving - Creativity - Interactive communication - Curiosity, creativity and risk taking

It is seen that the classifications of 21st century skills in many literature studies include similar skills. In addition, it can be said that the presence of similar expressions regarding these skills, especially in the basic principles of the pre-school education program in Turkey, allow early childhood educators to provide children with 21st century skills. This period is also extremely important in terms of the rapid acquisition of many types of literacy in various fields by children.

Literature

According to Kress (2003) there is an expansion in the definition of literacy in the 21st century in the face of technological advances. He holds that literacy, which is a conceptual output of the Anglo-Saxon understanding,

covers the body of literature in the 2000s. Literacy is generally defined as the ability to effectively use communicative symbols that are meaningful to society (Kress, 2003; Kellner, 2001). Based on this definition, although it is not possible to read and write through the alphabet in the old sense, it is possible for children, as well as by all individuals to demand, research and use vital symbols in all areas of life.

Information literacy is defined in different ways by many researchers and institutions. Two basic classifications are formed by the concepts of “information literacy” and “information literate”. Kurbanoglu and many researchers consider Zurkowski as the father of the concept and include a definition that is focused on people with information literacy skills. According to this definition, a person, who uses information resources and applies the necessary skills and techniques to produce information-based solutions for the problems that he/she encounters in business and management, is called information literate (Kurbanoglu, 2010; Zurkowski, 1974). In another definition, an information literate individual is defined as a person who has the skills required to find and use the information needed to solve problems and make decisions (Burchial, 1976).

Looking at the definitions focusing on the concept of “information literacy”, the United States University and Research Libraries Association defined information literacy as “the ability to find, obtain, analyze and use information” (ACRL, 2000). Another definition done by the Chartered Institute of Library and Information Professionals (CILIP, 2004) in England has expressed information literacy as “knowing when and why information is needed, where it can be found, how to evaluate it and how to communicate it ethically”. In a broader definition, information literacy is defined as the ability of individuals to effectively seek, evaluate, use and create information in all areas and times of life in order to achieve their personal, social, professional and educational goals (IFLA, 2005).

The amount of information produced in modern times has increased so much that more information has begun to be revealed in four or five years than the entire information produced until that time. This situation causes information piles and pollution in both academic and social environments. As Heider (2009) indicates, the rapid increase

in the knowledge produced in the last 30-40 years, is a situation that educators cannot ignore. Information literacy has key importance in terms of effective school and collective teacher competencies (Uğurlu, Beycioğlu, & Abdurrezak, 2017). In this context, it is important that all individuals with the qualifications of educators be aware of this situation, raise awareness of both themselves and the target audience to acquire information literacy skills, provide the necessary environment and equipment and encourage them.

It is foreseeable that the transformation into an information society is a process. In order to achieve this goal (twenty-first century skills, especially information literacy skills, should be acquired by children in different ways. Some countries came together at the World Summit on the Information Society by taking action especially on information and communication technologies and types of e-literacy. In the content of this summit, which supports information literacy, the ways of using information and communication Technologies were discussed in order to transform into an information society (State Planning Organization, 2008). From this point of view, it can be said that individuals with information literacy skills are more likely than other people to quickly reach the right information they need through this information pollution.

Early childhood has a critical importance for the concept of literacy, whose meaning is expanding day by day in the modern world. Children are now laying the foundation for media literacy, mathematical literacy, technology literacy, visual literacy and similar literacy skills at an early age. As the information surrounding life increases, information literacy becomes more important than other skills for the healthy development of the cognitive structure. Because, with today's conceptual structure, reading, writing and basic life skills are not sufficient and individuals who can continuously improve themselves in all professional fields are needed in society (Taşar, 2003). For this reason, the literacy of all kinds of information can be productive and permanent with the laid foundation at an early age. In order to reveal the necessity of literacy skills in early childhood, attention should be paid to the following items. They also reveal the differences between the concepts of literate and literacy:

1. Literate is based on decoding and literacy is based on meaning.
2. Literate indicates a category and literacy indicates a degree.
3. The symbol system of literate is the letters in print media; the symbol system of literacy is the “things”.
4. Static definition of literate has been done; Static definition of literacy continues. (Kurudayıoğlu and Tüzel, 2010).

Information literacy is a skill area that is becoming increasingly necessary in the modern world where the knowledge and innovations produced are becoming more complex and differentiated. The information literacy skill area forms the basis for lifelong education. Whether the current era is called the information age or another name, accessing and using accurate and useful information, the production of new and correct information is of vital importance. Information literacy is a sub-dimension in the work of many researchers who make 21st century skills classifications. It is important for a healthier future to be accepted by political authorities, educational organizations and society and to bring it to children. While libraries containing written sources, which were the main source of information in previous centuries, and were the center of access to information, today these libraries have turned into only one of many dimensions of information literacy. For this reason, libraries must develop new tools and methods in the face of changing information concepts and resources. Because, besides the increase in other types of information, the amount of printed information is doubled every five years (Bundy, 1999). However, it should bear in mind that digital environments are more likely to disappear than libraries. The development that affected the understanding of the importance of information literacy was the emergence of new information technologies in the last quarter of the twentieth century (Rader, 2002). This development has brought more digital information environments to the fore. This situation shows that it is inevitable that libraries should host digital resources as well as printed publications.

As the value of information literacy gains more importance, theoretical and applied researches are also increasing. According to the study conducted in the USA, it was determined that the rate of cited

publications on information literacy increased 6 times between 1996 - 2005 (Pinto, Cordon, & Diaz, 2010). Information literacy studies on early childhood education are few in the body of literature. In this context more research is focused on higher education and secondary education. In a report published by the American Library Association towards the end of the twentieth century, primary and preschool education is not mentioned at all under the title of “Opportunities to Improve Information Literacy” and a library-centered development is foreseen (ALA, 1989). However, since the 2000s, In the USA, many institutions have made a call such as The Association for Supervision and Curriculum Development (ASCD) suggested integrating information literacy into all learning environments from early childhood to university (Bawden, 2001). Based on this call, it is necessary to give enough importance to information literacy in the early childhood period, when the foundation of life is laid. And in this way, it is more likely to become effective information literate in the following years.

An examination of theoretical and applied studies on information literacy shows that most research in this regard is done in the United States (Tokarz & Bucy, 2019). According to Eisenberg and Johnson (2002), information literacy is a six-stage process. These are listed such as; identifying information needs, searching for information, finding information sources, using information sources, obtaining and transmitting information, and evaluating information. Kurbanoglu and Akkoyunlu (2002) state that in the modern sense information literacy is to reach information and to use the technology effectively in accessing, evaluating, organizing and sharing that information. In other words information literacy is comprehensive, including being information literate. Cepni (2015), on the other hand, basically states that information literacy has three dimensions. These are; accessing resources (ethical and legal ways), managing and evaluating information, and using information efficiently.

In Turkey Erdem and Akkoyunlu (2002) examined the information literacy steps in three categories and expressed them as collecting information, organizing information and presenting the information. It can be said that this classification mostly appeals to adults or secondary

education levels and above. The sub-steps of these categories are shown in Table 6.

Table 6: Information Literacy Steps (Erdem and Akkoyunlu, 2002)

Steps	Sub-steps
Collecting information	Identifying the problem based on the needed information
	Determining the needed information to solve the problem
	Accessing the information from different information sources (printed, electronic)
	Evaluating the accessed information
Organizing information	Gathering reliable and accurate information
	Choosing the collected information to fit the problem
	Organizing the selected information in the most appropriate format
	Integrating the information with previous information
	Organizing information in a way that responds to the problem and paying attention to the integrity of meaning
Presenting information	Reporting the work
	Reviewing information
	Identifying the characteristics of the target audience
	Determining the presentation strategy
	Summarizing information without compromising the integrity of meaning
	Presenting with technology support

Considering the development of information literacy skills, Sheehy (2001) and Eisenberg & Berkowitz (1998) introduced a six-step development process by. These steps, which are similar to each other are given in Table 7.

Table 7: Two Different Steps of Information Literacy (Cited by: Polat, 2005)

Source	Steps of Information Literacy
Eisenberg and Berkowitz (1998)	<ol style="list-style-type: none"> 1. Identifying the information needs 2. Searching the information 3. Finding information sources 4. Using information sources 5. Transmitting information 6. Evaluating information
Sheehy (2001)	<ol style="list-style-type: none"> 1. Identifying information and meaning 2. Information collection and storage 3. Editing information 4. Analysing and evaluating information 5. Interpreting and presenting information 6. Delivering information and collaboration

However, the increasing fund of knowledge, resources, transmission ways and differentiating methods have now led to questioning of these stages. Individuals, who develop information literacy skills, acquire a key skill by learning how to identify the information needed throughout their lives, how to reach that information, how to use the information, and how to create new information by establishing relations between pieces of information. In this respect, programs and approaches must develop information literacy skills by introducing them to children, especially in early childhood, when a large part of learning about life skills takes place.

In early childhood, children interact with their environment as much as possible and try to recognize and make sense of the objects, situations, events or phenomena around them through their sense organs. In this process, as Ünal and Akman (2006) state, children acquire their knowledge of the world by observing events, following their research instincts, measuring the results of the games they play, and briefly using scientific processes. According to Piaget, children cannot use these scientific process skills consciously in early childhood (Çepni et al., 2006; Günçe, 1971). In this respect, children try to acquire knowledge systematically, whether they are aware of it or not.

The use of information technologies in order to access information, which is one of the dimensions of information literacy, is increasing day by day. From this point of view, it can be said that the rate of including the dynamics of information literacy in the education process is increasing gradually with the use of tools such as smart boards, tablets, computers, internet and mobile phones, and in addition to those access to resources accelerates as well. However, in the report of the London School of Economics (LSE) about the usage of digital media by children across Europe, it is underlined that this situation has risks in many areas, especially basic habits such as sleep disorders and eating disorders (LSE, 2014). Since preschool children are curious and open to discovery, these risks should be turned into opportunities and technological opportunities should be used for equal and educational purposes. At the beginning of the twenty-first century, in the technology literacy research, Akkoyunlu and Tuğrul (2002) conducted a study with children 4-6 years old in Turkey and found that 54% of the participants were technology literate at a high level. These findings reveal that technology must be used carefully in terms of information literacy skills.

Information literacy skill is a requirement not only for students but also for all segments of society (Kakırman-Yıldız, 2016). Improving the “information literacy” level of children or students at different education levels, starting from early childhood, is a prerequisite for participatory democracy, social participation, lifelong learning, production of new knowledge and concepts and increasing the national, social and personal welfare. For this reason, “information literacy” awareness should be risen first for the pre-school children, who are in the first step of life and education and increase their skill level in this area. According to Kılıç (2018), individuals should not be expected to go to universities for this skill, and that information literacy skills should be gained from the pre-school period. From this point of view, information literacy from an early age is a skilled field that can contribute directly to cognitive development, language development and social-emotional development, and indirectly to motor development and self-care skills.

Aldemir (2003) stated that the first theoretical study on information literacy in Turkey was done by Gürdal in 1998 and the first applied study was conducted by Kurbanoglu and Akkoyunlu in 2001. Information

literacy skills, which are increasing day by day, are also of critical importance in terms of forming the basis and supporting other twenty-first century skills. Bruce (1997) stated that seven different understandings of information literacy can be developed and they can be adopted singularly or relationally. These are knowledge process understanding, knowledge resources understanding, information technology understanding, knowledge control understanding, knowledge diffusion understanding, knowledge construction understanding, and wisdom understandings. Thanks to the holistic understanding and modular approach of the education programs, it can be claimed that ideal information literacy can be developed when these understandings are used together. In this study, the cyclical process of information literacy has been defined for early childhood. In this context, the cyclical process revealed the stages that researchers go through during the process and the skills that contribute to these steps as shown in Table 8.

Table 8: The cyclical process related to the information literacy process

Steps of the Information Literacy Process	Circular Skills in the Process
Recognizing and identifying information needs	Awareness Problem-solving Definition
Inclining to research	Active participation Cooperation Social skills
Doing research	Accessing the resource Ability to use technology
Checking the accuracy of the obtained information	Critical thinking Comparison
Expressing and asking questions	Communication Questioning
Sharing information	Awareness of society and the environment Sensitivity
Producing new information	Creativity Analysis Synthesis

The process aimed to educate individuals to have high information literacy and level of awareness, and become capable of researching information about all aspects of life critically, questioning and using (using what? information?) by editing, sharing the obtained information and producing new knowledge from those pieces of information, keeping up with the era in which they live and contributing to this period. In order to achieve these goals, some standards should be established and used in information literacy skills programs that are suitable for all education levels especially pre-school education. This study was carried out to draw attention to this important need of early childhood and to produce a solution.

Method

Qualitative research designs are used in this study. Yıldırım and Şimşek (2013) state that qualitative research is a type of research that uses methods such as observation, interview and document analysis and it is also used to reveal perceptions and events in their natural environment. According to Gay, Mills & Airasian (2009), the basic qualitative research is conducted on a purposefully selected small study group and the data collected from this group do not include numerical interpretation.

Different research designs such as phenomenology, case study, theory building, cultural analysis, and action research can be used in qualitative research. Since being suitable for the subject of this study, the grounded theory approach is used in this research. Yıldırım and Şimşek (2013) state that the purpose of the grounded theory method is to develop a theory about an event or phenomenon and to reveal the concepts and stages that explain the process. According to Strauss and Corbin (1994), the grounded theory is a qualitative research method that uses systematic steps to constructed inductively a phenomenon. The general methodology of grounded theory is to analyze systematically the collected information that is embedded in the data. According to Charmaz (2009), a researcher, who develops a theory, is aware that his/her work is not entirely objective.

The grounded theory approach, which is also named Grounded Theory Methodology and Grounded Theory, is based on the process of combining and defining categories obtained from meaningful data and

putting forward a theory as a product (Arik & Arik, 2016). According to Willig (2013), theoretical products are formed as a product as a result of defining categories, establishing connections between these categories and establishing relations in the theory-building strategy. In this process, key strategies such as comparative analysis, descriptive analysis, theoretical sampling, and theoretical coding can be used. The main purpose of this approach is to develop theories based on the data obtained in social research. In this study, using the grounded theory approach, the resources containing the research studies on information literacy in the context of the standards, dimensions and practices that have been created beforehand regarding literacy skills in the context of the basic elements (wh questions) that should be present in a program or system, were scanned by considering the developmental characteristics and educational programs of early childhood. Based on the data obtained, dimensions and standards (objectives and indicators) of information literacy skills in early childhood are created.

Basic Data Sources

The research resources consist of all kinds of documents (book, article, report, project, application article) related to information literacy. In research with the sampling grounded theory strategy, a specialized group of scientific research is used, which is following the theoretical sampling method and consists of standards, and scientific reports. In this approach, the samples of the research are selected based on their contribution to the development process of the theory by researchers who are using the theory-building method. For this purpose, sampling is included until the documents in the literature related to all aspects or any part of the subject repeat each other according to their content (Yıldırım & Şimşek, 2013). Theoretical satisfaction occurs when the newly found data fits into the previously found and determined categories, and this situation indicates that the data collection process is completed (Ilgar & Ilgar, 2013). Documents on information literacy skills are studied until they respond to elements of a program or system in order to establish information literacy standards for early childhood, and then the relationship and hierarchy of

these elements with each other are designed. A holistic examination of the entire structure, as well as an examination of each item, is done. The examination process continues until the sources are repetitive. The table of the considered standards in this study is given below.

Table 9: Information literacy standards considered in this study

No	Yıl	Standart Kaynağının Adı	Üreten kurum/kuruluş veya kişi
S1	1996	Rubrics for the Assessment of Information Literacy	Denver State Library and Adult Education Office
S2	1998	Information Literacy Standards for Student Learning	American Library Association (ALA) & AECT
S3	1999	Information skills in higher education	Society for College, National and University Libraries (SCONUL)
S4	2000	Information Literacy Competency Standards for Higher Education	Association of College & Research Libraries (ACRL)
S5	2004	Australian and New Zealand information literacy framework	Australian and New Zealand Institute for Information Literacy (ANZIIL) & CAUL
S6	2006	Guidelines On Information Literacy For Lifelong Learning	International Federation of Library Associations (IFLA)
S7	2006	Achieving Information Literacy Standards	Canadian Association for School Libraries (CASL)
S8	2008	Information literacy: essential skills for the information age (Big6)	Michael B. Eisenberg
S9	2009	Standards for the 21st Century Learner	American Association of School Librarians (AASL)
S10	2009	Information Literacy Standards	Albemarle County Public School

Year Name of Standard Resource

Producing institution/organization or person

Standards, which are related to information literacy, have been used for a long time. Since 2000s the changes have accelerated and the standards have been updated. The oldest of these standards in the directive is the one prepared by the Denver State Library and Adult Education Office in 1996. The next standards are prepared by following institutions in order: American Library Association (ALA) and Association for Educational Communications and Technology (AECT) in 1998, Society of College, National and University Libraries (SCONUL) in 1999, Association of College & Research Libraries (ACRL) in 2000, Council of Australian University Librarians (CAUL) & Australian and New Zealand Institute for Information Literacy (ANZIIL) in 2004, International Federation of Library Associations (IFLA) in 2006, Canadian Association for School Libraries (CASL) in 2006, Eisenberg's Big6 model in 2008, American Association of School Librarians (AASL) in 2009, and Albemarle County Public School (ACPS) in 2009. This scope consists of seven national standards, one model prepared by researchers and two local and target group standards.

It is stated that the guidelines and standards in the document called Rubrics for the Assessment of Information Literacy prepared in 1996

by the Denver State Library and Adult Education Office affiliated to the Colorado Education Unit, were prepared for students, teachers and library professionals. In addition, in the rubric part, each indicator was evaluated at 4 levels (in progress, essential, proficient, advanced) (Denver State Library and Adult Education Office, 1996).

Information literacy standards for all learning individuals were established in 1998 by the American Library Association (ALA) and Association for Educational Communications and Technology (AECT). Three levels of information literacy standards are, information literacy, independent learning and social responsibility, and their sub-levels are defined. Standards focus on defining information needs, identifying relevant sources of information, evaluating information, determining the accuracy, relevance and comprehensiveness of information, organizing information, and using information creatively (ALA & AECT, 1998).

Society of College, National and University Libraries (SCONUL) established the standards in order to improve the information literacy skills under seven headings. These standards for higher education are a part of the larger structure called the Information Skills Model, which includes library skills and information technology skills (SCONUL, 1999).

The standards, which are developed by the Association of College & Research Libraries (ACRL) in 2000, consist of five titles and different numbers of performance indicators. The output content is also explained for each indicator of the standards established for the higher education level (ACRL, 2000).

The standards defined in 2004 by the Australian and New Zealand Institute for Information Literacy (ANZIIL) and the Council of Australian University Librarians (CAUL) consist of 6 steps. It is stated that the standards, which are focusing on literate individuals, are adapted by the standards of ALA & AECT. In addition, learning outcomes are supported with examples (ANZIIL, 2004).

The standards prepared by the International Federation of Library Associations (IFLA) in 2006 are developed by building on the previous standards. Standards are consisting of access, evaluation and usage components and their subcomponents (IFLA, 2006)

Eight standards prepared by the Canadian Association for School Libraries (CASL) in 2006 focus on the learning outcomes of information

literate students. There are different numbers of indicators under these standards (CASL, 2006).

Big6, a model produced by Eisenberg, (2008), is also included in this scope because of containing definitions close to standards. This model consists of six stages: identifying the need of information, developing a search strategy, resources and access, using, synthesizing and evaluating information. Super3, which is obtained by simplifying the first four of these stages, is structured for children up to eight years old.

Standards for skills, resources and tools have been established for the information for 21st Century students which is first updated in 2007 by the American Association of School Librarians (AASL), then in 2009. Performative skills, tendencies, responsibilities and evaluation dimensions are defined relating to each of the four standards (AASL, 2009).

As a narrower example, the standards which are created by the Albemarle County Public School in 2009, a district administration in Virginia, the USA with approximately 14,000 students, are also included in this study. The standards which are accompanied by learning, thinking, studying skills and keywords, are divided into levels for the kindergarten to 5th grade children. Based on ALA standards, 14 library-centered learning outcomes are created for kindergarten students (ACPS, 2009).

In addition to these standards, doctoral theses on information literacy skills are also used to support the theoretical background of the study. In addition, it is seen that the inferences made from the theses are similar to those extracted from the standards. Those selected among the postgraduate theses done in Turkey for this study are shown in Appendix-1. Apart from the postgraduate theses, the doctorate theses made in different countries, that are used in this study, are shown in Appendix-2. Apart from these sources, no Turkish books were found that deal with information literacy independently. The list of books published in other countries in this field, which are used in this study, is given in Appendix-3.

A descriptive survey technique based on document scanning is used in the collection of data. Within the framework of this technique, the documents are examined by grouping and associating within the framework of the four main themes. These themes are information awareness, access to information, using information and knowledge production themes.

Thus, for early childhood children, suitable information literacy standards are defined and detailed within the scope of these themes.

Validity and Reliability

Yıldırım and Şimşek (2013) state that Lincoln and Guba have formed certain strategies in order to increase the quality of qualitative research. In these strategies, researchers propose new concepts suitable for the nature of qualitative research, such as persuasiveness instead of internal validity, transferability instead of external validity, consistency instead of internal reliability, and confirmability instead of external reliability, as an alternative to the concepts of validity and reliability in quantitative research.

In this study, opinions are obtained from information and records management and preschool education experts regarding the dimensions and codes obtained from the collected data and comments made about these data in order to provide the credibility criterion. In order to ensure external validity, some related statements in the sources are given by direct quotation. Regarding the transferability feature, the data, results and comments are presented to the experts who were in the field of child development, education programs, teaching, information and document management, pre-school education, child development and education programs and. There are a total of eight academicians in this research, all are faculty members. They are listed as follows: one professor and one associate professor in the field of information and document management, one professor and two associate professors in the field of pre-school education, one professor and one doctor associate professor in the field of child development, and a doctor associate professor from the field of education programs and teaching. The final sources discussed as a result of the literature review for confirmability are presented in tables.

The situation that provides validity in the qualitative research method is an opportunity to have a predisposition to the research field, to gather detailed information through face-to-face interview method, to collect additional information by going back to the area to verify the collected information (Yıldırım & Şimşek, 2013). Within the scope of this study,

direct data are collected and analyzed by using the descriptive scanning method from the literature and standards previously created for students at different education levels. Dimensions to support the information literacy skills of early childhood children obtained from the sources are created and the expressions related to these dimensions are quoted by giving a code name. As Patton (2014) stated that these processes are carried out with the technique of triangulation, in which two or more experts analyze the obtained qualitative data.

Analysis of Data

The descriptive analysis technique is used to analyze the obtained data in this research. The purpose of the descriptive analysis technique is to transform the raw data into a form that will make it easier for the reader to understand and use if desired. In descriptive analysis, the collected data is summarized and interpreted by taking into consideration the predetermined themes. In this method, the direct quotations are frequently used to reflect the tendencies of the interviewees or observed people (Altunışık, Coşkun, Yıldırım & Bayraktaroğlu, 2001; Yıldırım & Şimşek, 2013). The basic structure of the descriptive analysis is to organize and interpret in a way that the beneficiaries can understand by framing the similar elements and codes in the obtained data for the first time or within the framework of the themes determined from the field. These processes consist of four steps: forming the themes, coding the data, defining the findings from the theme and codes and predicting the findings. Codes are generated according to the expressions extracted from the sources relating to each information literacy theme that is created during this study, afterwards the obtained findings from the codes are interpreted by tabulating. The dimensions, achievements and indicators that were obtained from these interpretations and were emerged as a product of the study have been shaped by the information obtained from the sources including all kinds of studies on information literacy skills, formerly known as library skills.

In this study, obtained facts and skills are grouped, analyzed, adapted and transferred for the first time by scanning the dimensions, standards and practices that were previously created for children of different age groups

and education levels in the literature with the theoretical information under each question (“Why do we acquire knowledge?”, “What is the obtained information?”, “How is the information obtained/used/produced/shared?”, “Where is the information obtained from?”, “How much/time is needed for information?”, “From/via whom is the information obtained?”) and area representing the basic dynamics of a program or system. A certain systematic program is created by transforming the facts and skills that were grouped, analyzed, adapted and transferred for the first time into gains and indicators under each dimension (information literacy skill dimension) in order to construct the information literacy standards of early childhood (forming the theory). Finally, the outcome indicators under each dimension reveal the skill development steps by forming from simple to complex, from easy to difficult, and building on top of each other.

Findings

Considering that it is the basic principle to move forward with simpler and smaller steps in early childhood education, which is the first educational step of human life, a ten-step development is revealed for the development of information literacy targeting early childhood students.

The steps of information literacy skills for early childhood students are expressed by the researchers as follows:

1. Realising the need for information
2. Identifying the need for information
3. Learning information resources/information centers
4. Learning and using information access tools
5. Learning information research methods
6. Reading and writing information
7. Obtaining and saving information
8. Checking the accuracy of the obtained information
9. Organizing the correct obtained information as desired
10. Using the edited information
11. Sharing the information by specifying its source
12. Generating new information/s

As a result of examining the studies carried out in the context of information literacy and its dimensions and the studies containing the developmental characteristics of early childhood children and also taking into account the views of the instructors, four dimensions are revealed as follows; the need for information, accessing to information, usage of information and producing information for the early childhood, An analysis has emerged in which these dimensions are used as themes. Steps and themes of information literacy created for early childhood are shown in Table 10. After this stage, appropriate inferences will be done for preschool children by analyzing the information literacy standards previously established in the literature.

Table 10: Steps and themes of early childhood information literacy

Step	Theme (dimension)
Realizing the need for information. Identifying the need for information	Need for information
Learning information resources/information centers Learning and using information access tools Learning information research methods Reading and writing information	Accessing information
Obtaining and saving information Checking the accuracy of the obtained information Organizing the correct obtained information as desired Using the edited information Sharing the information by specifying its source	Using information
Generating new information/s	Producing information

Need for Information Theme

Erdem and Akkoyunlu (2002) start the information literacy process with “purposive information seeking” without specifying age. However, unlike teenagers and adults, children in early childhood are often unaware of what information they need. For this reason, awareness of needs and interests in information literacy skills should be prioritized by taking into account the cognitive structure of children who are perceiving the stimuli coming from the environment.

In early childhood, individuals form their first experiences about many concepts. Areas of interest are not clear. Existing interests may change in a very short time and new ones may come in their place. The knowledge of all the basic life skills that individual needs to continue his/her life, especially the information about the fields they are directed to in line with their interests and wishes is found in the dimension of information need. In this dimension, the individual first becomes aware of the need for information. Then he/she decides what information will meet those needs.

Accessing to Information Theme

This dimension evaluates how children access all kinds of information by asking where, how, with whom and what tool questions. Within the scope of this dimension, there are channels of access to information, sources of information and methods of accessing information. In the early childhood period, individuals can consider “everything” as a source of information, starting from the closest. With a skill such as imitation, individuals can learn a method of accessing information from many “things”. Although there is no alphabet learning in early childhood, children can learn to read symbols of information related to different fields. In addition, children can learn to write this information with the method of illustration. Children must record the information first in order to use this information. The recording process includes text, sound, image, etc.

Using Information Theme

This dimension evaluates where, when, with whom or against whom/ what, how and how much children will use the obtained information.

Comparing the information and confirming its accuracy, the need for adaptation in the use of knowledge, and how information should be shared with others in all kinds of environments are available within the scope of this dimension.

Producing Information Theme

In early childhood, individuals usually receive information made available to them by others, but what is permanent in learning is when children discover the information on their own. Discovered information can play an important role in understanding the relations between information later on.

Knowledge production in children, which is not given enough space in the literature, can be seen as an important skill for the development of creativity and scientific research. Two situations can be evaluated in this dimension; children can produce new information using the former information that they have learned or they nominalize the new objects, events or situations they have created. This dimension also includes knowledge production through metacognitive skills, differentiated or manufactured objects, conceptual expression of events or situations.

In the development of information literacy programs, four basic components can be mentioned: target group, objectives (achievements), methods and tools. In the focus of this study, the standards correspond to the objectives (gains) in the related programs. In this study, suitable standards for different education levels are examined and outcome indicators are created for early childhood children. The common expressions are coded within the framework of the above-mentioned themes of the need for information, accessing to information, usage of information and producing information. These codes are shown in Table 11.

Table 11: Codes created from the themes of information literacy

Theme(dimension)	Resources	Codes
Need for information (NI)	S1,S2,S3,S5,S6,S7	NI. 1. Distinguishing the need for information
	S1, S2, S4, S5, S6, S8, S9, S10	NI. 2. Knowing what kind of information is needed
Accessing Information (AI)	S2, S3, S5, S6, S7, S8	AI.1. Knowing information sources
	S1, S3, S4, S6, S7, S8, S9, S10	AI. 2. Knowing how to get the information
	S1, S4, S5, S6, S7, S8, S9, S10	AI. 3. Being literate about the obtained information
Using Information (UI)	S1, S4, S5, S7, S8, S9, S10	UI. 1. Researching whether the obtained information is correct
	S1,S2,S3, S4, S5, S6, S7, S9, S10	UI. 2. Knowing how to use the obtained information
	S1,S2,S3, S4, S5, S6, S7, S9, S10	UI. 3. Sharing the obtained information
Producing Information (PI)	S1,S2,S3, S4, S5, S7, S9, S10	PI. 1. Producing new information by using the obtained information

As can be seen in Table 11, the codes are produced under the theme of information need, which is expressed as “recognizing the need for information” and “knowing what kind of information is needed”. The first of these codes are produced based on the expressions in the six standards and the second in the eight standards. Some of the expressions belonging to these codes are as follows:

NI.1.: Needs the information about various dimensions of personal well-being, such as career interests, community involvement, health concerns, and recreation. (S2)

NI.1.: Ability to recognize the need for information (S3)

NI.1.: Recognizes the need for information (S5)

NI.1.: Discover the topics that you're interested in (S1)

NI.2.: Determines the qualification and scope of the needed information (S5)

NI.2.: Participates actively in groups to obtain and produce information (S10)

NI.2.: Decides what kind of information is needed (S1)

NI.2.: Identifies or recognizes the need for information (S6)

Under the theme of accessing information, the codes are produced and expressed as “knowing information sources”, “knowing how to access information” and “reading and writing the obtained information”. The first of these codes is produced based on the expressions in the six standards, the second and the third in the eight standards. Some of the expressions belonging to these codes are as follows:

AI.1.: Displays cultural resources such as galleries, museums, and libraries (S7)

AI.1.: Indicator 4. Identifies various potential sources of information. (S2)

AI.1.: Identifies all possible sources (S8)

AI.1.: Information on available types of resources, both print and non-print (S3)

AI.2.: Access to the selected information sources (S6)

AI.2.: Developing appropriate search techniques (S3)

AI.2.: Find resources (mentally and physically) (S8)

AI.2.: Look for answers to questions (S1)

AI.3.: Copying information (S1)

AI.3.: Selects and retrieves the found information (S6)

AI.3.: Uses writing and speaking skills to effectively communicate new insights (S9)

AI.3.: Use the writing process, media and visual literacy, and technology skills in order to create products that express new insights (S9)

Under the theme of usage of information, the codes are produced and expressed as “researching whether the obtained information is correct”, “knowing how to use the gained information “ and “sharing the obtained information”. The first of these codes is produced based on the expressions in the seven standards, the second and the third in the nine standards. Some of the expressions belonging to these codes are as follows:

UI.1.: Confirms the information from its source. (S7)

UI.1.: The information literate student confirms the understanding and interpreting of information by discoursing with other individuals, subject matter experts, and/or practitioners. (S4)

UI.1.: Connect the ideas to your interests, previous knowledge and experience (S9)

UI.1.: Take a critical stance by questioning the validity and accuracy of all information (S9)

UI.2.: Classifies and organizes the received information (S6)

UI.2.: Accepts that resources are created for various purposes (S9)

UI.2.: Determines how you will use the information (accept, reject, change it) (S9)

UI.2.: Applies knowledge to solve a wide range of learning and personal questions (S7)

UI.3.: Respects to intellectual property rights. (S2)

UI.3.: Transmits the information and new understandings effectively (S5)

UI.3.: Provides useful information to the group (S1)

UI.3.: The information literate student accepts the usage of information sources in transmitting the product or performance. (S4)

Under the theme of producing information, a code is produced and expressed as “producing new information by using the former obtained

information". This code is produced based on the expressions that are found in eight standards. Some of the expressions belonging to this code are as follows:

PI.1.: Creates new information with balanced and different perspectives. (S7)

PI.1.: Create quality products (S1)

PI.1. Ability to synthesize and enhance existing information by contributing to the creation of new information (S3)

PI.1.: Expresses familiar stories (beginning, middle, and ending) in different ways. (S10)

In general, a total of nine codes are produced, two of them are related to the theme of the need for information, three related to accessing information, three related to the usage of information and one related to producing information. The average rate of these codes, in the ten standards that are considered as a source, is 7.6.

Discussion and Conclusions

Common concepts that can be used in information literacy definitions are expressed as; the need for information, information sources, accessing to information, evaluating the information, using the information, sharing the information and producing the information with ethical aspects (Lubans, 1981; Snavelly & Cooper, 1997; Spitzer, Eisenberg & Lowe 1998; ALA, 2000; Kapitzke 2001; Neely, 2002; Houff 2002; Owusu-Ansah 2003; Rader, 2002; Polat, 2005). These dimensions include general skills that all-ages group of people perform at different levels. For groups that are differentiated due to many factors such as age, level of development, culture in which they live and education level, specific levels should be established by determining the objectives suitable for the characteristics of that group. In some groups, some dimensions may be absent due to the developmental characteristics of the group. In addition, there should be leveling between groups in line with educational principles such as from easy to difficult, from close to far and from simple to complex. Since there is no standard related to information literacy or its sub-dimensions regarding the early childhood period in the literature, sizing and then

creating a standard for these dimensions are required by considering the developmental level of the children of this period.

There are many researchers working on the need for information dimension (e.g., Kuhlthau, 1990; Eisenberg & Berkowitz, 1998; Marchionini, 2004). The most notable of these is Kuhlthau's Information Search Process Model. Kuhlthau predicts a six-stage process: initiation or detection of an information need, topic selection or approach to obtaining information, using the necessary information to gain a better understanding, creating a focused information need, collecting the relevant information, and ending the information search. However, early childhood children should be expected to realize their needs for information in simpler and fewer steps and somehow to express this consciously. Simply, it is expected that children carry out with inquisitiveness emotional and intellectual, physical actions and strategies by being open to interaction with the five senses. Therefore, as Bruce states (1997), it may be more productive to bring the relational approach to the fore in information literacy learning in terms of responding to the various ways in which children experience and use information for different needs. From this point of view, some acquirements are produced such as from the code of "to notice the need for information" to "recognizing the need for information" from the code of "to know what kind of information is needed" to code of "knowing what kind of information is needed". Indicators of these acquirements are defined in Table 12.

Table 12: Acquirements and indicators related to the need for information dimension

Dimension	Acquirements	Indicators
Need for information	Recognizes the need for information	Expresses the extraordinary situation in a given situation
		Expresses what to do in a given situation
	Knows what kind of information is needed	Expresses the needed information
		Asks questions about the needed information

Today in terms of access to information, media tools surround the children from their infancy. As Bradley (2013) points out, much of our modern access to and usage of information has come to involve technology, with the tools themselves becoming the center of attention. According to Heil (2005), secondary school students generally use the internet as their first information option. In the face of this hegemonic situation, young children should be able to interact with professionals who have different sources of information, natural environments, institutions, and environments with printed materials. In this context, Polat (2005) reveals that even postgraduate students sometimes have difficulties finding the right information source. It is considered important for children to experience the search methods of these sources repeatedly in order to access information. Child-media interaction has increasingly led to the unhealthy development of children in many ways (LSE, 2014). Literacy, which is an important skill, stands in front of the children who access to the information through the resources or methods that are listed here before using the information. In this regard, teachers should be aware of how these children learn in order to improve the teaching approaches that they use for their children. In other words, teachers need to realize the learning styles of children.

Children can learn and read the symbols of many kinds of information in social life thanks to their curiosity. For example, information such as numbers, symbols of the health sector, on/off symbols in electronic tools is learned through imitation. In the field of writing, thanks to their pen-holding skills in early childhood, it is possible for children to copy the information as it is and to record it with the unique symbols that they produce. Moreover, taking a photo, video or audio recording with media tools is now among the skills that children can learn quickly. From this point of view, some acquisitions are produced such as from the code of “knowing the information sources” to code of “knows the information sources”, from the code of “knowing how to access information”, to “knows how to access information” and from the code of “reading and writing the obtained information “ to code of “reads and writes the obtained information”. Indicators of these acquisitions are defined in Table 13.

Table 13: Acquirements and indicators related to the accessing to information dimension

Dimension	Acquirements	Indicators
Accessing to information	Knows the information sources	Tells the printed materials in order to search for needed information
		Tells the media tools in order to search for needed information
		Tells the institutions or organizations in order to search for needed information
		Tells the members of the profession that can be asked for needed information
		Tells the natural environments that can be searched the needed information
	Knows how to access information	Searches for information through search engines (sound, image, barcode reading)
		Searches for the information by asking the relevant people
		Searches for the information by going to the relevant institution or organization
		Searches for the information by the sense organs in the relevant place and location
	Reads and writes the obtained information	Reads symbols relating to the obtained information
		Draws symbols relating to the obtained information
		Saves the obtained information when accesses to it

The using information theme should be evaluated from a very broad perspective. The contribution to daily life, storage and value of the learned information should also be taken into account in terms of helping to obtain subsequent information, to associate with those and to methodize in use. Librarians advocate that individuals should have a deeper understanding and consideration about the nature and use of information independently of other types of literacy (Bradley, 2013). In this context, the Australian Library and Information Association (ALIA) emphasizes the importance of using and producing information in order to achieve economic, democratic and cultural values in the society as well as achieving personal, social, professional and educational goals (ALIA, 2001). In addition to the importance of using information, it is also important to know how to follow the path. Kasowitz-Scheer and Pasqualoni (2002) advocate that critical and analytical thinking skills should be taught to children in order to use information. Currently, these thinking skills may not be needed to be given separately since they are among the approaches of many education programs. Also these thinking skills are expected to lay on the foundation of information literacy in a simpler structure, especially in early childhood. In addition, as Bowler, Large & Rejskind, (2001) state, ethical rules should be adopted from an early age so there will not be that kind of students who try to produce and share the information with copy-paste behaviors and without giving a reference even in primary school.

Piaget states that from an early age, children organize and cognitively use many concepts following the schema metaphor of information (Piaget, 1952). Therefore, questioning the accuracy of the information regardless of its field, to use information in all aspects and areas of life, to instrumentalize it for other information, and to share it concerning its source abilities should be developed in children. In addition, it can be said that usage of behaviorist, constructivist and relational approaches separately, which are defined as different pedagogical approaches to information literacy by Bruce (1997), will further develop children's skills of using information. Thus, the following achievements are accomplished: from the code of "researching the accuracy of the obtained information" to "to examine the accuracy of the obtained information is correct", from the code of "knowing how to use the obtained information" to "knows how to

use the information” From the code of “sharing the obtained information” to “shares the obtained information”. Indicators of this achievement are defined in Table 14.

Table 14: Acquirements and indicators related to the user information dimension

Dimension	Acquirements	Indicators
Using information	Tests the accuracy of information	Asks from the relevant people about the accuracy of the information
		Compares the accuracy of the information with another source
		Tests the information by experiencing different qualifications
	Knows how to use information	Tells how to use the acquired information in school
		Tells how to use the acquired information at home
		Tells where/how to use information in daily life outside of home and school
	Shares the obtained information	Shares the obtained information by specifying its source at the relevant place and time
		Shares the obtained information by stating its source in media tools

The producing information dimension is a structure that can be discussed for children. Because it is clear that individual differences of children are affected by many factors directly relating to their cognitive capacities such as abilities, skills and productivity. Despite all these differences and factors and as Mokhtar et al. (2010) state children can generate many ideas and products from their interactions when they are involved in seeking, sharing and creating information individually or as a group. From this point of view, with the potential of curiosity, discovery and creativity in children, it can be ensured that they produce new information from their previous knowledge by natural manipulations such as analogy, association, articulation and arrangement. Especially with

many game materials and imagination, including real objects, children can produce new information in simple terms. As Grant (2002) states that in the development of information literacy skills, project-based teaching can be effective in creating personally meaningful products in children who become autonomous in early childhood. Thus, the following achievements are accomplished: from the code of “producing new information by using former information” to “produces new information by using former information”. Indicators of this achievement are defined in Table 15.

Table 15: Acquirements and indicators related to the producing information dimension

Dimension	Acquirements	Indicators
Producing information	Produces new information by using former information	Produces other information from two obtained information
		Gives a name to a new object by creating from two different objects
		Gives a name to unfamiliar objects, situations or events by observing his/her surroundings

Educational organizations and different educational institutions are at the forefront of the institutions and these organizations support individuals to gain information literacy skills. Mokhtar et al. (2008) emphasize that there are schools equipped with modern and advanced technological infrastructure and prepared for information literacy skills in many parts of the world, but the benefits cannot be at the desired level unless there is relevant training and sufficient interaction. Apart from all these, libraries and other cultural institutions, local and social institutions, non-governmental organizations and media organs can be counted as institutions that will contribute to the development of information literacy skills. So far, many and different initiatives and strategies are implemented in the USA, Europe, Australia, South Africa, England and New Zealand (Moore, 2005; Virkus, 2003; Rader, 2002). Thanks to achievements and indicators that are created here, “information literate” individuals can be educated by organizing activities or lessons for early childhood education starting with even 1st and 2nd grade students in elementary schools.

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Appendices

Appendix 1. Some theses on information literacy in Turkey

Date	Thesis Name	Author	University
2019	Lise öğrencilerine bilgi okuryazarlığı becerilerinin kazandırılmasında okul kütüphanelerinin rolü	DUYGU D. DARDAĞAN	Çankırı Karatekin
2019	Öğrencilerin istihdam edilebilirlik ve bilgi okuryazarlığı becerileri: Hacettepe Üniversitesi örneği	TUBA YILDIRIM	Hacettepe
2019	Ortaokul döneminde bilgi okuryazarlığı becerilerinin önemi: Özel final okulları 6. sınıf öğrencilerine yönelik bir uygulama	SERPİL FIRAT	Çankırı Karatekin
2019	Öğrencilerin bilgi okuryazarlığı becerilerini geliştirmede kullanıcı eğitiminin rolü: Çanakkale Onsekiz Mart Üniversitesi örneği	ÜLKÜ ÖZGÜVEN	Çankırı Karatekin
2019	Sosyal bilgilerde bilgi okuryazarlığı: Öğrenci görüşlerine yönelik bir durum çalışması	MERAL ÖZGÜN	Bolu A. İzzet Baysal
2018	Öğretmen adaylarının yaşam boyu öğrenme eğilimleri ile bilgi okuryazarlığı becerileri arasındaki ilişkinin değerlendirilmesi	HAVVA DUYGU YASA	Bartın
2018	Öğretmen adaylarının bilgi okuryazarlığı becerilerindeki zorlanma düzeylerinin farklı değişkenler açısından incelenmesi	ALİ KAVAK	Atatürk

Date	Thesis Name	Author	University
2018	Üniversite öğrencilerinin bilgi okuryazarlığı becerilerinin değerlendirilmesi: İran örneği	JAHANGİR GHOLİPOUR	Hacettepe
2018	Türk milli eğitim sisteminde bilgi okuryazarlığı gereksinimlerinin karşılanması	ÖZLEM ŞENYURT	Hacettepe
2016	Üniversite kütüphanelerinde bilgi okuryazarlığı eğitiminin verilmesinde kütüphanecilerin etkinlik ve sorumlulukları	FADİME TAŞÇI	Marmara
2016	Öğrencilerin bilgi okuryazarlığı özyeterlik algılarının çeşitli değişkenler açısından incelenmesi	MELTEM GÜLNAR	Gazi
2015	Ortaokul öğrencileri için bilgi arama stratejileri öğretim programının geliştirilmesi ve etkisinin değerlendirilmesi	HALİSE Ş. HENKOĞLU	Gazi
2013	Okul kütüphanelerinin bilgi okuryazarlığına etkileri	SAMİYE EROL ALKAN	Marmara
2011	Okul kütüphanelerinde bilgi okuryazarlığı eğitimi ve bir örnek: Marmara Eğitim Kurumları İlköğretim Okulu	FİLİZ YÜKSEL İLERİ	Marmara
2008	Web tabanlı çoklu öğrenme ortamlarının öğrencilerin bilgi okuryazarlığı performansı üzerine etkisi	GÖZDE OCAK	Hacettepe
2008	Öğretmen adaylarının bilgi ve iletişim teknolojilerini kullanımları açısından bilgi okuryazarlığı öz-yeterlik algılarının değerlendirilmesi	RAZİYE DEMİRALAY	Gazi

Date	Thesis Name	Author	University
2007	Yükseköğretimde bilgi okuryazarlığı: Selçuk Üniversitesi örneği	MUHAMMET KIZIL	Selçuk
2007	Bilgi okuryazarlığı ve Üniversite kütüphaneleri: Bilgi okuryazarlığı planı hazırlama unsurları	DUYGU KIZILASLAN	İstanbul
2005	Üniversitelerde kütüphane merkezli bilgi okuryazarlığı programlarının geliştirilmesi: Hacettepe Üniversitesi örneği	COŞKUN POLAT	Hacettepe
2004	Öğretmen adaylarının bilgi okuryazarlığı düzeyleri üzerine bir araştırma: Sakarya Üniversitesi örneği	AHMET ALDEMİR	Hacettepe

Appendix 2. Some theses on information literacy in World

Date	Thesis Name	Author	Country	University
2019	A Study of Graduate Students' Information Literacy Needs in the Electronic Resource Environment	Shuzhen Zhao	Canada	Windsor University
2018	Information Literacy Self-Efficacy within a Medical Curriculum	Ann De Meulemeester	Belgium	University of Antwerp
2017	Examining the practice of information literacy teaching and learning in upper secondary schools in Vietnam	Ngo Thi Huyen	England	Northumbria University
2016	Information Literacy Learning Experiences Of Fourth-Year Psychology Students In Kenyan Universities	Ephraim Mudave Kanguha	S. Africa	University of KwaZulu-Natal
2016	Exploring Information Literacy (IL) Practices in Primary Schools: A case of Pakistan	Syeda Hina Shahid	England	The University of Sheffield

Date	Thesis Name	Author	Country	University
2013	Conversation and Change: Integrating Information Literacy to Support Learning in the New Zealand Tertiary Context	Angela Feekery	N. Zeland	Massey University
2012	The road to information literacy: primary school children and their information seeking behaviour	W. Beautyman	England	Northumbria University
2012	The impact of information literacy instruction on the library anxiety and information competency of graduate students.	R. G. Birch	USA	Olivet Nazarene University
2009	Developing a new blended approach to fostering information literacy	Geoffrey L. Walton	England	Loughborough University
2009	Development of information literacy of elementary school students in Thailand	P. Saorayawiset	Thailand	Khon Kaen University
2006	Developing Information Literacy Programmes Fo Public University Libraries in Tanzania : A Case Study of the University of Dar Es Salaam	Evans F. Wema	England	Loughborough University
2005	Development And Validation Of The Beile Test Of Information Literacy For Education (b-tiled)	Penny Beile O'Neil	USA	University of Central Florida
2000	Informatievaardig worden in het onderwijs, een informatiewetenschappelijk perspectief: een vergelijkende gevallenstudie in Nederland en Zuid-Afrika	A. K. Boekhorst	S. Africa	University of Pretoria
1998	Att söka information för att lära. En studie av samspel mellan informationssökning och lärande	Louise Limberg	Sverige	Göteborgs universitet
1996	Information literacy: A phenomenography	C. S. Bruce	Australia	University of New England

Appendix 3. Some books on information literacy in World

Publishing Date	Book Name	Author	Publisher
2020	The Information Literacy Framework: Case Studies of Successful Implementation	Heidi Julien, (Ed.)	Rowman & Littlefield Publishers
2019	Motivating Students on a Time Budget: Pedagogical Frames and Lesson Plans for In-Person and Online IL Instruction	Sarah Steiner; Miriam Rigby	American Library Association
2019	Critical Approaches to Credit-Bearing Information Literacy Courses	Angela Pashia; Jessica Critten	American Library Association
2018	Information Literacy and Libraries in the Age of Fake News	Denise E. Agosto (Ed.)	Libraries Unlimited
2017	Introduction to Information Literacy for Students	Michael C. Alewine; Mark Canada	Wiley-Blackwell
2017	Concise Guide to Information Literacy	Scott Lanning	Libraries Unlimited
2016	Teaching Information Literacy Reframed: 50+ Framework-Based Exercises for Creating Information-Literate Learners	Joanna M. Burkhardt	ALA Neal-Schuman
2016	Critical Information Literacy: Foundations, Inspiration, and Ideas	Annie Downey	Library Juice Press

Publishing Date	Book Name	Author	Publisher
2015	Teaching Information Literacy Threshold Concepts: Lesson Plans for Librarians	Patricia Bravender; Hazel McClure; Gayle Schaub	American Library Association
2014	Designing Information Literacy Instruction: The Teaching Tripod Approach	Joan R. Kaplowitz Thomas P. Mackey;	Rowman & Littlefield
2014	Metaliteracy: Reinventing Information Literacy to Empower Learners	Trudi E. Jacobson	ALA Neal-Schuman
2011	Transforming Information Literacy Instruction Using Learner-Centered Teaching	Joan R. Kaplowitz	ALA Neal-Schuman
2011	Information Literacy and Information Skills Instruction: Applying Research to Practice in the 21st Century School Library	Nancy Pickering Thomas	Libraries Unlimited
2009	Information Literacy Instruction: Theory and Practice, Second Edition (Information Literacy Sourcebooks)	Esther S. Grassian; Joan R. Kaplowitz Christopher N. Cox;	Neal-Schuman Publishers, Inc.
2008	Information Literacy Instruction Handbook	Elizabeth Blakesley Lindsay	American Library Association