A Knowledge Literacy Model Proposal for Social Studies Education on the Basis of Social Sciences *

Çağrı Demirtaş [1], Adnan Altun [2]

Abstract

Human efforts to understand nature originate from a mental scheme that includes data, information, knowledge, and wisdom levels. An individual first perceives everything in nature as data, and this data collection process starts before birth and continues after birth. Throughout human history, individuals have created data sources by recording their perceptions, experiences, and observations about humans, other living creatures, nature, and the world. These data are processed in line with individuals' needs and interests and transformed into meaningful information. Knowledge emerges when the connections between information become stronger and gain meaning. In this way, people create a growing wealth of knowledge about nature and the environment. The effort to understand and interpret nature involves not only the physical environment of humans but also the structure of societies, their cultures, economies, and histories. In this respect, social sciences and social studies are important tools to help us understand this broad perspective. Social sciences guide us in investigating social structures, cultural norms, economic systems, and political processes. Concerning social studies in which social sciences are simplified and presented together as a course in secondary schools, the data and information provided by social studies are of critical importance to understand how people live together and interact and how they have changed throughout history. Social studies reflects people's efforts to understand their social relations, social structures, and historical events and aims to provide skills in understanding and evaluating these issues, which enriches their levels of knowledge and wisdom.

It can be indicated that there is no common scheme or model for acquiring knowledge in social sciences. It is essential to structure knowledge in the social science fields included in the content of social studies. In this regard, the objective of the study is to develop a framework model regarding different types of knowledge that

* This article is derived from Çağrı Demirtaş's PhD dissertation entitled "A model proposal for knowledge literacy in social studies education", conducted under the supervision of Adnan Altun.
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7can improve students' knowledge literacy within the scope of teaching social studies as social sciences. The study was conducted with a grounded theory design, one of the qualitative research approaches. In the study, the literature on types of knowledge was reviewed within the scope of grounded theory design, and the types of knowledge used in social sciences were attempted to be determined by interviewing 25 academicians who were social science experts and social studies educators. An unstructured interview form developed by the researcher was used to collect data. An inductive analysis approach was adopted in the data analysis. The concept analysis (coding) method suitable for the study's purpose was employed in the analysis of the data obtained. As a result of literature readings, knowledge literacy was defined, and as a result of the interviews with domain experts, types of knowledge that can be expressed as the core category used in social sciences were acquired. These types of knowledge can be listed as interpretation, foresight, strategy, concept, inference, and theory.

Introduction

This process significantly affects individuals and society in today's changing and transforming world. In this process, knowledge is critical for human life. To specify the role of knowledge in human life, it is necessary first to define it and determine its properties and types. However, the literature identified some problems regarding knowledge and related information. Hence it was deemed important to define knowledge and information and discuss their similarities, differences, and common points.

It is possible to mention a mental scheme for the individual at the levels of data, information, knowledge, and wisdom in one's efforts to understand and make sense of nature. At this point, the model expressed in various ways, such as the data-information-knowledge-wisdom hierarchy "DIKW" (Ackoff, 1989), called 'Information Hierarchy,' 'Knowledge Hierarchy,' and 'Knowledge Pyramid' will be discussed to address and define data, information, and knowledge. Hierarchy is used to identify and describe the processes involved in contextualizing, making sense of, and transforming data, information, knowledge, and wisdom (DIKW). Knowledge will be examined based on the said structure.

With the presence of humans on the earth, individuals have processed, recorded, or depicted what they heard, perceived, discovered, experienced, and saw about living things, nature, objects, and the world in general, in line with a purpose. A large data source has started forming for humans and nature. Individuals have begun to process these data in line with their needs, interests, curiosities, and pursuits and turn them into meaningful wholes. This process for data can be expressed as the first stage of knowledge creation. It can be said that to ensure that data evolve to the next stage, in other words, are transformed into information, data should be organized, classified, and interrelated in line with a purpose. For example, plants collected from nature for healing can be classified as those that are good for wounds and pain. With the increasing data and processing of this data, its structure has changed and transformed into a different form, gaining the feature of information. Kelley (2002) saw information as a meaningful whole with the statement, "Information has transformed from refined data to the point of being useful through analysis." Tiwana (2002) indicated that information was the processed data. It was formalized and interpreted, and it was stated that it was prepared in an easily reusable way. The structure reached by processing the obtained data is called "information" in foreign literature. The structure that emerges when information is mentally associated, its meaningfulness is increased, its connections are strengthened, and it even becomes useful for a purpose in practice can be expressed as knowledge. The famous metaphor of Claude Levi-Strauss that information is "raw" and knowledge is "cooked" is important for explaining the relationship between information and knowledge (Burke,

2016). If a final definition of knowledge is to be made, it can be expressed as the high significance that an individual internalizes in his/her mind and behavior by processing data and information and makes the individual unique. Wisdom, which can be expressed as a perspective on the world, nature, and people, affected by variables, such as the society in which individuals live, the beliefs they have adopted, their perspective on the world, their ideology, the family where they have grown up, the geography they live in, etc., and determined and shaped accordingly, can be defined as a state of knowledge transformed into a different form.

Individuals need data, information, and knowledge to carry out their educational process or continue their professional life. It can be stated that these three structures, which indicate the individual's material aspect, are mostly related to external motivation. Wisdom emphasizes that the individual carries out these three stages more equipped with moral, ethical, and high human values. Rowley (2007) defined wisdom as the capacity to put into action the most appropriate behavior, considering what is known (knowledge) and what is best (ethical and social considerations). Bellinger, Castro, and Mills (2004) indicated that computers were not and would never be capable of possessing wisdom because of its inherent ethical aspect and stated that "wisdom is a unique human product." With a similar definition, Ackoff (1989) described wisdom as the feature distinguishing humans from machines.

In the literature outside Türkiye, data, information, and knowledge have a gradual structure. When this structure is translated into Turkish, the upper stage of "data" should be organized as "information," and the upper stage of information should be organized as "knowledge." Nevertheless, in studies from Türkiye, the concepts of "information" and "knowledge" have been both translated into Turkish as "bilgi." The fact that both concepts are expressed with the same word can undoubtedly be considered a conceptual confusion. Nevertheless, there is also a confusion of meaning here. The use of knowledge conceptually and information semantically has increased. What has been lost or blurred accordingly has been the meaning and practice of knowledge. For example, the passionate narration of the Wright brothers' efforts to create the plane and the fact that individuals who have never heard of this adventure before become aware of it do not mean that this is knowledge for the said individuals. Individuals will have just become aware of this invention or have learned about this invention process. Should the fact that Edison repeated the experiment 999 times in the process of inventing the light bulb and eventually invented it be accepted as knowledge for the individual who has learned this? Are facts that Edison gathered for the light bulb knowledge, or are facts that the person who learned this obtained knowledge? In this regard, when people state that none of the knowledge they have acquired at school is of any use to them, it is necessary to indicate that what they have learned at school is not knowledge but information.

The confusion in the concepts of information and knowledge has been transferred to the literacy part of these concepts in the same way. The definitions of information literacy by ACRL (Association of College and Research Libraries, 2016), ALA (American Library Association, 2022), Breivik (2000), Bruce (2004), Doyle (1994), Ferguson (2003), and Zurkowski (1974) has been transferred as information literacy, due to the misconfiguration, in the form of literacy of information. This situation has also led to problems in the creation, utilization, and application of information in relevant fields. Another flaw is that experts in the field of librarianship, who study information literacy as part of their field of study, actually study the right subject and structure it, but other fields that quote them confuse information literacy with knowledge literacy. Studies from Türkiye have addressed students' skill development in information literacy, especially in the context of librarianship. Subject contents have changed along with periodically changing information technologies, and subjects have been discussed and examined in terms of computer, internet, written, visual, and audio media. Considering the subjects and their frameworks, it can be clearly determined that information literacy is covered. When the abstracts of these studies on knowledge literacy translated into a foreign language are reviewed, it is seen that knowledge literacy is translated as "information literacy" in almost all of them.

The problem of defining knowledge and information or confusing the fields they cover does not exist only in studies from Türkiye. It can be stated that studies in the foreign literature also contain confusion about the boundaries of knowledge and information. Despite what is written about

"knowledge" in the OECD Foresight Project reports, it can be said that there is an excessive concentration on information and skills in this direction. No attempt to express a knowledge theory or define it in precise terms has been made at any point in the reports. Confusion between knowledge and information is also observed in the materials of the Foresight Project (Roberts, 2000).

The structure obtained by processing data emerges as knowledge considering the definitions of knowledge and the knowledge creation process in studies from Türkiye (Adigüzel, 2011; Akkoyunlu ve Kurbanoğlu, 2003; Aldemir, 2003; Başaran, 2005; Bayrak, 2019; Baysen, Çakmak, & Baysen, 2017; Dedebali, Daşdemir, & Şan, 2019; Demir & Seferoğlu, 2016; Koçak Usluel, 2006; Korkut & Akkoyunlu, 2008; Kurbanoğlu, 2010; Kurbanoğlu, Akkoyunlu ve Umay, 2006; Özbay & Çelik, 2013; Özgür, 2016; Polat, 2005, 2006; Polat & Odabaş, 2008; Saatçioğlu, Özmen, & Sürel Özer, 2003; Tatlı, 2018; Ünal & Er, 2015; Yasa, 2018), while the structure formed by processing the data collected by the individual concerning nature or everything that exists in nature and the information created as a result of associating these data, making it meaningful, mentally associating the individual's creativity, increasing the meaningfulness, and strengthening the connections is expressed as knowledge in the foreign literature (Amidon, 1997; Burke, 2016; Davenport & Prusak, 2000; Dixon, 2000; Horibe, 1999; Kelley, 2002; Krogh, Ichijo, & Nonaka, 2000; Liew, 2007; Nonaka & Takeuchi, 1995; Potter, 2016; Tiwana, 2002; Vizcaya Alonso, 1997). The problem identified in the literature in Türkiye has necessitated examining knowledge, defining its structure, and determining its field and boundaries. It is critical to determine the stages of forming, creating, or obtaining knowledge to raise knowledge-literate individuals. Therefore, first, a literature review was conducted to determine the current situation in the literature. To reveal the current state of the literature on this problem, the subjects of information literacy and knowledge literacy were reviewed within the scope of social sciences, educational sciences, and social studies in Türkiye. Master's and doctoral theses and articles were examined in this context.

The literature on information and knowledge were examined together due to the conceptual confusion in studies from Türkiye. No thesis studies on information literacy at the master's and doctoral levels were found. Fifty-five theses on knowledge literacy at the master's level were reached. Of the theses addressing the knowledge literacy levels of teachers, students, and other stakeholders and the relationship between knowledge literacy levels and various variables, 35 were prepared in the field of education and training, 12 in the field of information and document management, three in the field of communication, two in the field of information and technology, and one in the field of economy. However, the definition of information, its characteristics, and information models were covered with the concept of knowledge literacy. Although information was discussed in terms of its scope and characteristics, the concepts of knowledge and knowledge literacy were used in its expression in Turkish. Moreover, the variables discussed in the studies (computers, the internet, journals, books, and libraries) are referred to as information literacy technologies and resources in foreign literature. Twenty-two theses on knowledge literacy were reached at the doctoral level. Of the said theses, nine were prepared in the field of information and document management, seven in the field of education and training, two in the field of communication, one in the field of information and technology, one in the field of politics, one in the field of religious education, and one was prepared in the field of geography. Whereas the concept "knowledge literacy" was used directly as a title in some studies, "knowledge literacy" was mentioned in the content in other studies. However, it can be stated that information literacy is the basis on which these studies were structured. In the content dimension, the definitions used for knowledge literacy, the specified characteristics, and the knowledge literacy models expressed were evaluated within the scope of information literacy in the original sources in the foreign literature. Fifty-two articles were reached in the search conducted with the tag "Knowledge Literacy" in Google Academy. The above-mentioned studies were discussed with the concept of knowledge literacy. It can be stated that "information literacy" was included in the article contents and referred to as knowledge literacy. When a similar search was conducted in studies from Türkiye with the concepts of "knowledge," two studies were found. One study was designed in parallel with the research, and the content of information literacy was discussed. In another study, knowledge management was discussed theoretically. The study was designed as a theoretical definition. As mentioned in the problem situation,

the existing problem should be expressed not only as conceptual confusion but also as the loss or blurring of the meaning and nature of knowledge. The "ProQuest Dissertations and Theses Global Full Text" database was used to examine theses on knowledge literacy in foreign literature. The "Knowledge Literacy, Knowledge Management, Knowledge Construction, and Creating Knowledge" were used in the searches. To examine theses on knowledge literacy in foreign literature, six theses were reached in the search performed in the "ProQuest Dissertations and Theses Global Full Text" database. All of the theses reached were studies conducted for higher education. When the theses were reviewed, it was revealed that studies were carried out on knowledge management competencies, how to develop and improve knowledge management, determining factors that affect knowledge management, and how to increase knowledge sharing.

It should be indicated that knowledge has been attempted to be defined with a single concept in the literature, but knowledge is multidimensional. It can be said that there is a significant wealth of meaning behind it and that it is difficult to clarify the knowledge-related pattern. The current study aims to contribute to eliminating the blurriness of the knowledge-related pattern in the context of the social studies course and social sciences specifically.

Raising individuals who will manage, structure, and produce knowledge necessitates the relationship between education and knowledge. Knowledge literacy takes an important place within the scope of teaching and learning knowledge in the process of education. How to teach data and information and how students will create or structure knowledge at the end of this process will be possible with knowledge literacy. The pattern obtained concerning knowledge was deemed important in terms of structuring knowledge.

Edgar Bruce Wesley, who is considered one of the pioneers of the social studies (course) movement, defined social studies as "a course that simplifies and integrates social sciences for pedagogical purposes" at the beginning of the 20th century. The National Council for Social Studies (NCSS) team of the US, which has a pioneering effect on social studies education, adopted in 1992 the idea that social studies is "a field that combines social and human sciences to support competent citizens" (NCSS, 2023). Considering the definitions of social studies and mentioning its relationship with knowledge, it was defined as understanding the world and participating in society as responsible citizens (Barr, 1997). Kaur (2004) stressed that social studies, in its simplest form, was a course aiming to reflect academic findings in various fields of social sciences in line with the needs of primary and secondary school children in their individual and social life and with a content appropriate to their understanding (as cited in Aslan, 2016).

Social studies has numerous purposes. Classifications have been made in the literature concerning these purposes and approaches. As a result of their detailed study conducted with teachers on the nature of social studies, Barr, Barth, and Shermis (1977) presented three approaches or traditions with regard to social studies. These approaches were expressed as Citizenship Transmission, Reflective Inquiry, and Social Studies as Social Science.

"Teaching social studies as a social science" constitutes the study's context. The purpose of social studies, defined as social science, is to ensure that young people acquire the knowledge, skills, and tools of certain branches of science in their simplest form (superficially) so that they can become active citizens. It means that teachers provide students with information about research methods, ways of research, and ways of looking at the world accepted by social scientists.

Knowledge literacy is directly related to most of the skills in the social studies curriculum and indirectly related to some of them. In this regard, the purpose and content of the social studies course can be structured more effectively and efficiently within the scope of knowledge literacy. Social studies ensures that systematic research is conducted in coordination with mathematics and natural sciences, using the appropriate content from humanities, in addition to disciplines such as anthropology, archaeology, economics, geography, history, law, philosophy, political science, psychology, religion, and sociology. The primary purpose of social studies has been expressed as helping young people

develop the ability to take conscious and logical decisions for the public good as citizens of a democratic society with cultural diversity in a global world (National Council for the Social Studies [NCSS], 2023). The expressed social studies purpose and content are directly related to knowledge literacy. Furthermore, a significant part of the skills in the social studies curriculum are directly related to knowledge literacy and types of knowledge, whereas some are indirectly related to them. Skills such as research, environmental literacy, perception of change and continuity, digital literacy, critical thinking, financial literacy, entrepreneurship, map literacy, legal literacy, collaboration, using evidence, decision-making, media literacy, political literacy, problem-solving, drawing and interpreting tables, graphs and diagrams, and innovative thinking can be especially listed within the scope of this relationship (Ministry of National Education [MoNE], 2018).

In this respect, it was attempted to determine the types of knowledge that can improve students' knowledge literacy within the scope of teaching social studies as social sciences. It is essential to structure knowledge in the social science fields included in the content of social studies. It can be indicated that there is no common scheme or model for obtaining information in social sciences. To this end, types of knowledge that may be common in social sciences will be investigated. The present study aims to create a pattern about what knowledge is in the context of the social studies course and social sciences specifically and accordingly develop a knowledge literacy model within the framework of social sciences.

The problem to be addressed in the study, in line with the purpose and significance expressed above, was determined with the question, "How can a knowledge literacy model specific to social studies education be developed on the basis of social sciences?" The sub-problem of the study was determined with the question, "How can a knowledge literacy model proposal be developed in line with the opinions of domain experts?"

Method

Detailed information about the research design, study group, data collection tools, data collection processes, and data analysis stages will be provided under this heading.

Research Design

The current research was designed with a qualitative research approach using a grounded theory design.

Qualitative research intends to learn how people understand and experience their world at a particular time and in a specific context (Merriam & Grenier, 2019). Qualitative research attempts to understand people's behavior in a real-world setting, what relations they establish, how they interpret their experiences, how they construct their world or what meaning they attach to their experiences, etc. (Creswell, 2007; Denzin & Lincoln, 2005; Guba, 1990; Merriam, 2009; Patton, 2014; Yin, 2015).

Data Collection Process

The purpose of the grounded theory introduced by Glaser and Strauss (1999) is to reach theory through data collection and analysis. Grounded theory refers to a specific methodology on how to systematically collect data and produce a multivariate conceptual theory (Glaser, 1999). Qualitative researchers usually conduct a study on the basis of grounded theory since there is a lack of theory or an existing theory cannot adequately explain a phenomenon. Researching how individuals experience and interact with their social worlds and the meaning of this for them is based on the perspective of the grounded theory design (Merriam & Grenier, 2019). Grounded theory serves as "a way of acquiring knowledge about the worlds we study and a method of developing theories to understand them" (Charmaz, 2006). The method requires that the researcher constantly interacts with data collection and data analysis. Data collection and analysis proceed simultaneously. Each contributes to the development of the other and shapes it (Bryant & Charmaz, 2007).

In the current study, the grounded theory design process was conducted to reveal what different types of knowledge could be in the context of social sciences. First, it was investigated what knowledge in terms of social sciences was, and its framework was drawn. Then, the domestic and

foreign literature on knowledge literacy was reviewed, and a core category regarding knowledge types was revealed. The resulting category supported the researcher's ideas on the subject. This does not mean that the researcher has an empty mind devoid of any thoughts about the studied phenomenon (Merriam & Grenier, 2019). Glaser and Strauss (1999) expressed a similar approach by stating that the researcher should not approach reality as a "tabula rasa" but should have a perspective that will help him/her to examine the necessary data and detect important categories. The resulting core category was used as a supporter in the interviews, and care was taken not to create an obstacle in revealing the main structure or to negatively direct the interviews conducted with experts. Typically, findings derived inductively from data in a qualitative study are in the form of themes, categories, typologies, concepts, tentative hypotheses, or even theory about a particular aspect of practice.

It was attempted to determine the types of knowledge in each field of social sciences regarding knowledge literacy by conducting interviews with experts in the relevant field of social sciences. History, geography, sociology, philosophy, archaeology, law, politics, economics, psychology, communication, and anthropology were determined as the relevant fields in the specified list (Table 1). A literature review was performed in the specified fields, and an idea about what types of knowledge were or could be was formed. Experts in social science and social studies educators determined by the researchers were contacted, and interviews were conducted using the method they preferred (face-to-face or online system [meet, teams, zoom]. The participants' wishes were taken as a basis in the interview method due to the COVID-19 pandemic, and an online interview method was employed. The interviews were recorded with the participants' permission. A preliminary information form prepared concerning the types of knowledge was shared with the participants prior to the interview. During the interviews, experts were asked what type(s) of knowledge were available in their field of expertise. An unstructured interview form was used in the interviews. The data obtained from the interviews were analyzed throughout the process, and the resulting structure provided support for the subsequent interviews. Analyses were performed as a result of the interviews with experts determined in each field, and the resulting structure formed the basis for interviews to be conducted with experts in the next field.

Study Group

The purposive sampling and snowball techniques were used together to obtain expert opinions on the sub-problem of the study. During the interviews with the determined participants, other domain experts and field educators were also reached with the participants' guidance. The snowball technique was employed at this stage. Table 1 lists the social studies educators and social science experts interviewed with the purposeful sampling method within the scope of the study. When determining participants, their expertise on the subject was taken into account. Moreover, to indicate the direction of guidance on how to reach social studies educators and social science experts who were reached with the snowball technique, codes were given to the participants, and the relationship diagram is presented in Table 2. Twenty-five individuals participated in the study voluntarily. The participants' areas of expertise were coded in Table 1 without sharing their personal data.

Table 1. Participant table

Sequence Number	Interviewed Participants				
	Participant Code	**Area of Expertise**			
1	GT1	Social Studies Education	14	GT14	International relations
2	GT4	Social Studies Education	15	GT15	Geography
3	GT17	Geography	16	GT12	Politics
4	GT13	Geography	17	GT10	Psychology
5	GT18	History	18	GT11	Social Studies Education
6	GT19	Geography	19	GT23	Economics
7	GT20	Geography	20	GT24	Economics
8	GT5	History	21	GT25	Economics
9	GT6	Social Studies Education	22	GT2	Sociology
10	GT16	History	23	GT8	Philosophy
11	GT21	Primary School Education	24	GT3	Sociology
12	GT7	Philosophy	25	GT9	History
13	GT22	Communication			

Table 2. Participants reached with the snowball technique

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        GT23                          GT16
       /    \                        /    \
    GT25    GT24                   GT3    GT2
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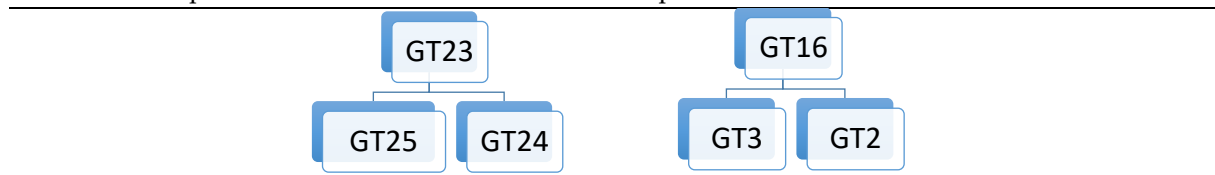
Data Collection Tool

An unstructured interview form developed by the researcher was used to collect data with regard to the sub-problem of the study. The prepared interview form was presented to two social studies experts and one Turkish language expert. Both social studies experts have over ten years of experience and have worked on qualitative methods concerning the subject. The corrections indicated by the social studies experts were performed. Finally, the interview form was finalized by conducting a pilot study with a social studies expert. In the interview form, it was asked what the knowledge types of social sciences could be in terms of sociology, geography, communication, history, archaeology, politics, economics, psychology, law, anthropology, and philosophy for the model to be developed within the scope of the social studies course in line with the study's purpose.

Data Analysis

At the first stage of the study, an inductive analysis approach was adopted in the analysis of the data collected regarding the Grounded Theory Design process. Saldaña (2016) stated that the concept analysis (coding) method could be used in line with the study's purpose in the analysis of the data obtained. A concept usually consists of components to which it is related. Hence concept codes tend to apply to larger units or slices of data compatible with the bigger picture suggested by a concept. Concept codes are suitable for studies that focus on theory and theory development. Concept coding is suitable for studies involving all types of data, multiple participants and fields and studies with a wide variety of data forms (e.g., interview transcripts, field notes, journals, documents, diaries, correspondence, artifacts, video) (Saldaña, 2016).

The data were analyzed by adopting an inductive analysis approach. In the inductive analysis approach, the researcher moves from parts to the whole. To this end, the data obtained were analyzed in line with the inductive analysis approach and concept coding method and codes were created, categories were obtained from the created codes, themes were obtained from the categories, and a superordinate theme was obtained from the themes. The resulting codes, categories, themes, and superordinate theme are presented in the findings section.

The notes acquired regarding the unstructured interviews and the 966-minute video recordings were converted into written texts on the computer. The data converted into written texts on the computer were transferred to the analysis program Atlas.ti and analyzed in line with the inductive analysis approach and concept coding method. Figure 1 shows the structure obtained from the analysis.

Credibility in the Study

To increase the study's credibility, 20% of the data obtained were analyzed in line with the study's purpose by a researcher who has experience in qualitative data analysis and is an expert in social studies education. Analyses performed by the social studies education expert and the researcher were compared with the participation of both. The conflicting codes were arranged as a result of this process. An agreement was reached on the theme. Within the scope of the study's credibility, at the second stage of the research, one assessment and evaluation expert and two social studies education experts were consulted for the development and implementation of activity examples and the development of the rubrics used in the evaluation section. Different data sources, data collection tools, and analysis approaches were used within the scope of the study's credibility. Data were obtained using various data collection tools such as unstructured interviews, video recordings, and researcher's notes during the research process. At this stage, the researcher's notes were focused on and used in the data analysis process. Some interviews were conducted online, and the others were conducted face-to-face. The researcher took notes during the face-to-face interviews. These notes were presented to the participant at the end of the interview, and if there was no objection, the interview was completed, and the notes were used at the analysis stage. No corrections were made to the participant's statements, and the statements were quoted as they were.

Ethical permission of the study:

All rules specified to be applied within the scope of the "Scientific Research and Publication Ethics Directive for Higher Education Institutions" were followed in this study. None of the actions mentioned under the heading "Actions Contrary to Scientific Research and Publication Ethics," which is the second section of the directive, were performed.

Ethics committee permission information:

Name of the committee that performed the ethical evaluation: Bolu Abant İzzet Baysal University Ethics Committee for Human Research in Social Sciences

Date of the ethical evaluation decision: 04.10.2021

Ethical evaluation document issue number: 2021/10

Findings

Findings Regarding the Grounded Theory Design
This section presents findings regarding the research sub-problems.

Findings Regarding the Study's Sub-Problem
The findings and participant statements reached as a result of the analysis of the data obtained from the interviews conducted within the scope of the grounded theory design are presented.
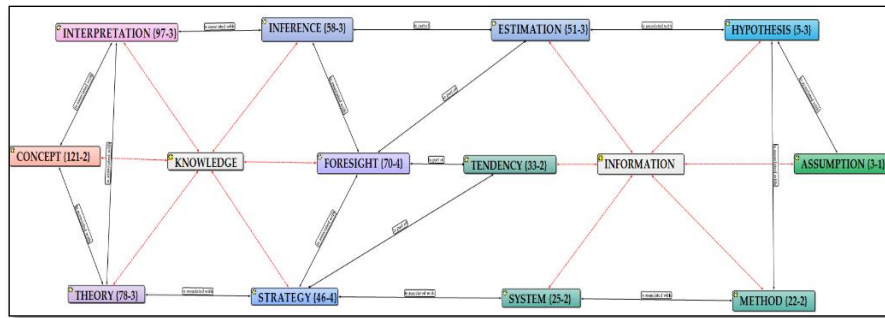
Figure 1. Diagram of Knowledge and Information Types

The codes acquired from the texts and videos of the interviews with the participants concerning knowledge literacy were grouped under 12 subordinate themes, such as *"concept," "interpretation," "inference," "foresight," "strategy," "theory," "system," "method", "tendency," "estimation," "hypothesis," and "assumption."*

The resulting subordinate themes were combined under the themes "**knowledge** (*interpretation, foresight, strategy, concept, inference, and theory*) and **information** (system, method, tendency, estimation, hypothesis, and assumption)." The information types expressed by the participants within the scope of the study were excluded from the study's scope. In line with the study's purpose, only the types of knowledge under the knowledge theme were combined and examined, and the structure was shaped.

Within the scope of the findings, the presence of relationships between *interpretation, foresight, strategy, concept, inference, and theory* under the knowledge theme was revealed (Figure 2).
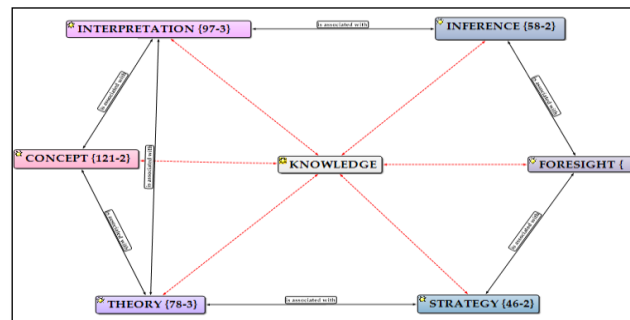

Figure 2. Diagram of Knowledge Types

Participant Statements Regarding Knowledge Types
Knowledge Literacy, Information and Knowledge Types in Social Sciences
General statements made by the participants regarding knowledge literacy and types of knowledge are presented below.

"Domain Expert GT7"
"For example, the building blocks of knowledge literacy in social sciences or things that knowledge literate individuals should look at… A person should look at these in order to become knowledge literate."

"Domain Expert GT9"
"School changes have begun since the early 1990s, and instead of information, the concept of knowledge, which can be applied to more meanings, has emerged. A process has started in which instead of taking something and transferring it and obtaining information, the historian makes it applicable, transforms it into knowledge, understands and comprehends it, and accordingly makes foresights, draws inferences, and makes interpretations about it. The difference between information and knowledge is that information is a limited area, while knowledge covers a more unlimited and developing area."

Interpretation Knowledge Type

Figures 3 and 4 show the theme relationship regarding "interpretation," expressed as a type of knowledge, and the codes under the theme. The participants determined that the interpretation knowledge type was related to three (3) different knowledge types. It was found that the interpretation knowledge type was related to inference, theory, and concept (Figure 3).
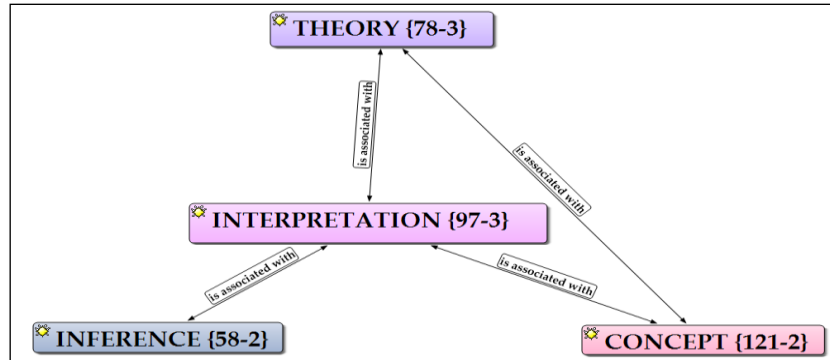

Figure 3. Interpretation Knowledge Type: Theme Relationship Diagram

According to the findings, the participants mentioned the interpretation knowledge type ninety-seven times. The participants indicated that 26 of the 97 codes supported, explained, or expanded each other (Figure 4).
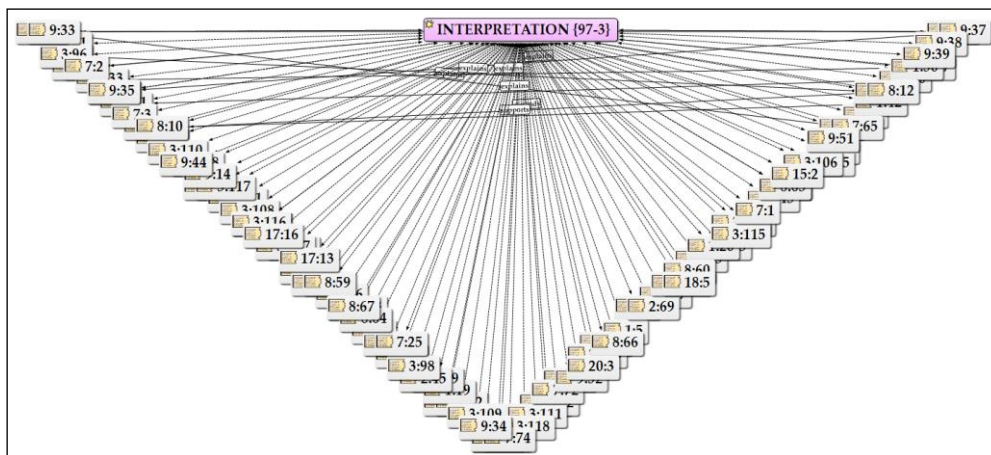

Figure 4. Interpretation Knowledge Type: Code Diagram

The participant statements regarding interpretation are presented below;

"Domain Expert GT5"

"For example, speaking from my own field, I go out into the field. I examine a 1000-year-old fountain and mosque. I collect data from there, and in the end, I obtain knowledge about Byzantium and make interpretation."

"Domain Expert GT1"

"So we're going to inquiry. Again, there is knowledge obtained through inquiry. For example, to start from historical thinking skills, there is historical chronological thinking, and there is historical comprehension under chronological thinking. When you say, "Let's teach something about comprehension," it returns back to inquiry. But in the end, it returns back to the interpretation section. In other words, everything connects to hermeneutics."

"Domain Expert GT3"

"There is also interpretation, which is extremely important. However, I want to draw attention to the following here. Interpretation falls within the scope of both information and knowledge. For instance, the artist makes interpretation in the fields of art, literature, and poetry. What I mean by interpretation and this concept should be defined very well. As you know, it is the name of a method in social sciences and also a hermeneutic method. A theoretical framework is called hermeneutics. Of course, interpretation has a place in social sciences. It is not a place to be underestimated, but it needs to be defined well. What kind of interpretation are you talking about? An artist also interprets the world, people, and nature. After all, people without scientific formation also interpret the world, people, the society they live in, and the universe in their own way. In other words, interpretation is an indispensable part of life. What we mean here is scientific interpretation. What are the principles of scientific interpretation? For example, we should put forward these and these criteria. Otherwise, interpretation is a very general concept."

"Domain Expert GT7"

"The points we talk about are related to knowledge literacy. Interpretation is also among them. There is no problem with interpretation. In other words, when a person is knowledge literate, he should also have interpretation, literacy skills."

The participants reported that interpretation was an important type of knowledge used in social sciences. The participants stated that it was possible to talk about the presence of interpretation in every branch of science, but interpretation should meet certain criteria to be accepted as a type of knowledge.

Foresight Knowledge Type

The participants indicated that the foresight subordinate theme was related to four different subordinate themes. It was stated that foresight was related to inference and strategy knowledge types. Moreover, tendency and estimation, which were specified by the participants as information types, were expressed as a part of the foresight process (Figure 5).
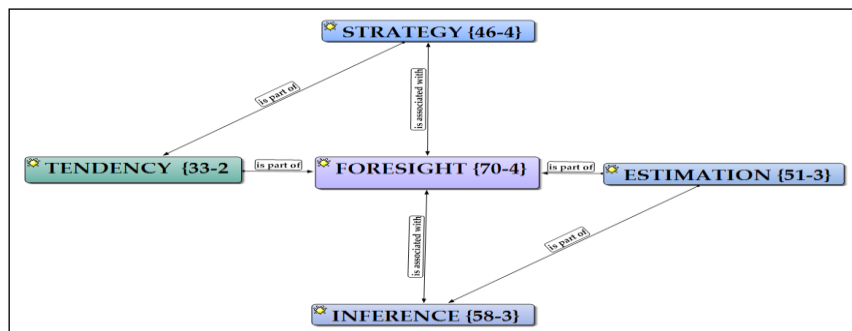

Figure 5. Foresight Knowledge Type: Theme Relationship Diagram

The participants mentioned the foresight knowledge type seventy times. The participants stated that thirty-three (33) of the seventy (70) codes supported or explained each other (Figure 6).
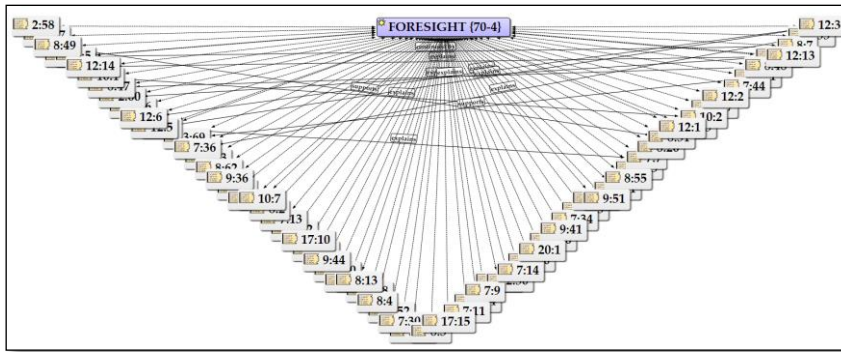

Figure 6. Foresight Knowledge Type: Code Diagram

The participant statements regarding foresight are given below;
"Domain Expert GT2"
"You must have a lot of things to make a foresight. My foresight is as follows, I can suggest the following for the future. There is a claim in the foresight."

"Domain Expert GT8"
"When you say foresight , it seems like the concept becomes a little more scientific, estimation is more daily. Each foresight can be an estimation, but not every estimation is a foresight."

"Domain Expert GT5"
"For example, they present two projections for Türkiye, suitable for 2023 and 2050. In my opinion, this is a foresight, not an estimation, because they do this after collecting the relevant data."

"Domain Expert GT10"
"In foresight, you act with a higher amount of better knowledge. You make foresights based on the knowledge you have obtained."

The participants stressed that foresight was for the future. They also mentioned the distinction between foresight and estimation. The participants stated that foresight was more valuable and scientific.

Strategy Knowledge Type
The participants indicated that the strategy subordinate theme was related to four different subordinate themes. It was revealed that the strategy knowledge type was related to the theory and foresight knowledge type and system, one of the information types. It was found that tendency, expressed as the information type, was indicated as a part of the strategy development process (Figure 7).
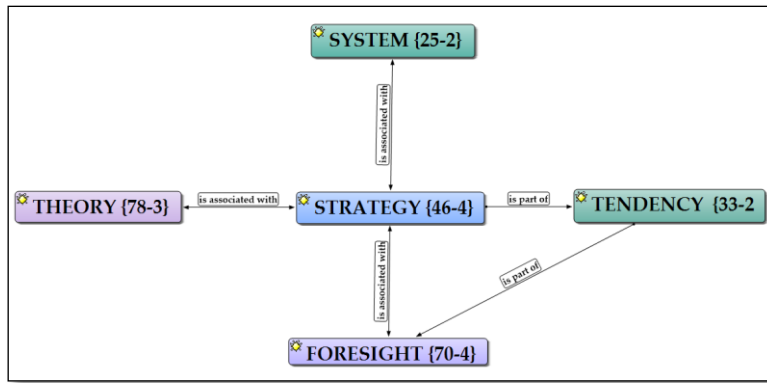
Figure 7. Strategy Knowledge Type: Theme Relationship Diagram

The participants expressed the strategy knowledge type forty-six times. They reported that eighteen (18) codes explained or repeated each other (Figure 8).
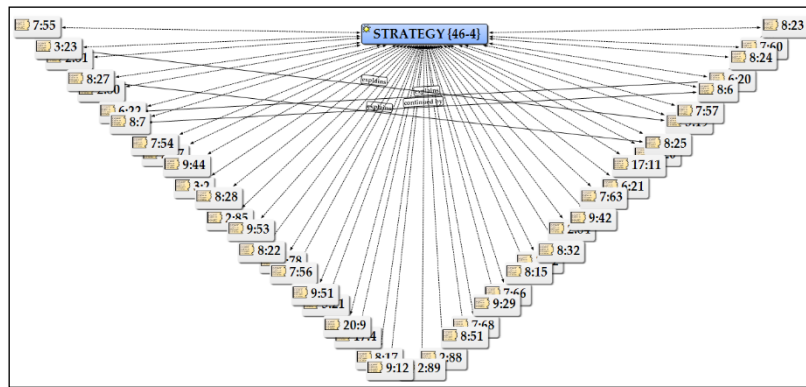

Figure 8. Strategy Knowledge Type: Code Diagram

The participant statements regarding strategy are presented below;
"Domain Expert GT2"
"There are more dangers, such as public transportation, diseases, etc. Hence we don't know what these variables will change in the changing world. Of course, they change at some point. It may be the climate, it may be the virus. People develop strategies against these."

"Domain Expert GT3"
"I would like to briefly focus on the concept of strategy. There are research strategies in scientific research, or more precisely, in social scientific research. In particular, in field research, there are some strategies that researchers rely on in qualitative or quantitative studies. These should be regarded within the scope of knowledge."

"Domain Expert GT6"
"What we call international relations, military experts, strategists… These can be increased at this point. You know, we should say this: strategy is the knowledge that we call hybrid and interdisciplinary already. This is an area that political administrations rely on, particularly to determine what we will do in the future, move forward in the future work, and determine policies."

The participants expressed strategy as a type of knowledge. Moreover, they stated that strategy could be used to identify the possible problems in the future and strategy could be used to cope with uncertainty.

Concept Knowledge Type

The participants mentioned concept one hundred and twenty times. They reported that the concept subordinate theme was related to two different subordinate themes. The concept knowledge type was expressed to be related to the interpretation and theory knowledge types (Figure 9).
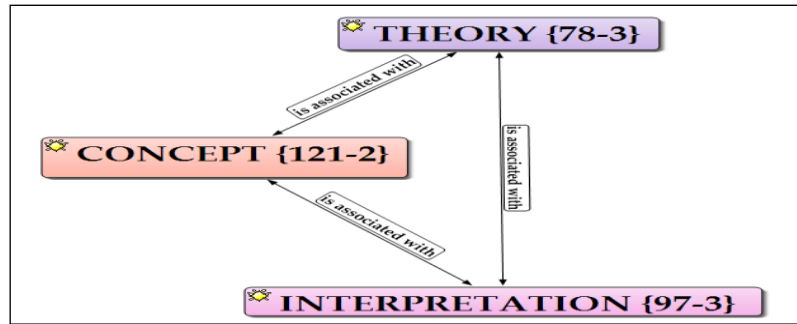

Figure 9. Concept Knowledge Type: Theme Relationship Diagram

The participants mentioned the concept knowledge type one hundred and twenty one times. They stated that twenty-eight (28) codes explained, supported, expanded, ensured continuity, or justified each other (Figure 10).
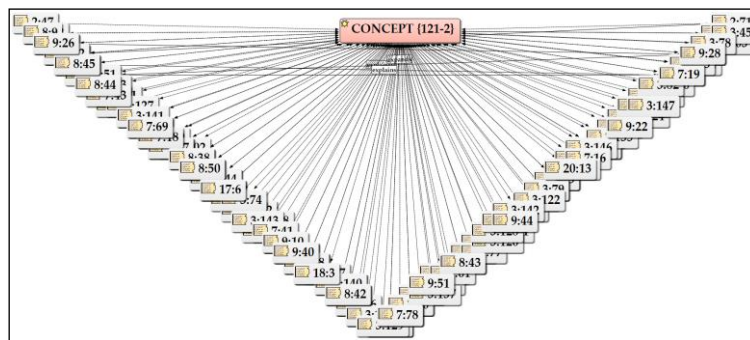

Figure 10. Concept Knowledge Type: Code Diagram

The participant statements concerning concept are given below;
"Domain Expert GT3"

"First of all, using concepts in social sciences has an extremely strategic value and significance. Conceptualization is a very important element. I would like to indicate the following right away: the philosopher has a saying, it is impossible without concepts, there is no thinking without concepts. Creating concepts constitutes the basis of science. In this respect, science is realized with concepts. Social scientists need new concepts during change. Social scientists have a toolbox, which we can also call luggage. Concepts are the most basic tools social scientists use in this luggage. Social scientists work with concepts. In this regard, I think conceptualization is a very important type of knowledge."

"Domain Expert GT2"

"Nowadays, concepts appear all the time. We used to call it poverty in the past. But how many types of poverty have emerged today, haven't they? For example, a refugee arrived, we said immigrant. And how many types of immigration have emerged today! We should address each of them as a separate concept. Conceptualization is crucial."

"Domain Expert GT8"

"Conceptualization is a thing someone has to do. Science makes use of concepts by necessity. We make things to be taught a bit more systematic through conceptualization. A chance to pass them to someone else appears. Each branch of science has its own terminology and concept map. The purpose of conceptualization is to transfer knowledge to another to make it permanent."

The participants expressed concept as the most basic type of knowledge in social sciences and stated that concepts also constituted the basis of science. They mentioned that adaptation to the new situations caused by social change was provided through conceptualization and therefore concept was of critical importance for social sciences.

Inference Knowledge Type

The participants mentioned inference fifty-eight times and stated that the inference subordinate theme was related to three different subordinate themes. The participants evaluated the inference knowledge type as related to the interpretation and foresight knowledge types. The data analysis also showed that the inference knowledge type and estimation, one of the information types, supported each other (Figure 11).
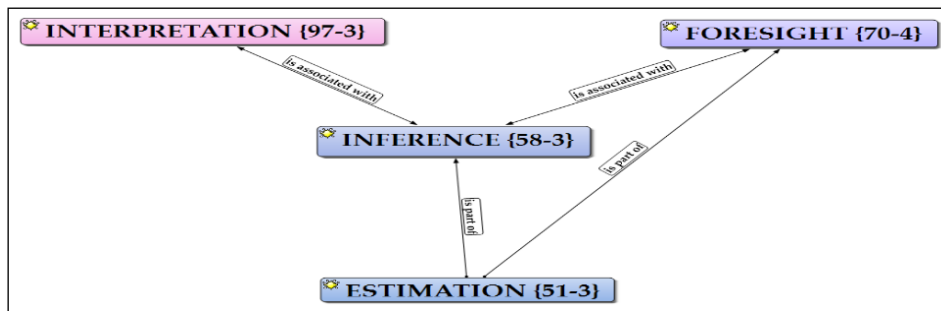

Figure 11. Inference Knowledge Type: Theme Relationship Diagram

The participants expressed the inference knowledge type fifty-eight (58) types. They reported that twenty-six (26) codes explained, supported, or expanded each other (Figure 12).
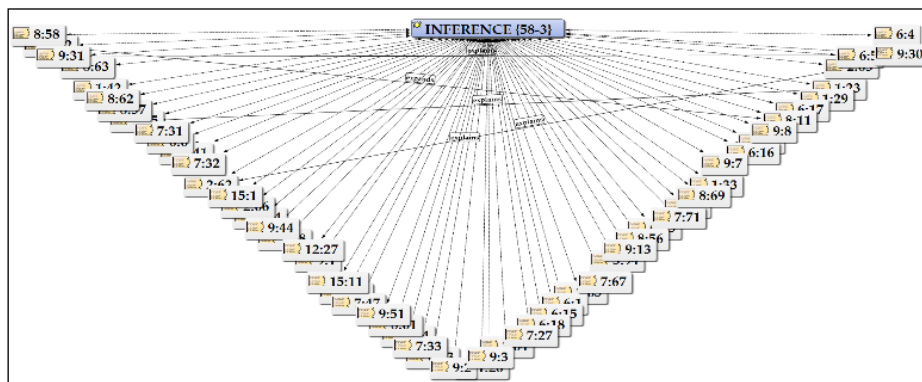

Figure 12. Inference Knowledge Type: Code Diagram

The participant statements regarding inference are presented below;

"Domain Expert GT1"

"Inference benefits from the data revealed by history and archaeology. Hence let's assume that we use the Khashoggi Diamond in the museum as a first-hand source. We use this in the context of history, perhaps in archaeology. But at the end of all of this, there is definitely an inference. Therefore, on what basis do we make this inference? We make it based on evidence."

"Domain Expert GT4"

"Archaeology actually draws inferences based entirely on the evidence it has obtained. In other words, an archaeological find the archaeologist has discovered, for example, he found a hammer! The archaeologist says, they used to use it for this. This is an inference. You should teach your students to use and evaluate evidence. Then, you will show how they can draw an inference from that evidence. You will present pieces of evidence, and they will make inferences from the evidence."

"Domain Expert GT5"

"During the reign of Sultan Suleiman the First, who had the longest reign in Ottoman history between 1520 and 1566, there were rebellion attempts that arose from the long-lasting dissatisfaction of people within the state, which seemed very magnificent and very powerful. I am making an inference. I say, these people were not happy, they were in financial trouble. Continuous military service, taxes, etc. They did this continuously in the past."

The participants indicated that inference was a knowledge type used in social sciences. They stressed the importance of using inference in the science branches of archaeology and history. It was underlined that inference would be drawn, especially for situations experienced in the past.

Theory Knowledge Type

Finally, the participants mentioned the theory knowledge type seventy-eight times. They stated that the theory subordinate theme was related to three different subordinate themes. It was found that the theory knowledge type was related to concept and interpretation (Figure 13).
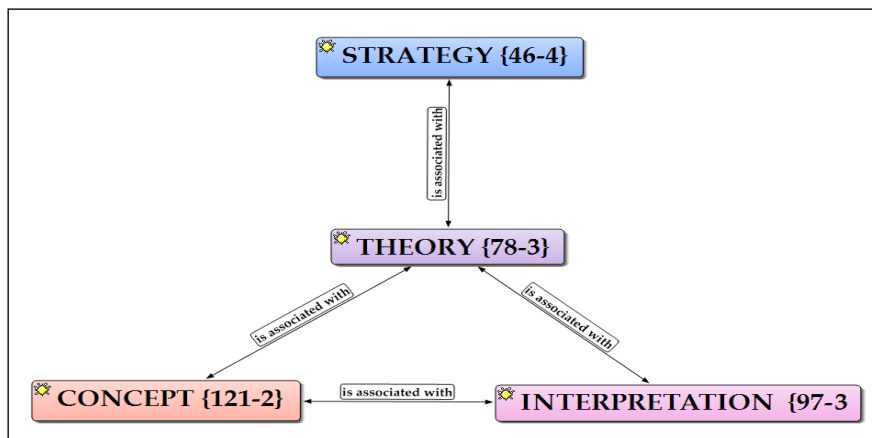

Figure 13. Theory Knowledge Type: Theme Relationship Diagram

The participants mentioned the theory knowledge type seventy-eight (78) times. They stated that thirty-five (35) codes explained, supported, discussed, or expanded each other (Figure 14).
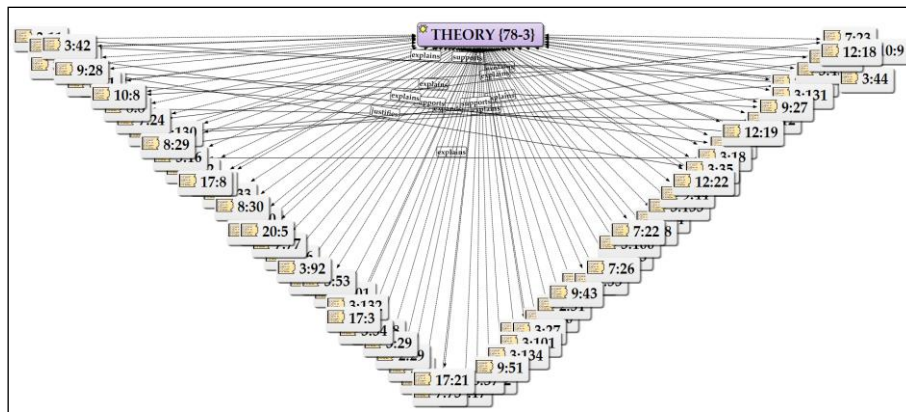

Figure 14. Theory Knowledge Type: Code Diagram

The participant statements concerning theory are given below;
"Domain Expert GT3"
"Theory is usually one of the most fundamental elements in social sciences. All social scientists cannot be expected to develop theory, but they should and are expected to use a certain theory or set of theories in their research and studies. The theoretical basis is extremely important. Science is not possible without theory. It is the basis of science."

"Domain Expert GT5"
"Theory… Yes, we see that there are various theories in the fields of natural sciences or physical sciences, educational science, and sociology, which we have observed in our previous studies within the branches of social sciences."

The participants reported that theory was the basis of science and a type of knowledge. They indicated that theory was related to other knowledge and information types.

Discussion, Conclusion and Recommendations

Discussion

The construct we call episteme has been examined in detail from ancient Greece to the present day. The conditions of the period and the current period have affected a perspective on knowledge. In this process, numerous questions about knowledge have been raised, and great progress has been made regarding these questions.. Nevertheless, as in every period, important questions and problems with regard to knowledge continue to exist nowadays. The types of knowledge, which constitute the main problem of the present study, are also considered as an important problem area that should be examined concerning knowledge.

Changes and advancements at the international level have considerably affected human life. The rapid advancement of technology has significantly impacted the knowledge of individuals and has required in-depth thinking on this issue. Especially the constructs of data, information, and knowledge have been re-addressed. The review of studies from Türkiye determined some problems in addressing knowledge, contrary to the international literature. These problems are not limited to studies in the literature but are also clearly observed in the country's education system. These problems also manifest themselves in the way society processes and considers knowledge and expresses it.

There is a significant problem in addressing the structure, expressed as doxa and episteme in the philosophy of knowledge, in studies from Türkiye. It can be said that there is confusion in addressing, using, and expressing doxa and episteme in the philosophy of knowledge. Whereas doxa

corresponds to information, episteme corresponds to knowledge. In today's world, the concept of knowledge used by individuals in most cases does not correspond to episteme. Upon examining the concept of knowledge used, it is seen that it actually corresponds to information in terms of content and structure. A conceptual confusion can be mentioned here. It is seen that the concepts of data, information, and knowledge are used interchangeably. You can frequently hear this in the speeches of academicians in a university environment, teachers at school, presenters on television, farmers in the field, and politicians at the podium. In the literature review, it can be clearly seen how intertwined information and knowledge are. The concept of "information" in foreign literature is usually transferred to studies in Türkiye as "bilgi." While some sources mention "bilgi" that corresponds to the concept of "knowledge" as the dimension of information transferred to practice, other sources do not mention it at all. On the contrary, whereas the term "information" refers to "enformasyon" or "malumat," the term "knowledge" refers to "bilgi." This cannot be ignored not only as a conceptual confusion but also as a problem where the meaning of knowledge and information are confused and information used with the intention of knowledge takes precedence.

The above-mentioned situation can be observed in the studies by (Adıgüzel, 2011; Akkoyunlu ve Kurbanoğlu, 2003; Aldemir, 2003; Argon, Öztürk & Kılıçaslan, 2008; Ayık, 2022; Başaran, 2005; Bayrak, 2019; Baysen et al., 2017; Çakmak & Önal, 2013; Dedebali et al., 2019; Demir & Seferoğlu, 2016; Çit & Yavuzdemir, 2021; Gholipour, 2018; Gürbüztürk & Koç, 2012; Güven, 2014; İpek, 2021; Kaya & Durmuş, 2008; Koç & Koşaner, 2005; Koçak Usluel, 2006; Korkut & Akkoyunlu, 2008; Kurbanoğlu, 2010; Kurbanoğlu, Akkoyunlu ve Umay, 2006; Özbay & Çelik, 2013; Özel, 2013, 2016; Özgür, 2016; Özgüven, 2019; Özmusul, 2012; Polat, 2005, 2006; Polat & Odabaş, 2008; Saatçioğlu et al., 2003; Soylu, 2022; Şenyurt, 2018; Tatlı, 2018; Tuncer & Dikmen, 2018; Turancı, 2017; Turgut, 2022; Uğurlu, Beycioğlu, & Abdurrezzak, 2018; Ünal & Er , 2015; Yasa, 2018). Furthermore, information types were conveyed as knowledge types in some of these studies.

It should be stated that problems are experienced with transferring knowledge and information to daily life. In the practice dimension, knowledge has been lost, and information has been highlighted. The same mistake is made in stating that what is written in books, presented to students with slides, or told by the teacher is knowledge. The teacher only informs students about the subjects explained through books or slides. It is essential to know that most of what is taught to students in the education process is information, not knowledge. The fact that students have learned what is conveyed to them does not mean that it is knowledge. The fact that the presentation is in a slide format and that the teacher presents it as a video or scheme via computer instead of direct instruction does not cause a structural change. Considering Ackoff's statement, "While books on the library shelves are data, this is information for the person who reads it, but this is knowledge for the person who has written that book," the difference between data, information, and knowledge becomes a little clearer in this regard.

In the study, the literature was reviewed to reveal whether there was a scheme regarding knowledge on the basis of knowledge literacy. A structure, although not standard, was reached in the review of studies from Türkiye and foreign literature. It can be said that these studies (Amidon, 1997; Burke, 2016; Davenport ve Prusak, 2000; Dixon, 2000; Horibe, 1999; Kelley, 2002; Krogh et al., 2000; Nonaka & Takeuchi, 1995; Potter, 2016; Tiwana, 2002; Vizcaya Alonso, 1997) defined knowledge literacy, determined its framework, and expressed the characteristics that would indicate knowledge types. Elements such as interpretation, inference, foresight, strategy, theory, system, method, tendency, estimation, hypothesis, and assumption that are addressed in the context of social sciences and are unclear whether it is a type of knowledge were examined, and a clearer structure was attempted to be obtained by sharing this complex structure with experts in the field of social sciences and educators in the field of social studies. As a result of the study, this structure that can be expressed as a type of knowledge in the context of social sciences and used specifically in the social studies course included interpretation, foresight, strategy, concept, inference, and theory. It is beneficial to state that this structure is not final and is a core category that can be transformed or improved.

A structure that can be described as a type of knowledge in the context of social sciences was obtained from the interviews. This structure, which can be used in the context of the social studies course that presents social sciences in a simplified manner, includes interpretation, foresight, strategy, concept, inference, and theory. It should be stressed that this resulting structure is a core category and that this structure is not final. It should be noted that this structure can be transformed or improved. The absence of any study on the studied subject has made the process difficult. Moreover, the fact that some participants used the types of knowledge obtained interchangeably during the interviews was another factor that made the process difficult. The lack of sufficient data and information in the literature concerning the core category expressed by the participants and structured by the researcher can also be indicated as a problem. Hence difficulties have been experienced in the process of defining knowledge types. It was regarded as important to have a unique structure in addition to the mentioned difficulties. It is valuable to obtain a structure that is thought to enable the transition to the next level of information for improving the education process.

Conclusion

A detailed assessment of the data, information, knowledge, and wisdom scheme revealed as a result of the literature review on knowledge was found important. Studies from Türkiye have identified and explained deficiencies with regard to this scheme as a result of a comprehensive review. In addition, the study focused on the knowledge section of this scheme and defined and presented the types of knowledge that can be used in the field of social sciences. These types of knowledge were interpretation, foresight, strategy, concept, inference, and theory. This core category was addressed in the discussion section and evaluated with all its aspects. Knowledge literacy refers to the ability to research, evaluate, interpret, and use knowledge effectively. The discipline of social studies involves a wide range of different knowledge types. Since social studies includes various types of knowledge, it provides individuals with the opportunity to develop knowledge literacy. Understanding the knowledge types in social sciences contributes to improving the ability to critically evaluate social events, which helps us raise more conscious, informed, knowledge-producing, and active citizens and plays an important role in solving social problems.

It is useful to know that the said structure, which can be expressed traditionally, also has a digital dimension. It is essential to complete this process, which we can describe as traditional literacy, as soon as possible and move on to the digitally produced knowledge phase. Seeing that the knowledge of the future will be produced digitally will create opportunities for planning the future today. The history of data, information, and knowledge in foreign literature dates back to the 1960s. It is useful to know that the mentioned process is followed from behind in the studies from Türkiye, but there is still the opportunity to capture the knowledge of the digital.

Recommendations

Recommendations for researchers and practitioners are presented under this heading according to the research results.

- The structure obtained from the interviews in the current study can be expressed as the core category. The structure obtained from the research is not final. It should be stated that the structure acquired from this study should be regarded "not as a perfected product, but as a constantly developing entity." The said structure can be developed, expanded or transformed with the contribution of other researchers.

- The resulting core category can be used to address appropriate subjects within the scope of the social studies course. It is thought that it is important to use the said structure, particularly in teaching or developing the skills in the social studies program.

- The core category can be tested with secondary school students within the scope of the social studies course, with activities to be prepared in accordance with the resulting core category.

- The knowledge types expressed by domain experts but used by physical sciences outside the scope can also be examined.

- The information types expressed by the participants in the interviews conducted within the scope of the present study but not included in practice since they were outside the study's purpose can be examined.

References

Ackoff, R. L. (1989). From data to wisdom. *Journal of Applied Systems Analysis*, 16, 3-9.

Adıgüzel, A. (2011). Bilgi okuryazarlığı ölçeğinin geliştirilmesi. *Dicle Üniversitesi Ziya Gökalp Eğitim Fakültesi Dergisi*, 17, 15-28.

Akkoyunlu, B., & Kurbanoğlu, S. (2003). Öğretmen adaylarının bilgi okuryazarlığı ve bilgisayar öz-yeterlik algıları üzerine bir çalışma. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 24, 1-10.

Aldemir, A. (2003). Bilgiye erişimde yeni yaklaşım: Bilgi okuryazarlığı. In *Bilgiye Erişimde Değişen Yollar ve II. Tıbbi Bilgi Yönetimi ve Teknolojileri sempozyumu* (pp. 271-281). Ankara.

American Library Association. (2022). Retrieved from https://www.ala.org/

Amidon, D. M. (1997). *Innovation strategy for the knowledge economy: The Ken awakening*. Oxford: Butterworth-Heinemann.

Argon, T., Öztürk, Ç., & Kılıçaslan, H. (2008). Sınıf öğretmenliği öğretmen adaylarının bilgi okur-yazarlığı becerileri üzerine bir durum çalışması. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi*, *8*(2), 13-22.

Aslan, E. (2016). Geçmişten günümüze sosyal bilgiler. In D. Dilek (Ed.), *Sosyal bilgiler eğitimi* (pp. 3-48). Ankara: Pegem Yayınları.

Association of College and Research Libraries. (2016). *Framework for information literacy for higher education*. Chicago: Association of College and Research Libraries.

Ayık, K. (2022). *Dijital çağda bilgi okuryazarlığı: Çok katmanlı bilgi okuryazarlığı modeli* (Unpublished doctoral dissertation). İstanbul University, İstanbul.

Barr, H. (1997). Defining social studies. *Teachers and Curriculum*, *1*, 6-12.

Barr, R. D., Barth, J. L., & Shermis, S. S. (1977). *Defining the social studies.* Arlington, VA: National Council for the Social Studies.

Başaran, M. (2005). Sınıf öğretmeni adaylarının bilgi okuryazarlıklarının değerlendirilmesi. *Gazi Üniversitesi Gazi Eğitim Fakültesi Dergisi*, *25*(3), 163-177.

Bayrak, B. (2019). Öğretmen adaylarının bilgi okuryazarlık düzeyleri ve eleştirel düşünme eğilimleri üzerine bir araştırma. *The Journal of Academic Social Science Studies*, *8*(26), 439-456.

Baysen, F., Çakmak, N., & Baysen, E. (2017). Bilgi okuryazarlığı ve öğretmen yetiştirme. *Türk Kütüphaneciliği*, *31*(1), 55-89.

Bellinger, G., Castro, D., & Mills, A. (2004). Data, information, knowledge, and wisdom. Retrieved from https://homepages.dcc.ufmg.br/~amendes/SistemasInformacaoTP/TextosBasicos/Data-Information-Knowledge.pdf

Breivik, P. S. (2000). Information literacy for the skeptical library director. Retrieved from https://docs.lib.purdue.edu/iatul/2000/papers/5/

Bruce, C. (2004). Information literacy as a catalyst for educational change. A background paper. In P. A. Danaher (Ed.), *International Information Literacy Conferences and Meetings* (pp. 8-19). Yeppoon: Queensland. Retrieved from https://eprints.qut.edu.au/4977/

Bryant, A., & Charmaz, K. (Ed.). (2007). *The Sage handbook of grounded theory*. Thousand Oaks, CA: Sage.

Burke, P. (2016). *What is the history of knowledge?*. Cambridge: Polity Press.

Charmaz, K. (2006). *Constructing grounded theory a practical guide through qualitative analysis*. Thousand Oaks, CA: Sage.

Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five approaches*. Thousand Oaks, CA: Sage.

Çakmak, T., & Önal, H. İ. (2013). Bilgi okuryazarlığı becerilerinin kazandırılmasında okul kütüphanecilerinin rolleri ve algıları. *Türk Kütüphaneciliği*, *27*(4), 633-647.

Çit, D., & Yavuzdemir, M. (2021). COVID-19 salgınının medya ve bilgi okuryazarlığı izdüşümü: İnfodemi. *Library Archive and Museum Research Journal*, *2*(1), 36-46.

Davenport, H. T., & Prusak, L. (2000). *Working knowledge: How organizations manage what they know.* Cambridge: Harvard Business School Press.

Dedebali, N. C., Daşdemir, İ., & Şan, S. (2019). Öğretmen adaylarının medya okuryazarlığı ile bilgi okuryazarlığı düzeylerinin incelenmesi. *Journal of Kirsehir Education Faculty*, *20*(2), 595-630.

Demir, Ö., & Seferoğlu, S. S. (2016). Bilgi okuryazarlığı, internet bağımlılığı, sanal aylaklık ve çeşitli diğer değişkenlerin sanal zorbalık ile ilişkisinin incelenmesi. *Online Journal of Technology Addiction and Cyberbullying, 3*(1), 1-26.

Denzin, N. K., & Lincoln, Y. S. (2005). Introduction: The discipline and practice of qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research 4* (pp. 1-32). Thousand Oaks, CA: Sage.

Dixon, N. M. (2000). *Common knowledge: How companies thrive by sharing what they know*. Massachusetts: Harvard Business School Press.

Doyle, C. S. (1994). *Information literacy in an information society: A concept for the information age*. New York: Syracuse University.

Ferguson, B. (2003). Information literacy: A primer for teachers, librarians, and other informed people. Retrieved from https://bibliotech.us/pdfs/InfoLit.pdf

Gholipour, J. (2018). *Üniversite öğrencilerinin bilgi okuryazarlığı becerilerinin değerlendirilmesi: İran örneği* (Unpublished doctoral dissertation). Hacettepe University, Ankara.

Glaser, B. G. (1999). The future of grounded theory. *Qualitative Health Research, 9*(6), 836-845.

Glaser, B. G., & Strauss, A. L. (1999). *The discovery of grounded theory: Strategies for qualitative research* (1st ed.). New York: Routledge. doi:10.4324/9780203793206

Guba, E. G. (1990). *The paradigm dialogue*. Thousand Oaks, CA: Sage.

Gürbüztürk, O., & Koç, S. (2012). 21. Yüzyılda öğretmen adaylarının bilgi okuryazarlık becerilerinin değerlendirilmesi. *Education Sciences*, *7*(1), 27-49.

Güven, I. (2014). Fen ve teknoloji öğretmen adaylarının bilgi okuryazarlığı ve medya okuryazarlığı düzeylerinin incelenmesi. *Electronic Turkish Studies*, *9*(2), 787-800.

Horibe, F. (1999). *Managing knowledge workers: New skills and attitudes to unlock the intellectual capital in your organization*. New Jersey: John Wiley ve Sons.

İpek, F. (2021). *Yüksek din öğrenimi gören öğrencilerin bilgi okuryazarlığı ve epistemolojik inanç düzeyleri üzerine bir araştırma* (Unpublished doctoral dissertation). Necmettin Erbakan University, Konya.

Kaya, S., & Durmuş, A. (2008). Öğretmen adaylarının bilgi okuryazarlığı ve araştırma yaparken interneti kullanma düzeyleri. In *Uluslararası Bilgisayar ve Öğretim Teknolojileri Sempozyumu Sempozyum kitabı* (pp. 778-786). Kuşadası.

Kelley, J. (2002). *Knowledge nirvana: Achieving the competitive advantage through enterprise content management and optimizing team collaboration*. Teksas: Xulon Press.

Koç, S., & Koşaner, Ö. (2005). Bilgi okuryazarlığı ve aktif eğitim: Bir uygulama örneği. In E. Alıcı (Ed.), *II. Aktif Eğitim Kurultayı* (pp. 74-89). İzmir: Dokuz Eylül Üniversitesi.

Koçak Usluel, Y. (2006). Öğretmen adayları ve öğretmenlerin bilgi okuryazarlığı öz-yeterliklerinin karşılaştırılması. *Eurasian Journal of Educational Research*, 22, 233-243.

Korkut, E., & Akkoyunlu, B. (2008). Yabancı dil öğretmen adaylarının bilgi ve bilgisayar okuryazarlık öz-yeterlikleri. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, *34*(34), 178-188.

Krogh, G., Ichijo, K. ve Nonaka, I. (2000). *Enabling knowledge creation: How to unlock the mystery of tacit knowledge and release the power of innovation*. Oxford: Oxford Academic. doi:10.1093/acprof:oso/9780195126167.001.0001

Kurbanoğlu, S. (2010). Bilgi okuryazarlığı: Kavramsal bir analiz. *Türk Kütüphaneciliği, 24*(4), 723-747.

Kurbanoğlu, S., Akkoyunlu, B., & Umay, A. (2006). Developing the information literacy self-efficacy scale. *Journal of Documentation, 62*(4), 730-743.

Liew, A. (2007). Understanding data, information, knowledge and their inter-relationships. *Journal of Knowledge Management Practice, 7*(2), 1-10.

Merriam, S. B. (2009). *Qualitative research a guide to design and implementation*. New Jersey: Jossey-Bass.

Merriam, S. B., & Grenier, R. S. (2019). *Qualitative research in practice examples for discussion and analysis.* New Jersey: Jossey-Bass.

Ministry of National Education. (2018). Sosyal Bilgiler dersi öğretim programı (ilkokul ve ortaokul 4, 5, 6 ve 7. sınıflar). Ankara: MEB. Retrieved from https://mufredat.meb.gov.tr/ProgramDetay.aspx?PID=354

National Council for the Social Studies. (2023). About National Council for the social studies. Retrieved from https://www.socialstudies.org/about

Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation.* Oxford: Oxford University Press.

Özbay, M., & Çelik, M. E. (2013). Türkçe öğretmeni adaylarının bilgi okuryazarlık düzeylerinin incelenmesi. *Ana Dili Eğitimi Dergisi, 1*(4), 10-21.

Özel, N. (2013). *Araştırma görevlilerine bilgi ve iletişim teknolojileri bağlamında bilgi okuryazarlığı becerilerinin kazandırılması* (Unpublished doctoral dissertation). Ankara University, Ankara.

Özel, N. (2016). Üniversite öğrencilerinin bilgi okuryazarlığı becerilerinin değerlendirilmesi: Ankara Üniversitesi örneği. *Bilgi Dünyası*, *17*(2), 247-264.

Özgür, H. (2016). Öğretmen adaylarının yaşam boyu öğrenme yeterlikleri ve bilgi okuryazarlığı öz-yeterlikleri üzerine bir çalışma. *Mersin Üniversitesi Eğitim Fakültesi Dergisi, 12*(1), 22-38.

Özgüven, Ü. (2019). *Öğrencilerin bilgi okuryazarlığı becerilerini geliştirmede kullanıcı eğitiminin rolü: Çanakkale Onsekiz Mart Üniversitesi örneği* (Unpublished master's thesis). Çankırı Karatekin University, Çankırı.

Özmusul, M. (2012). İlköğretim ikinci kademe öğrencilerinin bilimsel bilgiye yönelik görüşleri: Bilgi okuryazarlığı açısından bir çözümleme. *İlköğretim Online*, *11*(3), 629-645.

Patton, M. Q. (2014). *Qualitative research ve evaluation methods: Integrating theory and practice*. Thousand Oaks, CA: Sage.

Polat, C. (2005). Üniversite öğrencilerinin bilgi okuryazarlığı becerilerindeki zorlanma düzeyleri üzerine bir araştırma. *Türk Kütüphaneciliği*, *19*(4), 408-431.

Polat, C. (2006). Bilgi çağında üniversite eğitimi için bir açılım: bilgi okuryazarliği öğretimi. *Atatürk Üniversitesi Türkiyat Araştırmaları Enstitüsü Dergisi*, *12*(30), 249-266.

Polat, C., & Odabaş, H. (2008). *Bilgi toplumunda yaşam boyu öğrenmenin anahtarı: Bilgi okuryazarlığı*. Küreselleşme, Demokratikleşme ve Türkiye Uluslararası Sempozyumu, Antalya.

Potter, W. J. (2016). *Media literacy*. Thousand Oaks, CA: Sage.

Roberts, P. (2000). Knowledge, information and literacy. *International Review of Education, 46*(5), 433-453.

Rowley, J. (2007). The wisdom hierarchy: Representations of the DIKW hierarchy. *Journal of Information Science, 33*(2), 163-180.

Saatçioğlu, Ö., Özmen, Ö., & Sürel Özer, P. (2003). Bilgi okuryazarlığı becerilerinin geliştirilmesinde kütüphanelerin rolü ve Dokuz Eylül Üniversitesi uygulaması. *Bilgi Dünyası, 4*(1), 45-63.

Saldaña, J. (2016). *The coding manual for qualitative researchers* (3rd ed.). Thousand Oaks, CA: Sage.

Soylu, D. (2022). *Oyunlaştırmayla zenginleştirilmiş bilgi okuryazarlığı hibrit eğitiminin öğrenci başarısına etkisi* (Unpublished doctoral dissertation). Hacettepe University, Ankara.

Şenyurt, Ö. (2018). *Türk Milli Eğitim Sistemi'nde bilgi okuryazarlığı gereksinimlerinin karşılanması* (Unpublished doctoral dissertation). Hacettepe University, Ankara.

Tatlı, A. (2018). *Öğretmenlerin dijital vatandaşlık düzeylerinin bilgi okuryazarlığı ile internet ve bilgisayar kullanım özyeterlikleri bağlamında değerlendirilmesi* (Unpublished doctoral dissertation). Necmettin Erbakan University, Konya.

Tiwana, A. (2002). *The essential guide to knowledge management: E-business and crm applications.* New Jersey: Prentice-Hall.

Tuncer, M., & Dikmen, M. (2018). Öğretmen adaylarının bilgi okuryazarlık öz-yeterlikleri ve mesleğe yönelik tutumları. *Akademik Bakış Uluslararası Hakemli Sosyal Bilimler Dergisi*, 66, 310-325.

Turancı, E. (2017). *Risk iletişimi stratejileri açısından bilgi ve bilgi okuryazarlığı: Sağlık haberlerine ve sağlık çalışanlarına yönelik bir araştırma* (Unpublished doctoral dissertation). Gazi University, Ankara.

Turgut, T. (2022). *Sosyal bilgiler öğretmen adaylarının bilgi okuryazarlığı düzeylerinin geliştirilmesi* (Unpublished doctoral dissertation). Kastamonu University, Kastamonu.

Uğurlu, C. T., Beycioğlu, K., & Abdurrezzak, S. (2018). Bilgi okuryazarlığı, kolektif öğretmen yeterliği ve etkili okul: Yapısal eşitlik modellemesi. *Elementary Education Online*, *17*(4), 1988-2005.

Ünal, F., & Er, H. (2015). Sosyal bilgiler öğretmen adaylarının bilgi okuryazarlığı düzeylerinin değerlendirilmesi. *Uluslararası Sosyal Araştırmalar Dergisi, 8*(41), 1059-1068.

Vizcaya Alonso, D. (1997). *Lenguajes documentarios (documentary languages)*. Argentina: Nuevo Paradigma.

Yasa, H. D. (2018). *Öğretmen adaylarının yaşam boyu öğrenme eğilimleri ile bilgi okuryazarlığı becerileri arasındaki ilişkinin değerlendirilmesi* (Unpublished master's thesis). Bartın University, Bartın.

Yin, R. K. (2015). *Qualitative research from start to finish.* New York: Guilford Publications**.**

Zurkowski, P. G. (1974). *Information service environment relationships and priorities: Related paper.* Washington, DC.: National Commission on Libraries and Information Science.

Appendix 1:

An Interview Form for a Knowledge Literacy Model Proposal for Social Studies Education

The draft model that emerged as a result of the literature review and readings is listed in the table. I would like to obtain your opinion on what type of knowledge should be included in the model in the context of your field.

It can be stated that knowledge has been attempted to be defined with a single concept in the literature, but knowledge is multidimensional. It should be admitted that there is a significant wealth of meaning behind it and that it is difficult to clarify the knowledge-related pattern. The present study aims to eliminate the blurriness of the pattern in the context of the social studies course and social sciences specifically.

Is there any type of knowledge that you consider very important in terms of geography, history, sociology, archaeology, politics, economy, psychology, law, anthropology, and philosophy in a model that can be developed within the framework of the social sciences teaching approach by simplifying the knowledge types of social sciences, or is there any type of knowledge that you think should be simplified and given to children?

It can be stated that there is different information for different fields and different disciplines. However, it should be indicated that there is no model that provides different types of knowledge for each field. It can be said that knowledge transforms according to disciplines, each branch of science can produce different knowledge specific to itself, and at the same time, there are general knowledge structures valid for every field. Some knowledge types are general; there are knowledge types developed in all branches, historians, geographers, etc. For example, concept; it can be said that both experts in history and experts in sociology produce "concepts." In this respect, we intend to ensure that children experience producing concepts as a type of knowledge at the point of knowledge experience, and ultimately enable them to reach a concept as a type of knowledge. Furthermore, it can be said that there is the "interpretation" knowledge type that is produced specifically in the field of history. There may also be a type of knowledge specific to geography, or there may be a type of knowledge produced in other social science fields. At this point, it can be stated that there is a strong approach that can be associated with this in social studies education. In the present study, we would like to develop a framework model concerning different types of knowledge that can improve children's knowledge literacy through teaching social studies as social sciences, which will be simplified in the pedagogical context for children. It is aimed to develop a model by meeting with representatives of social science fields and academicians who are educators in the field, within the framework of literature readings that support social studies.

In our opinion, there is a problem regarding what knowledge is epistemologically. It can be said that there is no information-dominated knowledge literacy in the literature. At this point, it is necessary to talk about "knowledge." Whereas the structure obtained by processing data emerges as knowledge considering the definitions of the knowledge creation process in studies from Türkiye, the structure formed by processing the data collected by the individual concerning nature or everything that exists in nature and the information created as a result of associating these data, making it meaningful, mentally associating the individual's creativity, increasing the meaningfulness, and strengthening the connections is expressed as knowledge in the foreign literature. **For example**, let us address global warming in geography. What is obtained from measurements of temperature, humidity, cloudiness, air quality, and carbon dioxide rate within a certain period can be expressed as *data.* Determining air quality or long-term temperature change, precipitation regime and, ultimately, climate characteristics by combining these data can be defined as *information.* Accordingly, realizing the possibility of global warming and the importance of water related to this and concluding that the carbon dioxide rate in the air should be reduced and importance should be attached to protecting nature can be expressed as *knowledge.*