Review Paper

The use of document analysis technique in Turkish scientific studies: DAS workshops and their stand-by potential for Turkey

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Abstract

In this paper, we discuss the document analysis as a data collection technique and a potential infrastructural instrument for developing countries particularly in the case of Turkey. Within this scope, the scientific studies made on this field in Turkey and placed in DAS scientific workshops were examined in the paper. While discussing these issues, the attendance of academicians from developing countries to Document Analysis Systems (DAS) workshops were observed in the study due to determining the potential inputs gained in the workshops and expected to be beneficial for the Turkey's development. In the conclusion of the study, various suggestions about the studies that will be made for Turkey in the future were presented. The findings of the study expose that Turkey should be more aware of the benefits of using document analysis technique in scientific researches and also their stand-by potential for various infrastructural technologies of the sectorial frameworks.

Keywords: Document analysis, Document analysis systems workshops, Scientific study, Data collection, Turkey.

Introduction

The diversity and number of studies about document analysis technique and including the technique indirectly in Turkey is very limited. The studies addressed scientific research methods which give information about data collection, include document analysis technique are mostly superficial. Considering scientific researches in the world, it is witnessed that most of studies related to document analysis directly or indirectly take place in medicine, engineering and social sciences literature. One of the most systematic and advanced of the studies in question is International Workshop on Document Analysis Systems. The researchers came from various countries and studying on document analysis systems, produce new systems or develop the existing systems at DAS scientific workshops. These systems are used in the field of intelligence, criminology, security such as very advanced signature recognition systems, facial recognition systems, spot-on personality determination by using various materials, as well as used in medicine and social sciences. On that sense, document analysis is a topic should be dwelled on, because it plays a key role in important fields for countries such as security and development. According to this important role, document analysis technique have a great potential for the developing countries to improve their infrastructural technologies in many kind of sectors such as banking, intelligence services, forensic medicine and etc. Turkey is one of the developing countries that should pay special attention on this field due to gaining the benefits of this technology that will be useful for these sectorial development.

There are various economic, cultural, ethical and social differences among countries in the world. Some countries precede other countries in terms of economics or social. Therefore, advanced countries are described as developed countries. Also, countries are described developing, or undeveloped countries. That description was made by United Nations using Human Development Index[1]. The Index developed by Mahbubul Haq in 1990 was used by United Nations in order to measure various standards such as poverty, literacy, education, life expectancy. According to Human Development Annual Report published in 2015, Turkey is a developing country and on the 72th rank among 188 countries This study emphasizes the importance of document analysis on the scope of Turkey, as a field of study and also a developing technology for many sectors' infrastructural framework in developing countries, by presenting an array about related to foreign literature and discusses the studies made in Turkey and about the field of document analysis. In the first chapter of this study, different dimensions and cores of document analysis technique is scrutinized by discussing basic concepts about document analysis, judgments related this field and relationships with other fields. In the second chapter, local and foreign studies utilized by document analysis technique are discussed and the dimensions of document analysis as a field of study are conveyed to the readers. Also in that chapter, by searching Higher Education Board of Turkey theses database, graduate level studies made in Turkey and related to document analysis are examined. In the last chapter of this study, DAS

workshops held after 2000 are scrutinized for having an idea about the progressive level of studies related to document analysis and document analysis in international literature. The year 2000, called millennium, is considered as a year in which technological developments have happened frequently. In the conclusion of the study some suggestions about document analysis technique in accordance with judgments and carried on studies, are offered for the studies that will be made in the future.

Basic concepts in document analysis

It is beneficial to discourse what "document" concept includes before defining the document analysis. Memories, marriage certificates, driving licenses, e-mails, annual reports, financial agreements, minutes, diaries, letters, pictures, diagrams, insigne and probative other materials can be scrutinized in document analysis[2-4]. These scrutinized materials can be analyzed in several formats and this means that analysis of these documents don't have a standard format. Corbetta[5] separates documents into two parts as more systematically and according to this separation, documents are classified in two; institutional and personal. The personal documents are autobiographies, diaries, letters, verbal life stories and the institutional documents are national and international media materials, stories, folktales, educational scripts, judicial materials, administrative and professional materials, physical remnants (corpse, fossil) respectively. Media materials in question include audio/visual sense organs such as pictures, photographs, video and voice records. For example, studies about planet Mars which is a current issue has frequently benefited from space photographs and also these visuals have been analyzed in mentioned researches[6].

In the most general sense, document analysis is a process of examining various materials which include research data[7]. Researcher can decide by himself/herself which documents or materials will be used as research topic. According to issue and aim of research, the type of materials which is examined can be changed. Berg[8] defines document analysis as anunobstructive data collection method based on archive searches. Similarly to Berg, Prior[9] and Platt[10,] emphasize that although documents play important role in human life, it couldn't attract the social scientist's attraction, especially after Max Weber's Bureaucracy. It is possible to link this general proposition with cases in Turkey. It has been observed in Turkish books written in the topic of research techniques, the tendency to give place to document analysis in main topic is too limited. Generally, it is examined under secondary data topic or other data collection techniques in a few paragraphs.

It is mentioned in the beginning of this study that many kinds of materials such as briefs, corpses and fossils can be regarded as documents. These data resources which are to be in many varieties have not a stable reliability level. For example, life stories are the materials used in document analysis. In these stories especially the authors who write their own life stories might have self-deception, can have sub-variables which damages the trustworthiness. These variables are prejudice, ego, depressed instinct, unrealizable longing, wish and desire[11]On the other hand, photograph as another material can have different details. According to that, the photograph can be analyzed formally, semantically, geographically and historically. Many details on photographs such as whether there is a text note is on the photograph, if it is, when this note was added on it[8]. Furthermore, the objects in the details of the photograph (building, poster, signboard, etc.) can give geographical and spatialclues. On the other hand, the reflections of the one's mood in the photo may include significant clues for the research.

Emmison and Smith[12] draw attention to a very important matter of document analysis in their study. According to the authors, while some field of study such as visualization, visual anthropology, visual sociology have used document analysis previously, different disciplines can also use it recently. The authors remind the classical four different approaches about this issue and then they defense their arguments. The first one of classical approach is still used in the field of sociology and anthropology typically although visual analysis techniques are in many different fields. Cultural coding, especially visuals in advertising and media sector use the second approach. This shows the concept that passes through the communication sector. However, the codings are carried out by symbols in visuals. In the other approach, visual practices centered on mostly sketches and diagrams used by ethno methodologists. Lastly, video records used in document analysis are usually used to increase the social interaction among people. Especially in 1960's, the roots of these studies were based on the studies about body language. The authors defense that, the visual materials, especially photographs can be used more actively in sociological research and scrutinizing cultural dimensions.

Document sampling should be formed firstly for the process of data analyze. For example, if parliamentary minutes are chosen for the analysis, it is not beneficial to scrutinize all minutes of the parliament in the history also it is not possible. In this situation, it is proper action to select a specific legislative year and a specific topic. Determining the categories aimed at documents should be done in compliance with the purpose of the research. Determining categories is also a process to be considered in the period of document collection. For example, if dissenter opinions about a specific act or discussion are wanted to be scrutinized, dissident political parties or deputies must be also involved in parliamentary minutes.

The documents such as all kinds of written, verbal, visual[13]and hand-made objects are examined in many field of science such as archeology, ethnography, sociology. As mentioned at the beginning of the study, "unobstructive" described the data collection techniques are actually used in many fields as an untitled. People use the document analysis to find the reason and evidence of social events in their daily lives. This distinction is

inconsistent with the status of unobstructive but unobstructive meant by authors is used naming as a data collection technique. Overall the scientific methodology of the book, chapters dedicated to document analysis is very limited. In some sources, this technique takes place in other qualitative data collection techniques or secondary data techniques. Such a case causes that document analysis is slipped researchers' notice especially novice researchers and the technique hasn't been led to regard the importance enough. As can be seen in other parts of the study, document analysis and document analysis systems take place in many areas such as people' social life, intelligence work at the national level, the Internet, public administration, communication and marketing.

The use of document analysis technique in scientific studies and the current situation in Turkey

Document analysis' being regarded as a field of scientific study and taking concrete steps on this technique addresses to 1990s. "International Conference on Document Analysis and Recognition" (ICDAR), is the first one which is held in France. The conference has still being held twice a year. The other meeting in this area is The IAPR Workshop on Document Analysis Systems (DAS). The first meeting of this workshop was held in Germany in 1994. The meeting in question (DAS) will be discussed in detail in the next chapter.

Document analysis, when considered in the broad sense, is a technique that used while anthropologists examining bones, archaeologists working on object remnants of people, medical staff examining the entire human anatomy. In this sense, it is possible to come across many and varied studies on the field[14-17]. On the other hand, it is possible to say that these handled samples name the document analysis in different titles, according to their field of study and document analysis is not discussed as a main title in these samples. Researchers studying in these fields, actually make a document analysis, but working technique is not known as such. On the other hand, document analysis, as a mean closer first thing come to mind (document, paper, writing), is used in scientific studies about analyzing handwriting. In the period of computer technology hasn't yet developed, it was focused on detecting hand movements by digitalizing written documents via digital tablets and the problems encountered when detecting much like in the studies in that field[18-20]. Furthermore, analysis of the factors that determines of the handwritings is also included in these studies.

One of the study techniques on document analysis is visual document analysis. In this type of analysis, files are analyzed by a visual sense. It is possible to categorize, group and make brand by processing visually by means of programs and algorithms created for analyzing text in document structurally or entirely[21]. In similar systems, when the documents are loaded to system, grouping by type and identifying them in accordance with the means of programs by analyzing visually and

graphically via modeling characteristic form of some documents (text, spaces and places for signatures in a petition) can be done quickly and easily[22]. There is the concept "semantic" in this mentioned studies emphasized in the previous parts of this article. The artificial intelligence developed by algorithms, created programs and models matches and links documents to each other by establishing semantic network.

This can be claimed that most important documents in visual file analysis are photographs and videos. Photographs can be analyzed in the direction of different purposes. For example, photographs and videos related venue and time of incident can be examined while working on a venue investigation. Harvey[23] analyzed spirit in photographs as a showier example (spirit, extraordinary images, shadows), when examining reflection in early 19 and 20 century, technically and interpretatively one by one. Leeuwen and Jewitt[24] who study in field of visual analysis compiled their studies in a book. As to important point of the book, social dimensions of visual news in especially massive media are discussed via document analysis in the second chapter. It is emphasized that housework is related to woman rather than man; white actors rather than black actors take place in documents especially in movies and TV series.

As to circumstance of document analysis technique in Turkey, significant studies could not be accessed on the internet by pre-literature search on "document analysis" title via Google and Yandex search engines. On the other hand few of researches can be found on studies at Higher Education Board of Turkey Thesis Database and at International Conference on Electronics, Computer and Computation (ICECCO) which held in Ankarain 2013 by the support of IEEE. As a result of these researches, studies related to document analysis will be taken in place afterward of this study. In the forming of this relevance between observed studies on these two databases, it was taken as a criteria if the studies included materials such as findings, transcripts, images, videos, voice record materials related with human being.

13 studies consist of 10 master theses, 3 PhD theses, include the word "analysis" in searches were found in field of archeology. The first study was released in 2007 and last one was in 2013. One of the studies which analyzes prehistoric remnant in residential and nonresidential area of Ulukisla (Aksaray) and around belongs to Yucel[25], is a direct analysis that can be classified as a document analysis. Kacmaz[41] used comparison method for making analysis of remnants of Paleolithic culture age residential area of Gaziantep and around. As to another study in the field, Yucelanalyzed Karain B middle Paleolithic age remnants at a level of geologic and technologic dimension. Aslanmade a visual analysis by examining some um types seen in Greek ceramic art from B.C. 6-4. century, in terms of design. Yavuzanalyzed animal bones obtained from Mountain Olympus Research and Archeological Digging Project zoo archeologically. The last one is Ozkaymak's study[26] which made image analysis of İstanbul Great Palace Mosaic. The other 7

studies made analysis of their examining issues typologically. As it is seen, although it can be expected to have many studies related to document analysis in archeology, it is very limited and studies started newly in the year 2007 in Turkey.

According to results of the reviewing in fields such as anthropology, law, business administration, medicine, it was detected that most of the studies are held in the field of forensic science. 4 master theses, 2 PhD theses and 3 medicine specialty theses have been written in this field. The first study in document analysis among these 4 master theses have been made by Sahin[27] researching banks' responsibility of credit of letter payment document examining in foreign trade transaction. In this study, some documents such as bill, insurance policy, chattel paper, and packaging list were examined. Bulbul[28] wrote a master thesis titled "Comparative Investigation of the Spectroscopic Methods That Are Used in Questioned Document Examination". Hamzaoglu[29] focused on a specific issue and made a study on scored out texts by using spectral and hypo spectral methods. Lastly, Akkurt[30] made a document analysis on files coming to Forensic Document Examining Department of Forensic Science Institution and rejected via warrant in his thesis study. Demir[31] scrutinized document examining expert in field of law in his PhD thesis related to document analysis. Kocak[32] made a study about determining level of alcohol in blood and breathe air and hourly elimination rate by examining different alcoholic beverages.

When it comes to medicine theses related to document analysis, it is salient that Ocak[33] prepared a thesis titled as "The Status of Forensic Expert in DNA Studies". The author aimed to reveal the characteristic properties of medicine experts such as skills, minimum knowledge and standard attitudes in this study. Teyin[34] examined 87 postmortem intraocular liquid samples in his study forwarded by Eskisehir Osmangazi School of Medicine and Branch of Forensic Science Institution, investigating importance of biochemical examining in terms of postmortem interval by observing those, actual time of their death was known. Lastly, Toygar'sdissertation[35] titled as "Detection of Soft Tissue Changes in Electricity Entrance Wounds with Computer Assisted Image Analysis" focused on visual analysis as a part of document analysis.

In the review made by using keyword "visual analysis", architecture, landscape architecture, environmental sciences, textile, computer and electric- electronic engineering were determined as the sciences these use document analysis. Electric electronic engineering will be discussed in details in a separate paragraph. 3 master theses and 1 PhD thesis infield of architecture, 2 master theses and 1 PhD thesis infield of landscape architecture, 1 master thesis in field of environmental engineering and 2 master theses in field of textile exist.

The first study in field of architecture is a PhD thesis titled as "Visual Analysis of Design in The Harem of Topkapi Palace" belonging to Sozeri[36]. The study aimed to reread the harem by inside and via its own characteristic interpretation rather than to construe the harem via modern perspective. Ustundag[37] evaluated facade and functions of the building within the scope of document analysis and examined facade of the building in Halaskargazi Street, Sisli. Talu[38] classified deterioration type of the stone materials in Kadikalesi, Kusadasi and made visual analysis of those in his dissertation. Lastly, Efthymiou[39] made a study on facade examining similar to Ustundag's[40] study. Ak[41] made a study about Canakkale Watch Tower and around by using visual analysis technique and examined this construction and place in terms of urban outdoor. Cubukcu[42] made a computer assisted visual analysis and evaluated Antalya Republic Square and around in terms of symbolic functions.

Sezen[43] evaluated Erzurum- Bayburt-of Highway as a landscape road having been given a point by students of Ataturk University. One of salient studies related to document analysis is Gonul's study[44] made in field of textile (fashion design) and analyzing academic costumes in universities visually. The other study is a dissertation titled as "Physical and Visual Analysis of Jacquard Knittings"[45]. Examining document that was made physically is a conspicuous and small point in that study. On the other hand, visual examining may not include physical examining. The sense of touch qualities such as softness-hardness, warmness-coldness are issues of physical analysis. Master thesis titled as "Physical Characterization of the Catalyst Used in the Production of Environmentally Benign Gasoline by Using Visual Analysis Method" belonging to Ozmen[46] is the only study in environmental engineering.

Document analysis has become a technique used in field of computer and electric-electronic engineering indirectly via developing computer technologies. Defining, classifying, recognizing and explaining document and identification of the creator by creating programs in compliance with developing algorithms can be realized. As to studies in Turkey, one of these studies is a PhD thesis in field of electronic engineering belongs to Ofli[47]. As the title of study "Audiovisual Analysis for Learning and Synthesis of Dance Performances" is seen, the study's aim is very apparent. Altintakan[48] prepared a PhD thesis titled as "Design and Implementation of a Novel Visual Analysis System for Image Classification" in the field of computer engineering. The thesis in question aimed to contribute the field by extracting high level semantic info from pictures by focusing on logical analytics of visual data. The other study in this field is a historical document analysis method matching words and this study belongs to Arifoglu[49].

The studies in the framework of IEEE, as mentioned before, have contributed to researches in Turkey in the field of electric electronic engineering. In the researched studies in the meeting "International Conference on Electronics, Computer and Computation (ICECCO)" held in Ankara, 2013 and supported by IEEE, there are important studies related to document analysis made by Turkish researchers in the field of electric-electronic engineering. These studies are fake visual documents

research determined by color mismatch analysis belonging to Ulutas[50]; short term facial recognition schema research for ATM(Automatic Teller Machine) belonging to Derman and Gecici[51]; real time facial recognition and surveillance system research belonging to Baykara and Das[52] and lastly, OCR(Optic Character Recognition) for mobile devices research belonging to Kir and his companions[53]. As a result of the review, the studies times and types are shown below.

Table-1: The studies in Turkey

Field	Master's	PhD	Total	Time Interval
Computer Eng.	1	1	2	2011-2013
Elc-Elect Eng.	-	1	1	2010
Architecture	3	1	4	2004-2009
Landscape Arch.	2	1	3	2005-2009
Environmental E.	1	-	1	2004
Textile	2	-	2	2008-2009

Considering the studies related to document analysis in Turkey, although document analysis topic is not main topic it is possible to say that it takes place in various fields. However, it has to be stated that number of these studies is very limited. The all studies reached as a result of research have been made from 2000 to recent times. According to foreign literature reviewed in the first chapter of this study, the studies related to document analysis in Turkey lagged behind in terms of quantity and subject diversity. In addition, it can be observed that document analysis technique hasn't been taken place in scientific research methods books in Turkey sufficiently, even none in some books, although it has been used in field of medicine, engineering and social sciences in the other countries. It is thought that probable researches can reveal the claim in question. In this study, the subject was discussed, maintaining separated from mentioned studies and resources, for keeping the length of the study at a moderate level. In the next chapter of the study, while DAS workshops are being evaluated, it can be realized how these techniques can be separated to various subheadings in electric electronic engineering field.

DAS scientific workshops and their importance in terms of Turkey

DAS workshops have been being held traditionally since 1994 as an international platform. Previous workshops were held in Kaiserslautem, Germany in 1994; Malvern, USA in 1996; Nagano, Japan in 1998; Rio de Janerio, Brasil in 2000; Princeton, USA in 2002; Florence, Italy in 2004; Nelson, New Zealand in 2006; Nara, Japan in 2008; Boston, USA in 2010; Gold Coast, Australia in 2012, Tours, France in 2014 and will be held in Santorini, Greece in 2016.

This chapter of the study, DAS workshops held after 2000 will be scrutinized to have an idea about the progressive level of studies related to document analysis in international literature. Current state of document analysis systems using internet and computer technologies will also be examined. Information about different important themes of the studies took place in the workshops will be given in addition to examination of the workshops in question and the countries attending the workshops and quantitative data of participants will be determined annually. At the end of the chapter, importance of DAS workshops for Turkey will be discussed by evaluating themes of the studies in question and the studies made in Turkey which are examined in previous chapter.

The content of DAS workshops was released as a stack of the articles that presented in DAS from the first meeting to DAS 2008. Some articles took place in various categories in the proceedings published in 2008[54]. In the oncoming paragraphs of this study, the categories in question will be depictured generally on the basis of the proceeding released in 2008 and prevalent examples will be given from the studies in proceeding. The 2008 proceeding will be remarked as a main resource due to brief and interpreted mention about related studies and all the studies held in workshops will not be included due to keep this study on a moderate level.

The first one of the categories mentioned is "character recognition". Character recognition is a technique that based on determining personnel character via typeface in video or picture. On the other hand, determination of the writer from characters in handwritten manuscript and determination of polygraph are on the scope of character recognition. The second category "super resolution and output analysis" is the transformation of documents by putting them into an analysis process for the purpose of more comprehensive analysis. Transformation of an illegible document because of ink blot into legible document or transformation of a photograph not implying clearly because of darkness into intelligible photograph by increasing light are example of the second category. The third category is "categorizing and indexing documents". It represents a system where the documents are automatically archived, transferred and indexed for an easily access by developing systems in respect to various properties. The forth category "historical and written documents" generally focuses on the documents which do not include digital characters and computer software. These studies extend from prevention of historical document forgery to identification even determination the writer of writings on white board from writing analysis. The fifth category "document analysis systems" is a general category. Document analysis systems used for various purposes are in the scope of this category. This category contains the techniques such as e-signature control system for preventing fake vote in elections or document analysis systems which link archived documents each other and evaluates new documents constantly for reaching different results. The other category is "document image processing". Visual documents are usually included in this

category. Many operations can be made on visual documents in question with various algorithms. For example, calculating distance between visual objects in visual documents for determining symmetry – asymmetry can be included to this category.

On looking conspicuous and specific examples, Santos and his companion[55] study on determination of on a bank cheque handwriting or machine writing on bank cheque is salient. Any of similar studies can play a key role on development of banking systems. The most important property of that study is not depending on the type of paper compare to other studies. The authors emphasizes that this system can be applied to other document types in addition to bank cheque.

Sanchez and his companions[56] made a study on field of architecture. Their study presented CAD sketch to user by interpreting graphic based documents in document analysis system and transforming them to CAD sketch. It is thought that the study can play important role for transformation of visual documents into architectural projects. It is possible that more developing similar studies has been made from the year of study made to 2015.

Milewski and Govindaraju[57] carried out a study for facilitate health staff works. They developed a system which analyzes staff hand writing from carbon paper in hospitals. The authors emphasized that the forms under carbon papers sometimes can become illegible because of writer' hand pressure and writing weight and this can be a problem for health institution. The authors also emphasized that the problem in question can be cornerstone for automatic surveillance system in the future.

Letner and his companion[58] are involved in the research providing advantages to history researchers. In the research, they focused on increasing legibility spectrally of becoming illegible documents by the reason of especially dampness, solarization and wetting. Illegible or unreadable texts that are given into the system are supposed to get processed in the system and get in to a readable masked document by this technology.

Rusinol and Llados[59] developed a system for the firms which can be helpful for patent transactions in a branding trend and global conjuncture. The system was built on determining consistency of symbol and logo and similar logos created. That study carried out consistent results in Tobacco - 800 database.

Shi and his companions[60] made a study which aimed to contribute field of video organizing/arrangement with developing technologies. That study was based on excluding stationary text from video. This study also gives a facility to camouflage the videos. There are two paths for that. Firstly, texts in video are cut off graphically from video. Second path is to diverse the texts to pixels and to spread out the entire video homogenously. Related experiments were practiced and those

experiments reached the success. It is conspicuous that the system can be used for manipulating related videos.

Lastly Ferreia and his companions[61] emphasized the attention to summaries of writing which have many words and made a study on determining the best writing summary system. The authors examined the results of existing sentence evaluation systems onto news, blogs and articles and revealed pros and cons of sentence evaluation systems in compliance with the results.

As it is seen from the examples above, DAS scientific workshops have hosted document analysis studies having high importance and details. Those studies that contribute banking, health, intelligence, architecture and also many sectors which are not taken place in here. Thereby, researchers from Turkey' contributions has become more of an issue. Within this context, DAS meeting participants (academicians) from countries was investigated in recent years (after 2000) for the purpose of both getting the picture of Turkey and examining participating countries. The results are shown in the Table-2.

According to Table-2, researchers from Germany, USA, France, Japan, China, Singapore, Switzerland and India have participated in the DAS workshops regularly. It is obvious that all participating countries except India are developed countries. As it stands, developed countries care document analysis. For the benefits of examined example above, it is not shocking that importance given to document analysis is directly proportionate to level of development of countries. Although England, Brazil, Greece and Spain have not participated regularly, they participated most of the workshops.

The table to examine, the desperate and salient situation is never participating of Turkey that competes and outdoes at least one time participating countries such as Greece, Bulgaria, Algeria, Pakistan, Israel, Tanzania, Malaysia, Vietnam, Tunisia, Bahrain and Jordan related to level of development, population density, unemployment, and humanitarian development. On the other hand, while India as an Asian country has deep interest and participation as competing developed countries, Turkey has never participated. Interest of Greece which can be comparing with Turkey, this country's participation is not on an unremarkable rate.

From a different view for examination, the worrying results in the table are not surprising when the limited graduate studies related to document analysis in Turkey taken into account. Considering the studies presented in DAS workshops and examined examples in this study, it is seen that those systems are used in field of banking, architecture and etc. At this point, it will not be a wrong claim that Turkey uses these systems in mentioned fields, by importing from other countries. The reason of this claim is that, Turkey has never participated in DAS workshops which can be assumed as one of two major scientific workshops in document analysis technique. On the other hand, it is considered that this lack also makes a negative effect on Turkey's economy.

Table-2: Countries Participation to DAS[62-68]

Country	2002	2004	2006	2008	2010	2012	2014
USA	48	23	25	20	45	10	19
England	14	18	3	-	6	1	4
France	6	31	2	14	8	16	68
Japan	21	18	11	41	20	10	20
Italy	16	16	4	4	3	-	-
China	1	4	11	11	5	17	39
Germany	8	3	7	22	23	16	18
Switzerland	4	6	11	5	6	2	7
Greece	-	9	-	15	7	-	2
India	8	3	17	16	15	5	24
Un. Arab E.	1	-	-	-	-	-	-
Spain	-	6	-	23	20	3	15
Singapore	6	4	12	8	13	9	2
Canada	-	-	3	5	7	3	2
Brazil	1	-	5	2	-	2	10
New Zealand	-	1	-	1	-	-	-
Bulgaria	-	-	-	-	-	-	6
S. Korea	10	6	3	-	-	-	-
Netherlands	5	-	-	-	-	-	-
Thailand	3	-	-	-	-	-	-
Tunisia	-	-	2	5	-	2	3
Poland	-	2	-	-	-	4	5
Austria	-	-	-	4	6	4	-
Australia	-	-	-	-	2	4	7
Ireland	-	1	-	-	-	-	-
Tanzania	-	-	-	-	1	1	-
Israel		2		4	-	3	-

Country	2002	2004	2006	2008	2010	2012	2014
Jordan	-	-	-	-	1	-	-
Colombia	-	-	-	-	-	2	-
Saudi Arabia	-	-	1	-	-	-	2
European U.	-	-	-	2	-	-	-
Taiwan	-	-	-	2	-	-	-
Bahrain	-	-	-	-	1	-	-
Egypt	-	-	-	-	2	-	4
Malaysia	-	-	-	-	-	-	2
Vietnam	-	-	-	-	1	-	-
Pakistan	-	-	-	-	-	-	6
Algeria	-	-	-	-	-	-	3

Conclusion

Document analysis has vital importance as regards many field of science although not given importance enough in Turkey and taken place insufficiently in academic studies directly or indirectly. The multiplicity of the countries that participated in DAS workshops, regularity and continuity of the workshops, the technical details and the problems that the attempts seek for solutions for, show how important are document analysis systems for countries.

Document analysis is a technique used in many science and art disciplines such as engineering, medicine, archeology, anthropology, architecture, bureaucracy, painting, photography, directly or indirectly. It is possible to find many studies written in English related to document analysis have been come across in the world. It is probable that many studies written in other languages exist. Similar studies made in this area in Turkey are very limited. Therefore, it is not realistic that there is a hope to increase quantity and quality of these studies related to document analysis as Turkey has never participated in DAS meeting. Looking from the perspective of DAS workshops, Turkey's developing on document analysis systems and also on many finance sectors based on the given instances in the study, relies on researchers in the field of Computer and Electric-Electronic Engineering focused on that topic. As it can be realized from the name of organizing institution (IEEE), those workshops have been participated by researchers in field of computer engineering in addition to electric-electronic engineering. Studies in the workshops are creating programs and studies via algorithms by researchers having been experts in the related fields. Moreover it may encourage studies in the engineering field to emphasize the importance of these techniques by researchers in the social sciences, and to create demand for more developed systems by placing importance on these techniques regarding these studies.

Encouraging relevant researchers towards the studies related to document analysis systems in national scope will reduce imported supply dependency and accelerate development and reconstruction of Turkey in short and long-term. Perceiving importance of document analysis become more of an issue in both academic and politic dimension for Turkey. In this context, firstly, pertinent policy developers' awareness should be raised by academic institutions. Then, concrete steps such as encouragements and investments should be taken by government agencies for the scientific studies on document analysis systems and the researchers on the relevant field.

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