INDIVIDUAL CONTRIBUTIONS TO INFOLLUTION (INFORMATION POLLUTION): TRUST AND SHARE

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ABSTRACT

Information, from the rawest condition to the most valuable form, is the most important and undeniable power of the age we live in. However, gaining this power is quite difficult because of many reasons. For example, information cannot be used in the way it is obtained or it cannot be effectively accessed in a way to fulfill the need. The individuals, who have the capacity to process limited information, struggle with certain problems such as excessive increase regarding information or information overload. As a result, they are exposed to infollution (information pollution). When the role of the individuals on producing and spreading information is taken into consideration, it is possible to accept that they are also effective in the concept of information pollution. The general purpose of this study is to understand the contribution of individuals to information pollution. The special purpose of the study is to identify the main criteria that make individuals effectively using social media believe the trueness of the shared information and the driving forces behind sharing the abovementioned information whose trueness they believe in. In line with this purpose, sample group consisting of 541 individuals was asked open-ended and likert-type questions and their contributions to information pollution were analyzed through a case study. The obtained data were analyzed by using descriptive statistics. As a result of the study, it was understood that high school students constituting the majority of the sample group were very effective on information pollution and they did not have consciousness level regarding not sharing inaccurate information on digital world.

Keywords: Information Pollution (Info Pollution, Infollution), Polluter, Digital Natives, Information Overload.

INTRODUCTION

Information considered as a competitive power in today's world can continue its journey from its rawest form ("data") to the information in the meaning of informatics and can reach wisdom form when internalized by organizations and institutions. In this journey, digital world elements like social networks, websites and blogs provide individuals with the information in the meaning of informatics rather than raw data. Thanks to these elements, any information can be rapidly disseminated and transmitted worldwide. This freedom in obtaining and transmitting information can be advantageous in some aspects. However, when individuals become addicted to sharing/spreading information in a very unconscious way, this freedom becomes disadvantageous. Because of this situation, the members of the information society turn into a community feeling like they are sunk into information in large quantities since they access any information without any restriction (Kominiarczuk and Ledzińska, 2014).

Information overload has come into prominence with the widespread of corporate information systems. The existence of the concept has made itself apparent with the printed materials such as books or journals (Edmunds & Morris, 2000), the frequency of transmitting these materials to receivers and increase in information density in various sources (Bawden, Holtham & Courtney, 1999). However, discovering new channels for obtaining information or sharing it just with a touch are the factors that have made it a critical issue (Bettis-Outland, 2012; Özdemir, 2015, Özdemir and Gülseçen, 2015). This situation causes individuals to be exposed to excessive information far above their information processing capacity. In addition, their decision making processes are affected negatively and physical ailments occur as well as mental fatigue (Jacoby, 1984; Malhotra, 1982; Schick, Gorden and Haka,1990; Sparrow, 1999; Bawden, 2001; Özdemir and Gülseçen, 2015). Information which has always been considered as a helpful element now has begun to turn into an obstructive

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element (Bawden, Holtham, & Courtney, 1999; Bergamaschi & Leiba, 2010). Individuals are faced with problems and interruptions at the point of assimilating information. Nielsen (2003) argues that one minute interruption (depending on reconstruction of the mind itself and re-involvement in the flow) causes 10-15 minutes performance loss for an intellectual worker.

Information society is in danger of losing the fundamental philosophy of communication (Nelson, 2007) since individuals generate excessive information with low cost (Suggs, 2006). As a matter of fact, individuals share/transmit information in a conscious or an unconscious manner by using their freedom in obtaining and sharing information. As a result, this situation causes new problems like information pollution in information ecosystem. Accurate and essential information turns into polluted information because of many reasons such as deterioration of the shared/transmitted information, adding misleading elements or hosting malicious contents.

Information pollution, also known as info pollution and infollution, is the contamination of information sources with irrelevant, redundant, unsolicited and low-value information (Orman, 1984). Cai and Zhang (1996) argue that information pollution is a pile of widespread yet unwanted messages and that one day, these messages could deeply influence the social life bearing negative results. The term "infollution" was suggested by Paek-Jae Cho (CEO of Keran Telecommunication Corp.) in 2002. In 2003, infollution was introduced by Jakob Nielsen with the main lines. When information pollution definitions made by Cho and Nielsen are taken into consideration, it is possible to state that information pollution occurs when the individual, whether consciously or not, shares/spreads the information and this negative situation becomes more uncontrollable with the use of ICT (Information and Communication Technologies).

Berkan (2012) defines information pollution as the odorless and invisible waste of human intelligence. When individuals think about pollution, they can easily trace it with sense organs. However, information pollution is a fact that the individual cannot recognize by himself. An individual cannot discover information pollution without having a mental fatigue, a contradiction on macro or micro level, a process of transition from fallacy to enlightenment and exploration.

Apart from not being able to detect its integrated impact with sense organs, information pollution feeds from individuals' hunger of making shares continuously. Whether intentionally or unintentionally, every share made without questioning the trueness of the information can reach a great number people within seconds and create a global interaction and effect with re-shares. In our age, individual actions can turn into collective actions and it is possible to state that these actions can have an important role on the outbreak of many problems like financial crises or security issues depending on the content of the shared information. Bray (2008) argues that information pollution is the negative side of the mobility on global level supporting/dragging individuals who want to access and produce information on global level.

When "information" term is taken into consideration, the individual producing and consuming information has the role of information inventor (Uğraş, 2015). When "information pollution" term comes into question, the individual plays the polluter role by producing and sharing inconvenient and malicious contents (Berkan, 2012). Cho and Lee (2011) defines the concepts coming into our lives with the existence of digital world like "violent contents and cyber mobbing" as digital pollutants. Polluter/pollutant role occurring as a result of individuals or messages causes various damages such as negative impacts on decision making processes or mental fatigue.

By 2015, there are 3.174 billion internet users (Statista, 2016). If it is assumed that each of these users sends an e-mail to one person and this person spends 5 seconds to open and understand the e-mail, the individual should spare 1.833.680.556 days in order to perform this process. When it is considered that in every 5 seconds 2315 photo updates are performed on Instagram, 5120 calls are made on Skype, 19675 tweets are shared on Twitter, 57870 file updates are performed on Dropbox, 166665 searches are made on Google, 231665 video are viewed on YouTube, 187816 GB internet traffic emerges and 11.963.542 e-mails (Lewis, 2016) are sent, this situation which is seen as utopic can become a reality in our lives. When this 5 seconds

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journey of the information on different channels is analyzed, it is seen that the amount of the polluted information the individual is exposed to or the increase in information pollution is at a fearful rate. This situation occurs because when the polluted information is shared once it cannot be retrieved.

Information pollution, caused by the individual or the individual is exposed to, is a very important problem of our age and when the children of the digital age and digital natives (Prensky, 2001) come into question, immediate measures should be taken and awareness should be created about information pollution. This new generation plays a critical role in the increase of information pollution and has the potential of being affected from this situation in the severest way because of many characteristics like effectively using technology or adapting to it quickly.

The main purpose of this study is to analyze certain issues like "information pollution, trusting the trueness of the shared information and sharing the trusted information by the individuals using social media effectively". In line with this purpose, questions were addressed and analysis was conducted through a real incident shared on Facebook and causing information pollution.

METHOD

Research Model
Of quantitative methods, descriptive-survey model was used with the purpose of analyzing "information pollution, believing in the trueness of and spreading the shared information" cases of individuals who use social media effectively.

Population and Sample
The population of this research is consisted of persons who live in Istanbul, secondary school graduate at least and who can use social network. The sample of the research is represented by 541 persons who define their use of social network as "frequent or very frequent". Sample group is analyzed separating it into two groups as the ones who continue their undergraduate and postgraduate educations (group 1-LISEUST) and the ones who are high school students presently (group 2-LISE). Table 1 represents the distribution of sample group by gender.

Table 1: Distribution of sample group by gender

	Female		Male	
	n	%	n	%
LISEUST	50	39,37	77	60,63
LISE	202	48,79	212	51,21
Total	252	46,58	289	53,42

Data Collection and Analysis Process
Data is acquired via 11 questions survey which is consisted of multiple-choice, open-ended and 5 point likert type and prepared by the researcher. In the survey which is presented in three parts; the first part is prepared in a way to involve the criteria of the information shared in social media and information shared by the individual, the sharing criteria and the criteria of individual's believing in the trueness of information. The second part is designed so as to contain the exemplary case which is claimed to be "copyright agreement" and shared frequently on Facebook. The last part includes demographic information and the questions referring to frequency of social media use. "Information Sharing Survey" (https://docs.google.com/forms/d/1WtxTZtFih7aSlwRV0S3mEMLu-GyS1oUdFHGmyA-SKZY/viewform) is used as a means of data collection which is prepared on Google Docs.

Collected data is analyzed via the evaluation of weights of likert type questions and open-ended questions are analyzed via content analysis. Analysis results are given in the 'results' part as percentage and frequency values.

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FINDINGS

The findings obtained from data analysis were examined under three titles for the LISEUST and the LISE groups:

- The criteria of believing in the trueness of information shared on individual's social media account
- Driving forces/criteria concerning the spreading of the information which is believed in trueness
- Contribution to information pollution with the exemplary case of Facebook rights.

Findings Concerning the Criteria of Individual's Believing in the Trueness of Information Shared on Social Media Account

In this section, the collected data are analyzed in two parts as the LISEUST and the LISE groups. Both groups are asked for their criteria of believing in the trueness of information shared on social media accounts with the choices of "the sharer, comments, personal information/experience, thoughts in the moment of sharing and other". In the Figure 1, the percentage distribution of the criteria of believing in the trueness of information read on the social media accounts of the LISEUST group is given.
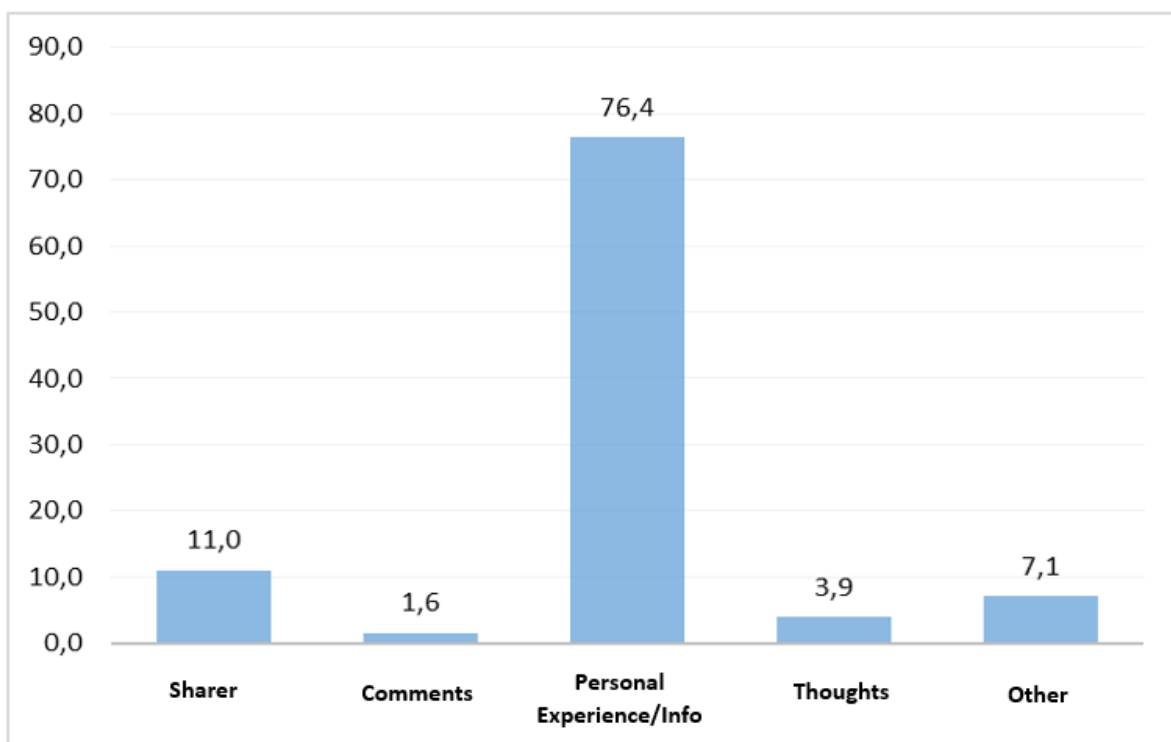

Figure 1: The percentage distribution of the criteria of believing in the trueness of information read on the social media accounts of the LISEUST group

When Figure 1 is analyzed, it is seen that based on their own information and experiences, the LISEUST group mainly believe in the trueness of the information shared/read. In accordance with their life experiences and information, weighing the information met on the social media accounts of individuals, who at least continue and/or completed their bachelor's degree, is an expected and even a desired case. Though it has a low percentage, it is seen in this group that the sharer is also a criteria (11%) in disbelief in the trueness of information.

Similarly, percentage distribution of the LISE group on the basis of provided choices is given in Figure 2.
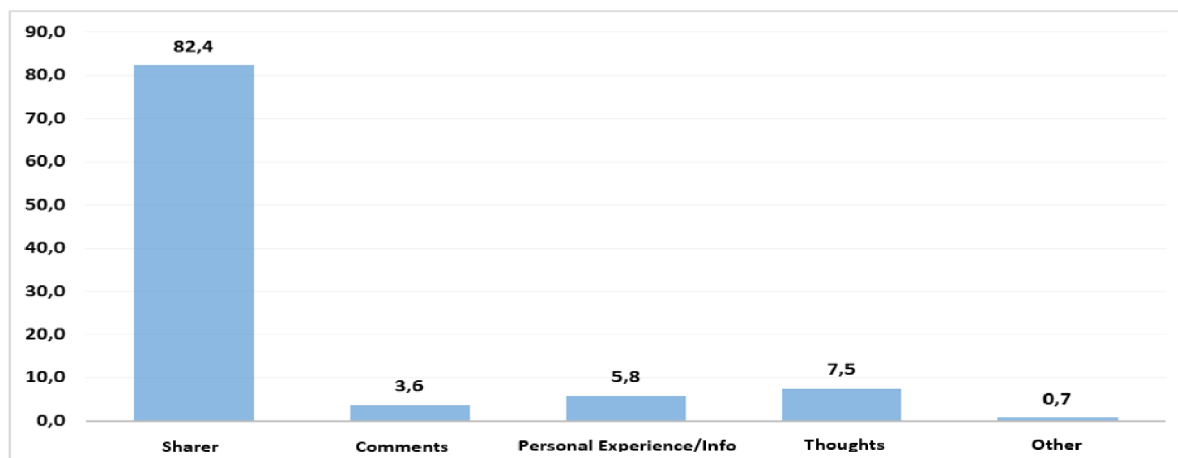
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Figure 2: The percentage distribution of the criteria of believing in the trueness of information read on the social media accounts of the LISE group

When Figure 2 is analyzed, it is seen that in believing the trueness of information read, the LISE group highly use the sharer as a base. A great part of social media friends of these individuals who have an education on high school level are consisted of their coevals. At this point, it is thought-provoking that as a result this group's consideration of their coevals as a criterion about information, the situation can lead to dreadful levels in terms of information pollution.

The Findings Concerning the Driving Forces in Inclination to Spread the Information on Social Media Accounts Believed to Be True by Individuals
For the LISEUST and the LISE groups, it is tried to be comprehended what represents the driving force in sharing an information which is read and believed to be true on social media accounts. With the question "your reason in sharing an information you believe to be true", the choices "finding it funny/amusing, finding it interesting, compatibility with (religious) beliefs, compatibility with world-view, compatibility with political view, specialty/profession orientation, approving the sharer" are provided. In Figure 3, the LISEUST "driving forces in inclinations to spread the information believed to be true" are provided with percentage distributions based on the provided choices.

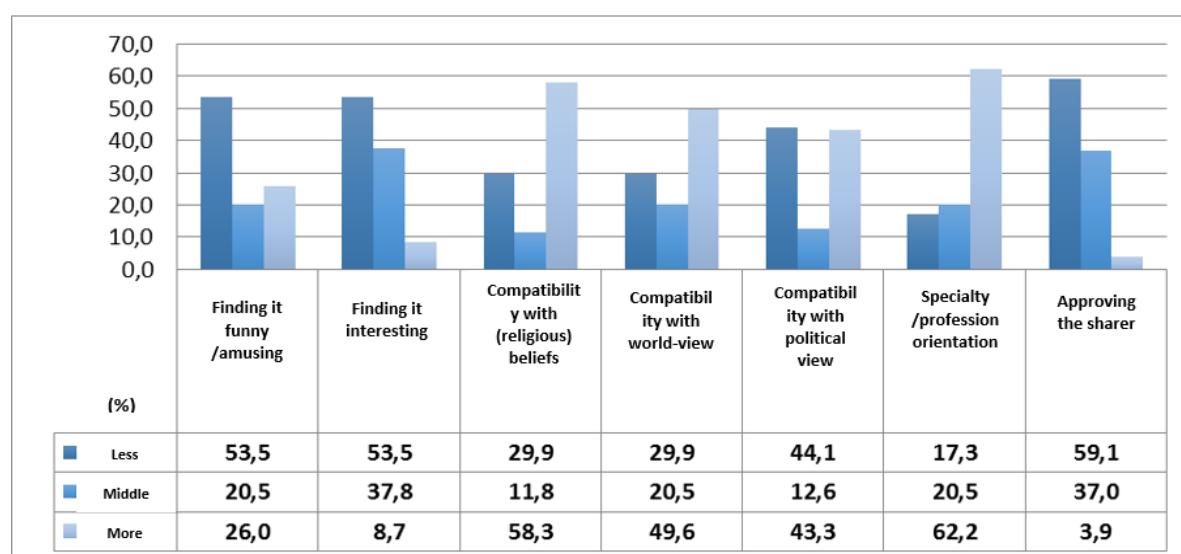| (%)	Finding it funny /amusing	Finding it interesting	Compatibility with (religious) beliefs	Compatibility with world-view	Compatibility with political view	Specialty /profession orientation	Approving the sharer
Less	53,5	53,5	29,9	29,9	44,1	17,3	59,1
Middle	20,5	37,8	11,8	20,5	12,6	20,5	37,0
More	26,0	8,7	58,3	49,6	43,3	62,2	3,9

Figure 3: The LISEUST group's percentage distribution of driving forces in inclinations to spread the information believed to be true

When Figure 3 is analyzed, it is seen that the leading choices as driving forces in the LISEUST group are specialty/profession orientation (62,2%) and compatibility with beliefs (58,3%). These are followed by compatibility with world-view (49,6%) and compatibility with political view (43,3%). It is observed that the trueness of information in the sharings of the LISEUST group is not doubted and that more individuals are aimed to be informed through sharing the information.

Similarly, driving forces are tried to be comprehended in the LISE group with the same choices. In Figure 4, percentage distributions of the LISE group's inclination to spread the information believed to be true are provided.

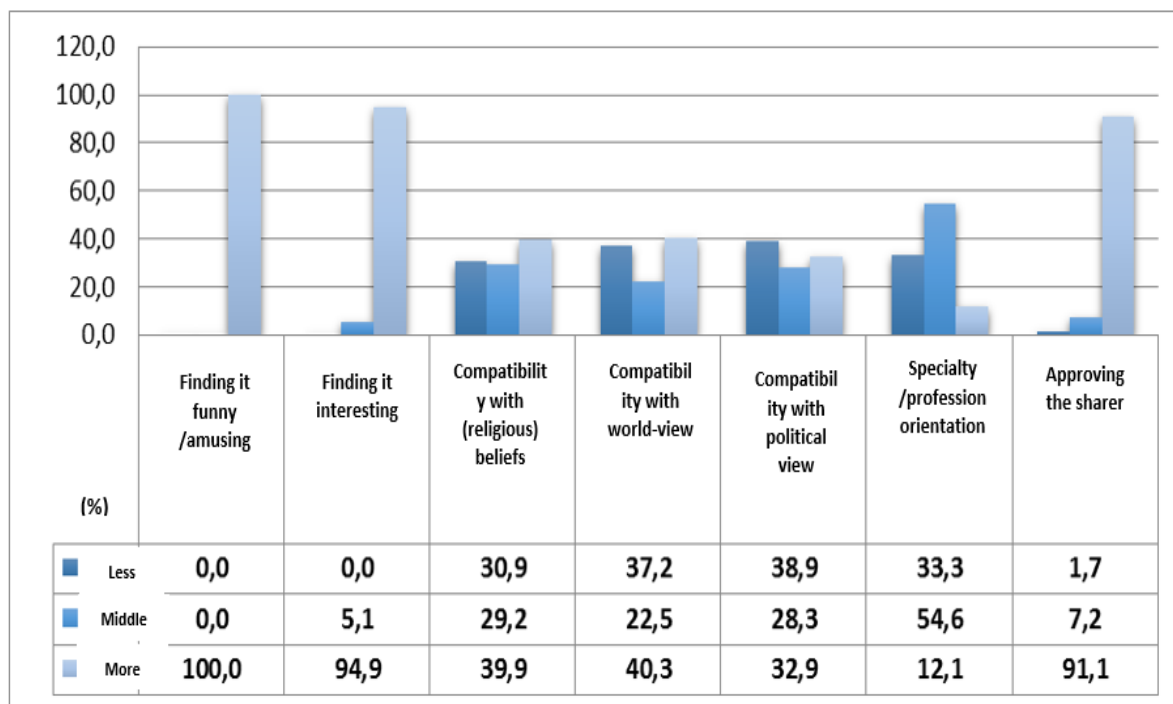| (%)	Finding it funny /amusing	Finding it interesting	Compatibility with (religious) beliefs	Compatibility with world-view	Compatibility with political view	Specialty /profession orientation	Approving the sharer
Less	0,0	0,0	30,9	37,2	38,9	33,3	1,7
Middle	0,0	5,1	29,2	22,5	28,3	54,6	7,2
More	100,0	94,9	39,9	40,3	32,9	12,1	91,1

Figure 4: The LISE group's percentage distribution of driving forces in inclinations to spread the information believed to be true

When Figure 4 is analyzed, it is possible to state that the driving force in inclination of LISE group to spread depends on information's being funny/amusing (100%). This situation is followed by the choices 'sharing of contents found interesting' (94,6%) and 'approving the sharer' (91,1%). It is observed with the individuals in the LISE group that they are not inclined to question whether the sharings can be wrong or deficient, they believe in inherent trueness and if not, that a simple social sharing does not bear harmful consequences.

Contribution to Information Pollution: Results Regarding the Facebook Rights Sample Case
This title analyses the sample group's sharing condition of information which is frequently shared on Facebook and described to be a preservation text concerning individual rights but which is not. In Figure 5, the so-called text concerning personal information and preservation of rights is given both Turkish and English.

"Facebook'un yeni kullanım koşullarına cevaben, tarafıma ait her tür kişisel bilgi, görsel, karikatür, resim, fotoğraf ve videonun telif hakkının (Berner Konvansiyonu uyarınca) bana ait olduğunu beyan ederim. Bunların ticari kullanımı için daima benim onayım gerekli olacaktır!

Bu yazıyı kopyalayıp Facebook duvarınıza yapıştırabilirsiniz. Bu, haklarınızı telif hakkı kanunları uyarınca koruma altına alacaktır. Mevcut tebliğ uyarınca bunların ifşası, kopyalanması, dağıtılması, yayımı ya da bu profil ve/veya içeriği temel alınarak aleyhime diğer herhangi bir faaliyette bulunulmasının kesinlikle yasak olduğunu Facebook'a bildiririm. Bahse konu yasaklar, Facebook'un yönlendirmesi ya da kontrolü altında çalışan personel, öğrenciler, temsilciler ve/veya diğer her tür çalışan için de geçerli olacaktır. İşbu profil içeriği özel ve gizli bilgi niteliğinde olup, gizliliğimin ihlali yasalar kapsamında cezai işlem gerektiren bir durumdur (UCC 🅢 1 1-308-308 1-103 ve Roma Yönetmeliği).

Facebook, sermayesi halka açık bir şirkettir. Tüm üyelerin buna benzer bir bildirimi profillerinde yayınlamaları önerilir. İsterseniz bu bildirimi kopyalayıp duvarınıza yapıştırabilirsiniz. Bu tür bir bildirimi en az bir kez yayınlamamanız halinde, fotoğraflarınız ve profil durum güncellemeleriniz de dahil olmak üzere profilinizde yer alan öğelerin kullanımına zımnen onay vermiş olursunuz..."

Due to the fact that Facebook has chosen to involve software that will allow the theft of my personal information, I state: at this date of January 4, 2015, in response to the new guidelines of Facebook, pursuant to articles L.111, 112 and 113 of the code of intellectual property, I declare that my rights are attached to all my personal data drawings, paintings, photos, video, texts etc. published on my profile and my page. For commercial use of the foregoing my written consent is required at all times.

Those who read this text can do a copy/paste on their Facebook wall. This will allow them to place themselves under the protection of copyright. By this statement, I tell Facebook that it is strictly forbidden to disclose, copy, distribute, broadcast, or take any other action against me on the basis of this profile and or its content. The actions mentioned above also apply to employees, students, agents and or other personnel under the direction of Facebook.

The content of my profile contains private information. The violation of my privacy is punishable by law (UCC 1-308 1-308 1-103 and the Rome Statute).

Facebook is now an open capital entity. All members are invited to publish a notice of this kind, or if they prefer, you can copy and paste this version.

If you have not published this statement at least once, you tacitly allow the use of elements such as your photos as well as the information contained in the profile update.

Figure 5:The frequently shared text on Facebook concerning personal information and preservation of rights

The text given in Figure 5 gives the impression that once an individual shares it on his Facebook account, he will preserve his rights. The fact that this completely unfounded information is shared by many people is sufficient to be an exemplary case of information pollution. The sample group is provided with the relevant text and asked whether they have shared it. Percentage distributions intending the sharing conditions of the text are given for the LISEUST group in Figure 6 and for the LISE group in Figure 7.
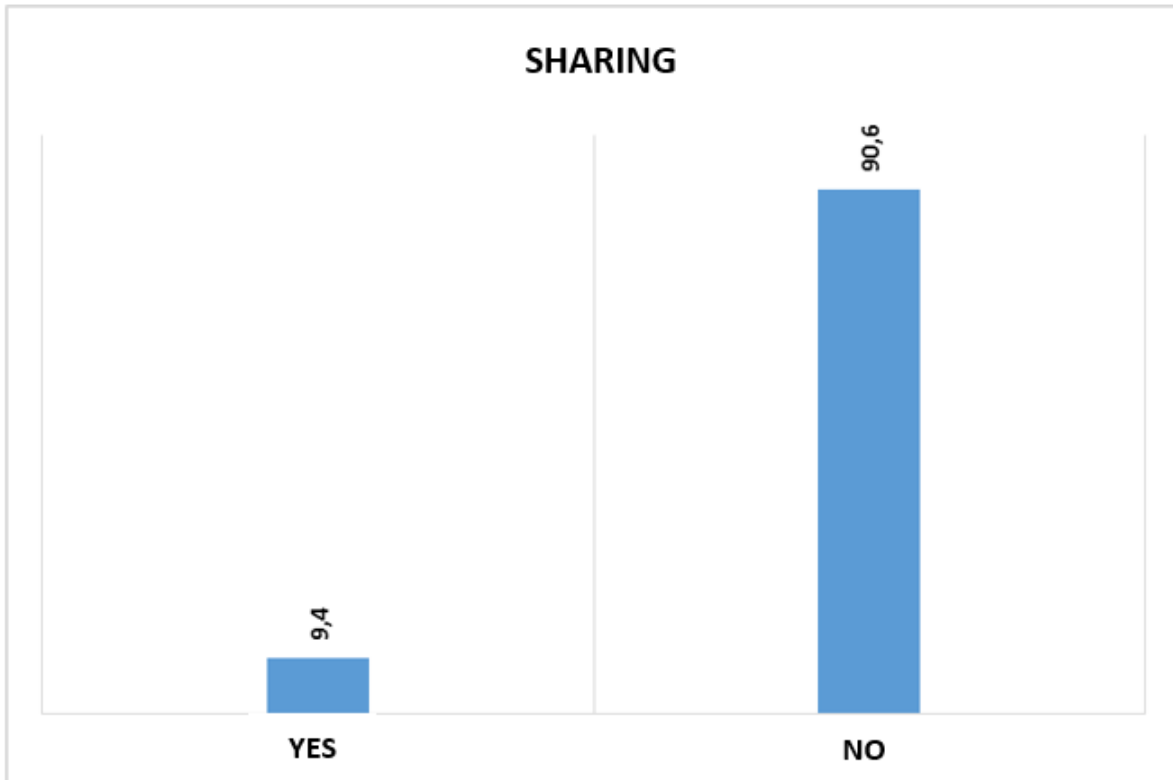

Figure 6: Percentage distributions concerning the sharing condition of the relevant text by the LISEUST group

When Figure 6 is analyzed, it seen that the LISEUST group mainly does not share this text on its Facebook accounts. When the reason of this situation is questioned, it is understood that 49,6% (63 persons) of those who answer as "No" do not believe in the trueness of the text, know that they are not able to preserve rights with a simple sharing and also know that these sharing can be controlled via privacy settings. Again, 20,5% (26 persons) of those who answered as "No" are observed that they looked at the mentioned convention before sharing but believed it was not a true post since it was completely irrelevant, 13,4% (17 persons) searched this post on search engines and did not share since they understood it was not a true post, and the remaining 7,1% (9 persons) refused to share under the guidance of a trusted friend. It is seen that those who answered as "YES" (12 persons) shared the text just in case with a doubt that the text could be true.
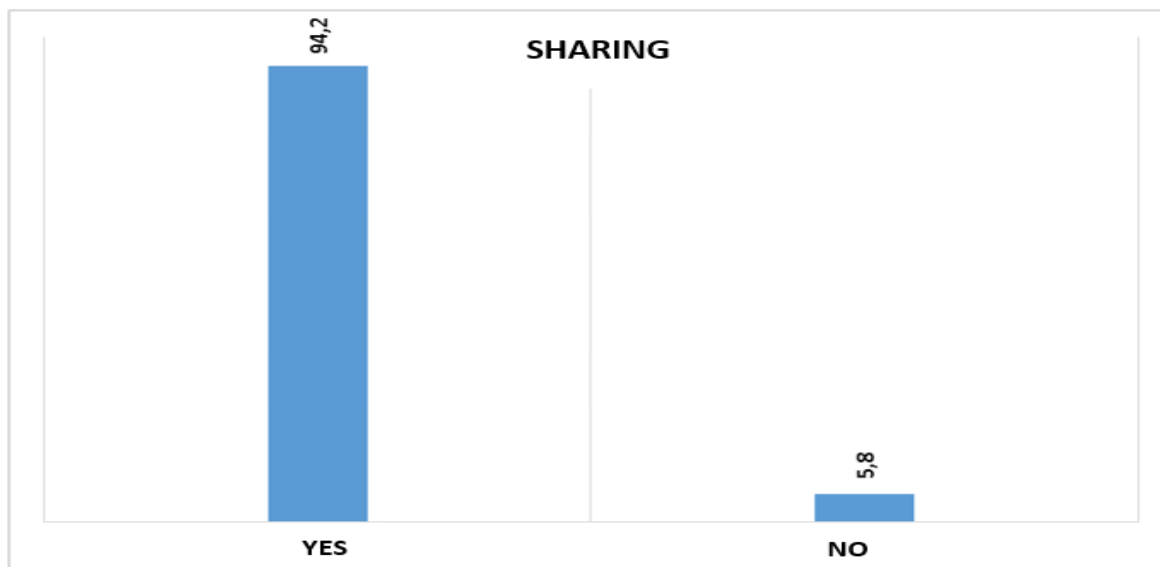

Figure 7: Percentage distributions concerning the sharing condition of the relevant text by the LISE group

When Figure 7 is analyzed, it is seen that the LISE group mainly share the text. When this situation is questioned, it is understood that 86,7% (359 persons) of the group shared it for their friends shared it, 6% (25 persons) doubted its trueness but shared just in case, 1,4% (6 persons) shared since they believed it was true. It is seen that those who answered "NO" (24 persons) found the post nonsensical and believed everything shared on Facebook already becomes open to everybody or to a limited population and no text is able to preserve it.

DISCUSSION AND CONCLUSION

Today, understanding a read text and discovering the depth of information turned into a struggle with information (Carr, 2010). During this struggle, individuals who are exposed to constant flow of information feel as if they dive into information as a result of excessive information increase and excessive informing (Kominiarczuk and Ledzinka, 2014) and undergo certain cognitive and physical problems (Özdemir and Gülseçen, 2015). Both limitedness in individuals' data processing capacities and downgrading of received information indicate that these problems are to continue. In case necessary measures are not taken, information pollution which is named as the new kind pollution of 21st century will meet individuals with different and formidable digital world versions of real life pollution problems. Especially when the case is new generation individuals, it is contentious how conscious are information consumers that we are facing with. In this study, the criteria of believing in the trueness of information shared/read on social media accounts and the driving forces in spreading information believed to be true are inquired for the LISE group which can be regarded as digital native class and for the LISEUST group who continue/completed their higher education. While the trueness of the information is mainly identified with the sharer in the LISE group, it is determined via personal information and experience in the LISEUST group. It is possible to say that in interviews with the LISE group, the inclinations "not questioning whether the information is true", "even though it is not true, it will not

cause harm or it is doubtful whether it will cause harm" are seen. Thus, it is seen that a great part of the LISE group makes contribution to the sharing of the text concerning Facebook personal information and preservation of rights. This condition indicates that there is a generation who does not have clear consciousness/sensibility on true or deficient information, sharing of information and its importance and the results of information pollution. Furthermore, it is unsettling that this generation has no worries towards information pollution as they contribute to downgrading of information, excessive information increase and sharing of explicit contents.

Digital world is on the verge of an important environmental crisis not only with information increase, but also information pollution. Especially, the fact that the new generation, which is able to use technology as of very early ages, face with pollution elements like "violent video games, cyber bullying, explicit/dangerous contents, viral rumors, technology addiction, privacy invasion" show that this crisis can reach to significant levels. Beside these elements of pollution, in case no consciousness is gained concerning information sharing, it is possible to say that below problems is waiting the information society if we consider the speed of technological development:

- Transformation of information access process into a drowning version as a result of intensified feeling of information overload
- Transition from weak decision-makers to weaker decision-makers
- The problem of dealing with expanding and strong information anxiety
- Decrease in taking the responsibility of shared information as generations change
- Inability to cope with the pollution in the amount of daily obtained information.

Information society should already take certain measures in order to struggle with "digital environmental pollution". These are suggested as below:

- Creating awareness for new generation pollution elements and teaching coping methods
- Guiding the new generation not only about risky attitude and behavior types in their social lives, but also about the methods concerning digital world on which they socialize.
- Constituting a powerful ethical perception for digital world
- Designing systems which contain proactive regulation approaches

Fundamentally, it is necessary to establish new course contents which are to be developed so as to support mere producer roles of the new generation and beside curriculum alterations, the consciousness of "information producing, sharing and accessing to the right information" should be given. This way, presenting an environment to other generations which will be benefited from more healthily can be discussed.

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