The Significance of Lifelong Learning Against the Spread of Ignorance

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Abstract

Agnotology indicates that ignorance does not only consist of unknown or inaccessible information but also of stored or suppressed information. While the coexistence of ignorance and science might be quite interesting, examining the cases involving ignorance can answer the questions of why and how ignorance exists. This study, it is aimed to explain the formation and expression of knowledge and the meaning of these expressions within the scope of agnotology and the relationship between these concepts and lifelong learning. Based on this, it was aimed to identify the present themes by reviewing the current literature published on ignorance, the subject of agnotology. Accordingly, document analysis, which is one of the qualitative research designs, was conducted through scientific studies, and local and international news sources, and themes of science, politics, health, and media were determined. These themes were addressed in the context of lifelong learning, and the potentially positive role of skills such as learning to learn and information literacy in preventing the occurrence and spread of ignorance was discussed. Consequently, regarding the nature, accessibility, and sustainability of information, these skills are considered to have an important role as a precaution in that they raise awareness of agnotological phenomena and as a correction tool since they evaluate the existing agnotological phenomena.

Keywords: Agnotology, Lifelong Learning, Learning to Learn, Information Literacy

Introduction

'What people know' is an important matter that is frequently scrutinized in the society; however, 'what they do not know' and 'why they do not know' are also equally important. It is noteworthy that little is known about ignorance, whereas knowledge is well known. 'Agnotology', which is an analytical perspective on the production of deliberate ignorance, draws attention to the relevant issue. The main purpose of agnotology, of which etymological origin is the Greek word 'agnosis' that means 'not to know' (Slater, 2019), is to develop tools in order to understand how various forms of information have not reached the present day, or how they have been lost or detained in the process (Proctor, 2008). In other words, agnotology focuses on available but invisible information, and on the reasons why this information is not seen.

Agnotology is a term used by the historians Proctor and Shiebinger (2008) to review the problems related to ignorance. Agnotology investigates the use, maintenance, experience, and creation of ignorance (Proctor, 2008). Ignorance has many anti-science forms, which are its alternative concepts such as hiding information, stupidity, recklessness, censorship, misinformation, belief, and forgetfulness. Agnotology analyzes these forms as the science of ignorance and produces various cause-effect relationships to understand why ignorance occurs, is created or made insurmountable (Brookes, 1980; Buckland, 2012).

Despite the view that information cannot be examined objectively since it can also be shaped by human opinion (Buckland, 1991), the facts include much more than just apparent truth. Knowledge has various aspects, many of which are obvious, but when it comes to ignorance, several factors play a deflecting role on information (Dossey, 2014). Therefore, it is important to reach information and distinguish the true one. Considering the concepts of knowledge and learning, it is necessary to mention the importance and role of lifelong learning on people and society. Lifelong learning skills are one of the greatest obstacles to ignorance in that they contribute both to personal development, and to information access and learning.

This study seeks answers to the following questions:

− Are agnotological processes a factor in preventing true information and spreading misinformation?
− If agnotological processes constitute a factor in preventing true information and spreading misinformation, what is the role and importance of lifelong learning as a solution?

Agnotology

Agnotology is a concept introduced by Robert Proctor, a science historian, and Iain Boal, a linguist, in order to study ignorance and its cultural production (Bedford, 2010). It was first developed by Robert Proctor in 1995 to investigate the way that some companies deliberately generated misinformation (e.g. about tobacco, asbestos, drugs, etc.), (Warnier, 2013). Especially Proctor's research on the tobacco industry clarified how companies achieved great commercial success despite the overwhelming scientific evidence regarding the harms of smoking since the 1950s. The relevant research results revealed that the truth about the negative effects of smoking on health, including cancer, was withheld, and a campaign was launched to deliberately spread doubt and confusion about this issue (Proctor, 1995), and it

also exposed the social nature of ignorance. Therefore, it was concluded that ignorance was not just 'not yet known information' or 'lack of knowledge'.

Agnotology can be referred to as a widely designed study of ignorance. Stating that 'the point is to question the nature, causes, and range of ignorance', Proctor (2008) specifies that agnotology addresses ignorance as a social construct rather than a natural gap. According to Proctor, ignorance occurs as a result of both cultural and political struggles as well as lack of information.

Information science focuses on the problem that human-generated information reaches people (Belkin & Robertson, 1973). Analyzing the non-communicable information and the decrease in information communication is an integral part of advancement in information science. Agnotology should be considered as the sibling of information science. If information science is a discipline interested in the forces that control the flow of information (Buckland, 1991), then agnotology is the other side of the same coin; they are similar and associated, but not the same.

Research Method

Qualitative research is a research method in which qualitative data collection techniques are utilized, and the data are presented in their natural environment in a realistic and holistic way (Yıldırım & Şimşek, 2016). Document analysis, one of the qualitative research designs, was used in this study. Document analysis includes the analysis of written materials on the research subject. In studies where document analysis is used, data can be obtained without the need for observation or interview (Yıldırım & Şimşek, 2016).

Data Collection

The scientific resources used in the research were accessed through databases and indices such as ProQuest Thesis Database, YÖK Thesis Database, Scopus, Taylor & Francis, ERIC, Science Direct, and Dergipark. Besides, local and international news and social media resources were accessed using the search engines.

Data Analysis

The content analysis technique was used to evaluate the data obtained in this study. Relationships between concepts and themes were established through inductive analysis. The relationship of the concept of agnotology with the themes of science, politics, health and media was explained. In addition, situations pointed out by agnotology were discussed in the context of lifelong learning skills.

Agnotological Processes as a Factor in Preventing True Information and Spreading Misinformation

Agnotology stands out in many areas of life including science, politics, health and media.

Agnotology and Science

Buckland (1991) divides information, which is the basis of science, into three categories as 'information as process', 'information as knowledge' and 'information as thing'. Information

as knowledge can be described as a message perceived within information as process. A main feature of information as knowledge is that it is intangible and cannot be measured directly, so it becomes a subjective concept based on beliefs and personal opinions. Knowledge that reduces uncertainty by contributing to science can also increase uncertainty by occurring in various forms due to its subjective nature. Physician John Archibalt Wheeler (1994) compares knowledge to an island, and ignorance to the sea, and refers to their connection by stating: *'As our island of knowledge grows, so does the shore of our ignorance'*. Ignorance is inevitable and will always be with man since science will always remain as an incomplete endeavor by nature.

One agnotological case in science emerged as a result of some hidden misinformation and caused many people's death. The event took place about a century ago when glow-in-the-dark watches became highly popular. The watches, which were painted inside, were at a premium in the USA since they shined even without the need for recharge by sunlight. One factory manufacturing such watches came into operation in New Jersey in 1916 and recruited seventy young female employees (Prisco, 2017). These women were requested to paint the watches by sharpening their brushes with their mouths to 'get higher efficiency'. The glow-in-the-dark paint consisted of radioactive radium salts mixed with a zinc compound. Today, it is acknowledged that radium causes bone and skin deterioration and cancer; however, it was used in many areas including watches and even medicine claimed to be good for cancer from the early 1900s to the 1940s (Grady, 1998). Women working at the watch factory with radium in New Jersey began to get sick within a few years, and the first death was reported in 1922 (Prisco, 2017). Research revealed that the cause of the diseases and deaths was radium, and the women who used to work there were called 'Radium Girls' as a result of the lawsuits filed against the factory (Grady, 1998). Using inappropriate materials under improper conditions in manufacture, and hiding the harmful effects of radium caused the death of many people.

Agnotology and Politics

Agnotology, as a field of study, presents political and institutional structures and their powerful roles in communicating messages designed to cast doubts (Proctor, 1995; Proctor, 2008). Agnotology emphasizes the social structure of ignorance and attempts to show the hidden nature of culturally adapted ignorance. Political oppositions and corporations target especially hesitant subgroups by giving misinformation to the society, namely through manipulation, and through propaganda in the construction of messages to change the political and economic agendas (Rose & Baertoli, 2019). It can thus be stated that the main purpose of cultural ignorance is to create scientific confusion and mistrust at a sufficient level to cause denial of the present facts.

Citizens may listen to the source conveying information to them quickly; however, this source may not be giving true information. This situation is as a result of utilitarian politics, and a regime formation that leads people into ignorance is observed (Paul & Haddad, 2019). The existence and prevalence of ignorance is acknowledged in politics, but mostly a limited concept of ignorance is depended on. By being assigned a negative and neutral role, ignorance is perceived only as deliberate manipulation and malicious lies (Paul & Haddad, 2019). Even though ignorance is about deliberate lies, it is also directly associated with unknown or hidden information. Politicians tend to leave forgotten or hidden information in the blind spot. When criticizing the available information, at least it should be discussed

whether the information left in the blind spot is 'suppressed information' or not (Perl, Howlett, & Ramesh, 2018).

Agnotology and Health

The H1N1 swine flu outbreak of 2009, though initially causing panic, revealed flaws in health response. Emerging in California and Texas, major pharmaceutical companies swiftly produced a vaccine, but its limited impact led to surplus stock (CNN, 2010; NTV, 2009). Controversy arose as some claimed collusion between scientists and drug makers. This precedent affected attitudes toward vaccines (CNN Turk, 2010; Cumhuriyet, 2010). COVID-19 further showcased the link between anti-vaccine sentiment and weakened healthcare systems (Engin & Vezzoni, 2020). It is known that individuals use social media to access information, and vaccine-related content fuels the relevant distrust (Jennings, Stoker, Bunting, Valgarðsson, Gaskell, Devine, McKay, & Mills, 2021). Consequently, it can be stated that the past attitude of the World Health Organization, which is affiliated to the United Nations and conducts international studies on public health, may be a factor to foster individuals' indecisive attitude and opposition to vaccines today.

Agnotology and Media

Ever-evolving technology may lead to an increase in ignorance. Societies can be driven into ignorance even though information is easily accessible (Smithson, 1985). Media analysts Sut Jhally, Justin Lewis and Michael Morgan (1991) published a report when they realized the extent to which people were misinformed about the Gulf War via television. In this report, they stated that the USA citizens did not know the main facts about the political situation in Middle East and the policy adopted by the USA, and that the extraordinary support for the war was built upon false or incomplete information. Television, which is a part of daily life for most people, is responsible for accessing and sharing correct information. The findings of Jhally, Lewis and Morgan indicate that news media fails in its role as an information provider.

Harford (2019) discusses fraudulent advertisements of cigarette companies in an article. Even though cigars used to be preferred over cigarettes that were once considered as low-status, cigarettes had become the most preferred tobacco product for Americans by 1923. Lucky Strike, a cigarette brand launched with the slogan 'reach for a Lucky instead of a sweet' included the statement '20, 679 physicians say 'Luckies are less irritating' in one of its campaigns, and it was not based on scientific facts.

The Role and Importance of Lifelong Learning as a Solution to Agnotological Phenomena

The potential role of lifelong learning in preventing ignorance, which is the subject of agnotology, is discussed below.

As Macmurry (1958) states, 'Going to school is a stage in the process during which we learn to live in a society'. Considering that individuals discover and develop their skills and potentials throughout their lives within the scope of lifelong learning, 21st century learners are expected to adapt to changes in this process and thus constantly renew themselves. There are various views regarding how individuals who are expected to adapt to changes in modern times develop interests and skills, and the concept of '21st century skills' can be defined from

different perspectives (Jůvová, Chudý, Neumeister, & Plischke, 2015; White, 2015; Yalçın, 2018). Essentially, these skills are related to a set of cognitive skills enabling individuals to react flexibly and quickly to difficult, unusual or critical situations that may occur in their lives (Jůvová et al., 2015). Acquiring 21st century skills can be considered as a step for individuals to reveal their potential and improve their problem solving skills.

Learning to Learn

Learning to learn is referred to as a skill due to its two basic functions, the first of which is that it is the lifelong learning skill required to survive in the individual and social context (Stefani, 2006). It includes the ability to learn and work both collaboratively and autonomously, to organize and maintain learning, to evaluate and share, to seek support where appropriate, and to effectively manage career and social interactions (European Commission, 2019). Therefore, learning to learn can be considered as a set of skills that contains working skills, critical analysis, time management, planning, goal setting, etc. (Candy, 1991).

Bateson (1987) considered learning to learn skill as a level of learning rather than a set of skills necessary to survive, and indicated four learning levels regarding the subject. Zero learning (0) refers to recognizing and memorizing information, and Learning I to learning by conditioning, namely classical conditioning. Learning II is the changes in the Learning I process. At this level, cognitive learning occurs as the information received from outside is processed. This level may involve conceptualizing, adapting and transferring learning from one situation to another. Learning III is the level where the learner comprehends the concepts in general, how they are created, and how they can be changed. Since change at this level requires active efforts of the individual, Bateson argues that changes at this level can be considered as learning to learn, and it requires the ability to question and criticize the individual's present worldviews.

Bruner (1987) supports the gradual extension or 'decentralization' of one's frame of reference in order to create meaning and understand. It justifies the necessity of personal change or transformation based on the expansion of consciousness. This view is not only related to understanding the development of an inquiring stance regarding the individual's external and internal worlds. It may also include the desire to understand the mutual interaction of these worlds. Based on these, it can be concluded that the contribution of learning to learn to personal development is an obstacle to ignorance. How learners access and evaluate information is directly related to the skill of learning to learn.

Dewey (1938) emphasizes learners shaping goals for learning, crucial in a changing world. A learning society, akin to Senge's (1993) organization, requires empowered individuals. Development involves the dialectic between self and society. Daily life's upkeep, a facet of learning, curbs agnotological issues through an expanding personal-to-societal network. It initiates lifelong personal growth, the key to a thriving learning society. Prevention of agnotological effects hinges on healthy individual learning, promising a robust learning society.

Information Literacy

Association of College and Research Libraries (2016) defines information literacy as the use of knowledge by paying attention to ethical principles in understanding how information is

produced and evaluated, and in creating new knowledge within learning groups. Information literacy is the acquisition of information on a subject or the provision of information required for problem solving (Aşkın Tekkol & Demirel, 2018), and information literate individuals are expected to be able to realize that they need information, to access information using the necessary tools, and to evaluate and use this information effectively (ACRL, 2016). Information literacy education can be used in the transformation of individuals from novice to skilled researchers, not only in their own field but also in all the knowledge that they have acquired throughout their lives. For this reason, information literacy is important as a part of lifelong educational objectives. It can be stated that a person who knows how to reach and access information will be an obstacle to the production of ignorance by making use of true information.

When it comes to information literacy, it is possible to refer to the effect of culture. Hofstede (1980) mentioned the Five Dimensions of Culture. 'Individualism and Socialism', included in these dimensions, is about whether priority is given to individual or social welfare within the organization. It can be predicted that how education is perceived in individualist and socialist societies is important in information literacy education. Hofstede (1980) noted that education in individualist societies was considered as learning to cope with new, unknown and unpredictable situations. On the other hand, in socialist societies, education was considered as adapting to the skills and virtues required for being an acceptable group member. Education in socialist societies is reserved for young people who have to learn how to do things, whereas education in individualist societies is '*about knowing how to learn something, not about how to do it*'; therefore, learning never ends (Hofstede, 1986). Learning how to learn and maintaining this learning involves the skill of learning to learn. Accordingly, it can be concluded that the skills of learning to learn and information literacy are associated. People need these skills to live in today's world. In societies, where learning is not limited to young people, and learning is constant, information is questioned. In societies where information is questioned, the main purpose is to learn how to catch fish. Therefore, it can be stated that acquiring information literacy skills supports lifelong learning, and vice versa.

Conclusion

In this study, the relationship of agnotology with various fields is mentioned, and the potential role of lifelong learning in preventing agnotological phenomena is discussed. While doing this, particularly the connection of the concepts of learning to learn and information literacy with ignorance and lifelong learning is addressed.

There are various resources in the literature that offer solutions regarding how people can get rid of ignorance. Within the context of these solution offers, it is emphasized that learning often refers to a 'learning process'. Lifelong learning is a process that continues throughout the entire life of an individual. Education systems developed for individuals, knowledge and competences to be obtained, and skills envisaged to be acquired promote holistic and transformational learning in the lifelong learning process. Communities thus achieve a sustainable change, which can prevent the construction and spread of ignorance by taking conscious decisions and accountable actions.

The lifelong learning process involves a good number of knowledge and skills, from basic to complex. These include literacy competence, multilingual competence, mathematical competence and competence in science, technology and engineering, digital competence, personal, social and learning to learn competence, citizenship competence, entrepreneurship

competence, and cultural awareness and expression competence, as well as the types of literacy related to these concepts, such as information literacy, digital literacy and mathematical literacy. These interrelated concepts contain new skills and competences in order to have a place in modern society and to be successful. For example, digital literacy, which is one of the most important prerequisites of being a digital citizen (Ribble, 2011), can be achieved through digital competence, one of the key competences that lifelong learning focuses on.

Learning to learn, one of the important concepts in lifelong learning, consists of knowing where, how and why to receive information, continuing learning, and improving cognitive and affective aspects, as well as individual and collaborative work. Learning to learn also enhances problem solving skills. For this reason, since the contribution of learning to learn to personal development can also be considered as a social achievement, it can be stated that a person who has this skill will be aware of agnotological phenomena.

Before acquiring information, individuals need to be able to realize that they require information, to reach information using the necessary tools, to evaluate and use this information effectively. This is called information literacy. One of the information literacy skills is to know how to learn information. This skill is a basis of lifelong learning. At this point, it can be indicated that information literacy skills and learning to learn skills complement each other. A person with information literacy is expected to be able to read between the lines in the acquired information. The information which is obtained should be questioned in social, political, economic and many other contexts, and true information should be acquired. Due to all these functions, information literacy is important to prevent agnotological phenomena.

News literacy, which is closely related to information literacy, refers to the development of critical thinking skills of individuals in order to judge the reliability and credibility of information conveyed in print, video or online (The Center for News Literacy, 2016). In her research conducted within the scope of her doctoral thesis, Şencan (2020) aimed to develop a Turkish training program on news literacy based on the available news literacy programs and related literature, and to evaluate its effects on information users' ability to distinguish false information from true information. As a result of the research, it was found out that receiving prior training for the processes of accessing information could raise awareness on the subject. From this viewpoint, it can be concluded that training programs should be shaped in accordance with the changing needs of information users and changing environments of information.

Consequently, agnotology investigates cases where the truth is distorted or hidden. Agnotological phenomena can be encountered in every area where people and information exist, such as science, politics, health and media. It is also observed that these phenomena have created current concepts such as post-truth entering our lives with the changes in the world. Knowing how and why agnotological phenomena occur is important to produce analytical measures and solutions in this regard. The importance of lifelong learning can be referred to at this point. Lifelong learning contributes to education through many dimensions included in the field, such as the 21st century skills, European Union Key Competences and modern literacies. Considering the nature, accessibility and sustainability of information, these dimensions are believed to have an important place as a precaution by raising awareness of agnotological phenomena, and as a correction tool by evaluating the present agnotological phenomena. In this study, the potential importance of learning to learn, which

is one of the EU Key Competences, and information literacy, which is one of the modern literacies, in information-related processes are discussed. In addition, it can be noted that the change of individuals is one of the main factors in the change of societies. Furthermore, it can be assumed that the awareness raised in individuals brings societies closer to 'true information'.

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