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A PRELIMINARY INVESTIGATION OF DIGITAL HOARDING BEHAVIORS OF UNIVERSITY EXECUTIVES

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ABSTRACT

Life in digital age leads people sharing more information online. Becoming increasingly dependent on their digital assets, leading Internet users to worry that losing those assets may cause problems. Therefore, there are similarities between the stacking behavior of physical and digital assets. In this study, digital hoarding behaviors of university executives on e-mail usage have been analysed. A questionnaire has been formed based on the work of Sweeten et al (2018). The participants of the study were determined as the senior level university executives that use their e-mail accounts intensively. In this context, 50 academic members of Süleyman Demirel University who have administrative duties participated the study. Exploratory analyses are conducted, and the findings are discussed.

Keywords: *Digital Hoarding, E-Mail, University Executives.*

Jel Codes: *I23, M12, M15.*

1. INTRODUCTION

Many people keep items throughout their lives even if they do not use or need them at all. Such behavior may be related to the functional and emotional dimensions of the item. However, some people take this behavior to an advanced level for reasons. This causes a pathological condition and becomes an important problem in the life of the individual (İşliyen, 2019: 405).

This condition, which is often referred in the literature as the 'Hoarding Disorder', is dysposophobia or pathological accumulation with different definitions, the objects are invaluable, unhealthy or dangerous, but not severely stacked or accumulated (Gökdaş, 2017:173-174).

"People who have a Hoarding Disorder have constant difficulty getting rid of them, regardless of their actual value. As a result, old items continue to be accumulated, even if they do not work. This situation can cause serious problems such as narrowing the living space at home, negatively affecting the quality of life, stress and anxiety disorders and family unrest" (Tunca, 2019). Therefore, Hoarding Disorder is considered a clinically important condition. Stacking or accumulating discomfort affects mobility and prevents major activities such as hygiene, health, cooking and cleaning and sleep (Gökdaş, 2017: 173-174).

We live in an increasingly digital age and people are sharing more information online. Almost everyone is in a relationship with every information shared. People are becoming increasingly dependent on their digital assets, causing them to worry that their deletion or loss may cause them problems in the future and accumulate their digital assets. Therefore, it is a fact that there is a direct relationship between the stacking of physical assets and the stacking of digital assets. Therefore, digital assets are also included in the goods we interact with in daily life. Within the scope of the study, the digitalization that caused the emergence of digital hoarding, the changes it caused, and the data obtained from the focus interview and its interpretation were included.

2. DIGITALIZATION

Digitalization takes place as a system that dominates all visual communication technologies of the digital age. Unlike traditional media, this system is based on a digital coding and the communication process takes place at high speed and multi-layer interaction. For this reason, this system, realized by the fact that a visual message consists of digital codes, has an important place in the art of moving painting. Along with the digitization process, many different concepts are on the agenda. In particular, a new era is emerging with new experiences in the development of visual communication (Sunal,

2016: 300). One of the most important features that define digitization is the ability to convert data in a different format. The digital form of the content enables the information to be transferred smoothly and quickly via different communication channels. With digitalization, the size of electronic devices has been reduced and at the same time, the mobilization of information has become possible. Digitization also saved communication from being dependent on cable and the use of individual communication tools is becoming widespread (Değirmencioğlu, 2016: 595).

On the other hand, it is possible to list the factors that enable digitalization to actively affect the life of the individual and the society (Bal, 2010: 2-3):

- Individual expectations of life change day by day and digital life can respond to them,
- Digital elements ensure that human life conditions are improved in every sense,
- The services provided by the digital world help to relax individuals psychologically,
- Digital elements create new employment areas and therefore individuals are required to closely follow the developments in the digital world,
- The new digital world is the result of people's curiosity; so the digital situation keeps people in touch with technology,
- Humanity is in a struggle and competition to use what they get from the digital world for their own benefit,
- People use digital tools at least once in all activities in their lives; Therefore, digital elements have an indirect effect on human practices and decision-making activities.

The most striking point is that digital elements become an important part of people's lives. Technology is an indispensable part of humanity, especially in everyday life, and the individual's spirit and mind are digitized. On the other hand, the new communication process that emerged with digitalization has radically changed the communication processes in the daily life of the society. In today's world, communication is no longer a physical dimension. On the contrary, the communication understanding of the new era is largely based on written and visual elements on digital platforms. Since this is a matter of debate, people often prefer digital platforms to express themselves, socialize and display an active attitude and behavior. (Turhan, 2017: 27-28).

The transformation that took place in this period, in which speed and information encompassed life, led to new developments both in the behavior patterns of individuals and in the cultural patterns of societies. In the context of the topic, it is possible to say that digitalization has brought some discomfort due to its misuse or not being used effectively. Many studies agree that computer and television are addictive. These addictions, which basically contain entertainment, negatively affect the quality of life of adults, especially children and young people, in social life. However, many diseases have emerged in the digital age we are in. It is seen that some of these diseases are manifested by spending time in digital media and some of them by impulse control disorder. Some of the diseases that have been identified so far are as follows (İşliyen, 2019: 409):

- Nintendinitis (Sports injury due to extreme video game playing),
- WhatsAppitis (Keyboard-Mouse Disease)
- Nomofobi (Fear of being deprived of the phone),
- Netlessfobi (Fear of staying without internet),
- Fomo (Fear of missing developments),
- Jomo (Fear of lacking in fun),
- Google Stalking,
- Siberhondrik,
- Youtube Narcissism

3. DIGITAL HOARDING

The concept, which is stated as Hoarding Disorder, is a behavioral disorder or disease that continues with the difficult situation that emerges after the accumulation of the object by considering the emotional value created by the objects and the benefit that is thought to be created in the future and the life quality of the individual is seriously affected (Bennekom et al., 2015: 1). In another definition, the problem that people who accumulate in their homes by not throwing away old items that they do not use for emotional reasons or worry about need may be referred to as Hoarding Disorder after a while. People who have stacking problems have constant difficulties getting rid of them, regardless of their true value. As a result of this, even if it does not work by those people, old items continue to be collected (Tunca, 2019).

Common symptoms of digital hoarding can be listed as follows: “Accumulating and not being able to throw away a large number of items that seem

unnecessary or limited in value; The spaces that are vacant have been specially set to prevent performing activities for which these spaces are designed; Obvious trouble caused by accumulation and difficulty in moving; Reluctance or inability to return the borrowed items; Driven greed can sometimes lead to theft or kleptomania as the boundaries blur." (Dispozofobia, 2015).

Digital hoarding disorder is also a term digitally expressed for people who have similar troubles. In other words, digital hoarding is the accumulation of all kinds of digital materials such as e-mail, video, photo, document and files. The individual does not know exactly how to react to the digital data (s)he has accumulated. This situation is also expressed as a accumulation habit that results in stress and disorder and leads to trouble seeing ahead (Bennekom vd., 2015: 1).

It can be seen as normal behavior that individuals tend to accumulate their digital assets, which are material and emotional. In this respect, it is reported that children started collecting and storing objects at an average age of 25-27 months and this increased monotonic around the age of six. In addition, in 70% of the children considered healthy, the existence of these features has been demonstrated through studies (Bulut et al., 2015: 320). Similar to hoarding disease, digital hoarding emerges as a discomfort that causes the behavioral and cognitive disorders, which prevents the individual from his/her daily work and triggers the quality of life negatively.

Bennekom et al. (2015) conducted the first study in the literature on digital hoarding. In this study, a patient at the age of 47 refers to digital photo accumulation problem that affects his daily work. The patient was determined in the literature as the first "digital hoarder". The patient stated that although many of the photes that he stack were similar, they had difficulty in deleting them as they brought back memories.

Although it is possible to record large amounts of data with today's technology, this accumulation or stacking behavior reveals a kind of "information scatter". Digital assets should not be evaluated only by storage. Store properly and systematically and with accurate identification is one of the ways to properly evaluate digital data (İşliyen, 2019: 411).

4. METHOD

An empirical study was conducted in this study. The questionnaire was formed in Likert Scale by adopting the "Digital hoarding behaviors: Underlying motivations and potential negative consequences" study of Sweeten et al (2018). The participants of the study were determined as the senior level university executives that use their e-mail accounts intensively. The survey was conducted on 50 academic members of Süleyman Demirel University that have administrative duties. The main reason of selecting the participants from executives is their active use of e-mail accounts for formal communications and administrative purpose.

The data obtained were analyzed with the SPSS program. The demographic data were analyzed by frequency analysis. In the second category, the relationship between cross tables and variables were analyzed.

4.1. Frequency Distributions

The first part of the survey consists of the demographic questions such as gender, academic title, administrative duties and ages. Frequency distributions of the demographic data of the participants are shown in Table 1.

Table 1. Frequency Distributions of Demographic Data

Gender		
	Frequency	Percentage
Male	40	%80
Female	10	%20
Total	50	%100
Academic Title		
	Frequency	Percentage
Professor	21	%42
Associate Professor	7	%14
Assistant Professor	12	%24
Lecturer	10	%20
Total	50	%100
Administrative Duty		
	Frequency	Percentage
Rector & Vice Rector	2	%4
Dean & Vice Dean	12	%24
Director	15	%30
Head of Department & Deputy Head of Department	17	%34
Head of Sub Department	4	%8
Total	50	%100
Age		
	Frequency	Percentage
25-35	7	%14
36-45	21	%42
46-55	19	%38
56-65	3	%6
Total	50	%100

It is seen from Table 1 that the participants of the study are predominantly male and mostly in the age group of 36-55. The highest percentage of the participants are full prefessors while majority of them are either director, dean or head of department.

Table 2 depicts the frequency distributions of the e-mail usage details. While majority of the participants read most of the e-mails, they also keep over 41 of the e-mail messages after reading for future references or other reasons (See Table 3). The succeeding frequency distributions highlight that most of the e-mail messages are deleted after reading.

Table 3 shows the frequency distributions of digital hoarding behaviors. The majority of the participants reads the title of the messages to decide reading the message immediately or not. Likewise, an important number of the participants only sometimes or rarely need the stored e-mail messages. While the rate of those who clean the inbox every day is high, the number of those who clean one or two times a year or month is also high. Participants think that most of the messages they keep in their inbox will be useful in the future. There is a balance between those who think they are keeping messages that they think will not be useful in the future and those who do not. The majority of the participants state that they do not have difficulty deleting messages that are not useful. The participants also state that they kept their messages in their e-mail accounts because they thought they would need them in the future. While expressing that they rarely delete stored messages by mistake, the participants also state that they do not feel anything but sadness and regret after the messages they accidentally deleted.

4.2. Crosstabs for Demographics and E-Mail Account Usage

Crosstabs for demographic and e-mail account usage data are given in Tables 4 to 7 for comparative purposes.

Table 2. Frequency Distributions of E-mail Usage Data

Number of unread messages in e-mail inbox		
	Frequency	Percentage
Less than 10	30	%60
11-20	4	%8
21-30	5	%10
31-40	0	%0
41 and more	11	%22
Total	50	%100
Number of messages stored in email inbox after reading		
	Frequency	Percentage
Less than 10	9	%18
11-20	5	%10
21-30	1	%2
31-40	2	%4
41 and more	33	%66
Total	50	%100
Number of deleted e-mail messages in trash can		
	Frequency	Percentage
Less than 10	16	%32
11-20	5	%10
21-30	1	%2
31-40	5	%10
41 and more	23	%46
Total	50	%100
Number of unread e-mail messages in trash can		
	Frequency	Percentage
Less than 10	24	%48
11-20	7	%14
21-30	6	%12
31-40	0	%0
41 and more	13	%26
Total	50	%100

Table 3. Frequency Distributions of Digital Hoarding Behaviors

Routine Behavior When Receiving a New Email Message		
	Frequency	Percentage
Immediately reading the e-mail	7	%14
Reading the the e-mail if the title is important	37	%74
Taking no action for a while	6	%12
Total	50	%100
Frequency of Needing Stored E-mail Messages		
	Frequency	Percentage
Rarely	23	%46
Sometimes	21	%42
Often	6	%12
Total	50	%100

Frequency of Cleaning E-mail Inbox		
	Frequency	Percentage
Everyday	18	%36
Once a week	9	%18
1 or 2 times a month	10	%20
1 or 2 times a year	11	%22
Never	2	%4
Total	50	%100
The Number of E-mail Messages That May be Needed in the Future		
	Frequency	Percentage
All of them	2	%4
Most of them	19	%38
Half of them	9	%18
Some of them	20	%40
Total	50	%100
The Stored E-mail Messages will not be Used in the Future		
	Frequency	Percentage
Absolutely Agree	7	%14
Agree	15	%30
Undecided	6	%12
Do not Agree	13	%26
Strongly Disagree	9	%18
Total	50	%100
Having Difficulty on Deleting Unuseful E-mail Messages		
	Frequency	Percentage
Absolutely Agree	3	%6
Agree	9	%18
Undecided	5	%10
Do not Agree	17	%34
Strongly Disagree	16	%32
Total	50	%100
Reasons for Keeping E-mail Messages		
	Frequency	Percentage
Need	38	%76
As an Evidence	4	%8
No Reason	8	%16
Total	50	%100
Frequency of Accidentally Deleting E-mail Messages?		
	Frequency	Percentage
Very Often	1	%2
Often	2	%4
Sometimes	4	%8
Rarely	35	%70
Never	8	%16
Total	50	%100
Feelings After Accidentally Deleted an E-mail Message?		
	Frequency	Percentage
Regret	10	%20
Sadness	14	%28
Guilt	4	%8
Anger	2	%4
Nothing	20	%40
Total	50	%100

Table 4. Gender and E-Mail Account Usage

USAGE		Number of unread messages in e-mail inbox					Number of messages stored in email inbox after reading					Number of deleted e-mail messages in trash can					Number of unread e-mail messages in trash can				
FREQUENCY		0-10	11-20	21-30	31-40	41 +	0-10	11-20	21-30	31-40	41 +	0-10	11-20	21-30	31-40	41 +	0-10	11-20	21-30	31-40	41 +
GENDER	MALE (%)	70	5	5	0	20	22.5	7.5	2.5	5	62.5	40	7.5	2.5	10	40	52.5	12.5	12.5	0	22.5
	FEMALE (%)	20	20	30	0	30	0	20	0	0	80	0	20	0	10	70	30	20	10	0	40

As seen in Table 4, the number of messages that most of the male participants did not read in their e-mail accounts is quite low. Male participants often read their messages, but they do not delete them. They continue to keep their deleted messages in the trash. The number of messages they delete without reading is very low. The number of e-mail messages that female participants is higher than the ones deleted without reading. Just like male participants, they do not delete the messages they read. Female participants tend to hide messages in deleted boxes more than male participants. The number of messages they delete without reading is higher than the ones of male participants. It is seen in Table 4 that female participants tend to stack messages more than men participants.

The crosstab in Table 5 demonsrates the frequency distributions of academic titles and e-mail account usage. The lecturers participating in the research often read the messages. The number of messages that are not read but deleted is quite high. Professors' and instructors' tendency to read and delete messages is higher than the others. Likewise, the tendency to store the messages they delete in the trash can is higher. Those academic groups do not delete messages without reading, and they do not keep the messages they delete without reading.

Table 5. Academic Title and E-Mail Account Usage

ACADEMIC TITLE		USAGE	Number of unread messages in e-mail inbox					Number of messages stored in email inbox after reading					Number of deleted e-mail messages in trash can					Number of unread e-mail messages in trash can				
		FREQUENCY	0-10	11-20	21-30	31-40	41 +	0-10	11-20	21-30	31-40	41 +	0-10	11-20	21-30	31-40	41 +	0-10	11-20	21-30	31-40	41 +
	Professor (%)		66.7	9.5	0	0	23.8	14.3	9.5	0	4.8	71.4	38.1	4.8	4.8	4.8	47.6	47.6	14.3	9.5	0	28.6
	Associate Professor (%)		42.9	28.6	14.3	0	14.3	14.3	28.6	14.3	0	42.9	0	42.9	0	28.6	28.6	28.6	28.6	14.3	0	28.6
	Assistant Professor (%)		58.3	0	16.7	0	25	25	0	0	8.3	66.7	41.7	0	0	8.3	50	50	0	16.7	0	33.3
	Lecturer (%)		60	0	20	0	20	20	10	0	0	70	30	10	0	10	50	60	20	10	0	10

Crosstab for administrative duties and e-mail account usage is given in Table 6. The number of messages sent to e-mail accounts is high due to the workloads of the academic staff who have administrative duties. As seen in Table 6, the faculty members who have administrative duties usually read the messages sent to their e-mail accounts regardless of their administrative duties. Deans, directors and heads of departments tend not to delete the messages they read. They also tend to keep the messages they delete. The tendency to delete messages without reading and the tendency to keep these messages happens at all administrative duties. Deans, directors, and heads of departments are more likely to store messages.

Table 6. Administrative Duty and E-Mail Account Usage

ADMINISTRATİVE TASK					FREQUENCY	USAGE
Head of Sub Department (%)	Head of Department & Deputy Head of Department (%)	Director (%)	Dean & Vice Dean (%)	Rector & Vice Rector (%)		
100	47.1	53.3	66.7	100	0-10	Number of unread messages in e-mail inbox
0	5.9	6.7	16.7	0	11-20	
0	5.9	26.7	0	0	21-30	
0	0	0	0	0	31-40	
0	41..2	13.3	16.7	0	41 +	
25	11.8	13.3	25	50	0-10	Number of messages stored in email inbox after reading
25	17.6	0	8.3	0	11-20	
0	5.9	0	0	0	21-30	
0	0	6.7	0	50	31-40	
50	64.7	80	66.7	0	41 +	
75	11.8	33.3	41.7	50	0-10	Number of deleted e-mail messages in trash can
0	11.8	13.3	8.3	0	11-20	
0	0	0	8.3	0	21-30	
0	23.5	6.7	0	0	31-40	
25	52.9	46.7	41.7	50	41 +	
75	47.1	40	50	50	0-10	Number of unread e-mail messages in trash can
25	11.8	13.3	16.7	0	11-20	
0	17.6	13.3	0	50	21-30	
0	0	0	0	0	31-40	
0	23.5	33.3	33.3	0	41 +	

Table 7. Age and E-Mail Account Usage

USAGE		Number of unread messages in e-mail inbox					Number of messages stored in email inbox after reading					Number of deleted e-mail messages in trash can					Number of unread e-mail messages in trash can				
FREQUENCY		0-10	11-20	21-30	31-40	41 +	0-10	11-20	21-30	31-40	41 +	0-10	11-20	21-30	31-40	41 +	0-10	11-20	21-30	31-40	41 +
AGE	25-35 (%)	42.9	0	0	0	57.1	0	0	0	14.3	85.7	28.6	0	0	28.6	42.9	57.1	14.3	14.3	0	14.3
	36-45 (%)	57.1	14.3	9.5	0	19	23.8	4.8	0	0	71.4	42.9	4.8	0	4.8	47.6	57.1	9.5	9.5	0	23.8
	46-55 (%)	63.2	5.3	15.8	0	15.8	15.8	15.8	5.3	5.3	57.9	26.3	21.1	.53	5.3	42.1	31.6	21.1	10.5	0	36.8
	56-65 (%)	100	0	0	0	0	33.3	33.3	0	0	33.3	0	0	0	33.3	66.7	66.7	0	33.3	0	0

The crosstabs for age and the e-mail account usage is given in Table 7. It is seen that the number of unread messages decreases as the age increases. The number of messages that are not read and but kept in the inbox shows an increase as the age decreases, on the contrary. As age increases, the tendency to keep deleted messages in the deleted messages box increases. Although there is no difference in the messages that are deleted without reading according to different age groups, the tendency to delete messages without reading is low for all age groups. It is seen that young people have more tendency to keep messages.

4.3. Crosstabs for Demographics and Digital Hoarding Behaviors

Crosstabs for demographic and digital hoarding behaviors data are given in Tables 8 to 11 for comparative purposes. As seen in Table 8, both male and female participants read the messages depending on the importance of the titles.

While 20% of women read the messages immediately, only 12.5% male participants read do the same behavior. Male and female participants rarely or sometimes need to access the messages they keep in their inboxes. The percentages of those who often need it is 10% for men and 20% for women. While 40% of men clean their inboxes every day, this rate is 20% for women. Women clean their inboxes weekly, monthly and yearly periods. The proportion of those who think that only a few messages in their inboxes are valuable to them is 40% for both genders.

Similarly, 40% of the participants think that most of the messages in their inbox are valuable to them.

The rate of those who think that they store messages that are not useful in the future for men and women is 30%. The majority of both groups think that they do not store messages that are not useful to them. 30% of women find it difficult to delete messages that are not useful. For men, however, this rate is only 15%. Majority of participants in both genders claim that they can delete their e-mails with no hesitation. 80% of men and 60% of women state that they keep messages as they need them. Men have feelings of regret and sadness while women predominantly feel nothing when they accidentally delete e-mail messages. The tendency to keep messages is higher in female participants. The fact that they have less time to clean their inboxes and have difficulty in deleting messages that are not useful for men and that they do not try to delete them shows that the behavior of stacking e-mail messages is higher in women than men.

Table 8. Gender and Digital Hoarding Behaviors

		GENDER	
Digital Hoarding Behaviors		MALE **(%)**	FEMALE **(%)**
Routine Behavior When Receiving a New Email Message	Immediately reading the e-mail	12.5	20
	Reading the the e-mail if the title is important	72.5	80
	Taking no action for a while	15	0
Frequency of Needing Stored E-mail Messages	Rarely	45	50
	Sometimes	45	30
	Often	10	20
Frequency of Cleaning E-mail Inbox	Everyday	40	20
	Once a week	15	30
	1 or 2 times a month	17.5	30
	1 or 2 times a year	22.5	20
	Never	5	0
The Number of E-mail Messages That May be Needed in the Future	All of them	2.5	10
	Most of them	37.5	40
	Half of them	20	10
	Some of them	40	40
The Stored E-mail Messages will not be Used in the Future	Absolutely Agree	15	10
	Agree	30	30
	Undecided	12.5	10
	Do not Agree	25	30
	Strongly Disagree	17.5	20
	Absolutely Agree	7.5	0

Having Difficulty on Deleting Unuseful E-mail Messages	Agree	15	30
	Undecided	10	10
	Do notAgree	37.5	20
	Strongly Disagree	30	40
Reasons for Keeping E-mail Messages	Need	80	60
	As an Evidence	7.5	10
	No Reason	12.5	30
Frequency of Accidentally Deleting E-mail Messages	Very Often	2.5	0
	Often	5	0
	Sometimes	7.5	10
	Rarely	67.5	80
	Never	17.5	10
Feelings After Accidentally Deleted an E-mail Message?	Regret	20	20
	Sadness	35	0
	Guilt	7.5	10
	Anger	2.5	10
	Nothing	35	60

The crosstab for academic table and digital hoarding behavior is given in Table 9. As seen in the table, participants at all academic ranks tend to read e-mail messages depending on the importance of its title. Likewise, they also rarely or sometimes need their old messages in their inboxes. It is noteworthy that 41.7% of the assistant professors clean their inboxes once or twice a year. Similarly, 20% of the lecturers with the title of lecturer stated that they never clean their inboxes. It is also observed that 50% of the assistant professors clean their inboxes daily, while associate professors and full professors perform this job weekly and monthly, respectively. The proportion of those who think that only a few messages in their inboxes are valuable to them is 52.4% in professors, 41.7% in assistant professors and 30% in lecturers, respectively. Interestingly, 71.4% of the associate professors stated that a significant part of the messages is valuable for them. This rate is 50% for the assistant professors and 40% for the lecturers. Accidental message deletion behaviors among the academic levels either absent or rarely occur. While academicians with other titles feel nothing of messages that are deleted by mistake, assistant professors feel regret, sadness and anger. The tendency of keeping messages is higher in assistant professors than the other titles. The lecturers show the tendency of of stacking e-mail messages more than other academic groups.

Table 9. Academic Title and Digital Hoarding Behaviors

		ACADEMIC TITLE			
Digital Hoarding Behaviors		Professor **(%)**	Associate Professor **(%)**	Assistant Professor **(%)**	Lecturer **(%)**
Routine Behavior When Receiving a New Email Message	Immediately reading the e-mail	9.5	14.3	25	10
	Reading the the e-mail if the title is important	85.7	57.1	66.7	70
	Taking no action for a while	4.8	28.6	8.3	20
Frequency of Needing Stored E-mail Messages	Rarely	42.9	57.1	58.3	30
	Sometimes	47.6	42.9	16.7	60
	Often	9.5	0	25	10
Frequency of Cleaning E-mail Inbox	Everyday	5	14.3	50	30
	Once a week	19	57.1	0	10
	1 or 2 times a	23.8	28.6	8.3	20
	1 or 2 times a year	19	0	41.7	20
	Never	0	0	0	20
The Number of E-mail Messages That May be Needed in the Future	All of them	4.8	0	8.3	0
	Most of them	19	71.4	50	40
	Half of them	23.8	14.3	0	30
	Some of them	52.4	14.3	41.7	30
The Stored E-mail Messages will not be Used in the Future	Absolutely Agree	0	28.6	8.3	40
	Agree	33.3	14.3	41.7	20
	Undecided	14.3	14.3	8.3	10
	IDo not Agree	33.3	28.6	16.7	20
	Strongly Disagree	19	14.3	25	10
Having Difficulty on Deleting Unuseful E-mail Messages	Absolutely Agree	4.8	0	0	20
	Agree	19	0	25	20
	Undecided	9.5	28.6	8.3	0
	Do notAgree	33.3	57.1	25	30
	Strongly Disagree	33.3	14.3	41.7	30
	Need	85.7	100	58.3	60
	As an Evidence	9.5	0	0	20

Reasons for	No Reason	4.8	0	41.7	20
Frequency of Accidentally Deleting E-mail Messages	Very Often	4.8	0	0	0
	Often	4.8	0	8.3	0
	Sometimes	9.5	14.3	0	10
	Rarely	61.9	85.7	75	70
	Never	19	0	16.7	20
Feelings After Accidentally Deleted an E-mail Message?	Regret	19	14.3	33.3	10
	Sadness	28.6	28.6	25	30
	Guil	9.5	14.3	8.3	0
	Anger	0	0	16.7	0
	Nothing	42.9	42.9	16.7	60

Table 10 shows the crosstab for types of administrative tasks and digital hoarding behavior. While all administrative tasks require reading incoming e-mail messages regularly, they rarely or sometimes need their old messages in their inboxes. The majority of the participants clean their inboxes every day. The proportion of those who think that only a few messages in their inboxes are valuable is 50% for rectors and vice-rectors, 41.7% for deans and vice-deans, and 40% for directors and vice-directors, respectively. The vast majority of the participants think that they do not hide messages that are not useful. Again, an important number of the participants do not have difficulty in deleting the messages. Accidental message deletion among the participants either does not happen at all or rarely occurs. The tendency of hiding messages is higher for the heads of the departments.

Table 10. Administrative Task and Digital Hoarding Behaviors

		ADMINISTRATIVE TASK				
Digital Hoarding Behavior		Rector & Vice Rector **(%)**	Dean & Vice Dean **(%)**	Director **(%)**	Head of Department & Deputy Head of Department **(%)**	Head of Sub Department **(%)**
Routine Behavior When Receiving a New Email Message	Immediately reading the e-mail	50	8.3	20	11.8	0
	Reading the the e-mail if the title is important	50	75	66.7	82.4	75
	Taking no action for a while	0	16.7	13.3	5.9	25
Frequency of Needing Stored E-	Rarely	0	50	60	29.4	75
	Sometimes	50	41.7	26.7	58.8	25

mail Messages	Often	50	8.3	13.3	11.8	0
Frequency of Cleaning E-mail Inbox	Everyday	100	41.7	40	17.6	50
	Once a week	0	25	13.3	17.6	25
	1 or 2 times a	0	16.7	13.3	29.4	25
	1 or 2 times a	0	16.7	33.3	23.5	0
	Never	0	0	0	11.8	0
The Number of E-mail Messages That May be Needed in the	All of them	0	0	6.7	5.9	0
	Most of them	50	25	33.3	47.1	50
	Half of them	0	33.3	20	5.9	25
	Some of them	50	41.7	40	41.2	25
The Stored E-mail Messages will not be Used in the Future	Absolutely Agree	0	0	26.7	11.8	25
	Agree	50	25	33.3	29.4	25
	Undecided	0	25	6.7	11.8	0
	IDo not Agree	50	25	20	23.5	50
	Strongly Disagree	0	25	13.3	23.5	0
Having Difficulty on Deleting Unuseful E-mail Messages	Absolutely Agree	0	0	6.7	11.8	0
	Agree	50	16.7	26.7	11.8	0
	Undecided	0	8.3	13.3	5.9	25
	Do notAgree	0	33.3	20	47.1	50
	Strongly	50	41.7	33.3	23.5	25
Reasons for Keeping E-mail Messages	Need	100	66.7	73.3	76.5	100
	As an Evidence	0	16.7	6.7	5.9	0
	No Reason	0	16.7	20	17.6	0
Frequency of Accidentally Deleting E-mail Messages	Very Often	0	8.3	0	0	0
	Often	0	8.3	0	5.9	0
	Sometimes	0	8.3	6.7	11.8	0
	Rarely	100	41.7	80	70.6	100
	Never	0	33.3	13.3	11.8	0
Feelings After Accidentally Deleted an E-mail Message?	Regret	50	0	20	29.4	25
	Sadness	0	58.3	26.7	17.6	0
	Guil	0	8.3	6.7	5.9	25
	Anger	0	0	13.3	0	0
	Nothing	50	33.3	33.3	47.1	50

Finally, Table 11 presents the crosstab for age and digital hoarding behavior. Most of the participants from all age groups read the e-mail depending on the title of the message. In addition, it is a remarkable that the 33.3% of the 56-65 age group reads the messages immediately. Participants between the ages of 25-35 often need old messages that they keep in their inboxes. In other age groups, this situation rarely or occasionally occurrs. While 46-55 and 56-65 age groups clean their inboxes weekly and monthly, participants in other age groups clean their inboxes every day. It is noteworthy that 28.6% of the 25-35 age group never clean the inbox. The 71.4% of the participants in 25-35 age group, on the other hand, thinks that a significant part of the messages in their inbox are important. The vast majority of participants from each age group do not find it difficult to delete messages. Accidental message deletion behavior for all age groups is either absent or rarely occurs. It is also noteworthy that majority of the youngest administratives do not feel anything if they accidentally delete e-mail messages. The tendency of keeping messages is igher in the age groups of 36-45 and 46-55.

Table 11. Age and Digital Hoarding Behaviors

		AGE			
Digital Hoarding Behaviors		25-35 **(%)**	36-45 **(%)**	46-55 **(%)**	56-65 **(%)**
Routine Behavior When Receiving a New Email Message	Immediately reading the e-mail	14.3	14.3	10.5	33.3
	Reading the the e-mail if the title is important	71.4	66.7	84.2	66.7
	Taking no action for a while	14.3	19	5.3	0
Frequency of Needing Stored E-mail Messages	Rarely	28.6	57.1	42.1	33.3
	Sometimes	28.6	38.1	47.4	66.7
	Often	42.9	4.8	10.5	0
Frequency of Cleaning E-mail Inbox	Everyday	28.6	42.9	31.6	33.3
	Once a week	0	19	21.1	33.3
	1 or 2 times a	14.3	14.3	26.3	33.3
	1 or 2 times a year	28.6	23.8	21.1	0
	Never	28.6	0	0	0
The Number of E-mail Messages That May be Needed in the Future	All of them	0	4.8	0	33.3
	Most of them	71.4	38.1	26.3	33.3
	Half of them	0	19	26.3	0
	Some of them	28.6	38.1	47.4	33.3
The Stored E-mail Messages will not be Used in the Future	Absolutely Agree	14.3	14.3	15.8	0
	Agree	28.6	33.3	26.3	33.3
	Undecided	14.3	9.5	15.8	0

	IDo not Agree	28.6	23.8	26.3	33.3
	Strongly Disagree	14.3	19	15.8	33.3
Having Difficulty on Deleting Unuseful E-mail Messages	Absolutely Agree	14.3	0	10.5	0
	Agree	14.3	23.8	15.8	0
	Undecided	14.3	4.8	15.8	0
	Do notAgree	28.6	33.3	31.6	66.7
	Strongly Disagree	28.6	38.1	26.3	33.3
Reasons for Keeping E-mail Messages	Need	57.1	76.2	84.2	66.7
	As an Evidence	0	4.8	10.5	33.3
	No Reason	42.9	19	5.3	0
Frequency of Accidentally Deleting E-mail Messages	Very Often	0	0	5.3	0
	Often	0	4.8	5.3	0
	Sometimes	14.3	4.8	10.5	0
	Rarely	57.1	76.2	63.2	100
	Never	28.6	14.3	15.8	0
Feelings After Accidentally Deleted an E-mail Message?	Regret	28.6	19	21.1	0
	Sadness	0	33.3	36.8	0
	Guil	14.3	9.5	5.3	0
	Anger	0	9.5	0	0
	Nothing	57.1	28.6	36.8	100

5. CONCLUSION

Nowadays, tremendous growth of the information and communication technologies promotes sharing vast amount of information in digital channels. People and organizations can now easily generate more and more data and store them at a low cost. As a result, people feel need of storing many data such as photos, videos, books, e-mails both on the cloud services and on various devices. In this regard, unlimited storage opportunities offered by the digital environment lie beside the approach of individuals to digital data.

Digital hoarding is an emerging behavioral disorder in the last decade. However, there is a limited number of emrirical evidence about its causes, treatment and impacts over performance and social life.

Hence, this study aims to provide a preliminary investigation of digital hoarding behavior of the academic members of a university with a senior level administrative duty, who need to use their e-mail accounts more than many other white-collar professions.

The findings show that digital hoarding behavior is quite common in academic administrative duties. However, it is important to note that since e-mail usage is a part of the duty, it is not possible classified such behavior as a behavioral disorder. Moreover, since the number and the geographic distribution of participants of the study is limited, further analyses need to be conducted. Nonetheless, the findings of this preliminary study suggest some emerging issues that need to be tracked in the future researches.

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