

RESEARCH AND EVALUATIONS IN SOCIAL, ADMINISTRATIVE AND EDUCATIONAL SCIENCES

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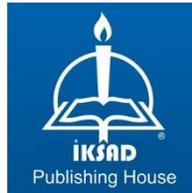
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FOREWORD

The importance of science and scientific studies is felt with their presence in today's societies. With science policies, this importance is seriously emphasized and system studies are carried out.

In the history, it will be seen that the states and societies that direct the world do not randomly reach that level, they gave importance to education, social and other sciences in the era in which they are located and they do very good work in these areas. Undoubtedly, today, as in the past, the only way to be a strong state and conscious and informed society is through the development of these scientific fields. This is a situation that can only be achieved with science and knowledge. At this point, in addition to education, unlike the natural sciences that explore the physiological, biological and chemical aspects of life, social sciences that are the subject of human, society, social life and human behavior also have a great responsibility. The importance of social sciences, which is quite comprehensive in terms of the subjects it researches such as cultural, political and economic structures, norms, values and art, is extremely important.

In summary, human and everything about human (people's needs, interests, problems, etc.) are changing. In the face of this obligatory change, searches for many different models continue. At this point, social sciences, which are disciplines in which societies are studied, have an important place in the lives of people and societies that are constantly changing and confronting various and complex issues.

This study, designed under the name of “Research and Evaluations in Social, Administrative and Educational Sciences”, consists of studies that fill a significant dearth involving different subjects and fields published in the field of social, administrative and educational sciences.

This study contains very valuable studies by Dr. İlkey Erarslan, Dr. H. Vedat Akman and Assoc. Prof. Dr. Cevdet Kızıll (Determinations and Recommendations for Increasing Women Employment in Turkey: An Economical and Financial Discussion), Assist. Prof. Dr. Dilaysu Çınar (Which Advertisements Are Clicked on The Video Sharing Sites? A Review from The Perspective of Consumers' Click Behavior), Assist. Prof. Dr. Özlem Kaya and Assoc. Prof. Dr. Laura Sînziana Cuciuc Romanescu (Some Aspects of Texture Element in Art: The Case of Fashion Design), Assist. Prof. Dr. Ayhan Bulut (Evaluation of Distance Learning Process Based on Opinions of Pre-School Teachers), Sevdener Küçükler and Dr. Halil Küçükler (Language Exposure), Prof. Dr. Anıl K. Bera, Dr. Osman Doğan and Prof. Dr. Bülent Gülođlu (The Delta Method and Estimating Equation Approach for Determining the Asymptotic Distributions of Test Statistics), Assoc. Prof. Dr. Ergun Demirel (In the Gales of a Man’s World: Problems of Woman Seafarers Confront on Board), Assist. Prof. Yılmaz Delice (Effect of Zoning Constraints on Two-Sided Assembly Lines With SDST), Dr. Abdullah Türk (Intellectual Capital Reflection in Businesses), Dr. Necip İhsan Arıkan (Digital Currencies: Some Theoretical and Practical Implications).

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CHAPTER 1

**DETERMINATIONS AND RECOMMENDATIONS FOR
INCREASING WOMEN EMPLOYMENT IN TURKEY: AN
ECONOMICAL AND FINANCIAL DISCUSSION**

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INTRODUCTION

Women's participation in employment on an equal basis with men in a country allows them to contribute to the economy of that country. Especially in Turkey, women, who constitute the vast majority of the population, should work and produce to contribute to the national economy. Women's participation in business life started late compared to that of men's. Women were forced to work by being deprived of many rights, although it was accepted in societies over time. It took time for working women to receive compensation for their work as social rights, and the laws on social rights were not implemented.

In the world and Turkey, it took a long time for women to be included in business life. In the historical dimension, in the mindset that has been going on since primitive societies, there is a common view that women are engaged in housework, have responsibilities towards family members and live in a patriarchal structure. The secondary status of women continued with the transition of agricultural society to settled life. Along with the Industrial Revolution, the process of women's employment started, and the laws regulating the working conditions of women in Europe were prepared.

The transformation in the economies of the developed countries since 1950 has enabled women working in agricultural and industrial fields to work in the service sector. Women were now employed in the service sector, such as hospitals and public institutions. In the 1970s, the liberalization of trade and the increase in multinational companies

led to the mentality of cheap labor. In particular, women were affected by this situation and forced to work with low wages. In the same years, the fact that women were considered important in economic activities led to making arrangements for the rights to work. The International Women's Conferences on equal rights were held in 1975. The Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) was adopted in 1979. The International Labor Organization (ILO) made significant progress in the elimination of discrimination against women. According to the European Social Charter adopted, it was agreed by the governments to benefit from social rights without any discrimination of race, color, gender, religion, or political view.

In Turkey, the social change and development of women were aimed at the new order established with the declaration of the Republic, which played a significant role in the formation of women's identity. Along with the new period, many innovations were turning points, especially in women's life. In time, the roles undertaken by women in society changed and women were included in business life, besides home and family life. Along with the reforms between 1923 and 1933, during which the Republic of Turkey was established, women ensured their civil rights. Women's participation in education, business life, and politics was supported.

Many innovations were made for women during the Republic Period. At the Izmir Economic Congress (1923), it was decided to prepare a law on eight weeks and three days of paid leave per month for women

workers before and after childbirth, was a significant effort to protect women workers in the conditions of that day. In the field of education, the Constitution of 1924 was an important development for women's education. Teaching, nursing, and midwifery schools were opened for women to begin working as a professional. Along with the Republic, within the concept of the social state, Public Health Law No. 1593 including the regulations on working conditions of women, children, and young workers in terms of working age and duration, the nature of the job and physical characteristics were prepared in 1930. The regulations, which are the basis of many laws that determine the working conditions today, started to be made with the introduction of the Republic.

It is observed that, the importance given to women increased in the fields of education and profession during the first years of the Republic. However, when it comes to the present day, we cannot say that the same importance is continuing. The contribution of a country's population to the country's economy is important for the development of that country. In Turkey, the rapidly increasing population density, the fact that uneducated and unemployed people occupy a large place in the increasing population, and low levels of women's employment despite the high female population among the employed population are the issues that should be prioritized. Inequality in employment leads to problems as well. The issues such as keeping women out of business life, failure to provide sufficient job opportunities, low level of education and the lack of vocational training reduce women's

employment rates. In Turkey, which is a candidate for the EU, the fact that women's employment rates are very low compared to the EU countries, unfavorable working conditions, and failure to provide women with equality of opportunity in business life make working conditions difficult. Although the concept of equality is included in some articles in Turkish laws, healthy results are not obtained in terms of application method. The biggest problem of women in employment is the lack of education. Education is also a factor that determines the status of women. Based on this approach, our study aims to identify the main measures to increase women's employment by determining the current trends in women's employment in Turkey.

INCREASING IMPORTANCE AND DEVELOPMENT OF WOMEN'S EMPLOYMENT IN THE WORLD AND IN TURKEY

Increasing women's employment is a driving force for countries to develop their economies (Serel and Özdemir, 2017). When the status of women is examined historically, it can be observed that female and male roles were different and that men were strong because they were out. However, women were weak, because they were at home. Although women constitute a significant part of the population in many countries worldwide, it is observed that their presence in the labor market is limited compared to men. The Industrial Revolution enabled women to be involved in business life as paid workers in the 19th century. However, their employment in economically low paid jobs led to the exploitation of their labor (Ekin, 1991).

Globalization is used to spread the Neoliberal Market Economy to all parts of all countries in the world (Wichterich, 2004). The processes that constitute and accelerate globalization are technological developments, knowledge economy, and neo-liberal policies (Robertson, 1999). In the 1970s, developed and developing countries used the new liberalism approach for problems such as production problems, decreases in profits, capital problems, inflation and unemployment (Ecevit, 1998).

When the negative consequences for women with globalization are examined, it is seen that 70% of 1.3 billion individuals living below the absolute poverty threshold in the world are women. Although women, who constitute half of the world's population, produce two third of the total production in the world, they can only receive 5% of the total income. Women's participation in the global labor force leads to an insecure, cheap, and unskilled labor movement among the countries. According to the data of the World Bank, one in three women in the world is subjected to violence (Hablemitoğlu, 2005). As it is seen, the negative consequences of globalization were mostly felt by women.

After 1980, it is observed that poverty increased in developing countries and individuals struggled with the problem of unemployment. The reduction of social state spending significantly affected low-income families, women and children (Stiglitz, 2002). The recent economic crises in the world and the 2008 global financial crisis led to an increase in the number of poor individuals living in the

world. The problems faced by women in their employment are caused by the socio-economic structures of the current systems (Gerşil, 2015).

Considering the historical situation in Turkey, women were ensured to be involved in business life with industrialization efforts and they work in textile businesses since 1850. In only one of the carpet workshops located in Izmir and Uşak, there were 300 carpet looms, and 300 women workers were employed there (Altan, 1980). The event which caused a more radical change in terms of women in the Ottoman Empire is the World War I. The work places evacuated in armory and food factories directed women to the public sphere. After the socks factories, carpet weaving sector, and textile industry, banks, PTT center and local public administration as well as hospitals also opened their doors to women (Abadan-Unat, 1998). In 1916, an organization by the name of the "Employment of Ottoman Muslim Women" was established. The number of women employed in jobs in a year reached 8.860 people in order to provide women with employment (Sevim, 1995).

With the Republic period, women began to benefit from many rights. Before the declaration of the Republic, the representatives of women workers participated in the Izmir Economy Congress. In the congress, it was decided to prepare a law on giving eight weeks and three days of paid leave per month to women workers before and after childbirth (Altan, 1980). With Public Health Law No. 1593 dated 1930, the concept of social state began to form (Uygur, 1999). The working

conditions of women, children, and young workers were arranged according to working age and duration, the nature of the job, and the physical characteristics of women and child workers. The first Labor Law No. 3008 was enacted in 1936 (Altan, 1980). While the rate of the male labor force was 72.11% in 1937 and it decreased to 60.45% in 1943. The labor force was met by women's employment. Along with the development of industry in the 1970s, the rate of women in urban employment increased by an average of 1.1% each year (Doğramacı, 1997). In Turkey, amendments were made to provisions on women's rights in the Turkish Civil Code in 2001 and the Turkish Penal Code in 2004. In 2003, Labor Law No. 4857 was adopted for compliance with the EU conditions, and it was aimed to ensure the equality of women and men in business life (Aydın, 2016).

Although women gained their political and legal rights in Turkey earlier compared to many developed countries, their employment rates are low due to their inability to fully adapt these rights to their life (Erdoğan and Yaşar, 2018). Although the education rates of women increased with the declaration of the Republic, the difference between women and men continued. In 1935, the rate of literate population was 9.8% and it increased to 77.4% among women in 1999. However, the literate population increased from 29.3% to 94.2% among men. The illiteracy of the vast majority of women is one of the main reasons for the difference in labor force participation between women and men (Moroğlu, 2000).

Table 1: Urban Education Status and Women's Labor Force Participation Rate by Years (1989-2002, %)

Year	Total	Below high school	High School and Equivalent	Faculty/College
1989	17.8	12.7	41.1	78.8
1990	17.0	11.4	42.3	78.5
1991	15.5	10.0	38.9	79.4
1992	16.9	10.7	41.2	80.3
1993	15.5	9.5	37.5	76.8
1994	17.2	11.3	34.5	78.6
1995	16.7	10.1	35.0	72.9
1996	15.8	9.0	32.9	72.4
1997	16.7	9.3	3.9	72.0
1998	16.6	9.0	33.3	74.5
1999	17.7	10.6	31.8	71.2
2000	16.9	9.5	30.3	69.1
2001	16.8	9.8	29.3	69.6
2002	18.8	11.5	30.8	69.9

Source: TÜSİAD (2002). Labor Market and Unemployment in Turkey, TÜSİAD Report, İstanbul, p.53.

According to Table 1, the Labor Force Participation Rate (LFPR) of women with below high school education is under the general average. Women with faculty and college degrees were more involved in the labor force compared to women who graduated from high school and equivalent schools. An increase was observed in 1992, 1997, 1999, and 2002 although it was slight.

While the annual decrease in LFPR among women with below high school education was 0.76% between 1989-2002, the annual decrease was 4.74% between 1989-1996. The average annual increase highered by 4.17 during the period of 1996-2002. The annual average

fluctuation in the labor force participation rate of women with faculty and college degrees was even less than 1%, because the uneducated labor force is further affected by economic crises. Those who lost their job also had little chance of finding a job again.

In 2010, the women's labor force participation rate was 23.7% in urban areas and 36.3% in rural areas. Approximately 84 out of every 100 women in rural areas worked as unpaid family workers in agriculture (Karabıyık, 2012). While the employment rate of illiterate women was 15.5% in 2014, this rate was 15.6% in 2015 with a slight difference. Despite the fact that the employment rate of university graduates was 60.3% in 2014, it was 59.9% in 2015. The employment rate increases as the level of education increases (Aksoy, 2018). When the labor force participation rates between 2014-2018 were examined by years and the gender, the labor force participation rate is observed as 76.6% among men and 33.6% among women in 2014. In 2018, men's labor force participation rate and women's labor force participation rate were 78.6% and 38.3% respectively (Bektaş, 2019).

Table 2: Female Labor Force in Turkey (% of Total Labor Force)

Year	Female Labor force (%)
1990	30,70244422
2000	27,69921037
2011	29,89095871
2012	30,50700714
2013	31,20670549
2014	31,03410992
2015	31,72982243
2016	32,2578245
2017	32,75707604
2018	33,01444228
2019	32,97648049
2020	32,94557488

Source: Derived using data from International Labour Organization, ILOSTAT database. Retrieved in June 21, 2020.

Data up to 2016 are estimates while data from 2017 are projections. “An important reason for the fall in female participation rate in Turkey is urbanization. Turkey has witnessed high levels of migration from rural to urban areas since 1988. The share of urban population rose from 51.1 percent in 1988 to 63.3 percent in 2006. Despite the declining trend, the female labor force participation rate in rural areas is still higher than that in urban areas, which has been more stable

over time. In fact, the gender gap in participation rate in urban areas is much wider.” (Dayıođlu and Kırdar, 2010).

PROBLEMS IN TERMS OF EQUALITY OF OPPORTUNITY IN WOMEN'S EMPLOYMENT IN TURKEY

When women's employment profile in Turkey is investigated, it is observed that women cannot benefit from equality of opportunity in employment, their employment rates are very low compared to men, and there was a significant decrease in women's employment rates, especially in the 2000s. When the reasons for these low rates and the problems of women in employment are considered, we should first discuss the perspective of women in Turkey. Throughout 2001, being a housewife appeared as the highest reason for non-participation in the labor force by 51.2%, which was followed by being a student and retired by 13.6% and 10.8% respectively. In 1990, the second highest reason was being disabled, elderly, and sick by 14.1%. This situation differed after 2001 (İstanbul Chamber of Industry - İSO, 2006).

It was accepted that men and women should have different positions in the family and social life, and a distinction was made between female-specific jobs and male-specific jobs (Morođlu, 2000). According to a study, 71.3% of men and 59.5% of women thought that working women would not be able to take care of their children and that 60.2% of men and 44% of women thought that working women would neglect their husbands (Kalaycıođlu and Toprak, 2004). Contemporary values and high standards of living as well as traditional values and very low standards of living can exist together

in a country that continues to change and develop like Turkey. In the lower classes in which low standards of living are dominant, the participation of women in business life is not welcomed due to the social and religious values owned although the family needs it (Kocacık and Şahbudak, 2004). The social role attributed to women also causes women to have more limited employment opportunities compared to men. Therefore, women mostly tend to do part-time work, which limits their opportunities to find a job. Women also face various prejudices of employers when they apply for a job. The fact that women are more likely to take a break from work due to reasons such as marriage and/or having a child may cause employers not to choose women for employment (Erbaş, 1997).

The difficulties faced by women in finding a job primarily start in the job searching process. The vast majority of women look for a job through their acquaintances, friends, or relatives, which limits women's employment. In 2001, while the rate of "believing that there is no job in the region" and "not knowing where to look for a job" decreased significantly due to the shift to three-months job search group, the rate of "seasonal work" was around 10%. The reason for believing that there is no job in the region decreased from 28.1% in 1990 to 8.2% in 2001, and the reason for seasonal work decreased from 11.6% in 1990 to 10.1% in 2001 (İstanbul Chamber of Industry - İSO, 2006).

The problems experienced by women after their employment may affect the labor force rates. Education is the most important factor

affecting women's position in society and employment opportunities. In Turkey, the targets have not been achieved yet due to the lack of strong political will in women's education, lack of resources, and infrastructure problems (Ereş, 2006). In 2002, the ratio of women who graduated from secondary and high school equivalent vocational high schools and were employed in total women's employment was only 4.9% (TÜSİAD, 2000). Another problem experienced by women after employment is the inequality in salary. Women are obliged to work for low wages, in unskilled works, in low positions in the hierarchy of authority and under poor working conditions. Women have always been employed at the lowest level of the professional hierarchy. Due to women's low level of education and lack of experience, there is a judgment that women have fewer job skills than men (Prime Ministry General Directorate on the Status and Problems of Women, 1999). The occurrence of urban migration due to the decrease in agricultural activities in Turkey and the inability of uneducated and inexperienced women to participate in the urban labor market immediately are among the reasons for the decrease in the labor force participation rate of women. Other reasons are child care, low level of education, unfavorable market conditions and the deficiencies in laws. When the distribution of working women in Turkey by age groups in the labor market is examined, it is observed that the number of working women constantly increased in the 12-19 age group, the majority of whom were single women, reached its highest level in the 15-19 age group in 1970-1980-1990, and tended to decrease after this point. In 2000, this

increase reached the highest level by including the 20-24 age group and began to decrease again (Berber, 2008).

As a significant obstacle, women experienced gender-based discrimination, mostly in promotions. In general, women also face a "glass ceiling" effect in Turkey just because of their gender. The view that women are different from men and, therefore, cannot fulfill the requirements of effective management is among the leading obstacles (Ataay, 1997). One of the problems experienced by women is the inequality in management participation. It is observed that even professional women with appropriate education, training, and experience do not show the same success in reaching top management levels compared to men and that it takes a long time for those who have just started their careers to reach higher levels. According to the dominant view among employers, it is commonly believed that women generally work temporarily, devote themselves less to work compared to men, are not promoted due to possible pregnancy and housework, and are not assigned to top management levels. Housework and childcare responsibilities are considered as the roles attributed to women as a result of the gender-based division of labor established in the historical process. According to a study, one-quarter of people think that issues such as housework and childcare are obstacles to women's careers (Kalaycıoğlu and Toprak, 2004).

INTERNATIONAL BASES OF EQUALITY OF OPPORTUNITY FOR WOMEN AND THE SITUATION OF TURKEY

Nowadays, the most basic principle that shapes the social, political, and cultural lives of the countries governed by democracy is the principle of "equality" (Moroğlu, 2000). The equality policies discussed within the scope of social policy regulations are included in social policies. The concept of social policy was used for the first time in Germany. It aims to protect workers against problems such as occupational accidents, disease, and unemployment caused by industrialization and urbanization, as well as to implement some measures (Koray, 2005). While the existence of laws which ensure that women are equal with men in all areas is extremely important, the most important factor is to ensure that the principle of equality is fully considered in practice, which can only be possible by increasing the level of education and emphasizing the equality of women and men at every stage of the education process (Eriş, 2000). Policy recommendations such as "equality of opportunity" and "positive action/positive discrimination/priority of opportunity" emerged to overcome the understanding of abstract equality and provide opportunities and support discriminated social groups in the public sphere (Acuner, 1999). The European Union countries have tended to implement "state feminism" to a certain extent to ensure the equality of women and men in business life. Discriminatory policies in favor of women are quite commonly encountered, especially in northern countries. Apart from the founding treaties, the EU takes various

measures to ensure the equality of women and men in business life through harmonized regulations and directives at the EU level (Eriş, 2000).

In 1975, the period between 1975-1985 was declared as the "10 years of women" by the United Nations, and the 1st World Women's Conference was held in Mexico City in 1975. The slogan of the conference was "equality, development and peace," and there were serious changes in the attitudes towards women in Mexico City. In 1979, the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) was adopted at the United Nations General Assembly. As of February 2000, 165 countries around the world signed CEDAW. The signatory countries of this convention made a commitment to do studies on the recognition of women's human rights and fundamental freedom in all areas of economic, social, and political life and removing the obstacles to the exercise of these rights, and to take the necessary measures. When the international source of labor law is considered, the first factor to mind is the International Labor Organization (ILO) and the legal texts created by it (Kılıç, 2011).

The International Labor Organization was established to bring nations together in order to organize the field of study for the establishment of social justice, which is the cornerstone of permanent peace, and the prevention of poverty. The resolutions of the ILO adopted at the International Labor Conferences are published as contracts and recommendations (Çelik, 2000). The ILO's regulations for women

workers display an interesting graph of development. While the ILO aimed to develop international standards for the protection of women from dangerous working conditions and the protection of women in the pregnancy and birth processes during the early years of its establishment, it aimed to prevent discrimination against women in the 1950s. Since the middle of the 1960s, they focused on the regulations that would allow women to use their full potential in the social and economic development process. The regulations on the harmonization of business life and family responsibilities as well as the equal acceptance of the obligations of women and men regarding family responsibilities have been prevalent in recent years. Among these conventions, Convention No. 100 on Equal Remuneration for Men and Women Workers for Work of Equal Value and Convention No. 111 on Discrimination in Employment and Occupation are among the basic conventions of the ILO (Republic of Turkey Prime Ministry General Directorate on the Status and Problems of Women, 2002). The Convention on Equal Remuneration for Men and Women Workers for Work of Equal Value, which was adopted in 1951, aims to prohibit gender-based discrimination on wages. The Convention on Discrimination in Employment and Occupation, which was adopted in 1958, prohibits all forms of discrimination in business life, including gender-based discrimination (Centel, 2004).

It is possible to see the developments in the concept of equality between genders in Europe in the Constitutions of some European Union states. With the amendment made in 1948, the provision "All individuals are equal for the law. Men and women have equal rights"

was added to Article 3 of the Constitution of the Federal Republic of Germany, expressing the principle of "equality before the law." With the amendment made in the Swiss Constitution on 16.04.1981, the provision "Men and women have equal rights. The law ensures their equality particularly in the family, in education and at work" was added to Article 4 expressing the principle of equality before the law (Araslı, 2000). Germany and France established the European Coal and Steel Community with the participation of Italy and the Benelux states in order to achieve economic integration in Europe (1951), followed by the establishment of the European Economic Community (EEC) with the Treaty of Rome on March 25, 1957 (Ankara University European Communities Research and Application Center, 2005). With the establishment of the EEC, the equality of women and men, one of the basic principles that dominate the European Union nowadays, has been achieved. With the recognition of the principle of "equal pay for equal work" in Article 199 of the EEC Treaty, the concrete egalitarian understanding in business life was also included in the 1992 Maastricht and 1997 Amsterdam Treaties (Moroğlu, 2000). When the directives are examined, it is observed that there are items on the equality of women and men in employment and the solution of problems faced by women in business life exists. With these directives regulating the working conditions of women, the obligation to protect women's rights in business life was imposed.

The European Social Charter was created by the member states of the Council of Europe to ensure a strong unity among members, and especially for the realization of human rights and fundamental

freedoms. The European Social Charter has articles concerning women. Article 8 includes "The rights of employed women for protection of maternity" (TBMM - Turkish Grand National Assembly, 1996).

Considering the articles on business life in Turkish Constitution, Article 10 of the constitution stipulates equality before the law. Accordingly, it is indicated that "Everyone is equal before the law without distinction as to language, race, color, gender, political opinion, philosophical belief, religion and sect, or any such grounds. Men and women have equal rights. The government has the obligation to ensure that this equality exists in practice. No privilege shall be granted to any individual, family, group, or class" (Taşkent, 2008). In Article 66 of the constitution, the provision containing inequality regarding the regulation of Turkish citizenship was removed from the article. The provision "in the case of a conflict between international agreements, duly put into effect, concerning fundamental rights and freedoms and the laws due to differences in provisions on the same matter, the provisions of international agreements shall prevail" was added to Article 90, and in this context, the CEDAW Convention was made superior to national regulations (KSGM, 2005).

The most important progress of the New Labor Law, which entered into force on June 10, 2003, is that no discrimination can be made in terms of fundamental human rights, including gender, in the relationship between employer and employee. In this context, the provision regarding that no different transaction can be made directly

or indirectly due to gender or pregnancy as regards the conclusion, implementation and termination of the labor contract, lower wages cannot be paid for work of equal value due to gender, marital status and family obligations, pregnancy and childbirth cannot constitute valid grounds for termination of employment, and increasing paid maternity leave periods for female employees were included in the law (Official Gazette, 2003). The principle of equal pay for equal work is an established principle in labor legislation. Turkey ratified the ILO's "Convention No. 100 on Equal Remuneration for Men and Women Workers for Work of Equal Value" and the "Convention on the Elimination of All Forms of Discrimination against Women," which also includes the provision of equal pay. The principle of "equal pay for work of equal value" was accepted for the first time in Turkish law by the Law on the Amendment of Some Articles of the Labor Law dated 25.01.1950 and numbered 5518. With the Council Directive 75/117/EEC on "The approximation of the laws of the member states relating to the application of the principle of equal pay for men and women," member states were asked to remove the provisions containing gender-based wage discrimination from national legislation (Republic of Turkey Prime Ministry General Directorate on the Status and Problems of Women, 2002). The principle of equal pay for equal work was included in Article 5 of Labor Law No. 4857, which was adopted on May 22, 2003, regarding this directive (Moroğlu, 2000). Despite the harmonization laws, it is observed that women and men are still paid different wages for the same qualified jobs in the same workplace in practice. According to the data of SGK

(Social Security Institution) in 2001, the average wage of women in all business lines corresponded to 88% of the average wage of men, and women's wages in the agricultural sector could only reach 39% of men's wages (İKV, 2001).

Within the scope of equal treatment and opportunity, with the principle of equal treatment in Article 5 of the Labor Law, it has been stated that no discrimination based on language, race, gender, political opinion, philosophical belief, religion and similar reasons is permissible in the employment relationship. In Article 74, regulations were made on maternity work and breastfeeding leave. Article 88 of the law indicates during which periods and what kind of jobs pregnant women or nursing women are prohibited from working (Official Gazette, 2003).

The Equal Opportunities Commission for Women and Men was established by the Turkish Grand National Assembly on February 25, 2009 and the draft laws were approved.

- Draft Law on Human Rights and Equality Institution of Turkey (1/596) (February 2016)
- Draft Law on Amendments in Certain Laws and Decree Laws in Order to Protect the Family and Dynamic Population Structure (1/1013) (February 2015)
- Draft Law on the Approval of the Agreement on the Establishment of the UN Women Europe and Central Asia Regional Office in Istanbul between the Government of the Republic of Turkey and the

United Nations Gender Equality and Women's Empowerment Unit
(UN Women) (June 2014)

– Draft Law on the Amendment of the Turkish Penal Code and Some
Laws (1/918) (May 2014)

– Draft Law of the Commission Amending the Social Insurance and
General Health Insurance Law and Some Laws (1/771) (May 2013)

– Draft Law on the Ratification of the Cooperation Protocol in the
Field of Family, Women and Child Policies Between the Government
of the Republic of Turkey and the Government of the Azerbaijan
Republic (1/736) (February 2013)

– Draft Law on the Protection of the Family and Prevention of
Violence Against Women (Law No. 6284) (May 2012)

– Draft Law on the Ratification of the Council of Europe Convention
on Prevention and Combating Violence Against Women and
Domestic Violence (Istanbul Convention) (November 2011)
(Dinmezpınar 2014, 14).

The European Union approved the first Accession Partnership Document (APD) for Turkey on March 8, 2001. Short and medium term priorities are specified under the title of employment and social affairs in the APD. Medium-term priorities are the elimination of discrimination against women, labor law, equal treatment of women and men, strengthening the structures necessary for the coordination of social security, ensuring the implementation of the EU acquis in the field of social policy and employment, and preparing a national

employment strategy. In line with the decision taken by the European Union Heads of State and Government at the 17 December 2004 Summit, Turkey began the EU accession negotiations with the Union on October 3, 2005 (Tekin, 2008). In the EU report on Turkey, equality of opportunity in employment was mentioned, and it was stated that this issue was the most important problem of Turkey. It was indicated that, the rate of women participating in labor force was the lowest among the EU and Organisation for Economic Co-operation and Development (OECD) countries (İstanbul Chamber of Industry - İSO, 2006).

The Optional Protocol to the United Nations Convention on the Elimination of All Forms of Discrimination against Women was approved by Turkey on July 30, 2002 and entered into force on January 29, 2003. In this convention, discrimination against women is defined (KSGM, 2005). Turkey became a part of the United Nations Convention on the Elimination of All Forms of Discrimination against Women. Then, Turkey signed the Beijing Declaration and Platform for Action adopted as a result of the Beijing Fourth World Conference on Women, and committed to ensuring gender equality in the documents and subsequent United Nations meetings. Turkey is also a part of the International Labor Organization's (ILO) Convention No. 100 on Equal Remuneration for Work of Equal Value, Convention No. 111 on Discrimination (Employment and Occupation), Convention No. 122 on Employment Policy, Convention No. 142 on Human Resources Development, and Convention No. 182 on the Elimination of the Worst Forms of Child Labour (TİSK). The "Europe

2020 Strategy" was launched by the European Commission on March 3, 2010, in order to provide solutions to the problems of the EU countries as a Union and to ensure competition, increase productivity and sustainable economic development. The targets included increasing the employment rates of women and men between the ages of 20-64 to 75% (Özen, 2015).

REGULATIONS AND PRIORITY MEASURES FOR INCREASING WOMEN'S EMPLOYMENT IN TURKEY

The regulations affecting the working conditions of women are generally included in the labor and social security legislation. The most basic regulations affecting women's participation in the labor force are the regulations that prohibit women from working. In accordance with Article 72 of the Turkish Labor Law, women are not allowed to be employed in underground or underwater works such as mines and cable laying, sewer, and tunnel construction (Official Gazette, 2003). However, especially with regard to mines, the ILO Conventions No. 161 and 176 regulate that all employees can work in mines without discrimination between men and women. In general, it is remarkable that some protective provisions for women in the Turkish legislation result in keeping women out of the labor market. In particular, the Heavy and Dangerous Works Regulation, published in the T.C. Resmi Gazete (Official Gazette) dated June 16, 2004 almost completely eliminates sectors such as mining, metallurgy, stone, soil, cement industry, construction, chemistry, energy and transportation to the employment of women workers (T.C. Resmi

Gazete - Official Gazette, 2004). The prohibitions imposed prevent women's employment, especially female engineers working in these jobs. In this context, it is beneficial to rearrange the employment prohibitions by considering technological and scientific developments. The prohibitions should be lifted, except for the jobs that are proven to affect women biologically and physiologically by scientific data.

One of the most important regulations that can encourage women to go out of the labor market is the first paragraph of Article 14 of former labor law No. 1475, which is still in effect. In accordance with this article, the termination of the employment contract of a woman worker of her own will within one year from the date of her marriage results in her receiving severance pay. However, women are sometimes forced by their husbands to receive severance pay, especially in sections where traditional relationships are common.

Public employment institutions have to help workers and institutions to find suitable jobs and employers to find suitable workers. They should take appropriate measures to adjust the labor demand according to job opportunities in various professions, to facilitate the transfer of workers to regions with suitable job opportunities, and to facilitate workers' temporary transfer from one region to another (Selek, 2005).

In the fight against unemployment, in addition to economic policies, other active policies, especially the development of human resources, should be given importance. Employment policies create new employments and develop entrepreneurship, they do not harm

employment. Actually, these policies increase the employability of the labor force with education, vocational training and lifelong learning. They also highlight comparative advantages in the global competition, which will become even more important in the coming years. The position of women in the labor market should be improved. With regard to the regulations in current Turkish laws, the fact that the employer has to act in line with the laws regarding the position of women will increase the position of women in business life.

Based on scientific studies, where the labor force participation among women with low income levels are high, agriculture is the main activity. These are generally unpaid family workers. Plus, based on notable research, women's low level of education, traditions, cultural characteristics and home responsibilities as well as employer preferences may also decrease the labor force rate of women in the economic development process (Durmaz, 2016).

To this end, the General Directorate of Women's Status and Problems (GDWSP), aims to increase the participation of women in economic life in agriculture, industry and services. It also carries out projects for women's labor force in Turkey. The Women's Employment Promotion Project (WEP), the National Program for Strengthening Women's Participation in Development, and the Small Entrepreneurship Project are the projects carried out with the support of international organizations. The Small Entrepreneurship Project was carried out between 1993-1996 with the funds obtained from the Japanese Grant Fund through the World Bank. The aim of the project was to examine

the banking sector and credit policies in Turkey. It did also target to investigate whether there were restrictions on women and to develop proposals, to evaluate the activities of organizations that would develop women's entrepreneurship in Turkey, and to examine women's demands and excel them. Education constitutes the framework of all these programs and projects. Education should be given importance in the studies conducted to strengthen the position of women in the labor market. Formal and non-formal education systems in Turkey cannot prepare women from low-income families to work as paid workers in the modern economy. Most of the women without the required qualification level turn towards small businesses to generate income (KSGM, 2005). It is necessary to conduct studies for increasing the position of women in employment by creating vocational training programs. This would raise educated and conscious labor force.

Despite the difficulty in finding intermediate staff in the areas needed by the economy, the unemployment rate of vocational education graduates is high. This rate increased from 10.9% in 2000 to 13.3% in 2005, which is caused by the fact that students with high cognitive abilities do not prefer vocational training, the vocational education system is not capable of meeting the needs of the labor market, the existing vocational education programs cannot be updated in cooperation with all relevant parties, and the lack of equipment and inadequate qualified education personnel. The elimination of the problems of vocational and technical education will enable the training of qualified intermediate staff required by the industry,

preventing excess demand towards universities, reducing unemployment, and achieving a modern and competitive production level (İstanbul Chamber of Industry - İSO, 2006). The agency performing public business intermediation in Turkey is the İŞKUR (Turkish Employment Agency). İŞKUR (Turkish Employment Agency), which was put into practice with Decree No. 617 dated October 4, 2000, has adopted a new organizational structure in line with the EU norms and standards. With this regulation, the institution will be able to implement active labor programs, cooperate with employee and employer confederations both in the General Assembly, Board of Directors, and in Provincial Employment Boards, organize profession acquisition, change training courses and implement unemployment insurance (Selek, 2005). The fact that İŞKUR (Turkish Employment Agency) has such important duties in the field of employment requires it to organize the studies for detailed and analytical employment programs in taking measures to increase employment. Analyzing and publishing data on the labor market well and conducting labor force needs analysis are important measures that the institution should provide in its employment policy.

The use of developing technology has changed the method and place of production as well as affecting labor relations. Globalization, the strengthening of competition, the resolution of the economic recession, and the expansion of the service sector have led to the adoption of flexible production methods as well as the flexible labor market (Selek, 2005). Economic development changes the values and expectations of employees. The number of employees who want to

allocate time for themselves and their families through flexible working shows an increase (Yücel, 2017).

Concerning the significant effect of flexible working on the structure of labor force, flexible working models such as partial work, teleworking, and job sharing ensure an increase in the share of women in the labor force. However, these working models are sometimes deprived of social security. Arrangements have been made in the New Labor Law No. 4857 to make working periods flexible. The compression of working hours into fewer working days rather than 5 or 6 hours, in other words, intensive week work is also a flexible form of working that can be applied. With this way of working, the free time of workers increases. Acting flexible in working conditions without any difference in status and salary will considerably reduce the problems of women workers. The flexible working hours, which are also regulated in the new labor law, are important developments for women to ensure a balance between work and family and to participate in employment. If employers implement this situation, which is also determined by laws and regulations, women employees will be able to maintain their place in employment by becoming more efficient.

It is intended to increase women's employment through development policies in Turkey. The National Action Plan for Gender Equality acknowledges that, women's participation in the labor force in Turkey is lower compared to men (Savrul and Akyüz, 2016). The General Directorate of Women's Status and Problems, Ministry of National

Education, Ministry of Finance, Ministry of Industry, Ministry of Labor and Social Security, Ministry of Agriculture, Forestry and Rural Affairs are among the institutions that are considered to operate in order to promote women's entrepreneurship and to ensure that they receive training (Özkaya, 2009).

Various studies and projects are carried out by the Turkey Tradesmen and Artisans' Confederation (TESK), Small and Medium Industry Development Support Administration (KOSGEB), and women's associations to increase the labor force participation of women who are at a low level in Turkey (GDWSP). With regard to women's entrepreneurship, the National Council of Women Artisans was established within TESK. The purpose of this council is to prioritize the activities that improve the business of women enterprises and ensure the establishment of cooperation and informative activities (TESK, 2009). The Foundation for the Support of Women's Work, Turkish Grameen Microcredit Program, Social Risk Mitigation Project, Community Support Project with Microcredit, and Special Provincial Administrations have supported women's entrepreneurship by providing microcredit support to many women (Tiryaki, 2018).

Women entrepreneurs in the United States of America (USA) and Canada came together and established specific organizations. World Association of Women Entrepreneurs, Women for Women Foundation and World Women Bank can be listed as some of the mentioned organizations. The establishment of such organizations in Turkey will be beneficial for women entrepreneurs as well. We have

stated before that, the problems experienced by entrepreneur women are in some cases the lack of capital at the stage of starting a business. The necessary laws in this regard should be prepared, and it is necessary to provide convenience for women to obtain credit-fund. Training should be organized for their lack of knowledge and inexperience in running the business. With the support and education on entrepreneurship, employment problems will decrease, women will solve their employment problems and provide employment opportunities to others. Thus, women will become more independent, self-confident and powerful individuals who can make their own decisions in social and family life.

The Council Resolution of 16 December 1988 on the reintegration and late integration of women into working life indicates that women enter the labor market late due to difficulty in harmonizing family and business life or they enter the labor market and leave, then re-enter it because of marriage or having children (KSGM, 2005). The balance between the business and private life of employees is described as giving equal time and attention to their roles in both areas. Researchers indicate that, the balance between business and life affects the quality of life and happiness of individuals (Erben and Ötken, 2014). There are many organizations that ensure the balance between business and private life. The role of managers is important to fulfill these practices in organizations. If the manager supports his/her employees, it will be easier to achieve this balance.

The Women Entrepreneurs Association (KAGİDER) aiming to increase women entrepreneurs in the business world has created projects in this area. These projects are the Women's Fund, Water-DROP, Women Entrepreneurs Business Development Project (KAGİMER), GAP-Entrepreneur Support Centers Project (GAP-GIDEM), Incubation Project and Bridge from Woman to Woman Project. With the Water-DROP Project, women entrepreneurs selected throughout Turkey are trained as human resources management consultant candidates and participate in practical works on the job (TİSK, 2006). The objectives of the GAP-GIDEM Women Entrepreneurship Project are to identify the barriers to women's entrepreneurship on a regional scale and to enable women entrepreneurs to establish a business by supporting them (Özer, 2005). The strengthening of women's organizations by coming together, the presence of representative offices all over Turkey and strong communication will provide an effective way to reach more women.

The low participation rate of women in the paid and salaried employment is due to the low number of women in unions. The second obstacle to women's organization in trade unions is that, they work in firms and occupations with low status and where unionization is difficult, both legally and practically. The third major obstacle is legal restrictions. There are no union rights in services where the employment of women civil servants reaches almost 50%, such as health, education and general administrative services (Türk-İş, 1995). According to the survey results sent by European Trade Union Confederation (ETUC) (2007) to DİSK, HAK-İŞ, KESK and TURKİŞ

unions, the rate of women's participation in unions is 10% in Turkey (Türk-İş, 1995; Beken, 2015). The presence of women in the management staff of trade unions is important in ensuring their participation, advocating women's rights, and ensuring a healthy progress of women's employment. The duty of the unions is to produce more policies on women's labor force. Thus, women will be able to protect their labor, rights, and interests through trade unions.

Women's branches established after 1960 increased women's interest in politics at metropolitan cities. Although the women's branches increased their activities, especially in the 1970s, they could not have an effect on the parties with regard to reaching higher positions in politics and becoming representatives (Pınarcıoğlu, 2017). Particular organizations also provide support to encourage women's representation and participation in political activities. The Association for Supporting and Educating Women Candidates (KADER) is one of the largest women's associations in Turkey. This association, established in 1997, aims to provide effective equal representation of women in all decision-making mechanisms and politics through election and appointment. The governments should protect women's rights concerning education, family life, work opportunities and participation in politics and ensure that the law is enforced (Yaman, 2017). The equal representation of women in politics and decision-making bodies is necessary both for the solution of women-specific problems and it is also beneficial for Turkey. Women's problems and priorities are different. Business and family balance, child, patient and elderly care are the responsibilities of women. However, the

governments' social support for women is limited in some cases. Such problems prevent women from participating in business life. They have problems with recruitment, promotion and wages. As a result, women's expectations from politics are different. The representation of women in politics is necessary for a clear understanding of these problems and finding solutions. To this end, programs to prepare women for politics should be prepared.

Based on the acceptance that women are politically equal to men, it is observed that their social, economic, and biological characteristics have a preventive effect (Oruç, 2013). According to the 1999 local election results, 20 (0.6%) out of 3216 mayors were women. The representation of women in municipal councils was 1.6%. In the 2004 local elections, 18 out of 3225 mayors (0.56%), 817 (2.37%) out of 34.447 municipal council members, and 57 out of 3208 provincial council members (1.78%) were women (Oruç and Bayrakçı, 2018). Concerning the 2009 local elections in which 19 political parties participated, 44 women were nominated for provincial mayors, and 321 women were nominated for district and town mayors. In the 2009 local elections, while 100% of 16 metropolitan municipalities consisted of men, 2.877 of 2.903 municipalities consisted men by 99.10%. Among them, 26 (0.90%) were women (Oruç, 2013). Women are also primarily affected by service problems in local administrations. Different needs of gender are ignored. Therefore, their participation in solutions to local problems should be ensured and they must be part of local solutions. Especially in areas such as education, health, employment, violence, and politics, it is necessary

to deal with women's problems and provide solutions. The ability to do all this continues increasingly as a result of women's representation in the local administration and their participation in decision-making processes. Reflecting women's needs and problems, being sensitive to gender inequalities, and the participation of women in the management expand the perspective on women. The low number of women in local administrations is remarkable. Financial support is crucial to encourage women participation in local administrations. Women's organizations should also provide support to promote women and increase the number of women candidates in administrations. Just like in Europe, local equality offices should be established, and financial models should be studied. Local administrations, which are important for women in social life, should be guiding in social activities such as equality of services, integrating women into social life, enabling them to establish a business and increasing employment rates. To achieve this, it is necessary to increase the representation and participation of women in local administrations.

CONCLUSIONS AND RECOMMENDATIONS

Although the studies conducted for many years and the laws prepared to increase women's employment have changed the position of women nowadays, women are not yet where they deserve in terms of employment and career. In this study, the historical studies conducted help to see the current position of women more clearly. This research shows that, women constantly face obstacles in business life as a

struggle for existence in society. Women's presence in business life has gone through certain stages in the historical process in the world and Turkey. The Industrial Revolution is one of the important events that increased women labor force in the world. With the development of the industry, there has been a significant increase in women's participation in business life. During World War II, it was observed that women participation in the labor force increased significantly. Since most men were at war, women started to work because they had to earn a living for the family.

The sectoral transformation in the economies of the developed countries since 1950 enabled women working in agricultural and industrial fields to be employed in the service sector. In the 1970s, the liberalization of trade and the increase in multinational companies led to the mentality of cheap labor. In particular, women were affected by this situation and they were forced to work with low wages. In these years, the fact that women took an important place in economic activities led to conducting studies for women's rights concerning work. The International Women's Conferences on equal rights were held in 1975. The Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) was adopted in 1979. The International Labor Organization (ILO) made significant progress for the elimination of discrimination against women. According to the European Social Charter adopted, it was agreed by the governments to benefit from social rights without any discrimination of race, color, gender, religion, political view, national ancestry, or origin.

Since 1980, poverty is on the rise worldwide. Also, workers' wages decreased and the problem of unemployment is experienced due to the reduction of government investments. The reduction of social spending by the governments particularly affected women as well.

Considering the situation of women in Turkish business life historically, it can be said that women could only work in limited business lines, although their participation in employment was ensured along with the development of the industry in Turkey. Since the 19th century, women started to express their rights gradually. In particular, World War I enabled women to work in public spaces. In the last quarter of the 19th century, there were initiatives regarding the education of women. The reforms implemented in the first ten years following the establishment of the Republic of Turkey in 1923 enabled women to gain citizenship rights and also ensured the restructuring of Turkish society. Thus, significant social change was realized. Women were enabled to be involved in public spaces such as education, business life, and politics, and the Turkish government encouraged and supported this participation with egalitarian public policies.

In the following years, sufficient progress could not be achieved in some issues such as increasing employment for women, preventing gender discrimination, and protecting social rights. Concerning the industrial sector that developed in the 1980s, women could not benefit from employment, which led women workers to informal employment. The participation of women in employment is

proportional to education. Women should be educated to ensure equality between men and women. Even today, the biggest problem in Turkey is the lack of education. At the World Women's Conference held in Beijing in 1995, Turkey committed to increasing literacy by 100% until 2000. However, in the 2000s, the employment difference between men and women increased according to their educational status. Educational policies should be structured, equality in education must be ensured across Turkey, and there should not be uneducated women if it is aimed to increase women's employment. Education is the most important issue that the government should focus on. Due to the problems experienced in Turkey, such as economic difficulties, low wages and unemployment, families first reduce their expenses for the education of their children, especially their daughters. As a society, education life should not be interrupted so that conscious individuals can be raised and young generations with a profession will be guaranteed.

In the European Commission's 2008 Report, it was indicated that women were at a disadvantage compared to men in Turkish business life. It was also stated that, problems regarding gender equality were continuing. Concerning the "equality before the law" section in Article 10 of Labor Law No. 4857, it is stated that no discrimination can be made in the employer-employee relationship for any reason. However, the law does not define discrimination. Furthermore, it does not provide a regulation on recruitment. The presence of factors that make it difficult for women to work affects employment. The regulations in laws that encourage women to work, support them in business life and

facilitate their work are not sufficient. Laws should make descriptive reforms in the necessary legislation for women to be more involved in business life. The flexible working hours, which are regulated in the new labor law, are important developments for women to ensure the balance between work and family and to participate in employment. If employers implement this situation, which is also determined by laws and regulations, women employees will be able to maintain their place in employment by becoming more efficient.

Increasing employment is one of the priority purposes for Turkey. In particular, entrepreneurship should be supported, and regulations should be made to increase investment ability in order to increase employment and decrease unemployment. One of the problems experienced by entrepreneur women is the lack of capital at the stage of starting a business. The necessary laws in this regard should be prepared, and it is necessary to provide convenience for women to obtain credit-fund. Training should be organized for their inexperience in running the business. With the support of entrepreneurship, employment problems will decrease, women will solve their employment problems and provide employment opportunities to others. Thus, women will become more independent, self-confident and powerful individuals who can make their own decisions in social and family life.

In Turkey, the perspective on women has not reached the desired level yet. It is considered that, issues such as family responsibilities and childcare constitute obstacles for women in business life. Many

women quit or lose their jobs when they have children. Even if they return to their work after a while, they have to work at a lower level in terms of position and wage. Although the importance of education in employment is a known fact, the low rate of women education is striking. In particular, women cannot benefit from vocational education sufficiently. In this sense, considering the number of girls' and boys' technical high schools, it is observed that there is an inequality.

Women's contributions to economic activities, their participation in business life, and the regulation of incentives, measures and plans to increase employment are important developments for the future of Turkey. The level of improvement and economic development in Turkey are still low compared to European countries. The laws and regulations concerning working conditions in terms of the equality of opportunity should be a point of focus. The main laws and regulations to be made are to use the potential of population of working age for the benefit of Turkey. Low women employment rates among high schools and equivalent schools or college-faculty levels among the young population should not be observed in the coming years in Turkey, which is a candidate country for the EU.

It is necessary to take measures in informal employment and to create new areas of employment for the development of labor market. A basic wage policy should be followed to strengthen the relationship between wage and efficiency. It should be ensured that businesses and employees adapt to the changes that will occur in the labor market,

businesses become modern, and employees gain the knowledge and skills required by new conditions.

Since the jobs and occupations in the labor market are divided into "women's jobs" and "men's jobs" and are accepted by society, women only concentrate in traditional women's professions and agree to work in lower status and paid jobs. These jobs bring along limited and temporary employment as well as social insecurity. Women's labor force is concentrated in labor-intensive industries such as textile, food, ready-to-wear and tobacco, as cheap labor. However, the rate of women's labor force in these sectors is still low compared to the agricultural sector. Although there is no legal obstacle, women in the agricultural sector are largely not covered by social security due to the fact that they do not earn income and they are mostly unpaid family workers. In Turkey, there are many women who are not covered by insurance despite working in a workplace. The practice that provides voluntary insurance to housewives is limited for reasons such as high premiums, dependence on the husband to pay premiums, and the lack of sufficient knowledge.

Women who face difficulties in the labor market should be provided with equality of opportunity. In particular, women's access to childcare and other care services should be facilitated in order to increase their participation in the labor force and employment. It is necessary to develop programs, which will enable young individuals to gain experience in the labor market.

In order for the employment institutions to adapt to the changes in the labor market shaped by globalization and technological progress, their capacities should be improved, service areas must be diversified, and target groups served should be expanded. One of the problems faced by women in and after employment is ensuring the balance between business and private life. In this regard, providing flexible working opportunities for women plays a significant role in ensuring this balance.

Education is also important for the increase in women's employment rate. In addition to formal and non-formal education, lifelong learning strategies should be developed. The opportunities in public education centers and apprenticeship schools should be increased and strengthened. Furthermore, it is necessary to establish mechanisms that support the private sector and associations to operate in this field.

In order to perform the needs analysis of labor market, it is necessary to collect data including education, employment, and occupation status of the household to determine the labor force supply and demand trends. It is also vital to develop active labor force programs and provide jobs as well as vocational counseling services for women widespread. It is necessary to give importance to applied training for raising skilled labor by moving to a flexible system in vocational and technical education. It is also significant to transform vocational education at higher and secondary education levels into a single structure based on program integrity. Students with the basic skills required by the labor market, such as teamwork, decision-making,

problem-solving and taking responsibility, should be trained within the vocational education system.

The activities of businesses and associations to raise skilled labor should be supported. It is necessary to focus on the projects aimed at increasing women's employment, and the necessary support should be provided. Financial support should be provided to projects aimed at creating employment. Vocational counseling and guidance services, entrepreneurship and employment guaranteed programs, and training seminars in businesses should be organized. Labor force and vocational training courses should be made widespread as well. In the development and certification of qualifications based on professional standards, due importance should be given to professional competence.

In particular, participation in trade union activities is important for women to defend their rights in business life. Trade unions should play an active role in advocating women labor. To this end, union management should organize training to raise awareness of its members and play a decisive role in advocating women's rights. The presence of women in the management staff of trade unions is important in ensuring their participation, advocating women's rights and ensuring a healthy progress of women's employment. The duty of unions is to develop more policies on women labor force. Thus, women will be able to protect their labor, rights, and interests through trade unions.

The equal representation of women in politics and decision-making bodies is necessary both for the solution of women-specific problems and Turkey. To this end, it is a must to organize programs that will prepare women for politics. Local administrations, which are important for women in social life, should be guides in social activities such as equality of services, integrating women into social life, enabling them to establish a business and increasing employment rates. In order to achieve this, it is necessary to increase the representation and participation of women in local administrations.

The status of women is very important and should be increased in order for women to be involved in the labor market and to increase employment rates. Considering the status of women, the position of women in the family and society is of first priority. Women should further use educational and vocational training opportunities to excel this status. The population is increasing in Turkey. However, unemployment rate is also observed to be high. Also, women's employment rate is low considering the general population in Turkey. The high status and education of women will prevent rapid and unplanned population growth as well. Women with high status and education will raise better generations by giving importance to the education of their children.

Finally, unemployed women living in urban areas are a potential labor force despite their negative conditions in terms of employment and traditional values. The integration and utilization of this potential into the Turkish economy will definitely bring new dynamism to economic

and financial life as well as contributing to the increase of national income and social peace.

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CHAPTER 2

WHICH ADVERTISEMENTS ARE CLICKED ON THE VIDEO SHARING SITES? A REVIEW FROM THE PERSPECTIVE OF CONSUMERS' CLICK BEHAVIOR

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INTRODUCTION

As a functional tool to increase consumption activities and increase the number of consumers, advertisements can be regarded as consumption-oriented narratives. In this context, advertising is a very effective method to introduce the new product to the consumer, to ensure that they buy the product, to direct them to prefer that product over competitors and to make them a loyal consumer. However, it remains an understatement to say that the only reason behind the development of advertising activities is to increase consumption. Another important reason behind the development of advertising activities and the advertising industry is the desire of companies in the competitive market to stand out and profit by differentiating from their counterparts. In addition, it can be claimed that one of the ways to ensure sustainability in a competitive environment and even gain competitive advantage is advertising.

Thanks to the increasing interest of companies in advertising activities, the phenomenon of globalization, increasing consumer demand and developing communication technologies, advertising channels have diversified. With the introduction of digital marketing technologies to modern life, advertising activities have started to be carried out through digital marketing tools. Among these, the most striking area is undoubtedly social media ads. Digital media platforms have become stronger than traditional media platforms for various reasons such as the ability of consumers to express their feelings and thoughts about the product, to share photos or videos of the products

they buy, and to purchase goods and services whenever they wish. Especially since social media platforms are getting stronger in the field of advertising, it can be said that new competitive environments have emerged for businesses at this point. One of the most important of these platforms is undoubtedly video sharing sites.

The fact that video sharing sites are a very popular area and there is an intense competition in this field directs businesses that want to promote their products and services to consumers to use this medium effectively. This can be achieved by developing advertising content that is more creative, different, catchier, more interesting, and more appealing to consumers than competitors. Businesses concentrate on advertising on video sharing sites that have a high number of users in order to reach their target consumer audience faster with lower costs, to receive quick returns by communicating with consumers, to analyze the perceptions of consumers, to evaluate their behavior, to increase sales in a short time, to increase the number of loyal consumers and to follow their competitors closely.

Based on the benefits discussed above, in this study, which types of ads can be clicked by consumers on video sharing sites and which types of advertisements can result in the purchasing behavior of consumers were examined. In this context, the most preferred video sharing site in Turkey has been the subject of study. The online questionnaire method was used in the study and 394 participants participated in the study. In this study, the literature on the subject was

mentioned firstly and then the findings obtained from the research were discussed.

1. LITERATURE REVIEW

The origin of the word advertising comes from the Latin verb "advertere", meaning to converge (Goddard, 1998:23). The main purpose of advertising is to create persuasive messages for the advertised product / service and to persuade them to buy. Advertising is the best way to connect with customers. The advertisement provides customers with information about the brands available in the market and helps about the product range. Ads, which are a part of our daily life, are very important for businesses (Kannan and Tyagi, 2013:2). Advertising not only changes the consumption of products by customers, it also changes the way customers view and attitude towards the product. Advertisements have a huge impact on purchasing decision. It increases the price awareness of consumers and offers the opportunity to compare products (Uusitalo, 2010: 553).

Even though advertising has become an effective element especially after the industrial revolution, its existence actually dates back to ancient times. When the history of advertising is examined, it is stated in many sources that the first advertisements were used in the Neolithic period. The Neolithic period is a meaningful period for advertising to begin. The main reason underlying this situation is people's transition to settled life. In this process, a concept called 'plus product' is mentioned (Childe, 2006: 54). According to this, humanity has started to produce more than it needs and has started the habit of

bartering what it does not need with what it needs. The desire to distinguish his own products from other products in a primitive sense made the first steps of concepts such as marketing and advertising. The first obvious examples of advertising in history are dated to Egyptian, Greek and Roman ruins. The papyrus made for advertising purposes in Ancient Egypt and the stone announcements made especially during the gladiators' competitions in the Ancient Greek and Roman civilization show the primitive examples of advertising (Ünsal, 1984: 20).

Basically, the period that created the real change and started the process of producing strategic text was experienced with Gutenberg's invention of the printing press. In the 17th century, advertisements, which were put forward in the form of single-page newspaper texts, announce the transition of advertising to a new era (Dyer,2010:20). The process that started with the industrial revolution led to the establishment of factories and the emergence of mass production. In this period, the speed of people having the product they wanted increased. Especially, the fact that the same products can be bought by everyone has started the process of differentiation and superiority of people. The change in product and production caused manufacturers to create brands related to status and emotions. In this context, consumption has become not only the money-earning element of a commercial system, but also the shaper of society (Elden, 2015: 146). In the light of all these factors, new methods had to be determined in advertising. In the past, a text-oriented advertisement was placed only

on a newspaper page, but with television, commercial films started to be produced (Berger, 2009: 132).

Today, with the change of technology, advertisers have introduced digital advertising by using new technology in order to experience the feeling of a message produced specifically for the person besides realizing the tendency to buy directly. Today, consumers can directly purchase products through advertisements seen on the internet. Digital ads, which were previously considered only computer oriented, have expanded more with the introduction of mobile internet and social media concepts into consumer life (Özdel, 2018: 3). Social media is a concept used to refer to web-based services and software where internet users who come together online communicate and share their opinions, discuss various issues, and find themselves in social interaction. Internet users can interact in visual, auditory, video, textual or other ways, and even interact in various combinations of these concepts (Ryan, 2017: 201). Social media is low-cost, spreading information quickly, being up-to-date, ensuring that communication takes place in an environment where sincerity is essential, providing the opportunity to know the target audience, allowing measurement and evaluation, providing interpersonal closeness by providing direct communication without intermediaries, providing information by reference and as a result Increasing reliability is what makes it strong (Sü and Doğdubay, 2012: 136). Social media also ensures that new content offered by companies is noticed. Social media increases web traffic and shows companies how much they are followed by consumers. It strengthens the communication between companies and

their consumers. This increases the consumer's loyalty to the company (Weinberg, 2009:43). Social media can be grouped into seven basically. These can be listed as e-mail groups, blogs, forums, corporate intranet, extranet, instant message services and social networking sites (Onat and Alikılıç, 2008: 1116). Social networks across social media are defined by Pempek, et al., (2008: 228) as internet communities that allow users to communicate with other users by sharing profile information, sending private or online messages, and sharing photos and videos.

Social media advertising, on the other hand, consists of a process that attracts the attention of consumers with the content created on social media sites, generates web traffic and encourages sharing the interactions experienced on social networks (Otugo et al., 2015: 440). Social media advertising has become more preferred by businesses due to its features such as sending advertisement messages to a large number of people in a short time, creating and presenting special message content for the target audience, and being cheaper (Todi, 2008: 7). Advertising in social media has become new platforms for marketers to raise awareness and increase brand perception (Wei et al., 2010: 113). The effect of ads on social media can spread in a short time. The reason for this is not only that the ad is seen on the page, but also people can see that their friends use the advertised product or like the page, and they can refer to the advertised topic from a reliable source. This can increase the click through rate of the advertised product or page and shorten the time to reach the target (Chan, 2011: 362). Firms expect payment from customers by purchasing their

services and products. On the other hand, the consumer mass, who has taken over the power thanks to social media, expects these companies to consider the customer and to give importance to the customer. Following the active use of social media, customers have ceased to be a mass consuming products, but have become an active mass that has a say over the products. The situation in question can be described as a contract between the company and the consumer, mutual assistance or partnership. In this context, the issue that companies should pay attention to will be to share the ownership of the messages they give through advertisements with consumers. In addition to delivering the right messages to consumers through advertisements, companies try to ensure that their message is spread to a wide audience by communicating with consumers (Chaney, 2009: 6).

Social media ads can appear in online environments generally in the form of display advertising, banner advertising, pop-up advertising, sponsored advertising, text-based advertising, or hybrid advertising that includes traditional and new formats. Hidden advertisements, on the other hand, consist of forms in which the product or brand is presented as the personal preference or recommendation of the celebrity rather than product placement (Kıyan and Dikmen, 2019: 123) In addition to all these, video advertising on video sharing sites can likewise be included in social media ads. This type of advertising is divided into two as linear video advertising and non-linear video advertising. There are three types of linear video ad. These are before the video content is watched by the user, in the middle of watching, or after the ad is fully viewed. This pattern is the same as broadcasting a

TV ad before, in the middle of a program, or after the program ends. The most typical feature of linear advertising is that it is an additional video that the user watches in the same size as the video content, apart from the video content.

On the other hand, non-linear video advertising works synchronously with it while playing video content. Thus, the user watching the video is also watching the advertisement. Ads on video sharing sites have a number of advantages. These are as follows (Şahin,2013:3)

- It provides a more personal relationship between the brand and the audience.
- It gets more attention of the viewer.
- It makes the advertisement message more memorable.
- It enables the advertisement to reach more people by creating a viral effect.
- It can direct the target audience to the website instantly.
- It can create data that can be used in customer relationship management
- It can be measured more reliably.
- Click through rates are higher than other types of online ads.

When the literature on the subject is examined, it is observed that the relationship between consumer attitude (Hacıfendioğlu, 2011; Boateng and Okoe, 2015; Hamouda, 2018), advertising efficiency(Özdemir et al., 2014; Jung, 2017), brand attitude (Can and

Serhateri,2016), consumer perception (Göktaş and Tarakçı, 2018), consumer motivation (Zhang and Mao,2016) and purchasing behavior (Yoldaş and Özaydın, 2017; Ertemel and Ammoura, 2016; Alalwan, 2018; Shu-Chuan, 2013) and social media advertising is examined. According to the results, it can be stated that social media advertising has a positive effect on consumer attitude, brand attitude, consumer perception and purchasing behavior. It is observed that many sectoral and academic studies have been conducted on video sharing sites, which are one of the types of social media platforms, especially after the 2010s (Kuyucu,2019:1109). Especially, video sharing sites, which receive an intense demand of the new generation, have become a threat to traditional television broadcasting. The interaction of such sites has reached billions of people over time. This increase has paved the way for the research of video sharing sites.

When non-marketing academic studies on the subject are examined, it has been observed that the effectiveness of video sharing sites in the fields of education (Ata and Atik, 2016; Johnston et al., 2018; Shoufan, 2018), tourism (Çakmak and Ataş, 2018), health (Yaylacı et al, 2015; Singh et al., 2018), culture (Delal, 2019), communication(Kuyucu,2019) and psychology (Klobas et al., 2018; Dondurucu and Uluçay, 2015) is measured. Studies in the field of marketing subject have been observed the relationship between consumer perception (Demircan and Aksoy, 2020), product promotion (Cıngı, 2015; Özdel, 2018), consumer attitude (Şahin, 2012), consumer tendency (Lee and Lee, 2011), advertising efficiency (Mei et. al., 2007) and consumer motivation (İlhan and Aydoğdu, 2019) and

advertisements on video sharing sites. As a result of the studies, it can be claimed that advertisements on video sharing sites in general are effective in these areas.

In this study, advertisements on video sharing sites will be examined from the perspective of marketing communication and consumer behavior. The difference of the study from other studies about video sharing sites in the field of marketing is to reveal which advertising features lead the consumer to click on the advertisement and which type of advertisement features lead consumers to buy. In this sense, it is thought that the study is original and will contribute both academically and sectoral.

2. METHODOLOGY

In this study, an online questionnaire method was used in order to find out which types of advertisements can be clicked by consumers on video sharing sites and which types of advertisements can result in the purchasing behavior of consumers. In addition, whether clicking and buying behavior varies according to demographic characteristics is another aim of the study. The total number of questions in the survey is 26 and consists of two sections. Demographic questions were asked to the participants in the first section. In the second section, questions were asked in order to find out which types of ads can be clicked by consumers on video sharing sites and which types of advertisements can result in the purchasing behavior of consumers. For this, it has taken advantage of the questions developed by Çakır and Tam (2014). Likert type and equally spaced scales (1 = never, 5 = always) were

used to measure the research variables. In this context, the most preferred video sharing site in Turkey has been the subject of study. The online questionnaire method was used in the study 394 people participated in the questionnaire. The survey took approximately one month.

2.1. Analysis of Research Data

"SPSS 16.0" package program was benefitted to analyze the research data. Through the mentioned program; frequency analysis, T test, One-Way ANOVA and Multiple Regression Analysis were performed.

2.1.1. Frequency Distributions of Demographic Variables

According to the results obtained from the frequency analysis, the majority of the participants are between 18-25 years old, male, single, with a monthly income between TL 1000 and below and are at the undergraduate level. The results of the frequency analysis are given in the table below. In addition, participants mostly spend 0-2 hours daily on the X video sharing site, almost never click on ads and almost never buy products by clicking on the ad link.

Table 1: Demographic Characteristics of Participants

Measure		Items	Frequency
Gender	Female	185	47,0
	Male	209	53,0
Marital Status	Single	335	85,0
	Married	59	15,0
Age	18-25	297	75,4
	26-34	32	8,1
	35-44	34	8,6
	45-54	13	3,3
	55 and older	18	4,6
	TL 1000 and below	158	40,1

Monthly Income (TL)	TL 1001-2000	37	9,4
	TL 2001-3000	36	9,1
	TL 3001-4000	50	12,7
	TL 4001-5000	24	6,1
	TL 5001 and above	89	22,6
Education Level	High school and below	10	2,5
	College	23	5,8
	Undergraduate	344	87,3
	Postgraduate	17	4,3
Hours spent per day on X video sharing site	0-2	279	70,8
	3-5	104	26,4
	6 and above	11	2,8
Ad click level when ad appears on X video sharing site	Never	226	57,4
	Rarely	121	30,7
	Sometimes	38	9,6
	Too Often	4	1,0
	Always	5	1,3
Product purchase level by clicking on the ad on the X video sharing site	Never	322	81,7
	Rarely	44	11,2
	Sometimes	28	7,1
	Too Often	0	0
	Always	0	0

3. FINDINGS

After the frequency analysis, T-Test and One-Way-Anova Test were realized to find out whether hours that participants spent per day on X video sharing site (H), participants' ad click level when ad appears on X video sharing site (C) and participants' product purchase level by clicking on the ad on the X video sharing site (P) differ significantly according to demographic variables.

Table 2: T-Test Results

Measure	Variable	Group	Mean	Std. Dev.	F	Sig.	T	Df	Sig. (2-tailed)	Mean Diff.
Gender	H	F	1,28	,448	14,541	,000	-1,577	385,045	,110	-,083
		M	1,36	,580						
	C	F	1,62	,800	,210	,647	,810	387,697	,418	,066
		M	1,55	,814						
	P	F	1,21	,501	10,653	,001	-1,571	387,179	,117	-,091
		M	1,30	,634						
Measure	Variable	Group	Mean	Std. Dev.	F	Sig.	T	Df	Sig. (2-tailed)	Mean Diff.
Marital Status	H	S	1,34	,539	16,317	,000	1,858	392	,064	,137
		Ma	1,20	,406						
	C	S	1,51	,765	12,255	,001	-4,237	392	,000	-,473
		Ma	1,98	,919						
	P	S	1,15	,394	244,446	,000	-9,840	392	,000	-,718
		Ma	1,86	,955						

F: Female; M: Male; S: Single; Ma: Married

According to the test results, hours that spent per day on X video sharing site and product purchase level by clicking on the ad on the X video sharing site of males and females are different from each other. Accordingly, hours that females' spent per day on X video sharing site level are higher than males and males' product purchase level by clicking on the ad on the X video sharing site are higher than females.

In addition, hours that spent per day on X video sharing site, ad click level when ad appears on X video sharing site and product purchase level by clicking on the ad on the X video sharing site of marrieds and singles are different. Accordingly, married people's ad click level when ad appears on X video sharing site and product purchase level by clicking on the ad on the X video sharing site is higher than single

people. On the other hand, hours that single people's spent per day on X video sharing site level is higher than married people. To find out whether there are differences between 3 or more groups based on a certain variable, The One-Way ANOVA test was performed for the other demographic variables. The results of the mentioned test are given in the table below.

Table 3: The One-Way Anova Test Results

Measure	Variable	F	Sig.
Age	H	2,472	,044
	C	16,082	,000
	P	57,577	,000
Monthly Income	H	3,266	,007
	C	3,830	,002
	P	11,068	,000
Education Level	H	1,626	,183
	C	7,300	,000
	P	21,485	,000

When the results are analyzed, hours spent per day on X video sharing site, ad click level when ad appears on X video sharing site and product purchase level by clicking on the ad on the X video sharing site differ according to both age and monthly income ranges. Finally, ad click level when ad appears on X video sharing site and product purchase level by clicking on the ad on the X video sharing site differ according to education levels. Multiple comparisons values for these differences are shown in in the table below.

Table 4: Multiple Comparisons Results

Results for Age Groups					
Dep. Var.	AGE (I)	AGE (J)	Mean Difference (I-J)	Std. Error	Sig.
H	18-25	35-44	,236	,064	,005
C	55 years and older	18-25	1,377	,182	,000
		26-34	1,608	,221	,000
		35-44	1,212	,219	,000
		45-54	1,043	,273	,001
P	55 years and older	18-25	1,630	,111	,000
		26-34	1,715	,135	,000
		35-44	1,278	,134	,000
		45-54	1,393	,167	,000
	35-44	18-25	,352	,083	,000
		26-34	,438	,113	,001
Results for Monthly Income (TL)					
Dep. Var.	MONTHLY INCOME (I)	MONTHLY INCOME (J)	Mean Difference (I-J)	Std. Error	Sig.
H	5001 and above	1000 and below	-,222	,068	,016
C	4001-5000	1000 and below	,659	,174	,002
P	3001-4000	1000 and below	,300	,088	,010
		1001-2000	,339	,118	,048
	4001-5000	1000 and below	,796	,119	,000
		1001-2000	,836	,142	,000
		2001-3000	,722	,143	,000
		3001-4000	,497	,135	,004
	5001 and above	,602	,125	,000	
Results for Education Level					
C	Postgraduate	High school and below	,994	,314	,009
		Undergraduate	,765	,196	,001
P	High school and below	College	-,739	,203	,002
		Postgraduate	-1,059	,214	,000
	Undergraduate	College	-,550	,115	,000
		Postgraduate	-,870	,133	,000

When the data in the table is analyzed, consumers aged 55 years and older have more ad click level when ad appears on X video sharing site and product purchase level by clicking on the ad on the X video sharing site than consumers in the other age ranges. Similarly, consumers aged 35-44 age range have more product purchase level by clicking on the ad on the X video sharing site than consumers in the 18-25 age range and 26-34 age range. On the other hand, consumers

aged 18-25 age range have more spent per day on X video sharing site than consumers in the 35-44 age range.

When the groups are analyzed with regard to monthly income, consumers who earn TL 1000 and below have more spent per day on X video sharing site than those who earn TL 5001 and above. Consumers who earn between TL 4001-5000 have more ad click level when ad appears on X video sharing site than those who earn TL 1000 and below. Consumers who earn between TL 3001-4000 have more product purchase level by clicking on the ad on the X video sharing site than those who earn TL 1000 and below and TL 1001-2000. Similarly, consumers who earn between TL 4001-5000 have more product purchase level by clicking on the ad on the X video sharing site than those who earn the other monthly income groups.

When the groups are analyzed in terms of education level; people with a postgraduate education level tend to have more product purchase level by clicking on the ad on the X video sharing site than those with high school and below and undergraduate education levels. Finally, consumers with college and postgraduate education have, on average, more product purchase level by clicking on the ad on the X video sharing site than those with high school and below education and undergraduate education.

Table 5: Multiple Regression Analysis Results for Clicking Behavior on Video Sharing Site Ads

Model	Unstandardized Coefficients		Std. Coef.	t	Sig.
	B	Std. Error	Beta		
(Constant)	,324	,092		3,508	,001
1. Animation-style ads allow me to click on the advertisement of the X video sharing site	,228	,056	,213	4,079	,000
2. Sci-fi style ads let me click on the ad of the X video sharing site	,134	,047	,151	2,883	,004
3. I click on the ad related to the product or service category I am interested in on the X video sharing site	,086	,054	,108	1,578	,115
4. I click on the ad related to the product or service category I need on the X video sharing site	-,087	,050	-,111	-1,724	,086
5. Including expressions such as "last opportunity, limited number "in the ad content enables me to click on the advertisement of the X video sharing site.	-,051	,054	-,053	-,952	,342
6. The engaging ad content makes me to click on the ad of the X video sharing site	,182	,054	,230	3,352	,001
7. The funny ad content makes me click on the ad of the X video sharing site	,181	,053	,200	3,390	,001
8. The amazing ad content makes me to click on the ad of the X video sharing site	,006	,075	,006	,074	,941
9. The interesting ad content makes me to click on the ad of the X video sharing site	-,181	,070	-,217	-2,578	,010
10. The different ad content makes me to click on the ad of the X video sharing site	,067	,060	,083	1,122	,263
11. The clever design of the ad content allows me to click on the ad of the X video sharing site	,010	,052	,012	,188	,851
12. If the advertiser brand is a brand I like, I click on the ad of the X video sharing site.	,029	,042	,038	,676	,499
13. I click on the ad of the X video sharing site to support the person who regularly publishes videos on the X video sharing site	-,063	,047	-,063	-1,356	,176
14. When I like the ad music, I click on the ad of the X video sharing site	,022	,040	,027	,539	,590
15. Playing famous people in the ad allows me to click on the ad of the X video sharing site	-,149	,045	-,171	-3,335	,001
16. I click on the ad about the promotion of the new product on the X video sharing site	,247	,056	,249	4,404	,000
17. Including statements about the price advantage in the advertisement made allows me to click on the advertisement of the X video sharing site.	-,035	,053	-,040	-,651	,515
18. The presence of messages for the benefit of the community in the advertisement made allows me to click on the advertisement of the X video sharing site.	,078	,041	,103	1,906	,057
Dependent Variable: Clicking Behavior on X Video Sharing Site Ads R=,796 R ² =,685 F=19,604 P= .000					

One of the main purposes of the research is to reveal which types of ads posted on the video sharing site are effective on consumers' click behavior. For this purpose, Multiple Linear Regression Analysis has been performed between each of the various ad features that may be in question for such ads and the click behavior variable.

The features related to the ads on the video sharing sites as a whole give a meaningful relationship with the click behavior on such ads ($R= 0,796$, $R^2= 0,685$, $p< .05$). These variables explain approximately 69% of the total variance in clicking on ads on video sharing sites. According to the standardized regression coefficient (β), it is observed that variable number 16 is the most important one of the ad features that bring the click behavior on video sharing sites, and variable number 15 is the least effective. When the t-test results regarding the significance of the regression coefficients are examined in Table 5, it is seen that the 1, 2, 6, 7, 9, 15 and 16 numbered variables have a significant effect on the behavior of clicking on advertisements on video sharing sites. This is not the case for other variables. Additionally, the regression coefficients were examined in the study. Accordingly, it can be stated that there is a direct proportion between dependent and independent variables, except for 9 and 15 numbered variables.

Table 6: Multiple Regression Analysis Results Regarding Buying Products by Clicking on Ads on Video Sharing Sites

Model	Unstd. Coef.		Std. Coef.	t	Sig.
	B	Std. Error	Beta		
(Constant)	,431	,075		5,753	,000
1. Animation-style ads allow me to purchase a product by clicking on the ads on the X video sharing site.	,256	,045	,336	5,659	,000
2. Sci-fi style ads let me purchase a product by clicking on the ads on the X video sharing site.	,008	,038	,012	,202	,840
3. I purchase a product by clicking on the ad related to the product or service category I am interested in on the X video sharing site.	-,028	,044	-,049	-,626	,531
4. I purchase a product by clicking on the ad related to the product or service category I need on the X video sharing site.	-,021	,041	-,038	-,517	,606
5. Including expressions such as "last opportunity limited number "in the ad content enables me to purchase a product by clicking on the ads on the X video sharing site.	,205	,044	,297	4,680	,000
6. The engaging ad content makes me to purchase a product by clicking on the ads on the X video sharing site.	-,027	,044	-,049	-,622	,535
7. The funny ad content makes me to purchase a product by clicking on the ads on the X video sharing site.	,009	,043	,014	,213	,831
8. The amazing ad content makes me to purchase a product by clicking on the ads on the X video sharing site.	-,119	,061	-,194	-1,963	,040
9. The interesting ad content makes me to purchase a product by clicking on the ads on the X video sharing site.	,079	,057	,133	1,387	,166
10. The different ad content makes me to purchase a product by clicking on the ads on the X video sharing site.	,045	,048	,078	,928	,354
11. The clever design of the ad content allows me to purchase a product by clicking on the ads on the X video sharing site.	,084	,042	,148	1,992	,047
12. If the advertiser brand is a brand I like, I to purchase a product by clicking on the ads on the X video sharing site.	-,002	,034	-,003	-,051	,959
13. I purchase a product by clicking on the ads on the X video sharing site to support the person who regularly publishes videos on this site.	,007	,038	,009	,173	,862
14. When I like the ad music, I purchase a product by clicking on the ads on the X video sharing site.	,019	,033	,033	,588	,557
15. Playing famous actors in the ad allows me to purchase a product by clicking on the ads on the X video sharing site.	-,136	,036	-,220	-3,760	,000
16. I purchase a product by clicking on ads about the promotion of the new product on the X video sharing site.	,158	,045	,223	3,471	,001
17. Including statements about the price advantage in the advertisement made allows me to purchase a product by clicking on the ads on the X video sharing site.	-,080	,043	-,130	-1,857	,064
18. The presence of messages for the benefit of the community in the advertisement made allows me to purchase a product by clicking on the ads on the X video sharing site	,058	,033	,108	1,763	,079
Dependent Variable: Buying products by clicking the advertisement of the X video sharing site R=,778 R ² =,534 F=10,462 P= .000					

The features related to the ads on the video sharing sites as a whole, give a meaningful relationship with the product buying behavior by clicking on such ads ($R= 0,778$, $R^2= 0,534$, $p< .05$). These variables explain 53% of the total variance in purchasing products by clicking on ads on video sharing sites. According to the standardized regression coefficient (β), it is observed that the most important variable that provides the behavior of buying products by clicking on the advertisement from the video sharing sites is the variable number 1, and the least effective variable is the number 8. When the t-test results regarding the significance of the regression coefficients are examined in Table 6, it is seen that the variables numbered 1,5,8, 11, 15 and 16 have a significant effect on the product purchasing behavior by clicking on the ads on the video sharing sites. This is not the case for other variables. In addition, the regression coefficients were examined in the study. Accordingly, it can be stated that there is a direct proportion between dependent and independent variables, except for 8 and 15 numbered variables.

CONCLUSION

Due to the rapid increase in the number of consumers using the internet in recent years, the effect of the internet on consumer purchases has become extremely important. It is now inevitable to use the internet effectively to provide competitive advantage. Businesses need to discover the environments where they can reach the target audience in the most effective way for their product and brand promotions. Internet is a benefactor for this need of businesses. The

Internet offers businesses a wide variety of advertising mediums for their products and brands. One of the most important of these mediums is undoubtedly video sharing sites. Today, video sharing sites with millions of members and users can offer great opportunities to businesses as a highly effective advertising medium. Consumers can share everything on video sharing sites and these shares can spread quickly. These sites share stories and experiences about businesses, products and brands. Companies can deliver their advertising applications directly to potential consumers through video sharing sites in a fast and low-cost way. The main purpose of companies is to affect the purchasing intentions of consumers and to increase sales for their own products and services. It is important to examine advertisements on video sharing sites in parallel with consumer behavior. Because these sites, which have millions of members, have people with different tastes, different stances and different opinions. Traditionally, a consumer who would not enter a store outside his area of interest will learn about different areas with an advertisement that will appear on video sharing sites, and this will create a new customer for the advertised sector.

In the light of the explanations above, in this study, it has been tried to examine which types of advertisements can be clicked by consumers on video sharing sites and which types of advertisements can result in the purchasing behavior of consumers. In addition, whether clicking and buying behavior varies according to demographic characteristics is another aim of the study.

When analyzing whether click and purchasing behavior varies according to demographic characteristics, it has been observed that hours that females' spent per day on X video sharing site level are higher than males and males' product purchase level by clicking on the ad on the X video sharing site are higher than females. Married people's ad click level when ad appears on X video sharing site and product purchase level by clicking on the ad on the X video sharing site is higher than single people. On the other hand, hours that single people's spent per day on X video sharing site level is higher than married people. consumers aged 55 years and older have more ad click level when ad appears on X video sharing site and product purchase level by clicking on the ad on the X video sharing site than consumers in the other age ranges. Similarly, consumers aged 35-44 age range have more product purchase level by clicking on the ad on the X video sharing site than consumers in the 18-25 age range and 26-34 age range. On the other hand, consumers aged 18-25 age range have more spent per day on X video sharing site than consumers in the 35-44 age range. consumers who earn TL 1000 and below have more spent per day on X video sharing site than those who earn TL 5001 and above. Consumers who earn between TL 4001-5000 have more ad click level when ad appears on X video sharing site than those who earn TL 1000 and below. Consumers who earn between TL 3001-4000 have more product purchase level by clicking on the ad on the X video sharing site than those who earn TL 1000 and below and TL 1001-2000. Similarly, consumers who earn between TL 4001-5000 have more product purchase level by clicking on the ad on the X video

sharing site than those who earn the other monthly income groups. People with a postgraduate education level tend to have more product purchase level by clicking on the ad on the X video sharing site than those with high school and below and undergraduate education levels. Finally, consumers with college and postgraduate education have, on average, more product purchase level by clicking on the ad on the X video sharing site than those with high school and below education and undergraduate education.

When consumer click behavior on video sharing sites is analyzed, it has been observed that features related to the ads on the video sharing sites explain approximately 69% of the total variance in clicking on ads on video sharing sites. Animation, sci-fi, engaging, funny and interesting style contents make consumer click on the ad of the X video sharing site has been found in the analysis. In addition, it has been observed that playing famous people in the ad allows consumers to click on the ad of the X video sharing site. Another result obtained in the study is that consumers click on the ad about the promotion of the new product on the X video sharing site. According to another finding on the subject is, it is observed that new product promotion is the most important one of the ad features that bring the click behavior on video sharing sites and playing famous people in the ad is the least effective. According to the latest finding on the subject, it can be stated that there is a direct proportion between dependent and independent variables, except for interesting ad style and playing famous people in the ad.

When the product buying behavior of consumers by clicking on the ad on video sharing sites is analyzed, it has been observed that features related to the ads on the video sharing sites explain approximately 53% of the total variance in purchasing products by clicking on ads on video sharing sites. It has been also observed that animation, amazing and clever design style contents make consumer to purchase a product by clicking on the ads on the X video sharing site. Similarly, it has been found that including expressions such as "last opportunity limited number "in the ad content enables me to purchase a product by clicking on the ads on the X video sharing site. In addition, it has been observed that playing famous people in the ad allows consumers to purchase a product by clicking on the ads on the X video sharing site. Another result obtained in the study is that consumers purchase a product by clicking on ads about the promotion of the new product on the X video sharing site. According to another finding on the subject is that the most important variable that provides the behavior of buying products by clicking on the advertisement from the video sharing sites is the animations style ads, and the least effective amazing style ads. According to the latest finding on the subject, it can be stated that there is a direct proportion between dependent and independent variables, except for amazing ad style and playing famous people in the ad.

In the light of the aforementioned findings, it can be claimed that businesses should focus on content with animation, sci-fi, engaging, funny advertisement style in order to increase their ad clicks on video sharing sites. Based on the result that new product promotions are also

clicked more, it can be claimed that it will be beneficial for businesses to benefit from video sharing sites, especially for new product promotions. On the other hand, it can be stated that the use of interesting ads and famous people in advertisements should be reduced as much as possible. Because, according to the results, it has been observed that such ads on video sharing sites are less clicked. It can be stated that in order for consumers to buy their products by clicking on the advertisements on video sharing sites, businesses should focus on the content with animation and clever design ad style. In addition, businesses should often highlight advertising messages that emphasize product shortages. In this way, it can be claimed that consumers will enable them to buy business products by clicking the ads on the sharing sites. Based on the conclusion that new product promotions also lead to product purchases through ad clicks, it can be claimed that it would be beneficial for businesses to benefit from video sharing sites, especially for new product promotions. On the other hand, it can be stated that the use of amazing ads and famous people in advertisements should be reduced as much as possible. Because, according to the results, it has been observed that such ads reduce click-through purchases.

The first limitation of the study is to consider only one video sharing site. In future studies, using at least two video sharing sites instead of a single video sharing site and making comparisons will provide more valid and reliable results. Similarly, it will be more effective to compare advertisements on social media platforms. Another limitation of the study is that demographic data are not evenly distributed. In this

context, it would be appropriate to pay attention to this in future studies.

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CHAPTER 3
**SOME ASPECTS OF TEXTURE ELEMENT IN ART: THE
CASE OF FASHION DESIGN**

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INTRODUCTION

Over the centuries, the increasing desire of people to be individual and different from others has led to diversity primarily in clothing models and later this diversity has manifested itself in fabrics, accessories, patterns, clothing details. In recent years, tactile values have come to the fore and efforts to increase diversity in this regard have gained importance.

In visual arts, texture is the perceived surface quality of a work of art. It can be perceived physically, by sense of touch or visually or both. Our experience of textures in visual art is based on our experience with the physical world.

Texture is one of the basic design elements in design and visual art. At the same time, texture is the surface character of the work created (Buckner, 1995). The term texture is defined by Davis (1996) as a manipulated three-dimensional substance and surface and visual properties of the substance or a recognizable structure surface. It is the surface property of a material or the result of how the material is manipulated by designer or an artist in two-dimensional and three-dimensional spaces.

Texture, one of the seven elements of art, is used to describe how a three-dimensional work actually feels when touched. The appearance of a surface cannot be considered separate from the texture (Hilliard and Cliff, 2002; Anonymous, 2017). Texture can be recognized by both tactile and optical means. Tactile texture refers to the tangible

feeling of a surface, while visual texture refers to seeing the shape or content of the image (Manjunath and Ma, 1996). Texture also refers to how a fabric feels and looks on the surface. Yarn, weaving and finishes determine the texture of the fabric. We can describe textures with some words such as rough, smooth, dull, shiny, soft, blurry, delicate, scratchy and shaggy (Holt, 2020). Texture creation is an interesting and developable point for various creative fields such as fashion, textiles, fine arts and interior architecture. In art and conceptual designs, texture can be creative and novel. In the fashion industry, texture cannot be applied or generated randomly due to the functional requirements of the garments. At the same time, appearance or aesthetic quality is one of the most important aspects of fashion design, and the surface texture of the fabric is one of the most important characteristics determining the appearance of a garment (Fan et al., 1999; Sirikasemlert & Tao, 2000). Surface texture, which is a unique element in fashion and textile design, can be used to express the design concept and aesthetic perspective of a designer.

The application of the surface texture should be developed and controlled in a way that is effective, attractive and corresponds to design concepts. A clear perception of applying and programming the surface texture is required to assist or coordinate the fashion design process. Texture refers to the characteristic physical structure of the material and the quality of the surfaces. People feel their environment by touching and looking at surfaces. The surrounding materials also help the surface texture to be distinguished by different textures that

help us recognize familiar substances or identify unusual textures when we see or touch them again (Gatto et al., 2000; Preble and Frank, 2002).

Table 1: Good Design Equation

ELEMENTS		PRINCIPLES		
• Line				
• Shape		• Balance		
• Space	+	• Proportion	=	Good Design!
• <i>Texture</i>		• Emphasis		
• Color				

Texture is the characteristic structure of a material as well as its surface quality (Manmeet, 2008). Texture describes the perceived quality of a surface, whether it is real or simulated (Nateman, 1994). The texture of a fabric appeals to both the eye and the sense of touch. At the same time, texture refers to the surface look and feel of a fabric. This is due to the type of raw material used in fabric production and the type of weaving. The texture of a fabric can be defined as soft, rough, shiny, matte, voluminous, thin, transparent, smooth and thick. Design and texture are closely related, sometimes the design of the weave determines the texture. The degree of hardness or softness and the weight of the fabric will affect the drape, the way it sags. The veil is an important factor that determines how well a particular fabric will move with the body and maintains the shape of the style.

Academics, experts on the subject, categorize textures and designs in visual arts from different perspectives. In terms of sensation, it can be macroscopically classified as imitation and visual (Pipes, 2004) or summarized as real, abstract, simulated and invented (Holt, 2020; Ocvirk et al., 2002).

The tactile texture of the original material shows the characteristic surface of a material itself. The tactile texture created is important and common in fashion, architecture, product surfaces, three-dimensional art and designs such as sculpture, carving. Visual texture by Pipes (2004) is the sensation perceived from the surface of artificial creations or materials, defined as something created by the artist's hand, indicating the two-dimensional surface texture implied in art and design. It can be developed in two-dimensional spaces and there is no real tactile feeling that can be perceived from the visual texture, which is an important element. The visual texture shows a creative activity created by the imaginations of designers and artists. Simulated texture types, invented texture and abstract texture are the parts in visual texture creation. Abstract texture, invented texture and simulated texture are parts of visual texture creation. The simulated texture is a surface that looks like a real substance but is not actually real.

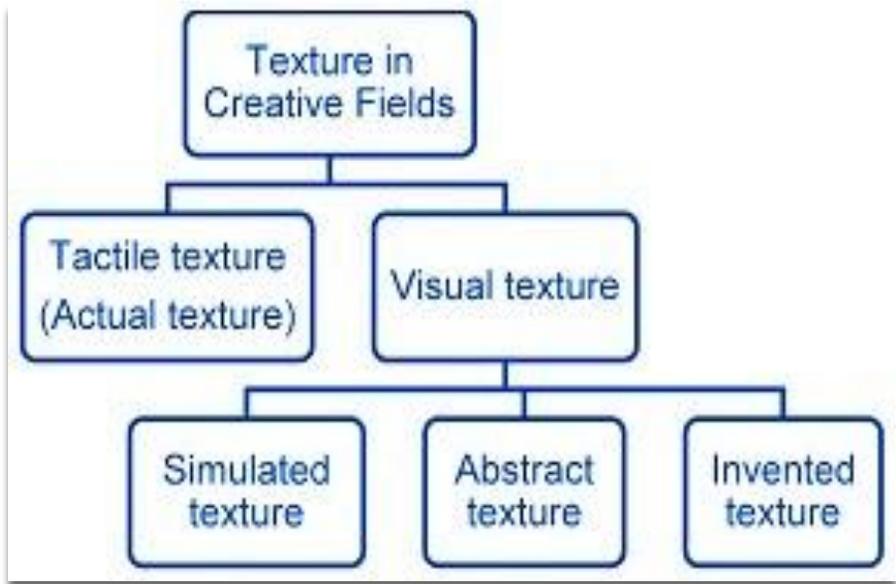


Figure 1: Categorization of Texture in Visual Art and Design (Gong and Shin, 2013)

Basic design elements are essential in all drawing, coloring, pattern and sewing stages, from designing textile surfaces, obtaining patterns on the fabric, the texture and color of the designed fabric, from the form of the garment to be shaped with the fabric, to decoration details.

The language of visual expression includes these elements such as point, line, plane, volume, color, texture and the relationships between them (Ching, 2007: 2).

These are an important part of the design process of fashion designers as well as basic art. Known and accepted elements of basic design: Point-line-plane, volume, texture, color / light, shape / form are associated and explained with their use in fashion design.

The most important element after color is the fabric. Newly developed fabric technologies, newly discovered fibers and finishing applications create a wide range for the comfort of the consumer (Keiser and Garner, 2003: 93).

The creation of surface texture is an open-ended innovation process that can be accomplished using a wide variety of techniques and methods. Compared to color, texture is less influenced by fashion trends and has more space for creativity. In general, texture and color create the surface appearance. Compared to form, line and area, texture is more flexible in terms of wearability, function and physical factors, as it mainly deals with surface interests (Gong and Shin, 2013: 340).

A fashion designer isn't limited to fabrics that are ready for the collection or work that he will prepare. Mechanical, chemical or handmade process, ornamentation and embroidery are effective methods traditionally used by designers to create fabric texture. Ornamentation and embroidery are traditional skills to decorate the surface and fabric, both in traditional and modern style.

With the development of technologies such as laser, three-dimensional printing and intelligent technology, the surface texture has more clarity to create innovation in fashion design. One of the fashion designers' famous for this innovative use of materials and new technologies is Hussein Chalayan. Another fashion designer famous for applying innovative techniques is Iris Van Herpen.

Fashion is a product of social psychology that reflects the common aesthetic that people share with each other. Clothing is probably one of the most remarkable and expressive tools for creating and presenting fashion concepts. Clothing fashion updates can provide useful resources to understand aesthetics and its evolution in human society, which is of great importance in scientific research. From the point of view of visual perception, clothing can be defined by its style, color and surface texture, which are three different visual stimuli to human vision. (Bloj, Kersten, Hurlbert, 1999).

It is well known that the fashion of clothing in the style in which a person is dressed is a distinctive and often habitual trend. Clothing fashion is often expressed through visual stimuli such as texture, style and color. However, it is not clear which visual stimulus produces a higher / lower effect in the updating of clothing fashion (Zou et al., 2016).

The phenomenon of fashion began when people were passionate about being original and different when they enjoyed dressing and pushed functional thoughts to second place. Here, people's desire to be unique to themselves, different from others, has led to increased diversity. Although this diversity attracts attention primarily in clothing models, the variety in decorative accessories, patterns, fabric types and fabric textures that decorate the garment is also of great importance and gives a different form and aesthetic appearance to the garment. It is possible to see the texture everywhere in art, especially in fashion design. In order to start associating reality with the artworks we see or

create, we need to really notice the textures around us. The leather of our chairs, the thickness of our clothes, the coarse grains of the carpet, the softness of the clouds in the snow or sky or all create textures to evoke emotions.

Textile surface texture design and its use in clothing design changes with the innovations of the era in every period. Since the last years of the 20th century, the increasing speed and digital possibilities have brought conceptual inquiries with them, influencing the aesthetic language and causing a change in textile design. This change, which constitutes a reference to the design perception of the 21st century we are in, emphasizes the search for the new design concept. Examining the process of change of textile surface texture design through clothing samples gives many clues about the point reached.

In this context, the study focuses on texture, one of the textile and fashion design elements and also presents its various applications. The surface texture is indispensable in textile and fashion design and has a great impact on innovative collections. With the technological advances in the fashion industry, the surface texture has revealed many new and flashy features that provide more opportunities for designers to showcase various design concepts. Surface texture in fashion design creates its identity through manipulation of materials rather than surface quality of fabrics. It offers an application primarily for visual effects, without being limited to decorative purposes.

By providing various fashion design examples with research, the state and importance of surface texture in creative areas are revealed and

the representation of surface texture is conveyed by presenting a number of fashion design examples with surface textures. In textile and fashion design, we can say that the surface texture, especially for fashion design products, refers to the type of fabric, embellishments and ornaments used in a clothing. The texture is highly visual as it interacts with the light and creates shadows and highlights on clothing. In this respect, it is often seen by fashion designers in many collections that original products emerge with texture studies on designs. It is thought that with the emergence of innovative techniques related to texture recently, fashion designers using them will contribute to the development of surface textures and also create a new framework that can be used in future applications of developed textures.

TEXTURE

“Texture is the nature of a surface and how it interplays with light to create meaning.” Kennedy, 2008

Texture, one of seven elements of art, it is used to describe the way a three-dimensional work actually feels when touched. In two-dimensional work, such as painting or drawing, it may refer to the visual *sensation* of a piece.

As in art, it is possible to see texture everywhere. To see reality or start associating it with the artwork we have created, we really need to be aware of the textures around us.

Artists use general guidelines when it comes to creating high quality artwork. The texture, defined as the structure that forms the surface of objects in nature, is seen in many works of art and helps the quality of the piece. Artists create texture to give the viewer an idea of what they want to convey. The fact of texture in design makes a great contribution to creativity. It is thought that studying a rich subject such as texture will inspire designers while creating new products. In addition to being functional, a creative product also carries values that make a difference from addressing the human senses and aesthetically.

In the art world, we can talk mainly about *four types of texture*.

Material texture - The texture gives the viewer an insight into how art can feel when you touch it. The artists somehow use texture to connect the audience with the work. It can trigger memories that trigger a strong emotional response (a blanket sensation from childhood or may cause fear of the heart - a spider's sensation in the body). The artists use different texture types depending on the artwork and the message they want to convey (Figure 2).



Figure 2: Example of Material Texture – Burlap; Source of Image <https://pixabay.com/photos/texture-fabric-burlap-background-1099399/>

Real life textures - Artists often add real-world textures to their artworks. Tree bark or sandalwood can be used to illustrate an idea or concept. The artists refer to these elements as "real textures". Real textures give the work a natural feel and artists use it to convey an organic or earthy tone. These textures are seen in different art genres, but artists often use them as collages and paper pendants, an alternative form of collage. Other true texture types are leather, cotton and wood (Figure 3).



Figure 3: Example of Natural Texture – Wood; Source of Image <https://pixabay.com/photos/lumber-wood-tree-log-tree-brown-84678/>

Simulated by artist - Textures simulated by the artist are able to imply the appearance of a real object through an intelligent representation. When real textures are impractical, artists can select simulated textures. These textures can be in many different types of art, including computer graphics, paintings and drawings. Some artists create simulated textures well enough to convince the viewer that this is the real object. Artists refer to it "trompe l'oeil" or translated as "deceives the eye" (Figure 4).



Figure 4: Example of Simulated Texture – Trompe L'oeil; Source of Image <https://pixabay.com/photos/1%C3%BCftlmalerei-poppy-lueftlmalerei-1502134/>

Invented textures - Artists often use invisible and original textures to fit a particular work of art or style. These new types of textures are called "invented textures". The invented textures include any texture that is not found in the real world. Artists use many different techniques, such as shapes, lines and patterns, to create invented textures. You can find textures invented in almost every art form from pencil drawings to abstract sculptures. Abstract textures mimic the surface of an object. From a stylistic point of view, they are between simulated and invented textures. They simplify the texture to its most basic form, often representing with unique lines and shapes. This type of texture is presented in most art forms (Figure 5).



**Figure 5: Example of Invented Texture – Watercolor
Pattern/Background/Artwork** by Sinziana Romanescu (Author)

UNDERSTANDING THE ROLE OF TEXTURE IN ART

Texture is simply defined as the tactile quality of an object's surface. It appeals to the sense of touch that can cause feelings of discomfort, familiarity or pleasure. Artists use this information to get emotional reactions from people who see their work.

There are many reasons for this, and for this reason, texture is a fundamental element in many works of art. Looking at stones, for example, a real stone may feel hard or smooth, or it can feel

absolutely difficult to touch and lift. When a painter defines the stone, he can create illusions of these qualities using other art elements such as line, shape and color. Detailed information on the textures defined with many different titles is given below.

Texture in Bidimensional Art

Artists working in a two-dimensional environment also work with texture and texture can be real or indirect. For example, photographs work almost with the reality of texture while creating art. However, they can improve or minimize this by changing the angle and light.

In drawing, printing and painting, an artist can often create texture using brush lines. When working with the impasto or collage painting technique, the texture can be very realistic and dynamic.

Each material the artist works on adds something special to the work. It is the texture that sets the mood of the image. At different times, artists have different attitudes towards this fact. In the Renaissance, it was considered a bad shape to show the texture of the canvas, so the layer of soil that covered the material before work was very thick. But this artistic technique has many flaws. Cloth and soil adhesion may weaken over time and the image will break. Currently, artists do not hide the canvas. Looking at the paintings of our contemporaries, you can immediately understand what and what the painting was painted on.

Texture is something for artists to play with by manipulating their materials and environment. For example, you can draw a rose on a rough textured paper. Also, some artists may use less gesso to create the canvas because they want the texture to show up with the paint they apply.

It is also worth noting that the colors give the image an invoice. This is especially evident if the painter is working in oil. Fat loss will swell over a layer of soil. Therefore, the texture in art is not just the texture of a canvas. This includes the artist's drawing style. Someone writes in thick strokes, thus giving volume to objects. And someone, on the contrary, is trying to apply a thin layer so that there are no obvious transitions from one color to another.

Texture in Tridimensional Art

Three-dimensional artwork is based on texture. There is no ceramic or sculpture piece that does not contain texture. In essence, the materials used give an artistic texture. The material may be clay, marble, bronze, metal or wood, but what matters in all of them is the texture that forms the basis of the work.

When the artist develops a work, he can add more texture with the technique. A smooth surface can be sanded, polished or patinated, discolored, dimpled or oiled. In three-dimensional works, artists often use a texture contrast. One element of an artwork may be as smooth as glass, while another element may be rough and ground. This contradiction adds to the impact of the study and can help convey their message as strongly as a uniform piece of texture.

Texture in Decorative Arts

Like any other artist, the artist must consider the texture of the material before starting to create. After all, if the carcass maker will cut the table without mind, then the beauty of the tree will not be able to reveal. Texture in fine arts plays an important role, but in applied, without taking into account the material and its characteristics, it is simply impossible to create a masterpiece.

The potter for example, when working with clay, must know how to behave after drying and burning. After all, if you do not take into account the variety of clay, the pot after burning can not only change the color, but also the texture.

TEXTURE IN FASHION DESIGN

Texture emerges as an important element that surrounds our environment and characterizes all surfaces and forms of nature and human structure.

Everything has a natural texture. Roughness, flatness, softness, hardness, indentation and protrusions are tactile expression and effects. According to these, natural texture is perceived at two opposite poles.

- Hard-rough textures
- Smooth-soft textures

Most of the textile work has focused on fabric composition and properties. The texture variation of all fabrics, from chiffon to wool to

rugged canvas, depends on four factors; yarn content, fabric structure, yarn structure and finishing.

The visual and tactile material or tactile pleasure associated with the structure can also be added to the fabric during or before the clothing creation. A plain and smooth fabric is transformed into a textured form with needlework in the form of honeycomb, gathers, crushes and pleats, puffs, quilting, ruffles, soutache ornaments, embroidery and appliqués.

A hard and solid texture makes the draped models look tough. A soft and flexible texture is dependent on body contours and allows for the creation of creases, drapes, gathers, honeycomb needlework and other soft styles in draped silhouettes with elegant flowing curves. Visually, thick, heavy, solid and puffy textures give the most size and weight and hide the contours of the figure (Davis, 1996: 190).

Light reactions of texture, on the other hand, can draw attention to a person or camouflage a person. Bright textures draw attention to the body area where it is used; dull textures seem to draw attention in another direction. Brightness moves with the body and thus directs attention to movement, so only a small bright accent area can balance the larger area of a dull surface. Thin and transparent fabrics give a lightness and airiness that non-transparent fabrics cannot achieve and draw attention to what is under the fabric.

Clothing textures visually interact with each other's textures, body contours and models, creating illusions. Some simple models, on the other hand, can only gain elegance because of their texture.

Texture can also be thought of as the surface quality of an object. It is the surface interest of the fabric created with the reflection of texture, weaving and light in fashion design. Our eyes can feel the play of light on rough or smooth surfaces and using our hands to feel the surface. A combination of thick knit and texture such as leather can create excitement in a garment. All fabric textures, from the most transparent chiffon to the voluminous fleece and the strongest canvas, depend on the variation of the four factors. These are yarn structure, fiber content, fabric structure and surfaces. All of these factors affect the tactile, visual and performance quality of a texture.

Texture plays an important role in the overall visual impact and appearance of a cloth, as one of the key elements of today's fashion trend. It also affects the covering of a cloth. As a chiffon structure, it adheres to the skin and flows, making it a good choice for soft, feminine styles, while canvas has the hardness and volume suitable for more casual clothes. By causing the surface to reflect or absorb light, the texture also affects the color of the fabric. Coarse textures, in particular, absorb light, causing the colors to appear flat. Smooth textures, on the other hand, reflect light and make the colors look brighter. While a color looks extremely shiny in a glossy vinyl or satin, it is subdued by coarse wool or suede.

Texture is recognized as one of the key components of fashion history. Even when adding texture to a monochrome garment, great effects can be achieved. This can be done with anything that disturbs the surface, decorating, pinning, shirring, gathering and embroidery. In fact, most

designers choose fabrics before making design sketches, preferring to be inspired by texture rather than finding the perfect fit for a design sketch. Moreover, the texture can create the misleading effect of tightness and fullness on the wearer, just as patterns, lines and colors reach other illusory effects. It can also affect the appearance of a silhouette and give it a voluminous or subtle appearance depending on the smoothness or roughness of the material.



Photo 1: Texture Design Images (Junya Watanabe), Source of Image, https://showstudio.com/collections/spring-summer-2017/junya_watanabe_paris_womenswear_s_s_2017

In its most general definition, fashion refers to the temporary innovations that have entered the social life. Today, fashion is known as a very fast, variable and self-renewing concept, especially in the clothing sector. Generally, the changes seen in the fashion industry are easier and more economical than in other areas.

Due to the fast changing, self-renewing nature of fashion, fashion designers always realize their designs by being aware of the latest developments in clothing, textures, color and fabric trends, by following and analyzing the needs of the society (Burke, 2006).

Fashion design tells the soul of the time it belonged to, the lifestyle dynamics and people of the period with clothes. Fashion design is the dialogue of textiles and fabrics with the human body form. In shaping the garment form, patterns, seams and fabric form a structure on the human body. Fashion reflects the aesthetic understanding of its period with its forms, colors, patterns, fabrics, textures in the female / male silhouettes that it has reshaped with the concept it has created. No matter how fast the appearance changes in the current fashion, as in any design discipline, basic design elements and methods are valid in the fashion clothing design process.

One of these basic elements is texture. The texture can consist of repetitions, which may involve a bit of randomness and organicity, as the whole composition may be composed of repetitions that give the elements a feeling of repetition spontaneously. Texture, which is the nature of a surface, is the type of fabric, decorations and embellishments used inside a garment, especially for fashion.

The texture, which creates shadows and highlights on the surface of a garment, can be quite visual as it interacts with light.

Textures are always present in textiles, whether borrowed from nature or artificial. Textiles already have their own textures and they have a texture in terms of their structure.

We can classify four texture categories:

Rough / Matte: Casual, sporty, comforting.

Rough / Glossy: Luxurious, rich and glamorous.

Smooth / Matte: Mature, official.

Smooth / Glossy: Fancy, young.

Although color and pattern are perceived at first glance as an important criterion in the fabric choices of designers, sensorial sense is important in the feeling of the fabrics in the theme of the skin. Its touch, hardness, thickness, weight, casting, softness, lightness, fineness, matte, glossy or transparent combinations and these combinations add texture to the design. Mohair, terry cloth, burlap (Figure 2), cheesecloth, gauze, wrinkled fabric washed silk, lambskin, Chinese silk, crepe-backed satin, tweed, chenille, hand knit, tulle, matte jersey, twill, vinyl or stone - washing denim, raw fiber, flock surfaces etc. the texture of each of them is unique and different (Volpintesta, 2014: 141-142; Dee, 2001).

Coarse textures such as voluminous knits or coarse woven burlap create a matte appearance in texture as light is absorbed into the

cracks of the surface. This creates an enlarging effect, hides the body and makes it look bigger.

Smooth surfaces such as satin have very few shades that reflect light. They make the body appear weakened as they expose the body and reflect light.

Fabrics that appear transparent, such as organza and textured silks, see light passing through their surface. When light does not pass through a fabric, it is called opaque.

With techniques such as gathering, embroidery, appliqué, quilting, beading and sequin, garments can also be given visual texture.

The texture is tactile because users are encouraged to touch the garments to feel their softness or rough details. The tactile nature of a garment is called the hand, which encompasses the veil, softness, rough and hardness.

A fur coat, for example, has a soft hand with a hard cover due to its thickness.

A textured silk blouse has an extremely soft hand and a good veil.

A hessian shopping bag has a rough and hard hand.

A textured garment also has an audible sound. The rubbing of fabrics against each other or on the skin can be heard. Like the "rustle" of a layered ball gown, the "caress" or sharp rustle of silk (Anonymous, 2019).



Photo 2: Fashion Texture Design Images (Iris Van Herpen), Source of Image, <https://www.irisvanherpen.com>

The use of a small amount of color makes the texture more noticeable and more clearly perceived. In addition to textile techniques such as weaving and knitting, other techniques such as knitting, bead processing, embroidery, macrame, crochet, smurf sewing, pili, etc., create texture on the fabric surface or structure (Photo 2-3).



Photo 3: Fashion Texture Design Images (Iris Van Herpen, Couture Spring 2020 and Fall 2009, Viktor & Rolf at Couture Spring 2018 in 2020), Source of Image, <https://www.irisvanherpen.com>

With or without exaggeration, whether it is colorful or patterned, it still provides the texture of a fabric with its mobility and attitude. Fabrics are extremely thin, draped, airy and light, or vice versa. The texture attracts attention visually at first glance, the next effect is the sense of touch. It should offer comfort when worn as much as it likes with its fabric texture. It is important in design that it provides comfort

in the use of clothing texture such as lining, seams, finishing processes or the use of fabric inverse.

When designing with textures, it is necessary to make sure that the garment is suitable for its end use to ensure that it performs well and is useful.

Texture affects the comfort of the user. The fabrics are worn against the skin, so irritating, rough fabrics that are rough and irritating are often covered with a smooth slippery fabric that glides well on the skin and protects the wearer's skin from irritation. The texture absorbs and reflects light. Therefore, it affects the temperature of the user. Also, as the textures absorb light, they are warmer to wear and are often used in winter. Smooth textures reflect light and make them cooler, so they are used in summer.

Each fabric has a natural texture (its own texture). When designing, a balance between its own texture, fabric surfaces and decorations must be considered. Having too much texture variation can cause visual confusion and negatively affect the design (Anonymous, 2019).

As stated in Ashby and Johnson (2004), people, consumers buy something because they love it. Undoubtedly, a product must be functional to be successful, but this is not enough. It should be easy to use and have an attractive character. The question of character depends on the design of the product. While products with technically equal properties compete in the market, products with good visual and tactile properties and sensible feelings win the race. Consumers expect everything they buy to evoke pleasure as well as being functional.

Especially in clothes, this feature becomes more important. In this regard, texture is an extremely important and important element in clothing design.

CONCLUSION

The links between science, design and technology have brought a new perspective to the field of art and design since the late 20th century. The 21st century, in which we lived in the first years of what is called the age of informatics, changed the methods of designers' work and production and encouraged them to use digital techniques as part of their creation processes. It is seen that designers who try to draw attention to the concept of timelessness in current life, which is dominated by speed, apply themes such as time perception, change, consumption, recycling in their collections with digital and chemical innovations. Designers have turned to applications expressing their adoption of innovations in order to increase the awareness of consumers about the technological age with their methods and materials. Since the end of the 20th century, not only textile design, but also all other disciplines, the methods used by designers in their creative processes, their aesthetic understanding and the way they express concepts have changed. As a result, it is seen that all the innovations added in the 21st century affect the aesthetic perception of textile surface design. In addition to the connection they have established between traditional and digital methods, textile designers made individual interpretations with contemporary art and special

production methods and made new suggestions for textile surface design.

The design language of the 21st century covers the interaction of digital and hand intervention as well as digital techniques. This new style, developed with the combination of technology and craft, not only carries the aesthetics of today, but also the traces of the 20th century. Today, after transferring the design with high quality with digital printing, different effects are achieved by making applications such as film printing, devore, flock, laser cutting again on printing for the desired texture or visual effect. This style of expression, created by adding individual comments to industrial production with new chemical materials or digital methods, reflects the aesthetic perception of the age.

Texture is one of the important elements that gives character to a product and makes a difference. Considering the strategic importance of the design in the competition of the manufacturers, it is one of the main objectives of all manufacturers and designers, as well as the product being functional, attracting attention and making a physical difference. In addition to its texture, physical and visual features, it has a great contribution to the product's structure as well as the structure of the product and the material used. Nature has developed various solutions for many functions and needs. Examining and analyzing the functions of texture in nature will provide the designer with resources for creativity. Developments are shifting from structural materials towards electronic, optical, magnetic and

biological properties. The advances in technology and developing production methods have contributed greatly to the design. The use of texture in products can also be seen as a method of expression of the possibilities of technology.

The tactile sensing qualities of the material texture given by the users are very important for the success of the product. Even if the users are not very aware, they are very affected by the texture of the product, they make their preferences regarding the products according to the surface properties they feel tactile, together with the visual perception. Understanding the importance of this and using it consciously in the products will contribute to the success of the product.

A wide variety of expression types can be obtained by studying and stylizing the textures in nature. With each passing day, texture has become more involved in contemporary art and design understanding than ever before.

We get information about the clothes that we will purchase, the objects that our skin will be worth and that we will be in close contact with at all times by touching them first. In this respect, the concept of texture is gaining more and more importance in fashion design. We can say that the most evident proof of this is that many fashion designers in the world are preparing collections where the texture comes to the fore.

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CHAPTER 4
EVALUATION OF DISTANCE LEARNING PROCESS BASED
ON OPINIONS OF PRE-SCHOOL TEACHERS

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INTRODUCTION

Covid-19 (Coronavirus) pandemic which first emerged in Wuhan, the capital city of Hubei province of China on 31 December 2019 and spread all over the world has costed lives of millions of people so far. The said pandemic has also caused changes in many fields within the global world order including primarily health, education, economy, business and social life, gradually leading to a slowdown or shutdown in these sectors across the world. On 11 March 2020, World Health Organization (WHO) announced this outbreak a pandemic and educational activities were suspended in elementary, secondary and high schools and universities in Turkey on 12 March 2020. During the ongoing process, face-to-face classes were restarted for certain grades of pre-school educational institutions, elementary, secondary and high schools being limited to certain days and hours in a week and provided that masks are worn, social distancing and personal hygiene is paid attention. Turkey has made its best efforts during this period for keeping pre-school educational institutions open during all weekdays in order to support working parents. Face-to-face education was suspended once again until the end of year at all levels of education on (20.11.2020) based on the decisions taken by the government due to increasing number of cases and loss of lives across the country whereby it was announced that educational activities at all educational levels would be continued through distance learning within this period. Upon an announcement dated (14.12.2020) all private and public full-day nursery schools except for preschools restarted, even if partly, face-to-face education provided that all

prescribed conditions are met, in order to back up healthcare workers and other workers. Nursery schools which provided half-day education during this period still continue distance learning activities.

Common and active use of distance learning in educational settings in Turkey has gained speed in the late twentieth century. It is seen that distance learning activities in our country became a part of the mainstream educational activities at all levels in the late 1990s and early 2000s (Bozkurt, 2017). The purpose of pre-school education in Turkey is to; ensure physical, mental and emotional development of children and gain them good habits, prepare them for elementary school, create a common training environment for the children from disadvantaged groups and families and enable children to speak Turkish properly and smoothly (MoNE, 2013). Pre-school period is quite important for and critical to development of a child. In this period, children substantially complete their development, make their first contacts with people other than their family members and thus they form their first perceptions towards life (Ayaydin, 2010). In particular, relationships between teacher-children and child-child, in-class activities and application of pre-school education program is very important for the potential perception of school (Uysal, Aydos and Akman, 2016). Review of the literature on pre-school education revealed many studies which concluded that the said educational process had numerous positive effects on the academic, social and psychological development of children in their future lives (Aslanargun and Tapan, 2012). Distance learning approach has been applied for the first time at pre-school level in Turkey due to

necessities brought about by Covid-19 pandemic. Distance education can be defined as training of students in an environment where they are settled individually without requiring a physical school setting (Jones, 2005). Distance learning is a systematic way of training where the teacher and learner are in different places during the process of learning and teaching that provides the parties with individuality, flexibility and independency in terms of time and space (Usun, 2006). Designing distance learning requires an attentive planning of many variables including material quality, way of communication and transfer of knowledge to the learners (Tuncer&Taspinar, 2008). No doubt that the most important factors that will enhance the quality of distance learning process are the teachers, students and training programs. Distance learning in pre-school education that emerged with the pandemic caught the teachers unawares about how pre-school educational programs could be conveyed to the children through distance learning. The research question for this study involves the need for finding out situations and problems encountered by pre-school teachers while conveying achievements and activities included in pre-school education programs to the children during distance learning. This study is also important for determining the needs of pre-school teachers, if any, for pre-service and in-service training on distance learning during their undergraduate studies and the problems, if any, they face in conveying achievements and activities included in pre-school education programs to the children through distance learning. In addition, it is understood that there are no other studies in the literature which evaluated the effectiveness of distance learning in

pre-school education based on the opinions of teachers. In this regard, the study is considered important in terms of its potential contributions to the related field and concerned stakeholders of education. This study aims to evaluate distance learning process in line with the opinions of pre-school teachers. To that end, answers to following sub-questions were sought.

- Did you receive any pre-service trainings (during undergraduate study) on distance learning? Please explain.
- Were you delivered any in-service trainings when shifted from face-to-face education to distance learning at pre-school education institution? Please explain.
- Do you think activities and achievements included in pre-school education programs can be adapted or adjusted to distance learning? Why?
- Which teaching methods and techniques do you utilize most for conveying activities and achievements to the children during distance learning process? Please explain.
- Please describe the problems you most frequently encounter during distance learning process?
- How do you evaluate yourself in terms of job satisfaction in distance learning process? Please explain.

METHOD

Research Model

This study is a qualitative survey research aiming at evaluation of distance learning process based on opinions of pre-school teachers. Qualitative research can be defined as a type of research where "a qualitative process is followed in which data collection methods like observation, interviewing and document analysis are used, perceptions and incidents are put forward in a natural environment and in a realistic and holistic manner (Yildirim and Simsek, 2008). In this study, data were collected by means of interview technique. Interview techniques generally employed in qualitative studies are structured interview, semi-structured interview and unstructured interview (Karasar, 2005). Case study design, one of the qualitative research designs, was used in this study. Merriam (2013) defines a case study as an in-depth description and analysis of a limited system. Hancock & Algozzine (2006) define case studies as the studies which are built on a deep foundation and which try to make a substantial description of the events that occur in their natural conditions, under time and space limitation and using various data collection tools.

Study Group

The study group of the research consisted of 50 pre-school teachers from 12 nursery schools located in a city of Turkey. Teachers to participate in the study were determined through a type of sampling called as critical (case) sampling. Critical cases are cases which reflect an important fact apparently or which have a particular importance

under normal circumstances. The most important indicator pointing at existence of a critical case or cases includes the expressions "if it happens under these conditions, it is likely to happen in similar other cases" and "if it doesn't happen under these conditions, it is not likely to happen in any other similar cases" (Flick, 2014; Mertens, 2014). In particular, in cases where the research is restricted to a certain area, critical case sampling provides a rich source of information. In such cases, the researcher should make strategic choices in order to determine the area which would provide the highest amount of information and make the greatest impact in terms of producing information, and set the limits of the research questions well (Kerlinger & Lee, 1999).

Development of Data Collection Tool

Semi-structured interview form was used as data collection tool in the study. Semi-structured interview technique was employed because it enables rapid coding and analysis of data and helps compare the similarities and differences in the information provided by the participants (Cepni, 2005). Interview forms were submitted to experts to take their opinions in order to increase reliability of the research, preliminary applications were performed through online interviews with five teachers who were not included in the study group thereafter, shortcomings and mistakes regarding the process were corrected and then actual online interviews were made with the participants. 7 questions were included in semi-structured interview form in order to evaluate opinions of pre-school teachers about distance learning

process. Experts in the field of education were asked to check the questions in the interview form as to whether they were clear and understandable, they covered the research subject and provided the researched data. In line with the feedbacks from the experts, order of two questions were replaced, one question was restated in a more clear and understandable way and the questions were validated and found to be sufficient by the experts. Peer review and participant confirmation methods were used to ensure internal validity of the study while detailed description and content analysis methods were used to ensure external validity; consistency analysis was employed for internal reliability and retest reliability was used to ensure external reliability (Yildirim and Simsek, 2008).

Data Collection

Research data were collected by the researcher through interviews which were made online due to Covid-19 pandemic with 50 pre-school teachers working at 12 different nursery schools operating in central Erzurum in the school year 2020-2021. The researcher provided the teachers who wished to support the study voluntarily with the necessary information on the purpose and content of the study before starting interviews and the teachers were informed that the study was a scientific one and their personal details would not be disclosed. Consent of the pre-school teachers who participated in the study was obtained for recording the interviews. Afterwards, the interview process was started and each pre-school teacher included in the study group was interviewed separately for about half an hour.

Recordings were subsequently turned into written documents. Names of the teachers were coded starting from T1 to T.50.

Data Analysis

Each of the questions included under the purpose of this study in which it is planned to reach the data using interview technique is analyzed under separate headings. Descriptive analysis and content analysis methods were used together for analyzing the data obtained during the research. Introductory findings for individuals who are interviewed are evaluated through descriptive analysis and it is tried to define the data through content analysis; data which are found to be similar and in relation to each other are brought together and interpreted within the frame of certain concepts and themes. Content of opinions of the participants is defined systematically through content analysis (Altunisik et al., 2010). Also, findings are given in a quantified design where deemed appropriate and necessary. Quantitative findings can be mentioned using qualitative statements in order to clarify the analysis and increase reliability (Yildirim and Simsek, 2008).

FINDINGS AND COMMENTS

In this section, findings and comments derived from the answers given by the interviewed pre-school teachers to interview questions are presented.

1) Did you receive any pre-service trainings (during undergraduate study) on distance learning? Please explain.

Table 1: Findings as To Whether They Received Any Pre-Service Trainings on Distance Learning

	f(%)
Yes	–
No	50(%100)
Total number of opinions	50

As can be seen in Table 1, in response to the question “Did you receive any pre-service trainings on distance learning? Please explain.”, all pre-school teachers stated that they did not receive any pre-service trainings on distance learning. Some of the opinions expressed by the teachers on the subject are as follows. T.10. "*I did not receive any trainings*"; T.12. "*No, I did not*".

2) Were you delivered any in-service trainings when shifted from face-to-face education to distance learning at pre-school education institutions? Please explain.

Table 2: Findings as To Whether They Received In-Service Trainings

	f(%)
Yes	18(%36)
No	32(%64)
Total number of opinions	50

As seen in Table 2, in response to the question "Were you delivered any in-service trainings when shifted from face-to-face education to distance learning at pre-school education institutions?", f:32 (64%) of teachers stated that they were not given any in-service trainings on the subject when shifted from face-to-face education to distance learning while f:18 (36%) of them stated that they received in-service training. Some of the opinions expressed by the teachers on the subject are as follows. T.45. *"Yes. In-service training courses were organized on the subject"*, T.50. *"No, I did not receive. No courses were organized on this subject. A major shortcoming"*.

3) In what way do you think distance learning process changed your workload? Please explain.

Table 3: Findings Regarding in What Way Distance Learning Process Changed the Workload of Pre-School Teachers

	f(%)
Increased my workload	30 (%60)
Did not change my workload	14 (%28)
Reduced my workload	6(%12)
Total number of opinions	50

As can be seen in Table 3, in response to the question "In what way do you think distance learning process changed your workload?" f:30 (60%) of teachers stated that distance learning process increased their workload, f: 14 (28%) of them stated that their workload did not change during distance learning process and f:6 (12%) of them informed that their workload was reduced during the said process.

Some of the opinions expressed by the teachers on the subject are as follows. T.8. *"It increases workload. It is much more detailed than and different from the applications so far and requires groundwork considering the parent, student and home environment"* T.1 *"I think that it lessened my workload further"* T18. *"My workload neither increased nor decreased, everything is just the same as before"*.

- 4) Do you think activities and achievements included in pre-school education programs can be adapted or adjusted to distance learning? Why?

Table 4: Findings on Whether Activities and Achievements Included in Pre-School Education Programs Can Be Adapted or Adjusted to Distance Learning

	f (%)
Partly adaptable	19 (%38)
Completely adaptable	16 (%32)
Definitely not adaptable	15 (%30)
Total number of opinions	50

As seen in Table 4, in response to the question "Do you think activities and achievements included in pre-school education programs can be adapted or adjusted to distance learning?" f:19 (38%) of the teachers stated that pre-school program can be adapted to distance learning while f:16 (32%) of them thought that pre-school programs were completely adaptable and f:15 (30%) of them thought that pre-school program could definitely not be adapted to distance learning. Some of the opinions expressed by the teachers on the

subject are as follows. T.23. "It is not possible to adapt all activities but we are trying to adapt important activities as far as we can" "*I think that all activities can be adapted with a good planning*" "*No. Activities and achievements in pre-school education programs generally comprise achievements which must be attained by the children based on practicing.*"

- 5) Which teaching methods and techniques do you utilize most for conveying activities and achievements to the children during distance learning process? Please explain.

Table 5: Findings with Regard to Teaching Methods and Techniques Which Are Employed Most for Conveying Activities and Achievements to The Children During Distance Learning Process

	f
Educational games	11
Demonstration and practicing	10
Expression	8
Experiment	7
Question and Answer	5
Drama	5
Performing a puppet show	4
Reading story	3
Music	3
Brainstorming	2
Digital activities	2
Finger games	2
Tongue twister	1
Illustration	1
Homework	1
Total number of opinions	50

As shown in Table 5, according to the answers to the question "Which teaching methods and techniques do you utilize most for conveying activities and achievements to the children during distance learning process? Please explain.>"; f:11 of pre-school teachers stated that they most frequently used educational games respectively followed by f:10 demonstration and practicing; f:8 expression; f:7 experiment; f:5 questions and answers; f:5 drama; f:4 puppet show; f:3 reading story; f:3 music; f:2 brainstorming; f:2 digital activities; f:2 finger games; f:1 tongue twisters; f:1 illustration and f:1 giving homework.

6) Please describe the problems you most frequently encounter during distance learning process.

Table 6: Findings Regarding the Problems That Are Most Frequently Encountered During Distance Learning

	f (%)
Difficulty in drawing attention of and motivating children	21 (25.2 %)
Problems regarding classroom management	15 (18%)
Difficulty in monitoring development of children and in receiving feedbacks	14 (16.8%)
Unconcerned parents and communication problems	11 (13.3%)
Inability to reach all of the children; connection problems	8 (9.7%)
Material problems	7 (8.5%)
Concerns for oneself generated due to distance learning process	7 (8.5%)
Total number of opinions	50

As can be seen in Table 6, in response to the question "Please describe the problems you most frequently encounter during distance learning process."; problems mentioned to be mostly faced by pre-school teachers are respectively as follows; f:21 (25,2%) having difficulty in drawing attention of children and motivating them; f:15 (18%) problems regarding classroom management; f:14 (16,8%) difficulty in monitoring development of children and receiving feedbacks; f:11 (13,3%) unconcernedness of parents and communication problems; f:8 (9,7%) inability to reach all of the children, connection problems; f:7 (8,5%) material problems; f:7 (8,5%) concerns of the teacher himself/herself which emerged during distance learning process. Some of the opinions expressed by the teachers on the subject are as follows.

T.49. *"I observe that children get distracted in two shakes and maintain their motivation for activities only for a very short time"*

T.50. *"Children speak without getting permission and families get involved in the process too much, classroom management goes out of my control from time to time"*

T.28. *"I have difficulty in monitoring improvement levels of children. I cannot get sufficient feedback for an activity we did the previous day when I ask about it the next day. They forget everything very quickly."*

- 7) How do you evaluate yourself in terms of job satisfaction in distance learning process? Please explain.

Table 7: Findings Indicating How Pre-School Teachers Evaluate Themselves in Terms of Job Satisfaction in Distance Learning Process

	f(%)
I do not have job satisfaction	24 (%48)
I have job satisfaction	18 (%36)
I partly have job satisfaction	8 (%16)
Total number of opinions	50

As seen in Table 7, in response to the question "How do you evaluate yourself in terms of job satisfaction in distance learning process? Please explain.":f:24 (48%) of the teachers stated that they did not have job satisfaction during distance learning process; f:18 (36%) of them stated they had job satisfaction during distance learning process while f:8 (16%) stated that they partly had job satisfaction. Some of the opinions expressed by the teachers on the subject are as follows.

T.3. *"My job satisfaction has substantially decreased, I do not feel like a teacher and I cannot get adequate efficiency"*T.9*"We have enjoyable, effective and efficient classes. I believe that I have managed to adapt myself to this rapid period of change as far as I can. Even though I occasionally have difficulties, I feel adequately satisfied in terms of job satisfaction."* T.33. *"I think that I have improved myself further for using technology. However, I do not think I have the same pleasure which I had been taking during face-to-face education."*

DISCUSSION AND CONCLUSION

The following conclusions were reached in this study in which distance learning process was evaluated in line with the opinions of pre-school teachers. It was determined that none of the pre-school teachers who participated in the study received pre-service (at undergraduate level) trainings on distance learning. It is possible to state that the teachers did not have any knowledge of and experience in distance learning before starting their service. Apart from the fields of the teachers in terms of content, their experience and pedagogical knowledge, teachers are not expected to adopt all roles designed for online training environments. However, teachers are expected to have a number of basic skills for an efficient and effective communication. What is important here is that they have, apart from technical information, a reflective and innovative attitude in student-oriented learning process in online education settings (Queiroz and Mustaro, 2003).

A vast majority (64%) of the pre-school teachers who participated in the study stated that they were not delivered any in-service training courses on distance learning when shifted from face-to-face education to distance learning during the pandemic while the rest of the teachers (36%) stated they were given in-service training courses during the process of switching to distance learning. Based on these results, it can be suggested that a considerable part of pre-school teachers had difficulties in determining how they should act and behave against the new situation which occurred in the educational process due to

pandemic. Moreover, it is clear that in-service training courses delivered on distance learning process fell short. There are various studies in the literature that support findings of this study. Gokdere and Cepni (2004); Can (2019) found in their studies that in-service training activities organized in Turkey, usually officially and centrally, for professional development of teachers were insufficient and only a limited number of people participated in such trainings and that such trainings were typically performed in the form of knowledge transfer.

A majority (60%) of the pre-school teachers who participated in the study stated that their workload expanded during distance learning process while some of them (28%) stated that their workload did not change and the rest (12%) stated that their workload decreased. Accordingly, it can be said that distance learning process, in the general sense, increased workload of pre-school teachers leading them to work harder. Excessive or less workload or in short, workload inconsistency may cause burnout of individuals. Reviewing and improving the conditions which cause feelings of negativism for an individual, on the other hand, may lower the possibility of falling into a burnout (Ozkalp and Kirel, 2018). Causing burnout of teachers by giving them unnecessary workload may prevent teachers from performing their occupations duly. This may lead to an increased exhaustion by influencing professional lives of teachers and a reduced efficiency (Ozturk and Erdem, 2020).

On the other hand, according to another result derived from the study, most of the pre-school teachers (38%) regarded achievements and activities in pre-school education programs as partly adaptable and applicable to distance learning process, some of them (32%) considered pre-school education program as completely adjustable and adaptable to distance learning process and the rest of the teachers (30%) thought that activities and achievements of pre-school education programs could definitely not be adaptable and adjustable to distance learning. Based on these results, it is possible to assert that pre-school teachers, in general, have problems in precisely adapting achievements and activities of pre-school teaching programs to distance learning process and that achievements and activities of the program should also be reviewed considering distance learning process. This is also stipulated by the legislation by means of paragraph "k" of Article 7 of "Regulation on Pre-School Educational Institutions" currently applicable in Turkey which reads as "pre-school education program is regularly evaluated" (MoNE, 2018).

According to another result obtained from the study, top three most frequently used teaching methods and techniques by pre-school teachers for conveying activities and achievements to the children during distance learning process were respectively as follows; (f:11) educational games; (f:10) demonstration and practicing and (f:8) expression. It can also be said that pre-school teachers improve motivation of children towards the studies performed during distance learning process by trying to draw children's attention to achievements and activities carried out during distance learning by means of

educational games and they try to make the learning process a more enjoyable and entertaining one. Using educational games is an amusing teaching method that ensures consolidation of the knowledge learned by the students and reiteration of such knowledge in a more favorable environment for the student (Bayat, Kilicaslan and Senturk, 2014). Educational games also make the students active in the learning-teaching environment and offer opportunities for competition and cooperation (Canbay, 2012). It can be said that pre-school teachers also gave place to demonstration and practicing method while applying achievements and activities included in the program in distance learning process in order to set a role model for the children, enable them to learn by doing and experiencing and develop problem solving skills. Another method frequently used by pre-school teachers in distance learning is expression technique. It is possible to state that a part of the teachers maintained teacher centered instruction approach by using expression method in distance learning process and rendered the children inactive in this period.

Furthermore, another result of the study showed that difficulty in drawing attention of and motivating children (25,2%); problems with regard to classroom management (18%) and difficulty in monitoring development of children and receiving feedback (1,8%) were ranked as the top three problems encountered by pre-school teachers in conveying activities and achievements to the children during distance learning process. Accordingly, it can be asserted that pre-school teachers have difficulties in drawing attention of and providing motivation for the children when having the activities done by them

and conveying achievements during distance learning process. For this reason, it is assumed that distance learning revealed the necessity for embarking on new quests by pre-school teachers for drawing attention of and motivating children. The fact that pre-school teachers have difficulty in classroom management during distance learning can be attributed to the fact that families get too much involved in the activities performed during distance learning because of the age group of the children, a number of actions in relation to classroom management which should be performed by the teacher in a classroom setting are performed by families and therefore the children experience a role conflict. Moreover, this may also result from the fact that physical environment the child is in does not reflect the classroom environment and some of the teachers insist upon using conventional instructing methods and techniques during distance learning period. Classroom management skill is one of the cornerstones of a teacher's success (Celep, 2000). One of the factors that affect classroom management is the relationship with the family. In this regard, a teacher should get to know the families of students and communicate with them (Cangelosi, 1988). Additionally, pre-school teachers stated that they had difficulty in monitoring the extent of improvement of children and receiving feedback for finalizing the studies done during distance learning process. In this sense, it can be said that distance learning process inherently contains a number of difficulties and inconveniences.

It was found that most (48%) of the pre-school teachers stated that they did not have job satisfaction during distance learning process

while some of them (36%) stated that they had job satisfaction in this period and the rest (16%) stated that they partly had job satisfaction. From this point of view, it can be stated that most pre-school teachers do not have job satisfaction during distance education process, they have difficulties in motivating themselves for the work they do during this process and distance learning process is not an enjoyable and elevated time period for them. Job satisfaction can be defined as "*general attitude of the worker towards his/her job*". Following recommendations can be made in line with these results obtained through the study.

- Prospective pre-school teachers may be given training on distance learning at the undergraduate level.
- It may be useful to organize in-service training activities about distance learning for pre-school teachers so as to make them widespread to cover all pre-school teachers.
- Scope of supportive training works aimed at reducing workload of pre-school teachers during distance learning process may be improved by the Ministry of National Education in terms of both content and quality.
- In order to overcome problems faced in adapting activities and achievements included in pre-school education programs to distance learning process, a sharing platform may be created on EBA(Education Information Network) regarding how pre-school teachers adapt the activities they perform to distance learning process.

- It is seen that part of pre-school teachers still prefers expression method, which is among the conventional methods, as a first choice in distance learning process. Such teachers may be given in-service training courses on more modernist teaching methods and techniques that are fit for general structure of distance learning.
- It would be appropriate to conduct scientific studies for finding what the teachers can do in order to draw attention of children to the activities, increase their motivation and ensure classroom management during distance learning process.
- Various plans and projects may be developed to increase job satisfaction of teachers during distance learning process.

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CHAPTER 5

LANGUAGE EXPOSURE

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INTRODUCTION

Language exposure refers to the level of the learners contact with their target languages which they are learning or attempting to learn. Within the classroom environment, the primary role of instructors is based on giving learners increased exposures in which they can practice foreign languages from distinct speakers and context varieties. Generally, most researchers refer language exposure to student's practices outside the classroom which extensively impacts on their target language learning. For instance, Benson (2001) argues that exposure to outside-of-class language means "any kind of learning taking place outside classrooms and which entails self-directed, and self-instruction naturalistic learning" (Bernstein, & Sabino, 2014). There are various techniques to achieve outside classroom language exposure which involve, reading English novels, newspapers, and magazines, surfing media platforms using the English language, L2 interactions, and watching English programs, among others (Vygotsky, 1987). Research provides that teaching of the English language ought to be developed and encouraged in and out of classrooms through the correct methods. This, in turn, enables students to express and improve their target languages. Half of the students under study (Komrat and Balikesir Universities) provided that even though learning in classrooms is important, learning from home through example, watching films is also significant in that they may incorporate the words used in such films in their daily interactions. d'Ydewalle & De Bruycker, (2007), provides that such type of learning is referred to as "incidental learning." The challenges

facing English learning are said to be ineffective curriculum design, lack of interest and practice, reduced motivation levels, and teaching methods, which therefore raises the need to supervise and make interventions where necessary to ensure all students learn foreign languages (d'Ydewalle& De Bruycker). This study examines and provides answers to questions such as the extent to which English language exposure influences the acquisition of language and the existing relationship between the development of the four language skills and the English language.

The review of the literature will explore the impact of English language exposure from different perspectives. First, the study will examine the existing research and past scholarly studies discussing foreign language learning and teaching worldwide while focusing on Komrat and Balikesir universities. For instance, Turkish' geopolitical and strategic status influences English learning, making English learning the primary language for global communications. The differences between language exposures for both universities are also discussed.

1. FOREIGN LANGUAGE TEACHING AND LEARNING IN THE WORLD

FL (foreign language) teaching and learning is the practice of learning or teaching languages other than an individual's native language. This means that foreign languages entail all languages taught extensively in classrooms, which are not incorporated in the broader community in

which the teaching takes place (Alaga, & Palencia, 2015). Presently, language instructors argue that FL should be incorporated in a manner that allows students to expand their (IC) intercultural competence, which would then guarantee that the students view various relationships between cultures, critical examination of such cultures, and mediating across. Schulz argues that IC teaching must entail being aware of variables interfering with communicative interactions, reasons for cultural misapprehension among cultures, and evaluation and identification of prejudices (Vygotsky, 1987). This further means that learning a foreign language enables students to creatively and effectively participate in real life surroundings.

Most importantly, FL enables individuals to have interdisciplinary perspectives and see connections in various content areas. Research provides that foreign language teaching and learning have gone through multiple paradigm shifts due to experiences and research which have increased and influenced theoretical and scientific knowledge on ways in which students acquire and learn FL's. For instance, in the traditional setting, FL entailed "mimetic" processes in which students would imitate and repeat newer information.

Presently, one sector that has stayed debated on in the second and foreign language learning' world is attempts to answer questions such as whether or not native-linked attainment is necessary or not globally. Similarly, the depiction of (EFL) English language as a foreign language raises questions. For instance, Timmy(2002), among other researchers' inquiries regarding whether or not speakers should

follow the implemented English language native norms due to its increased incorporation in global contexts. In response, various terms, such as World English and Global English, have been developed (Lockhart, 2015). "Global Englishes," for instance, is based on the notion that, "English language belongs to all...however they use it" (Lockhart, p.4).

Other directions taken in research are examining the computer technology' impact on FL. This is based on the fact that while classrooms mainly concentrate on problem solution tasks, real-world events, issues, and technological platforms act as pathways in which new dimensions can be introduced in learning and teaching processes which implement the use of voice threads, Skype, Twitter, and Facebook among others (Alaga, & Palencia, 71-81). In this case, social media platforms enable easier manipulation of language and learning materials with regard to their personal needs and at an appropriate pace. From the research on both, Komrat and Balikesir University, most learners provided that when they examined and analyzed web pages, authentic documents, and reports in search of data, which could be discussed and synthesized. As a result of such educational environments, instructors' roles are altered from those being authority experts or figures to those who support, guide, and facilitate student learning (Vygotsky, 1987). This then allows the instructors to concentrate more on supporting and designing personalized and individualized learning tasks. Similarly, the implementation of

"culture-learning programs" ensures that instructors can assess their student's achievement with time with regard to particular objectives.

2. FOREIGN LANGUAGE TEACHING AND LEARNING SKILLS (LISTENING, SPEAKING, READING, WRITING)

Foreign language learners acquire a new language in many ways, which include hearing and seeing, reasoning logically and intuitively, reflecting and acting, and memorizing and visualizing (Ranta, L., & Meckelborg, 2013). The speed at which a student learns a foreign language depends not only on the student's prior preparation and native ability, but also on the instructor's criterion of teaching and the student's characteristic approach to learning. The means in which a foreign language learner acquires, stores, and retrieves acquired information largely depend on his or her learning style and strategy. According to Felder & Silverman (1988), a mismatch between the teaching style of an instructor and learning strategy of a student is potentially detrimental to the acquisition of a foreign language. The mismatch is characterized by things such as students being bored and inattentive in class, students performing poorly in tests, and students concluding that they are not good at acquiring the foreign language and ultimately dropping out of the course (Ranta, L., & Meckelborg). In addition, the type of presentation mode of a foreign language determines the level of acquisition of the language. Generally, there are two main types of language presentation mode namely deductive and inductive presentation. Deductive presentation entails a foreign language learner beginning with the axioms, rules, or principles,

deducing consequences, and formulating applications (Michael, O. & Anna, 1990). On the other hand, inductive presentation is characterized by a student making an observation and inferring the governing principles. The distinction between deductive and inductive presentation in respect to foreign language learning is fundamental in the acquisition of a foreign language (Graham, 2011: 276). Language acquisition here by means to gradually pick up the language, and to gain the ability to effectively communicate the language without necessarily articulating the rules. In essence, foreign language learners gradually absorb what they can from the constant input that bombards them, that is, everyday increasing their ability to make sense of, retain, and put into practice what they have absorbed. Throughout the learning process, the learners improve their abilities to transfer learning styles and strategies, make assumptions on the emerging language system, and formulate and test principles and rules and either keep or discard them. This process, which is basically subconscious, continues until the learners fossilize. Fossilization happens when learners feel they have acquired what is necessary to communicate in the new language. The overall presentation that progresses from specifics to generalizations is fundamentally an inductive process (Graham, 2011). Thus, foreign language learners generally use inductive process to acquire a new language.

From the research, it is evident that in the 21st century, most individuals communicate their views and ideas to others across and within continents, which raises the need to familiarize themselves with "a link language" known by everyone. Again, English, therefore, acts

as a useful communication tool, which explains why most individuals learn the four skills linked with the English language, this includes writing, reading, speaking, and listening (LSRW). The four skills are further divided into two classes, which include active (productive) and passive skills(receptive). Reading and learning skills, in this case, are ranked as receptive skills in which the students understand and receive such that no language needs to be produced (Ghaderpanahi, 2012:146-153). On the other hand, writing and speaking are considered active skills in which the students need o produce language while using them (Vygotsky, 1987). Writing and speaking skills also focus on accuracy more and can be visible, making it easier to control or guide such activities than learning and reading skills. However, it is evident that speakers and learners alike may find it challenging at first to learn English and particularly, in acquiring and understanding all the primary skills needed. It is for this reason that most instructors are called upon to put increased efforts into ensuring that their students are motivated to learn foreign and secondary languages. Again, students also have chances of improving and expanding their skills through media platforms.

"Listening" is ranked as the initial skill a person learning the English language encounters. Hornby(2005), describes the listening act as "paying attention to something/someone that you can hear." During the learning processes, research provides that most students taking English language lessons feel excessive pressures to understand and know all words and sentences, which further explains why most of them find it challenging to perceive the message an individual

intended to communicate (Ghaderpanahi, 2012). This calls for students to pay attention and ignore unnecessary words, which further acts as a channel through which they can grasp important content. With regard to listening skills, individuals should incorporate anticipation skills to succeed (Hornby & Atkinson, 2005).

Similarly, in "the listening" skills, concentration is a critical element in understanding the message. To develop these skills, instructors mostly encourage students to listen to the English language sounds to understand and incorporate correct English word pronunciations. English language learning concentrates more on listening compared to other skills since it entails simply listening rather than demonstrating; it involves listening to speeches, conversations, and dialogues, among others (Ocampo, 2017). Most researchers on ELLs state that once a student is good in listening skills, other skills are acquired with no major challenges. This again raises the need for instructors to develop and implement various techniques and strategies to ensure their students receive listening skills.

Speaking is ranked among the most challenging English skills mainly when the students are needed to speak in "real time." students involved in ELL should therefore have increased knowledge on grammatical structure and vocabulary in the English language. This is mainly because learners are expected to give responses to their speakers spontaneously. Lack of oral communication may reduce the English language into simply scripts. Since language is a communication tool, ELLs should learn to speak the English language

outside or in classes. Group works are also encouraged to expand and increase their speaking skills. This is mainly because regular practices enhance speaking skills (Ocampo, 2017). This is why most instructors involved in ELLs often incorporate the use of "pair activities."

Similarly, more opportunities should be provided for students to speak foreign and English language in-class sessions (Al Zoubi, 2018). The more the students practice speaking in English, the more the skill is enhanced. Rivers(1978), argues that "speaking is used twice as much as reading and writing in our communication." Most individuals also concentrate more on speaking than writing and reading, which is why most intellectuals agree with Rivers that English language instructors should identify and implement various strategies to develop learners speaking skills.

Again, "the reading skills" are ranked as passive skills. Reading aids students in expanding their writing, grammar, vocabulary, and spelling. More than ½ of ELLs also read various subjects in English. In his case, when a student reads at an increasing rate, the correct sentence structures are incorporated in the individual's mind making it easier for them to compose and write effectively. Similarly, this increases the likelihood of the students to use similar sentence structures in passing information(Al Zoubi, 2018). Scanning and Skimming skills are increasingly applied, which in turn fosters students to read correct texts quickly, and effectively making it easier for them to grasp important content and make conclusions from it. Due to the student's exposure to various jargons and texts, newer

vocabularies can also be learned. For instance, students who read faster tend to have good academic performances in writing and reading (d'Ydewalle, G., & De Bruycker, 2007). Since most English learners acquire their content from journals, magazines, and newspapers, instructors should encourage learners to read them in classes to increase their performance and skills. Reading textbooks, short stories, and moral stories, among other interesting books, should also be encouraged for academic progress to be achieved. Like in the other skills, instructors should develop strategies for effective ELL's reading skills; this is mainly because reading skills are applied throughout a persons' life.

"Writing" is ranked as the most complex yet productive skill. Like students learning other foreign languages, learners involved in ELL's also find writing English as complex. Research provides that ELLs have incorporated their concepts and thoughts in writing forms, which acts as an essential tool to preserve information. In the English language, most individuals perceive writing as a challenging skill because it is associated with complex vocabularies and structures. Similarly, spelling systems applied in English words is massively distinct from how such words are pronounced. The lack of correspondence among pronunciations and spellings makes it more difficult to write words in the English language (d'Ydewalle, G., & De Bruycker, 2007). Organization and coherence are also critical elements in composing paragraphs, which most learners find challenging. The most effective intervention to deal with such

challenges includes participating in group works in or out of class sessions to enhance the writing skills (Al Zoubi, 2018: 151-162). Again, more practice results in perfection in writing skills, which further guarantees improved academic performances of students. Since writing entails various essential things, instructors specializing in ESL and EFL should enhance their students writing skills by encouraging writing small texts or paragraphs in English. Training and assistance should also be provided where need be to aid students having difficulties in writing skills (Alaga& Palencia, 2015: 71-81). This not only ensures progress in the learner's academic performance but also guarantees the progress of the entire educational system. Factors influencing writing skills include:

Incorporation of punctuation marks. In this case, punctuation plays an essential role in ELL's particularly since misusing punctuation can result in misinterpretation and confusion of sentence meaning (Al Zoubi, 2018). Due to the fact that using punctuation marks differently alters the meaning of words, instructors should extensively direct and guide students on the correct use of punctuation marks in ELL's to avoid errors and misinterpretations. This is based on the fact that even though communication is significant, both learners and instructors in ELLs should ensure there are no gaps in conveying thoughts and should instead be like ceaseless drifts, which allows an easier and effective understanding of concepts (Alaga& Palencia, 2015). This can be achieved through the incorporation of thought flows,' which makes the content more readable.

Use of easy and simple language. This is applicable for both instructors and learners in ELL's. It involves teaching English and foreign languages in easier and simpler terms understandable by many. In this case, research provides that most students should be exposed to writing more and more texts, such as short essays, which further habituates their skills (Al Zoubi, 2018). Such practices also act as pathways through which the learners can develop skills and write their topic of interest with time.

The selection of grammatical structures also enhances writing skills. Since there are various structures implemented by English writers, ELL's mainly focuses on other grammatical structures rather than monotonous structures. This again calls for instructors to familiarize their students with grammatical structures, making it easier for them to use them in their writing, hence guaranteeing their progress.

3. LITERATURE REVIEW OF LANGUAGE EXPOSURE

Introductory knowledge on "Age of Arrival" is extensively discussed at the start of the study with regard to the children's exposure to language and its impact. Krashen argues that "Age of Arrival" is significant when there are no increased exposures to L2 "before the arrival." Krashen et al. (1979), also implement three generalizations used in examining the relationship between age and final success and speed of L2 acquisition. From the research, adolescents progressed more in their earlier syntactic and morphological stages developments compared to children (Al Zoubi, 2018). Similarly, individuals

subjected to natural exposures at a younger age have an increased likelihood of enhancing and developing increased proficiencies in the second or foreign language than individuals who started learning it in adulthood (Al Zoubi, 2018). Steinberg (1982), further argues that individuals exposed to English or foreign languages mostly through conversations, watching films, and overhearing their peers or adults gain inadequate knowledge of the language due to speech input and environment nature in which the individuals learn specific target languages. This means that additional exposure to such individuals to their target language in learning environments in which the speech levels are modified to individuals' understanding levels can result in the use of definite language and word structure. This argument agrees with that of Ellis (2002), who suggested that an increase in an individual's use of language and word structure increases individuals' willingness to produce or expand his/her familiarity with specific languages.

Information regarding language acquisition and English language learning is provided in the research conducted by Politzer(1965). In his argument, he states that exposure to the first language plays an essential function in foreign and second language acquisition. The main example used is that of the US immigrants, in that, they learned English language through their continual exposure to the language in their surroundings. Politzer's argument is later supported by that of Kennedy (1973), who in his argument refers second language learners as, "part-time learners." Kennedy further provides that the levels of L2

learner exposure in classroom is minimum compared to the exposure level in individuals acquiring the first language (L1). This means that regardless of the inadequate time that students are exposed to the second or foreign language, how such periods are spent proves essential. L2 learners are further exposed to thematic, syntactical, phonological, and lexical items. Instructors, in this case determine and examine the presentation order of such items to their students or learners.

Rajagopal (1976), argues that learners weak in acquiring English language are most of the time, “handicapped” by their surroundings. This means that the learners experiences minimal encouragements to talk and practice the English language in and out of their homes, making it even more difficult to know and familiarize with the language. This is based on the fact that when learners are not exposed to foreign or English language continuously, they learn less. Rajagopal’s argument could be used to explain the existing English language learning gaps between students and their attitudes towards it. In this case, some individuals perceive the English language as merely a subject and therefore do not find the need to practice it more often. This consequently results in poor grammatical structures, language acquisition, and poor pronunciation.

In her book, “English just isn’t a foreign language anymore,” Lambine(2008), argues that when individuals are increasingly exposed to the English language in their childhood outside school, they learn the language more than others. This is further true in this research in

which more than half of the students in Komat and Balikesir Universities stated that they perceived English more like their L2 (second language) than 1st foreign language.

Ghaderphanahi(2012), argues that using films and other technological methods as methods of language exposure to enhance (ELL's) English language learning was not enough. In his study, he states that even though such exposures are significant, more needs to be done, particularly since watching films could not be rankled the same level as communicative activities in which individuals learning English interact and participate in ELL (Ghaderpanahi, 2012). His argument is seconded by Webb (2010), who, after investigating 143 movie scripts, argue that watching is inadequate unless the individuals involved continuously watch the films for a prolonged period (Vygotsky, 1987).

Chandrasegaran(1979), like the other discussed researchers also agree on the strong association between English language learning proficiencies and English exposure. The main argument was on the differences between English acquisition between learners in rural and urban areas. The study was based on that notion that since urban students dwelt in environments which increasingly supported practicing English, they experienced and were more exposed to English language making them more proficient compared to those living in rural areas. Similarly, Chandrasegaran further argues that urban students depict increased motivation to learn English language

compared to those in rural areas. This reveals that to a large extent, the environment also influences English learning and acquisition.

Generally, previous research bases their arguments on methods in which English language exposure in students enhances their acquisition of language, which is a crucial component in acquiring fluency in foreign languages. From the research, digital technology's impact on EFL and ESL learners' language development cannot be ignored. Explicit teaching in educational institutions also increases rates of language acquisition (Vygotsky, 1987). Surfing the internet, using social media platforms to practice English, and interacting with other native speakers prove useful in exposing students to the English language mainly since English is the primary language used in communication.

Information on the four writing skills and how they have undergone a transformation over the years is provided by Harmer, ranked among the most influential and authoritative researchers on language who argues that "Human activity of writing is a fairly recent development in the evolution of men and women...some of the earliest writing found so far dates from about 5500 years ago"(Al Zoubi, 2018). This reveals that the impact of language as a form of communication cannot be ignored. Research provides that for most EFL learners, listening and reading skills appear easier than writing and speaking skills. This is attributed to the fact that writing and speaking skills are more complex and require increased practice for mastery (Al Zoubi, 2018). This again arises the need for instructors to implement ways

with which to ensure their students acquire adequate skills effectively. In this case, understanding and knowing the student's interests and levels are vital, particularly when selecting learning topics and identifying various novel approaches and techniques in specific tasks.

4.LEARNING A FOREIGN LANGUAGE BY THE EXPOSURE TECHNIQUE

Again, with the increasing population diversity in various states, now more than ever, students are required to develop and familiarize themselves with language proficiencies other than their native languages (Al Zoubi, 2018).This explains why most students incorporate English as their L2. Therefore, foreign language teaching should not only be based on students having good mastery but also equipping them with the correct tools to enhance their proficiencies in foreign languages. Such increased proficiencies are significant when dealing with an increased number of individuals since it acts as a communicative tool (Moeller & Catalano, 2015: 176-188). Moreover, the proficiencies enhance competitions in educational institutions, making them even more motivated and eager to learn, which in turn guarantees academic success. Like reflective practitioners, FL instructors should increasingly examine methods and tools they incorporate in teaching specific target languages to achieve their students' increased proficiencies (Al Zoubi, 2018).The critical success of learning English or foreign languages is increasingly exposing oneself to the target language.

4.1. In the School Techniques

Research provides that ELLs prove useful in English language learning techniques, particularly in developing predictability and orderliness. This is based on the argument made by Pintrich and Schunk (1996) that learners conduct and achievement increases when instructors offer feedbacks and incorporate an efficient and smooth running of the curriculum. This also makes it easier for instructors to monitor their learners and provide guidance where needed (Moeller & Catalano, 2015). However, research further provides that even though direct instructions may positively impact learners and their academic achievements, learners are also more likely to show increased stress, particularly in didactic contexts than the student-centered texts or settings. In school, foreign language learning techniques consist of well-developed strategies such as communicative, direct, and grammar-translation, which are extensively emphasized and encouraged in "the European center for modern languages of the council of Europe." Yilmaz (2017), states that such strategies have been implemented internationally and have been in use over the 40 years of their implementation, which further proves their significance. In class techniques, grammar-translation is ranked as a primary technique of foreign and secondary language exposure grounded on tradition. The main emphasis is on writing and reading. The main goal of the foreign language, in this case, using this model is, "to learn a language in order to read its literature...benefit from the mental discipline and intellectual development that result from foreign language study," (Richards& Rodgers, 2001: 5). By using such

models, foreign and English languages can be learned and taught in an individual's native tongue entirely, making it easier to learn the foreign language. This is because it entails translating languages forth and back between an individual's target language and their native languages and focusing on ensuring accuracy such that the content of a message is not lost during translations.

The direct method can also be effectively achieved in learning foreign languages. Richards and Rodgers further differentiate this model from that of grammar-translation (Richards& Rodgers, 2001). In the direct method, instead of instructors teaching, particularly in native languages, they give instructions in target languages (Al Zoubi, 2018). In cases of any inquiries, questions are still answered in English or foreign languages. Unlike grammar-translation, the goals of the direct method are based on ensuring learners can communicate efficiently in foreign languages through listening and speaking, which is most effective when learning in classroom environments. This model encourages the extensive use of foreign language, which in turn improves and enhances the right inflections and pronunciations.

Silent methods are also implemented in foreign language exposure in ELL's. In this case, instructors remain "silent," allowing learners in classrooms to practice and participate in target languages by themselves. This is based on Gattegno's argument that "learners develops or creates rather than remembers and repeats what is to be learned,"(Richards& Rodgers, 2001: 81). The model is mainly focused on the incorporation of visual aids and problem-solving procedures.

Messum also agrees with Gattegno's argument that the silent model is influential primarily in learning pronunciation. It is, however, used as an alternative technique in most educational institutions.

Communicative language techniques mainly focus on communication efficiency and memorization of particular contexts. It also incorporates the four skills in foreign language learning (writing, reading, listening, and speaking). The communicative language methods are group and team works, hands-on practices, games, and dialogues, among others.

The natural approach traced back to 1977 and was developed by Tracy Terrell. In his argument, he states that structural accuracy expectations should be reduced while increasing oral competency expectations. The main argument is teaching and learning a foreign language using similar techniques used when teaching children to learn their native languages. This means exposing learners to simpler sentence structures, after which more complex structures can be introduced.

(CLL) The community language learning technique traced back to the 1970s and was developed by Curran Charles. It is mostly based on psychological, educational methods. This model redefines classroom functions in which learners are perceived as clients while teachers take up the role of "counselors." Scholars refer to it as the humanistic approach since it incorporates; linguistic knowledge, behavior, feelings, and individuals' emotions, among others (Al Zoubi, 2018). In this case, the "client" becomes more independent in implementing

target languages after their dependence on councilors during their earlier learning phases (Ocampo, 2017). The translation is an example of this technique, which ensures that clients remain secure during their interactions with others in learning environments, which further guarantees success in foreign language learning.

Winter and Kelley (2008), argue that for a long time, increased quality school readiness programmers are associated with enhanced academic progress for students' language learning activities. In this case, school readiness programs are correct materials that motivate experimentation and exploration, spaces for physical activities, informal activities that enhance ELL's, and planned individual and group activities. Winter and Kelley's arguments are further supported by those of Figueroa-Sanchez(2008)with the notion that students learning are enhanced only through well-organized indoor environments, which entails using the right materials and activities. Most of the time, instructors also implement routine practices that further expose learners to foreign language opportunities. This is also called "teachable moments," which involve washing hands and dishes, among other activities (Al Zoubi, 2018). Wayne and his colleagues also argue on the importance of monitoring indoor environments to achieve desired academic outcomes; this involves encouraging literacy-related practices.

4.2. Outdoor Techniques

Fiskum and Jacoben provide that outdoor education techniques are linked with giving learners a positive impact on physical activities, positive communications, increased emotional variability, and verbal and motor agitations (2012). The two further agree that outdoor techniques mainly affect children. For instance, in-school sessions, individuals are mostly seated behind desks, and afterward, they can still stay in school watching television or computer. Research shows that even though such children may adapt to physical inactivity, such learning environments may have adverse effects in their future years (Al Zoubi, 2018). Outdoor techniques involve engaging students in learning environments outside classrooms, enabling them to become less abstractly, study more directly, and become physically active. This, in turn, influences learning, mood, and behavioral benefits making learners more willing to learn foreign languages, which further guarantees progress.

This technique is attributed to Friedrich Froebel and Vygotsky's argument that children should develop and grow harmoniously with their environment (nature)(Terrell, 1977). Vygotsky uses the Sociocultural Theory of Learning (SCT) (1978). Lev Vygotsky was a psychologist that believed culture had a significant impact on a child's ability to learn. His main argument was that when children are in households where they are read to and exposed to language, they have a better chance of reading and developing the language they are exposed to. Vygotsky believed that the cognitive development of a

child's development happens through social learning (Terrell, 1977). This further means that when examining learning and the impact of students in learning foreign languages and the four learning skills (writing, reading, listening, and speaking, the learning environment should be considered. Vygotsky's theory confirms that a student's background knowledge and environment are needed for learning (Terrell, 1977).

The main question under discussion in Gagauzian and Turkish educational institutions is to what extent and how language learning ought to be monitored. Similarly, since most students in educational institutions spend most of their time outdoors, there is a need to examine opportunities linked with language learning exposures in outdoor study conditions (Al Zoubi, 2018). Vygotsky's approaches are historical theories that need modifications and alterations in diverse contexts. In this case, outdoor environments expose children among other learners to opportunities in which they can experience various phenomena, which further allows them to make meaning of multiple words in their target languages (Terrell, 1977). This means that students' outdoor experiences increase verbal expressions in relating things that would not have been possible in indoor experiences. When children learn in outdoor environments, play activities aid in making meaning out of social interactions with others. This further increases children's experiences range and stimulating their use of foreign languages. This is also based on the fact that reading is a sociocultural activity, and when it is missing, lacking, or is nonexistent, students

fail to gain reading knowledge because to learn how to read, "students must be immersed in a literate environment that includes environmental print and access to a wide range of genres and text" (Allington & McGill-Franzen, 2015).

Bronfenbrenner's approach to learning is also put into consideration(1999). He develops bioecological theory with the argument that the environment influences language learning of individuals and vice versa in context-bound and time processes, including how various language-learning environments influence students' everyday lifestyles (Al Zoubi, 2018). This is also in agreement with Rogoff's argument of guided participation; he argues that students acquire valuable skills through collaborative and meaningful activities with other individuals who are more experienced. This further supports Vygotsky's emphasis on cognitive development and its importance while interacting with other people. Research also provides that such cognitive abilities are developed in learning foreign languages.

5. EFFECTIVE WAYS OF LEARNING FOREIGN LANGUAGE

5.1Learners Listening to Music in Languages they are learning

Research provides that translating songs is by far the pleasant and easiest method of learning a target language. Listening to English and other foreign music, in this case, is ranked among the most effortless techniques of language exposure. It can be done anywhere, anyplace, for instance, when waiting for public transport, walking, and working.

It acts as a pathway through which individuals can develop and understand newer grammatical rules and vocabularies without necessarily having to spare extra time for it. Listening and translating foreign music not only aids in liking the language but also enables an individual to enhance their pronunciations.

5.2. Interacting with other Individuals Speaking the Target Language in Communities

This is considered the best exposure technique in which individuals make and interact with friends speaking the target language. It acts as a channel through which the individuals involved can enhance their language skills and socialize by creating Facebook groups, organizing international dinners, and participating in conversation clubs in which the target language is spoken. This technique encourages courage between individuals to interact with others; by making friends and associating with such environments, their proficiencies increase with time.

5.2.1. Watching YouTube films

Currently, the number of films featuring foreign and English learning techniques is limitless on the YouTube platform. Research provides that most individuals may still find such films unproductive and boring, making them unwilling to watch them (Spada, 2006: 242). This reveals that such a technique is not applicable to all people. Television channels and influential bloggers may also prove useful for individuals learning certain target languages. This can be achieved by

watching programs in which the participants speak in the language one is attempting to learn.

5.2.2. Use of Mobile Phones

This can be achieved by setting mobile devices in languages individuals are learning. This foreign language exposure method further reveals the impact of cell phones on individuals, particularly in the increasingly digitalized world. In this case, mobile devices allow learners to develop and acquire newer vocabularies (Spada, 2006). This is mainly since daily exposure to vocabularies pushes an individual to give extra time to learning them, which further increases the chances of remembering them. This may also include setting other social media platforms to languages of interest, which extensively aids in enhancing the language learning approach.

5.2.3. Watching movies

Again, foreign language exposure can be achieved through watching films in foreign languages, provided they have subtitles. When movies are watched in their original languages, individuals gain increased knowledge on ways of pronouncing certain words while other newer words are learned (Al Zoubi, 2018). In this case, such movies act as pathways through which new words are presented in actions and expressions, therefore expanding people's knowledge of them (Alaga & Palencia, 2015). Movies also motivate ELL learners making them more willing to join classes and learn foreign languages.

6.IMPORTANCE OF EXPOSURE WHEN LEARNING FOREIGN LANGUAGES

From the previous studies, it is evident that second language learning is ranked as frustrating and difficult, and most of the time, it is considered impossible by others. This is based on the fact that learning foreign languages is harder than learning native tongues (Alaga& Palencia, 2015). However, other biological factors also influence learning, and individuals in their childhood also learn things with ease than in their adulthood. Similarly, it is difficult to acquire the same language exposure levels as while individuals learn native languages.

7.THE LEARNING ENVIRONMENTS' IMPACT

Learner's language environment is significant since it influences learning foreign languages. In this case, when learners become exposed to only dialogues and classroom drills, even though students might acquire communication skills in the process, research provides that they also find it difficult to communicate with others in natural verbal environments (Al Zoubi, 2018). This further means that more should be done in learner's exposure to foreign languages to ensure they understand the right language use and when to incorporate it.

8. GENUINE LANGUAGE EXPOSURE AND ITS IMPACT

Vocabulary and grammar are ranked as important parts of writing and speaking regardless of the languages under discussion. Television shows, news comprehension, and outside world exposure are essential

for learners to grasp their target languages. Research further provides that individuals interacting in environments with people speaking similar languages lagged behind those individuals exposed more to foreign languages every day (Alaga& Palencia, 2015). Other factors, such as dwelling in nations in which the language spoken is English, increases learners' exposures out of classes. Since it is evident that most individuals make friends with persons speaking similar languages and working in organizations owned by individuals from similar countries, language exposures, in this case, minimizes, which further makes it difficult to learn and enhance foreign language proficiencies (Alaga& Palencia, 2015). Therefore, the impact of genuine exposure should not be ignored, which ensures that students are exposed even while not in classrooms. Making mistakes in grammatical structures and pronunciations should also be taken lightly; this is based on the fact that mistakes are part of learning procedures, which further make individuals stronger in mastering their foreign languages.

9.THE IMPORTANCE OF OUTSIDE-OF-CLASS COMMUNICATION ACTIVITY (OCC)

Research provides that the impact of the outside of class communication practices between instructors and learners in literature have been debated upon for a prolonged period. Research further reveals that learners engaging in such outside of class interactions with their ELL's instructors have enhanced academic performances due to the increased trust and motivational levels in their instructors

compared to others (Moeller, A. K., & Catalano, 2015). This is because such activities are linked with the instructors, non-verbal and verbal immediacy, learners' motivation, and trust, which further guarantees success. This is further supported by Nadler & Nadler (2000), in his argument that increased levels of outside of class communication are positively linked with enhanced retention, academic performance, and learner satisfaction.

Pascarella and Terenzini (1991) suggest that both informal and formal communication with learners in and outside classrooms enhances the relationship between faculties and learners. This further enables learners to seek help and share their problems and other issues with their faculties' staff, making them feel increasingly motivated and valued. Currently conducted research further proves the existence of a positive relationship between out of class communication (faculty and students) and learner's retention levels. This, therefore, raises the need for understanding and acknowledging out-of-class communication and its impact on faculties, learners, and higher educational institutions (d'Ydewalle, G., & De Bruycker, 2007). In this case, OCC helps students expand their knowledge on their educational courses, increasing their confidence, motivating them to acquire higher academic qualifications, which further helps in achieving higher academic grades. From the research, learners involved with OCC cherished their academic experiences and enjoyed staying in their educational institutes, which further made them more willing to join

ELL's sessions. Instructors involved in OCC also had increased evaluations compared to those others.

Even though OCC has many benefits, research shows that most educational institutions do not incorporate such practices. In this case, approximately 23 percent of learners from the survey revealed that they had not interacted with their instructors outside classroom sessions, which further reveals a lack of informal teaching. Similarly, 50 percent of learners revealed having fewer interactions with their instructors after class sessions, and their informal meeting lengths were shorter. Most OCC sessions also discuss course works. This shows that more should be done to ensure the student's active interactions with their teachers. This is based on the fact that when students feel taken care of and valued by their instructors, they become loyal to their institute, which has a positive impact on their performances (Aylor&Oppliger, 2003: 122-134).

In this case, instructors' attitudes influence OCC interactions, which means that when teachers use welcoming, helping, and polite attitudes, learners would be more willing to join OCC activities compared to those exposed to instructors with unwelcome and rude gestures, whether nonverbal or verbal (Moeller & Catalano, 2015). Since verbal immediacy is directly linked with learner's satisfaction and motivation of OCC activities, it is right to say that instructor's immediacy improves the learner's motivation in learning. Furthermore, learners develop individualized trust with the instructors whom they engage with in OCC activities, which further proves the

positive relationship between individualized trust and instructors' behaviors (Spada, 2006). When learners have increased trust in their instructors, they tend to engage in OCC more.

10.THE IMPORTANCE OF DIGITAL TECHNOLOGY IN LANGUAGE LEARNING

Technology is ranked as having an inseparable role in the learning and teaching environment over the years. The technological transformation plays a significant role in education institutions, particularly in the current digital world, with aids from instructors who facilitate students learning procedures (Spada, 2006). However, research still provides that there are some countries lagging behind with regard to globalization, which means that not every educational institution is provided with the required teaching materials and devices such as laptop computers, interactive whiteboards, and overhead projectors (d'Ydewalle& De Bruycker, 2007).This, therefore, challenges instructors involved in English language teaching since it becomes difficult to make classes increasingly interesting and compelling without the incorporation of digital technologies. Technology acts as a pathway through which both students and teachers can have free access to online tools and worksheets by surfing the internet. Similarly, through the internet, students can examine and control their language learning pace, after which they can incorporate supplemental teaching boards, which further aid in consolidating and revising their understanding and knowledge through internet browsing at their home.

Digital technology (applications and internet browsers) allows students and teachers to be readily available when learning in outdoor environments. Skype is a good example, which is useful in enhancing the student's oral skills and acting as a channel through which they can develop communicative skills. Taillefer & Munoz-Luna (2014) argue that digital technology enables real-time communications. Currently, technology is also ranked among the most essential drives for enhanced linguistic change. Graddol (2000) states the English language learning has changed drastically over the years following the technology incorporation in educational institutions. He states that:

“Technology lies at the heart of the globalization process; affecting education, work and culture. The use of English language has increased rapidly after 1960. At present the role and status of English is that it is the language of social context, political, sociocultural, business, education, industries, media, library, communication across borders, and key subject in curriculum and language of imparting education” (Graddol, 2004: 1329-1331).

Graddol's argument is supported by Warschauer (2000), who also holds on the notion that advanced technology is an integral part of the communities and helps in understanding the world's bigger picture rather than confining individuals to what they are taught in schools by teachers. Research provides that in European countries, 90 percent of instructors implement the use of ICT in preparing and organizing classroom sessions, which is also the case in countries beyond the EU (Chhabra, 2017). For instance, Motteram (2013) states that, in the

United States, the "national educational technology plan," has been implemented by the educational technology institute with the aim of advancing education using technology. From research, it is evident that there are positive associations between instructors' presence in sessions involving (CALL), "computer-assisted language learning" and computer training and achieving productive attitudes regarding using (ICT), "information and communication technologies" learning and teaching practices (Al Zoubi, 2018).

The use of computer technology is also useful in expanding learners learning abilities and providing learners with various language inputs valuable in real-life situations. Chong(2000) also states that incorporating the internet in English language learning is useful in making it easier for learners to meet and interact with native friends in social media platforms, aiding student-teacher communications, and enhancing learners' authentic materials [Chong & Rios, 2010]. Three factors influence digital technology use in ELL, which include the availability of technical aids and computer amenities in educational institutions, instructor's skills in using internet tools in classrooms, and teacher's interest in using the internet (Schmidt, 2012). With the increased number of individuals learning English, incorporation of digital technology to enable teachers and students to have access to television, radio, and films, among others, is useful since it increases an individual's exposure to foreign languages, making it easier for them to acquire the language more easily.

According to Ryu (2013), engaging in computer games creates various ways with which to learn English or foreign languages. Students, in this case, can understand and learn new phrases and words while playing repeatedly (Al Zoubi, 2018). Also, through MMOG's (massively multiplayer online games), language learners can acquire and speak by interacting with more fluent and foreign speakers since they mostly incorporate chat functions with their team members when discussing various gaming approaches and strategies. Such practices, therefore, result in language learning; the study conducted by (Rama & Agulló, 2012: 30-33) also emphasizes the importance of authentic communications and social relationships in language learning, for instance, audio chat.

CONCLUSION

Information provided from Friedrich Froebel and Vygotsky's argument that children should develop and grow harmoniously with their environment (nature) and the Sociocultural Theory of Learning (SCT) (1978) allowed me to expand my thoughts regarding the crucial role of the environment in language learning and acquisition (Al Zoubi, 2018). This means that when children are exposed to language, they have a better chance of reading and developing the language they are exposed to. The same case can be applied in adults learning a foreign language, which explains why most researchers agree that exposure to individuals speaking the target language and digital technology is significant and increases an individual's proficiency in not only listening and reading skills but also writing and speaking the target

languages (Twomey, Price, Waters &MacSweeney, 2020).Both outdoor and outdoor learning environments are essential for individuals learning foreign languages. For instance, when children learn in outdoor environments, play activities aid in making meaning out of social interactions with others (Al Zoubi, 2018). This further increases children's experiences range and stimulating their use of foreign languages. This is also based on the fact that reading is a sociocultural activity. When it is missing, lacking, or is nonexistent, students fail to gain reading knowledge because in order to learn how to master foreign languages.

In this case, Vygotsky and Friedrich Froebel used tactics that are not only functional but also precise in their research, which is useful in describing various ways of individual exposure to English and foreign language learning (Twomey, Price, Waters &MacSweeney, 2020).This author suggested assessment of what an individual can do with the help of a teacher or an adult rather than assessing what they can do without help. Vygotsky hypothesized that children who have achieved similar levels of conceptual development might differ in their readiness or potential to attain higher levels of understanding and that such differences can be exposed by providing structured help. This hypothesis has however been left to other scholars to explore so as to establish the implications as well as potential of the ZPD (The Zone of Proximal Development) for educational as well as psychologicalresearch. The use of sociocultural theory, for instance, provided researchers and other intellectual's knowledge to forecast

learners' abilities in grasping languages other than their native languages. Generally, the theories discussed in the paper emphasize various interventions for learners learning foreign languages and ways to achieve and enhance students' academic progress (Al Zoubi, 2018). Information from this research is also useful in contributing to the on-going debates on the best learning environments. This is due to the fact that the paper examines in-depth the relationship between outdoor and indoor learning environments, their impacts, and which technique is better in guaranteeing students incorporate correct grammatical structures and pronunciations of foreign languages.

Similarly, the impact of digital technology in language exposure cannot be ignored; it acts as a channel through which learners can interact with other people from their target languages through media platforms (Al Zoubi, 2018). Most importantly, watching films, televisions, and browsing the internet in the target language helps enhance an individual's pronunciation and speak foreign languages. The concepts of which language is exposed to students, how the target languages are taught, and how it influences individuals' language acquisition are extensively discussed in the paper (Spada, 2006). Therefore, the information acts as empowerment for instructors, learners, and educational institutions to implement the best strategies with which to teach a foreign language. Research provides that formal learning technique alone is not adequate for students learning foreign languages, which further calls for the incorporation of informal learning to supplement the information informal teaching,

which further guarantees that students develop enhanced proficiencies in foreign language acquisition (Al Zoubi, 2018).

The literature reviewed for the purpose of this study has provided rich insight into language exposure learning and its impact. The literature has provided evidence that exposure language learning is widely practised in teaching language learning though the uptake is still slow due to challenges such as inadequate time for implementing it.

However, research on whether exposure language learning leads to greater learning compared to traditional classroom language learning or not has been limited and inconsistent. Few studies have explored this issue. Most of these studies have mainly provided general observed benefits. This provides the impetus for further studies on this issue.

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CHAPTER 6
**THE DELTA METHOD AND ESTIMATING EQUATION
APPROACH FOR DETERMINING THE ASYMPTOTIC
DISTRIBUTIONS OF TEST STATISTICS**

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INTRODUCTION

The delta method and the estimating equation approach can be used to determine the asymptotic distribution of a given test statistics. The delta method is based on a Taylor expansion of the test statistic, and can be used to determine (i) the variance of the test statistic, (ii) the limiting (or asymptotic) distribution of the test statistic, and (iii) the bias correction for the expectation of the test statistic (Hoef, 2012; Oehlert, 1992). In the case of the estimating equation approach, the statistic of interest is augmented with some estimating equations in the M-estimation framework; thereby, the asymptotic variance and distribution of the test statistic is determined as a by-product of the M-estimation.

Both methods can also be used to account for the parameter uncertainty problem in the test statistics formulated with consistent estimators. The parameter uncertainty problem arises when the asymptotic distribution of a given test statistic $T(\mathbf{y}, \hat{\theta})$, where $\hat{\theta}$ is a consistent estimator of the true parameter vector θ_0 , is not the same as with that of the unfeasible version $T(\mathbf{y}, \theta_0)$ (Bontemps, 2019). There are various approaches suggested in the literature to count for the parameter uncertainty problem (Bontemps, 2019; Bontemps & Meddahi, 2005, 2012; Davidson & MacKinnon, 1984; McCracken, 2000; Newey, 1985; Neyman, 1935, 1957, 1959; Pierce, 1982; Student, 1908; Tauchen, 1985; West, 1996, 2006; West & McCracken, 1998; White, 1987; Wooldridge, 1990; Yang et al., 2007). Pierce (1982) embedded the test statistic into the maximum

likelihood (ML) estimation framework, and showed how the asymptotic variance of $T(\mathbf{y}, \hat{\theta})$ is related to the asymptotic variance of $T(\mathbf{y}, \theta_0)$ when $E(T(\mathbf{y}, \theta_0))$ is free of θ_0 . Bera et al. (2021) generalized the Pierce approach and showed how a similar result can be derived in the quasi-maximum likelihood (QML) framework for the test statistics that can be written as the average of the sample data. In both Pierce (1982) and Bera et al. (2021), the test statistics are combined with the score functions to form a vector of estimating equations. Therefore, it is possible to think that the results derived in Pierce (1982) and Bera et al. (2021) as the by-products of the estimating equation approach. This relation in turn suggests that the results in Pierce (1982) and Bera et al. (2021) can be further generalized by using the M-estimation approach suggested in Huber (1967).

In this study, we show how the estimating equation approach used in Pierce (1982) and Bera et al. (2021) is related to the simple delta method. By using the first order asymptotic results of the ML and quasi ML (QML) estimators, we show that the simple delta method can be used to obtain the same results derived in Pierce (1982) and Bera et al. (2021). As an illustration, we revisit the omnibus test statistic of normality to show how the delta method and the estimating equation approach can be used to determine its asymptotic variance and distribution under the null hypothesis of normality. In the context of the omnibus test statistic of normality, we show that it is relatively

easy to invoke the estimating equation approach for obtaining the variance of the test statistic.

The rest of this study is organized as follows. In the second section, we first give a brief review of some results in ML and QML settings and then describe how the estimating equation approach can be used to determine the asymptotic distribution of certain test statistics. In the third section, we review the delta method and show how it can be used to get the asymptotic results derived under the estimating equation approach. In this section, we also show that both approaches yield the same results as they are based on the Taylor approximation. In the fourth section, we revisit the omnibus test statistic of Jarque & Bera (1987) for testing normality and show how its variance can be derived using the estimating equation approach and the delta method. In the final section, we summarize our findings.

1. THE ESTIMATING EQUATION APPROACH

The results in Pierce (1982) and Bera et al. (2021) are respectively obtained by integrating the test statistic of interest with the score functions in the ML and QML frameworks to form a vector of estimating equations. Thus, it will be useful to give a brief review of some required results from the ML and QML frameworks. We start by describing the data generating process (DGP). Let y_1, y_2, \dots, y_n be an i.i.d random sample with distribution function $F(y, \theta_0)$ that admits a density function denoted by $f(y, \theta_0)$, where θ_0 is $p \times 1$ parameter vector. Then, the log-likelihood function generated by $F(y, \theta)$, where

θ is an arbitrary value of parameter vector in the parameter space, is defined by

$$l(\mathbf{y}, \theta) = \sum_{i=1}^n \log f(y_i, \theta), \quad (2.1)$$

where $\log f(y_i, \theta)$ is the log-density function of the i th observation. The ML estimator (MLE) is defined by $\hat{\theta} = \operatorname{argmax}_{\theta \in \Theta} l(\mathbf{y}, \theta)$, where Θ is the parameter space. Under certain assumptions⁴, we have $\hat{\theta} = \theta_0 + o_p(1)$, where θ_0 is the unique maximum of $E(\log f(y, \theta))$.

A first order Taylor expansion of $\frac{1}{n} \frac{\partial l(\mathbf{y}, \hat{\theta})}{\partial \theta}$ around θ_0 yields

$$\sqrt{n}(\hat{\theta} - \theta_0) = A^{-1}(\theta_0) \frac{1}{\sqrt{n}} \frac{\partial l(\mathbf{y}, \theta_0)}{\partial \theta} + o_p(1), \quad (2.2)$$

where $A(\theta) = \left\{ -E \left(\frac{\partial^2 \log f(y, \theta_0)}{\partial \theta_i \partial \theta_j} \right) \right\}$ is the $p \times p$ information matrix.

Thus, under the assumption of $\frac{1}{\sqrt{n}} \frac{\partial l(\mathbf{y}, \theta_0)}{\partial \theta} \stackrel{A}{\sim} N[0, A(\theta_0)]$, where $\stackrel{A}{\sim}$ denotes the asymptotic distribution, we have

$$\sqrt{n}(\hat{\theta} - \theta_0) \stackrel{A}{\sim} N[0, A^{-1}(\theta_0)]. \quad (2.3)$$

Following Huber (1967), we consider the test statistics that can be written as the sample averages of data. Specifically, we consider:

$$T(\mathbf{y}, \hat{\theta}) = \frac{1}{n} \sum_{i=1}^n \rho(y_i, \hat{\theta}), \quad (2.4)$$

⁴ For the sake of brevity, we do not state these assumptions, as they are well-know. For example, among others, see White (1982) and Newey & McFadden (1994) .

where $\rho(y_i, \theta)$ is a real valued function satisfying the assumption that $E(\rho(y, \theta_0)) = \int \rho(y, \theta_0) dF(y, \theta_0) = \bar{\rho}$ is independent of θ_0 . In addition, we need to assume that $\rho(y_i, \theta)$ satisfies similar assumption adopted for $\partial \log f(y, \theta) / \partial \theta$ in deriving (2.3) (see Assumption 5 in White (1982)). In particular, we assume that the expectation of the first order derivative of $\rho(y_i, \theta)$ is finite. To establish the distribution of test statistic, we also required that $E(|\rho(y_i, \theta)|^2) < \infty$, where $|\cdot|$ is any vector norm that is equivalent to Euclidean norm. Under these assumptions, following Huber (1967), we can define the following vector of estimating equations

$$\xi(y, \theta_0, \bar{\rho}) = \begin{pmatrix} \frac{\partial \log f(y, \theta_0)}{\partial \theta} \\ \rho(y, \theta_0) - \bar{\rho} \end{pmatrix}. \quad (2.5)$$

The gradient and the covariance of $\xi(y, \theta_0, \bar{\rho})$ are respectively given by

$$\begin{aligned} \Gamma &= E \left(\nabla_{\theta \bar{\rho}} \xi(y, \theta_0, \bar{\rho}) \right) = E \begin{pmatrix} \frac{\partial^2 \log f(y, \theta_0)}{\partial \theta \partial \theta'} & 0 \\ \frac{\partial \rho(y, \theta_0)}{\partial \theta'} & -I \end{pmatrix} \\ &= \begin{pmatrix} -A(\theta_0) & 0 \\ D(\theta_0) & -I \end{pmatrix}, \end{aligned} \quad (2.6)$$

$$\Omega = E(\xi(y, \theta_0, \bar{\rho}) \times \xi'(y, \theta_0, \bar{\rho})) = \begin{pmatrix} A(\theta_0) & P(\theta_0) \\ P'(\theta_0) & C(\theta_0) \end{pmatrix}, \quad (2.7)$$

where $D(\theta_0) = E\left(\frac{\partial \rho(y, \theta_0)}{\partial \theta'}\right)$, $P(\theta_0) = E\left(\frac{\partial \log f(y, \theta_0)}{\partial \theta} \times (\rho(y, \theta_0) - \bar{\rho})'\right)$ and $C(\theta_0) = E((\rho(y, \theta_0) - \bar{\rho}) \times (\rho(y, \theta_0) - \bar{\rho})')$. Then, an application of Huber (1967, Corollary, p.231) yields

$$\begin{pmatrix} \sqrt{n}(\hat{\theta} - \theta_0) \\ \sqrt{n}(T(\mathbf{y}, \hat{\theta}) - \bar{\rho}) \end{pmatrix} \stackrel{A}{\sim} N[0, \Gamma^{-1}\Omega\Gamma^{-1'}], \quad (2.8)$$

where

$$\Gamma^{-1}\Omega\Gamma^{-1'} = \begin{pmatrix} A^{-1}(\theta_0) & V'(\theta_0) \\ V(\theta_0) & S(\theta_0) \end{pmatrix}, \quad (2.9)$$

with

$$V(\theta_0) = D(\theta_0)A^{-1}(\theta_0) + P'(\theta_0)A^{-1}(\theta_0), \quad (2.10)$$

$$\begin{aligned} S(\theta_0) &= C(\theta_0) + D(\theta_0)A^{-1}(\theta_0)D'(\theta_0) \\ &\quad + P'(\theta_0)A^{-1}(\theta_0)D'(\theta_0) \\ &\quad + D(\theta_0)A^{-1}(\theta_0)P(\theta_0). \end{aligned} \quad (2.11)$$

We can use our assumption that $E(\rho(y, \theta_0))$ is independent of θ_0 to simplify $V(\theta_0)$ and $S(\theta_0)$. Note that

$$\frac{\partial E(\rho(y, \theta))}{\partial \theta'} \Big|_{\theta_0} = \frac{\partial}{\partial \theta'} \int \rho(y, \theta_0) dF(y, \theta_0) = 0,$$

which implies that

$$\int \frac{\partial \rho(\mathbf{y}, \theta)}{\partial \theta'} |_{\theta_0} dF(\mathbf{y}, \theta_0) + \int \sqrt{n} \rho(\mathbf{y}, \theta_0) \left(\frac{1}{\sqrt{n}} \frac{\partial \log f(\mathbf{y}, \theta)}{\partial \theta} |_{\theta_0} \right)' dF(\mathbf{y}, \theta_0) = 0.$$

Since $E \left(\frac{\partial \log f(\mathbf{y}, \theta)}{\partial \theta} |_{\theta_0} \right) = 0$, the preceding display can be expressed as

$$\int \frac{\partial \rho(\mathbf{y}, \theta)}{\partial \theta'} |_{\theta_0} dF(\mathbf{y}, \theta_0) + \int \sqrt{n} (\rho(\mathbf{y}, \theta_0) - \bar{\rho}) \left(\frac{1}{\sqrt{n}} \frac{\partial \log f(\mathbf{y}, \theta)}{\partial \theta} |_{\theta_0} \right)' dF(\mathbf{y}, \theta_0) = 0,$$

which implies the following type of information matrix equality (Neyman, 1959, p.217, Eq. 12)

$$P'(\theta_0) = -D(\theta_0). \quad (2.12)$$

Note that this information matrix type equality can alternatively be derived from $V(\theta_0) = 0$, since the MLE $\hat{\theta}$ is an efficient estimator (Rao, 1973, Section 5a.2). Using (2.12) in (2.10) and (2.11) for $V(\theta_0)$ and $S(\theta_0)$, respectively, yields the following desired results.

$$\begin{aligned} & \begin{pmatrix} \sqrt{n}(\hat{\theta} - \theta_0) \\ \sqrt{n}(T(\mathbf{y}, \hat{\theta}) - \bar{\rho}) \end{pmatrix} \\ & \stackrel{A}{\sim} N \left[0, \begin{pmatrix} A^{-1}(\theta_0) & 0 \\ 0 & C(\theta_0) - D(\theta_0)A^{-1}(\theta_0)D'(\theta_0) \end{pmatrix} \right]. \end{aligned} \quad (2.13)$$

The result in (2.13) shows that the asymptotic variance of $\sqrt{n}(T(\mathbf{y}, \hat{\theta}) - \bar{\rho})$ is $C(\theta_0) - D(\theta_0)A^{-1}(\theta_0)D'(\theta_0)$, which is the result

derived in Pierce (1982). This result shows how the asymptotic variance of $\sqrt{n}(T(\mathbf{y}, \hat{\theta}) - \bar{\rho})$ is related to $\sqrt{n}(T(\mathbf{y}, \theta_0) - \bar{\rho})$.

In the QML framework, the true distribution of data is assumed to be G that admits the density function g . Since G is unknown, we still formulate the estimator based on the log-likelihood function generated by $F(\mathbf{y}, \theta)$. In this case, the model is correctly specified if $g(\mathbf{y}) = f(\mathbf{y}, \theta_0)$ for some θ_0 in the parameter space; otherwise, it has a distributional misspecification (White, 1982). The estimator defined by $\hat{\theta} = \operatorname{argmax}_{\theta \in \Theta} l(\mathbf{y}, \theta)$ is now called the QML estimator (QMLE) and it is a consistent estimator of a parameter θ_* that minimizes the discrepancy between f and g (White, 1982). Under the assumption of $\frac{1}{\sqrt{n}} \frac{\partial l(\mathbf{y}, \theta_*)}{\partial \theta} \stackrel{A}{\sim} N[0, B(\theta_*)]$, where $B(\theta) = \left\{ E \left(\frac{\partial \log f(\mathbf{y}, \theta)}{\partial \theta_i} \cdot \frac{\partial \log f(\mathbf{y}, \theta)}{\partial \theta_j} \right) \right\}$ is the $p \times p$ outer-product matrix, the QML version of (2.2) takes the following form.

$$\sqrt{n}(\hat{\theta} - \theta_*) \stackrel{A}{\sim} N[0, A^{-1}(\theta_*)B(\theta_*)A^{-1}(\theta_*)]. \quad (2.14)$$

In the QML setting, the vector of estimating equations can be expressed as

$$\xi(\mathbf{y}, \theta_*, \bar{\rho}_*) = \begin{pmatrix} \frac{\partial \log f(\mathbf{y}, \theta_*)}{\partial \theta} \\ \rho(\mathbf{y}, \theta_*) - \bar{\rho}_* \end{pmatrix}. \quad (2.15)$$

As in the ML case, we assume that our test indicator function satisfies the mean condition that $E(\rho(y, \theta_*)) = \int \rho(y, \theta_*) dG(y) = \bar{\rho}_*$ is independent of θ_* . The gradient and covariance of $\xi(y, \theta_*, \bar{\rho}_*)$ are respectively given by

$$\Gamma_* = E \left(\nabla_{\theta \bar{\rho}} \xi(y, \theta_*, \bar{\rho}_*) \right) = \begin{pmatrix} -A(\theta_*) & 0 \\ D(\theta_*) & -I \end{pmatrix}, \quad (2.16)$$

$$\begin{aligned} \Omega_* &= E \left(\xi(y, \theta_*, \bar{\rho}_*) \times \xi'(y, \theta_*, \bar{\rho}_*) \right) \\ &= \begin{pmatrix} B(\theta_*) & P(\theta_*) \\ P'(\theta_*) & C(\theta_*) \end{pmatrix}, \end{aligned} \quad (2.17)$$

where $D(\theta_*) = E \left(\frac{\partial \rho(y, \theta_*)}{\partial \theta'} \right)$, $P(\theta_*) = E \left(\frac{\partial \log f(y, \theta_*)}{\partial \theta} \times (\rho(y, \theta_*) - \bar{\rho}_*)' \right)$ and $C(\theta_*) = E \left((\rho(y, \theta_*) - \bar{\rho}_*) \times (\rho(y, \theta_*) - \bar{\rho}_*)' \right)$. Then, the analogous result to (2.8) can be derived as

$$\begin{aligned} &\begin{pmatrix} \sqrt{n}(\hat{\theta} - \theta_*) \\ \sqrt{n}(T(\mathbf{y}, \hat{\theta}) - \rho_*) \end{pmatrix} \\ &\stackrel{A}{\sim} N \left[0, \begin{pmatrix} A^{-1}(\theta_*)B(\theta_*)A^{-1}(\theta_*) & V'(\theta_*) \\ V(\theta_*) & S(\theta_*) \end{pmatrix} \right], \end{aligned} \quad (2.18)$$

$$V(\theta_*) = D(\theta_*)A^{-1}(\theta_*)B(\theta_*)A^{-1}(\theta_*) + P'(\theta_*)A^{-1}(\theta_*), \quad (2.19)$$

$$\begin{aligned} S(\theta_*) &= C(\theta_*) + D(\theta_*)A^{-1}(\theta_*)B(\theta_*)A^{-1}(\theta_*)D'(\theta_*) \\ &\quad + P'(\theta_*)A^{-1}(\theta_*)D'(\theta_*) \\ &\quad + D(\theta_*)A^{-1}(\theta_*)P(\theta_*). \end{aligned} \quad (2.20)$$

Here, the simplification in the asymptotic variance in (2.20) is not possible since there is no θ_0 such that $g(y) = f(y, \theta_0)$ in the QML framework. That is, there is no version of the information matrix type equality given in (2.12).

2. THE DELTA METHOD

In this section, we give a brief review of the delta method and then show how it is related to the estimating equation approach. First, we consider the method for a general problem, then consider for our test statistic in (2.4). Let $\Phi(\theta)$ be a bounded map defined on a subset of \mathbb{R}^p and differentiable at θ_0 . Then, a first order Taylor expansion of $\Phi(\hat{\theta})$ around θ_0 can be expressed as (for a formal approach see van der Vaart (1998))

$$\Phi(\hat{\theta}) = \Phi(\theta_0) + \frac{\partial\Phi(\theta)}{\partial\theta'} \Big|_{\theta_0} \times (\hat{\theta} - \theta_0) + o_p(|\hat{\theta} - \theta_0|). \quad (3.1)$$

Assume that $r_n(\hat{\theta} - \theta_0) \overset{A}{\sim} \Psi$ for numbers $r_n \rightarrow \infty$ and a random variable Ψ . From (3.1), we obtain the result designated as the delta method as

$$r_n(\Phi(\hat{\theta}) - \Phi(\theta_0)) \overset{A}{\sim} \frac{\partial\Phi(\theta)}{\partial\theta'} \Big|_{\theta_0} \times \Psi. \quad (3.2)$$

In particular, if $\sqrt{n}(\hat{\theta} - \theta_0)$ converges to a multivariate normal distribution with mean μ and covariance Σ , then the delta method delivers

$$\begin{aligned} \sqrt{n}(\Phi(\hat{\theta}) - \Phi(\theta_0)) &\overset{A}{\sim} N\left(\frac{\partial\Phi(\theta)}{\partial\theta'}\Big|_{\theta_0} \times \mu, \frac{\partial\Phi(\theta)}{\partial\theta'}\Big|_{\theta_0} \times \Sigma \right. \\ &\left. \times \frac{\partial\Phi'(\theta)}{\partial\theta}\Big|_{\theta_0}\right). \end{aligned} \quad (3.3)$$

It is clear that the only ingredient for the delta method is the Taylor expansion in (3.1). For our test statistic in (2.4), this expansion takes the following form in the ML framework.

$$\sqrt{n}T(\mathbf{y}, \hat{\theta}) = \sqrt{n}T(\mathbf{y}, \theta_0) + D(\theta_0)\sqrt{n}(\hat{\theta} - \theta_0) + o_p(1), \quad (3.4)$$

which implies the following asymptotic variance formula

$$\begin{aligned} \text{Var}(\sqrt{n}T(\mathbf{y}, \hat{\theta})) &= C(\theta_0) + D(\theta_0)A^{-1}(\theta_0)D'(\theta_0) \\ &+ M(\theta_0)D'(\theta_0) + D(\theta_0)M'(\theta_0). \end{aligned} \quad (3.5)$$

where $M(\theta_0) = \text{Cov}(\sqrt{n}T(\mathbf{y}, \theta_0), \sqrt{n}(\hat{\theta} - \theta_0))$. Since from (2.3), $A^{-1}(\theta_0)\frac{1}{\sqrt{n}}\frac{\partial l(\mathbf{y}, \theta_0)}{\partial\theta}$ is asymptotically equivalent to $\sqrt{n}(\hat{\theta} - \theta_0)$, we have

$$\begin{aligned} M(\theta_0) &= \text{Cov}(\sqrt{n}T(\mathbf{y}, \theta_0), \sqrt{n}(\hat{\theta} - \theta_0)) \\ &\approx \text{Cov}\left(\sqrt{n}T(\mathbf{y}, \theta_0), A^{-1}(\theta_0)\frac{1}{\sqrt{n}}\frac{\partial l(\mathbf{y}, \theta_0)}{\partial\theta}\right) \\ &= \text{Cov}\left(\rho(\mathbf{y}, \theta_0), \frac{\partial \log f(\mathbf{y}, \theta_0)}{\partial\theta}\right) \times A^{-1}(\theta_0) \\ &= P'(\theta_0)A^{-1}(\theta_0) = -D(\theta_0)A^{-1}(\theta_0), \end{aligned} \quad (3.6)$$

where the last equality follows from (2.12). Substituting (3.6) into (3.5) yields the same asymptotic variance formula that we derived in (2.13) under the estimating equation approach:

$$\text{Var}(\sqrt{n}T(\mathbf{y}, \hat{\theta})) = C(\theta_0) - D(\theta_0)A^{-1}(\theta_0)D'(\theta_0). \quad (3.7)$$

Next, we investigate the asymptotic variance formula in the QML setting. The analogous version of (3.5) in the QML setting is the following asymptotic variance formula:

$$\begin{aligned} \text{Var}(\sqrt{n}T(\mathbf{y}, \hat{\theta})) \\ = C(\theta_*) + D(\theta_*)A^{-1}(\theta_*)B(\theta_*)A^{-1}(\theta_*)D'(\theta_*) \\ + M(\theta_*)D'(\theta_*) + D(\theta_*)M'(\theta_*), \end{aligned} \quad (3.8)$$

where $M(\theta_*) = \text{Cov}(\sqrt{n}T(\mathbf{y}, \theta_*), \sqrt{n}(\hat{\theta} - \theta_*))$. Using the QML version of (2.2), we have

$$\begin{aligned} M(\theta_*) &= \text{Cov}(\sqrt{n}T(\mathbf{y}, \theta_*), \sqrt{n}(\hat{\theta} - \theta_*)) \\ &\approx \text{Cov}\left(\sqrt{n}T(\mathbf{y}, \theta_*), A^{-1}(\theta_*)\frac{1}{\sqrt{n}}\frac{\partial l(\mathbf{y}, \theta_*)}{\partial \theta}\right) \\ &= \text{Cov}\left(\rho(\mathbf{y}, \theta_*), \frac{\partial \log f(\vec{y}, \theta_*)}{\partial \theta}\right) \times A^{-1}(\theta_*) \\ &= P'(\theta_*)A^{-1}(\theta_*). \end{aligned} \quad (3.9)$$

Substituting (3.9) into (3.8) yields

$$\begin{aligned} \text{Var}(\sqrt{n}T(\mathbf{y}, \hat{\theta})) \\ = C(\theta_*) + D(\theta_*)A^{-1}(\theta_*)B(\theta_*)A^{-1}(\theta_*)D'(\theta_*) \\ + P'(\theta_*)A^{-1}(\theta_*)D'(\theta_*) \\ + D(\theta_*)A^{-1}(\theta_*)P(\theta_*), \end{aligned} \quad (3.10)$$

which is the same result stated in (2.20). In both (3.6) and (3.9), it is important to note that we use the first order asymptotic result of $\hat{\theta}$ to show that both methods yield the identical results.

By the proceeding results in (3.7) and (3.10), we show that the simple delta method based on the first order Taylor expansions delivers the same results that we derived based on the vector of estimating equations in the M-estimation framework of Huber (1967). These results are not surprising since the limiting distribution in the M-estimation approach itself is based on the first order Taylor expansion (Huber, 1967; van der Vaart, 1998). A first order Taylor expansion of $\frac{1}{n} \sum_{i=1}^n \xi(y_i, \hat{\theta}, \hat{\rho})$ around $(\theta_0', \bar{\rho}')'$ yields

$$\begin{pmatrix} \sqrt{n}(\hat{\theta} - \theta_0) \\ \sqrt{n}(T(\mathbf{y}, \hat{\theta}) - \bar{\rho}) \end{pmatrix} = -\Gamma^{-1} \frac{1}{\sqrt{n}} \sum_{i=1}^n \xi(y_i, \theta_0, \bar{\rho}) + o_p(1). \quad (3.11)$$

Under the assumption that $\frac{1}{\sqrt{n}} \sum_{i=1}^n \xi(y_i, \theta_0, \bar{\rho}) \stackrel{A}{\sim} N[0, \Omega]$, (3.11) yields our main result in (2.8). Thus, it is clear that the estimating equation approach simplifies the mechanic of the delta method in the ML and QML frameworks. For some illustrations on the breadth and generality of estimating equation approach, see Stefanski & Boos (2002).

3. AN APPLICATION

In the preceding section, although we show that the delta method and the estimating equation approach deliver the same results, it can be more convenient to use our result in (2.8) based on the estimating equation approach in certain settings. We use the omnibus test statistic for testing the normality to illustrate this point in this section.

Following Jarque & Bera (1987), we consider the following data generating process

$$y_i = \mu_0 + \epsilon_i, \quad i = 1, \dots, n, \quad (4.1)$$

where μ_0 is the unknown mean of y_i , and ϵ_i 's i.i.d normal random variables that have zero mean and variance σ_0^2 . Let $\theta_0 = (\mu_0, \sigma_0^2)'$ be the true parameter vector. The log-likelihood of an observation can be expressed as

$$\ln l(y_i, \theta) = -\frac{1}{2} \ln 2\pi - \frac{1}{2} \ln \sigma^2 - \frac{1}{2\sigma^2} \epsilon_i^2(\theta), \quad (4.2)$$

where $\epsilon_i(\theta) = y_i - \mu$. The first and the second order derivatives are

$$\begin{aligned} \frac{\partial l(y_i, \theta)}{\partial \mu} &= \frac{1}{\sigma^2} \epsilon_i(\theta), & \frac{\partial l(y_i, \theta)}{\partial \sigma^2} &= -\frac{1}{2\sigma^2} + \frac{1}{2\sigma^4} \epsilon_i^2(\theta), \\ \frac{\partial^2 l(y_i, \theta)}{\partial \mu^2} &= -\frac{1}{\sigma^2}, & \frac{\partial^2 l(y_i, \theta)}{\partial \mu \partial \sigma^2} &= -\frac{1}{\sigma^4} \epsilon_i(\theta), \\ \frac{\partial^2 l(y_i, \theta)}{\partial \sigma^2 \partial \sigma^2} &= \frac{1}{2\sigma^4} - \frac{1}{\sigma^6} \epsilon_i^2(\theta). \end{aligned} \quad (4.3)$$

Using the second order derivatives, we can obtain

$$A(\theta_0) = \begin{pmatrix} 1/\sigma_0^2 & 0 \\ 0 & 1/2\sigma_0^4 \end{pmatrix}. \quad (4.4)$$

The MLE $\hat{\theta}$ is defined by $\hat{\theta} = \operatorname{argmax}_{\theta \in \Theta} \sum_{i=1}^n \ln l(y_i, \theta)$. Based on $\hat{\theta}$, we use both skewness and kurtosis statistics to formulate the following test statistic:

$$T(\mathbf{y}, \hat{\theta}) = \frac{1}{n} \sum_{i=1}^n \rho(y_i, \hat{\theta}), \quad \text{where} \quad \rho(y_i, \hat{\theta}) = \begin{pmatrix} \hat{\epsilon}_i^3 / \hat{\sigma}^3 \\ \hat{\epsilon}_i^4 / \hat{\sigma}^4 - 3 \end{pmatrix}. \quad (4.5)$$

Our goal is to determine the asymptotic variance of this statistic under the null hypothesis that the disturbance terms have a normal distribution. Under the normality of disturbance terms, the asymptotic variance of the unfeasible version $\sqrt{n}T(\mathbf{y}, \theta_0)$ can be derived as

$$\begin{aligned} C(\theta_0) &= E(\rho(y_i, \theta_0)\rho'(y_i, \theta_0)) \\ &= E \begin{pmatrix} \epsilon_i^6 / \sigma_0^6 & \epsilon_i^7 / \sigma_0^7 - 3\epsilon_i^3 / \sigma_0^3 \\ \epsilon_i^7 / \sigma_0^7 - 3\epsilon_i^3 / \sigma_0^3 & \epsilon_i^8 / \sigma_0^8 - 6\epsilon_i^4 / \sigma_0^4 + 9 \end{pmatrix} \\ &= \begin{pmatrix} 15 & 0 \\ 0 & 96 \end{pmatrix}. \end{aligned} \quad (4.6)$$

Simple calculations gives

$$D(\theta_0) = E \left(\frac{\partial \rho(y_i, \theta)}{\partial \theta'} \Big|_{\theta_0} \right) = \begin{pmatrix} -\frac{3}{\sigma_0} & 0 \\ 0 & -\frac{6}{\sigma_0^2} \end{pmatrix}. \quad (4.7)$$

Then, using (2.12), the asymptotic variance of $\sqrt{n}T(\mathbf{y}, \hat{\theta})$ is

$$\text{Var}(\sqrt{n}T(\mathbf{y}, \hat{\theta})) = C(\theta_0) - D(\theta_0)A^{-1}(\theta_0)D'(\theta_0) = \begin{pmatrix} 6 & 0 \\ 0 & 24 \end{pmatrix}. \quad (4.8)$$

Then, the omnibus test statistic derived in Jarque & Bera (1987) can be stated as

$$\begin{aligned} JB &= n T'(\mathbf{y}, \hat{\theta}) [\text{Var}(\sqrt{n}T(\mathbf{y}, \hat{\theta}))]^{-1} T(\mathbf{y}, \hat{\theta}) \\ &= \frac{n}{6} \left[\frac{1}{n} \sum_{i=1}^n \hat{\epsilon}_i^3 / \hat{\sigma}^3 \right]^2 + \frac{n}{24} \left[\frac{1}{n} \sum_{i=1}^n \hat{\epsilon}_i^4 / \hat{\sigma}^4 - 3 \right]^2, \end{aligned} \quad (4.9)$$

which has a chi-square distribution with two degrees of freedom under the null hypothesis that the disturbance terms have a normal distribution.

The same result can alternatively be derived under the delta method without using the ML estimation framework. Let $\overline{y^k} = 1/n \sum_{i=1}^n y_i^k$ for $k = 1, 2, 3, 4,$ and $\mu_j = E(y_i - \mu_0)^j$ for $j = 1, \dots, 8$. Define $\lambda = \mu_3/\sigma_0^3$ and $\kappa = \mu_4/\sigma_0^4 - 3$. Then, our test statistic in (4.5) can alternatively be written in the following general form.

$$T(\overline{y}, \overline{y^2}, \overline{y^3}, \overline{y^4}) = \frac{1}{n} \sum_{i=1}^n \left(\begin{array}{c} (y_i - \overline{y})^3 / \left(\frac{1}{n} \sum_{i=1}^n (y_i - \overline{y})^2 \right)^{3/2} \\ (y_i - \overline{y})^4 / \left(\frac{1}{n} \sum_{i=1}^n (y_i - \overline{y})^2 \right)^2 - (\kappa + 3) \end{array} \right), \quad (4.10)$$

which can be compactly expressed as

$$T(a, b, c, d) = \left(\begin{array}{c} \frac{(c - 3ab + 2a^3)}{(b - a^2)^{3/2}} \\ \frac{(d - 4ca + 6ba^2 - 3a^4)}{(b - a^2)^2} - (\kappa + 3) \end{array} \right), \quad (4.11)$$

where $a = \overline{y}$, $b = \overline{y^2}$, $c = \overline{y^3}$ and $d = \overline{y^4}$. Since the skewness and kurtosis statistics are location and scale invariant, we can state the test statistic in terms of the normalized values $z_i = (y_i - \mu_0)/\sigma_0$ for $i = 1, \dots, n$. Then, our test statistic is in

the form of $T(\bar{z}, \bar{z}^2, \bar{z}^3, \bar{z}^4)$. Under the assumption that $E(y^8)$ is finite, we can use the Lindeberg-Levy central limit theorem to show that

$$\begin{pmatrix} \sqrt{n}\bar{z} \\ \sqrt{n}(\bar{z}^2 - 1) \\ \sqrt{n}(\bar{z}^3 - \lambda) \\ \sqrt{n}(\bar{z}^4 - \kappa - 3) \end{pmatrix} \quad (4.12)$$

$$\stackrel{A}{\sim} N \left[0, \begin{pmatrix} 1 & \lambda & \kappa + 3 & \mu_5/\sigma_0^5 \\ \lambda & \kappa + 2 & \mu_5/\sigma_0^5 - \lambda & \mu_6/\sigma_0^6 - (\kappa + 3) \\ \kappa + 3 & \mu_5/\sigma_0^5 - \lambda & \mu_6/\sigma_0^6 - \lambda^2 & \mu_7/\sigma_0^7 - \lambda(\kappa + 3) \\ \mu_5/\sigma_0^5 & \mu_6/\sigma_0^6 - (\kappa + 3) & \mu_7/\sigma_0^7 - \lambda(\kappa + 3) & \mu_8/\sigma_0^8 - (\kappa + 3)^2 \end{pmatrix} \right].$$

In this setting, our parameter vector is $\theta = (a, b, c, d)'$, and its true value is $\theta_0 = (0, 1, \lambda, (\kappa + 3))'$. In order to apply (3.2) or (3.3), we need to compute $\frac{\partial T(a, b, c, d)}{\partial \theta'} \Big|_{\theta_0}$. After some tedious algebra, it can be shown that

$$\frac{\partial T(a, b, c, d)}{\partial \theta'} \Big|_{\theta_0} = \begin{pmatrix} -3 & -3\lambda/2 & 1 & 0 \\ -4\lambda & -2(\kappa + 3) & 0 & 1 \end{pmatrix}. \quad (4.13)$$

Assume that the random vector $Z = (Z_1, Z_2, Z_3, Z_4)'$ possesses the normal distribution displayed in (4.12). Then, the delta method in (3.2) gives

$$\begin{aligned} \sqrt{n}T(\bar{y}, \bar{y}^2, \bar{y}^3, \bar{y}^4) &\stackrel{A}{\sim} \frac{\partial T(a, b, c, d)}{\partial \theta'} \Big|_{\theta_0} \times Z \\ &= \begin{pmatrix} -3Z_1 - \frac{3\lambda}{2}Z_2 + Z_3 \\ -4\lambda Z_1 - 2(\kappa + 3)Z_2 + Z_4 \end{pmatrix}. \end{aligned} \quad (4.14)$$

Under the null hypothesis of normal distribution, we have $\lambda = 0$ and $\kappa = 0$, thus, (4.14) gives

$$\sqrt{n}T(\bar{y}, \bar{y}^2, \bar{y}^3, \bar{y}^4) \stackrel{A}{\sim} \begin{pmatrix} -3Z_1 + Z_3 \\ -6Z_2 + Z_4 \end{pmatrix}. \quad (4.15)$$

Using (4.12) under the null hypothesis of normal distribution, we obtain

$$\text{Var}\left(\sqrt{n}T(\bar{y}, \bar{y}^2, \bar{y}^3, \bar{y}^4)\right) = \text{Var}\left(\begin{pmatrix} -3Z_1 + Z_3 \\ -6Z_2 + Z_4 \end{pmatrix}\right) = \begin{pmatrix} 6 & 0 \\ 0 & 24 \end{pmatrix}, \quad (4.16)$$

which is the same result derived in (4.8) under the estimating equation approach.

CONCLUSION

In this study, we showed how the estimating equation approach and the delta method can be used to determine the asymptotic variance and distribution of test statistics that can be written as the average of sample data. We showed that both methods yield the same results as they are based on the first order Taylor approximations. We showed how the distribution of the omnibus test statistic for the null hypothesis of normal distribution can be alternatively determined under both approaches. In the ML and QML frameworks, it is

relatively easier to apply the estimating equation approach as we illustrated for the normality test statistic. Although the delta method presents the mechanics of Taylor expansion in a relatively transparent way, it may not be convenient to invoke the method for certain type of statistics.

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CHAPTER 7

**IN THE GALES OF A MAN'S WORLD: PROBLEMS OF
WOMAN SEAFARERS CONFRONT ON BOARD**

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INTRODUCTION

This study is based on hardships of being a woman employed on board Turkish Merchant Fleet focusing on their experiences on board. The study mainly covers some aspects mostly discrimination issues relating to being a woman on board in particular related to the working and living conditions and employment rights.

It is intended to focus on exposure to sexual harassment, inequivalent working conditions on board together with interviews and questionnaire's results about experiences of women seafarers also covering education period. The survey is conducted for the Turkish Merchant Fleet.

Some solutions and proposal are produced based on the field study and result of this survey.

a. A male-dominated sector

The maritime sector traditional and male-dominated and there is no exception to this trend, in the near future. In the twentieth century, particularly since the 1970s, more women have started to participate in labour markets of maritime sector that dominated by men for centuries. As a result of this situation the shipping industry became increasingly aware of women as a potential source of labour.

The number of women seafarers has increased in the world and also in Turkey. As a result of this research more women are becoming valuable members of ship's crew nowadays. In support of that some of

the institutionalized company perspectives development show in a positive way.

Although the number of women seafarers is increasing, the problems that women confront on board aren't defined in Turkey yet, even women do not face and report their problem because of our culture's taboos which accuses woman when a problem occurred because of gender.

However, the problems are not clearly defined, according to some researches "mobbing, sexual harassment, gender discrimination" in various ways are more common than expected. There is another case; if a woman seafarer reports her problem the way that would be followed by the authorization is undetermined and to be left to discretion of the superiors.

There is a cultural problem (may be called as a common attitude) throughout the world also in Turkey; "Women cannot be seafarer!" or "Women can do this job like a man!" It is strongly believed that this kind of thoughts could be changed with the scientific studies.

Although there are many cultural barriers, at the present day, women are proving they can achieve seafaring jobs at all level against all the obstacles. Consequently, woman seafarers' problems may be solved in conjunction with male colleagues in the maritime sector if they accept women as equal individuals and employers who deployed on board.

b. Woman Seafarers

Women have been on board since 14. century in different positions with various purposes although being confronted with tabboos. It could be reasonable because it was difficult to work onboard due to low quality of life standards and hard working conditions.

End of the year 1800, the first woman officer was in the United States Navy. Women started working on board as an enterprise in the beginning of the 1900s on a passenger ship as the nurse, caring for children, has been with tasks such as laundry, we know as “social gender based roles”.

The women workers at sea are still too rare in the world. The percentage of woman seafarers is estimated only 2 %in the world by ITF. Female seafarers work generally in the cruise and ferries sector. The women are confronting prejudice and but becoming valuable members of ships' crew.

ITF (2017) reports that women are deployed among the worst paid and least protected of jobs at sea. Women also tend to be younger, and fewer are officers than their male crew mates. Their low number means that women can be subject to discrimination and harassment. The maritime unions are alert to these dangers and strive to protect the interests of women members – who now number about 23,000 worldwide.

Women can face discrimination even getting into seafaring work. In some countries, for example, maritime education and training institutions are not allowed to recruit women to nautical courses. Women tend to enrol on navigation rather than engineering courses. Even once trained, they may have to face prejudice from ship owners who won't employ women.

Once employed, women seafarers may also face lower pay even though they are doing work equivalent to that of male colleagues. Women may also be denied the facilities or equipment available to male workers, which are a form of discrimination (ITF, 2017).

On average, according to an ILO Report from 2001, women accounted for about 7.6 per cent of the total seafaring labour force in EU ships; Swedish women seafarers (3,518) outnumber those from the other countries, with Danish women (1,478) and British women (1,463) following closely behind. Swedish women also outnumber other countries in terms of their percentage of the national total of seafarers. The proportion of women seafarers in Belgium (4.4 per cent), Germany (5.3 per cent), and the United Kingdom (4.7 per cent) are low (Dragomir et al, 2016).

The highest employment rate for woman seafarers is in the United Kingdom; 7 percent of the officers and 21 per cent of the ratings are female. Deck and engine UK ratings in 2013 had a similar split to deck and engine UK officers. Men accounted for 99 per cent of deck ratings and nearly 100 per cent of engine ratings. The catering/other

category of UK ratings had the highest proportion of women at 36 per cent (Department for Transport, 2014).

According to data from the year 2018, Turkey ranked the fifteenth in the world maritime, 8,034 under national flag (633 ships) under other flags 19 207 Million DWT (889 ships); total 27, 241 Million DWT and 1522 ships (UNCTAD, 2018).

Although e-Maritime Database of Ministry of Transportation, Maritime Affairs and Communications (MoTMAC) of Turkey (e-Maritime Database, 2013) the number of women seafarers is 2245. In according to last information provided 3500 women seafarers are registered in Turkey (Aşkın, 2016) When a study carried out by Yılmaz et al (2016), the total number of seafarers registered in Turkish Seafarers' Registry is 178,134 and 2246 of them are female seafarers. 45677 of them are the officers and 132,457 of them are ratings. However, the numbers of active employees are 36,254 as officers and 83,316 as ratings. In according to data provided by Ministry of Transportation, Maritime Affairs and Communications of Turkey, the number of the unlimited officers is 12,493 (8364 Deck- 4129 Marine Engineer), and limited officers 10,669 (5898 Deck- 4771Marine Engineer), total 23,162 as of January 2018. There is a conspicuous change between these new figures (23,162) and previous figures (36,254).

1. RESEARCH METHOD

The aim of this study is to define hardships of being a woman employed on board Turkish Merchant Fleet focusing on their experiences on board. The study mainly covers some aspects mostly discrimination issues relating to being a woman on board in particular related to the working and living conditions and employment rights. The main research problem will be to define the major problem areas with some proposal under the changing status and conditions of woman seafarers.

The study commences with the literature review which is based on broad range of empirical research made earlier. Then continues summary of new improvements on deployment of females on board in the developed countries it is intended to make an evaluation on the impacts of the changing minds maritime sector. The study is supported by interviews made with woman seafarers in the maritime sector and, a survey applied to the female seafarers in Turkey. As a result of this evaluation based on results of interviews and survey some proposal are to be introduced to all related parties of maritime sector.

2. RESEARCH

a. General

After 1960s a revolution of women in the attitude and perspective is observed. This led them to work together with men as well as the technology has provided positive developments in working conditions

to enable women to work in difficult jobs which has been considered as men's work. The shorten voyage times; construction of seaworthy ships, improved living conditions and increased earnings at sea is facilitated working of women at sea. Various plans and programmes of international organizations supporting human rights in recent years allowed women to work many other work sectors in particular IMO's efforts for woman seafarer eased their participation in the maritime sector.

b. Legal Aspects:

Major international instruments to protect woman rights are introduced below.

Universal Declaration of Human Rights (1948), (UDHR):

The preamble to the Universal Declaration of Human Rights states that “recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world.”

Article 1 of the Universal Declaration proclaims that “all human beings are born free and equal in dignity and rights”.

Article 2: “everyone is entitled to all the rights and freedoms set forth in this Declaration without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status. Furthermore, no distinction shall be made based on the political, jurisdictional or international status of the country or territory to which a person

belongs, whether it be independent, trust, non-self-governing or under any other limitation of sovereignty.”

Article 7: “all are equal before the law and are entitled without any discrimination to equal protection of the law. All are entitled to equal protection against any discrimination in violation of this Declaration and against any incitement to such discrimination.”

International Covenant on Economic, Social and Cultural Rights (1966), (ICESCR):

Article 2(2): the parties undertake “to guarantee that the rights enunciated in the present Covenant will be exercised without discrimination of any kind as to race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status”.

Article 3 “to ensure the equal right of men and women to the enjoyment of all economic, social and cultural rights set forth in the present Covenant”.

Convention on the Elimination of all Forms of Discrimination against Women (1979), (CEDAW)

Article 1: Convention defines discrimination against women as “any distinction, exclusion or restriction made on the basis of sex which has the effect or purpose of impairing or nullifying the recognition, enjoyment or exercise by women, irrespective of their marital status, on a basis of equality of men and women, of human rights and

fundamental freedoms in the political, economic, social, cultural, civil or any other field”.

CEDAW meant that women’s rights were expressly placed in the ambit of international human rights, but the rights of women were still ignored by the mainstream human rights mechanisms. One problem after CEDAW is that the monitoring bodies of the other human rights treaties do not solve violations of women’s rights and leave these issues up to the specialised CEDAW Committee to deal with and the adoption of the CEDAW has therefore led to the marginalisation of human rights of women. So, the criticism is that the mainstream human rights instruments do not pay attention to women’s rights (Van Leeuwen, 2009).

The European Court of Human Rights consider article 14 is violated “when States treat differently persons in analogous situations without providing an objective and reasonable justification”, it now also considers “that this is not the only facet of the prohibition of discrimination in Article 14” and that “the right not to be discriminated against in the enjoyment of the rights guaranteed under the Convention is also violated when States without objective and reasonable justification fail to treat differently persons whose situations are significantly different” (European Court of Human Rights, 2000).

Maritime Labor Convention (MLC 2006) covers approximately all aspects to stop or refrain all types of discrimination and convention is very keen on gender discrimination.

If we make a general assessment on current the legal status of women, the legislative tools and process for women seafers are prepared to a positive environment them. But still there are strong barriers for them on application of these rules and regulations.

c. Major Problem Areas

The general issues affecting all working women can be considered within the scope of the work permit in marriage and maternity, sexual assault, sexual harassment, discrimination, career development.

Turkey under this title, civil and criminal law in the context of changes in terms of legal breakthrough was made, in practice the development of social structure and current blocking ideas to make generalizations because of the level of success in right to development from a legal angle to create an environment that allows.

Under the terms of the Turkish Penal Code, in case of sexual harassment “up to 3 years imprisonment for the punishment and compensation” is advised. But it is not easy to procure such a court order and takes a long period to have it.

There is no reference to gender discrimination in the Turkish Commercial Law (Maritime Trade section) which also regulates shipping activities, Law for the Mission of and Organization of the Ministry of Transportation, Maritime Affairs and Communications (Presidential Decree No: 655) and Seafarers Regulations.

A study made in the Turkish Maritime Education Centre to understand the problem areas related to Woman sefarers. The research subject

was “What are the factors that may interfere women's work at sea?” 85% of the responds on the question was covering "physical deficiency" and 7% "family responsibility". According to the researches “the difference between power of the man and women is only %20, so “physical deficiency of woman” should not be accepted as a valuable fact but just an opinion.

In fact, the job at sea is not an exactly suitable profession for "we do a career and children" needs to be worked on. In this context, women seafarers should make career plans at the beginning of the profession, considering transition between land and sea to enable them to adjust their time at sea and change of their social life.

In 2006, Maritime Labour Convention has been come to be in force. Turkey accepted. MLC in 2018 but it still does not reflect into its national legislation. The most Turkish ships are operating outside of Turkey and making port calls to the country who accepted MLC. The nonconformities with MLC applications on board Turkish flag ships will be likely a major problem for the status of White Flag in the near future. Full application of MLC on personnel working conditions and human-like manner employment will create a significant positive effect on protection of women seafarers’ rights.

There is a strong need for preparation of legal documents to regulate the life on board both for males and females, especially to provid a safe working environment for women maritime administration and powerful international non-governmental organizations should enforce maritime sector to apply these regulations.

d. Experiences of Women Seafarers

To fully understand the issues related the employment of women seafarers it is necessary to reach women seafarers directly using different research methods. In order to achieve that;

- Six women seafarers are participated in focus group discussions. These women were from different countries and ranging of a range of nationalities and in ranks ranging from cadet to captain/chief engineer. This group has prepared interview questions and questionnaires of the survey.
- Structured interviews is conducted participation of 30 women working in the maritime world.

This interviews and survey are conducted by four woman cadets who prepares their graduation research led by the author of this article. The woman cadets with sea experience are deployed for this research to create an intimate environment and keeping the privacy of participants.

Female seafarers are generally whispering their difficulties but not vocalizing. Main areas concerned are sexual harassment, difficulties in finding a company to make their sea training as cadet and not equal opportunities for promotion.

(1) Interviews

Interviews were conducted with 30 woman seafarers (2 shipmaster, 4 chief engineers, 9 1st Officer/deck officers, 8 2nd Engineer/ Marine Engineers, 6 deck /marine engineer cadets, 1 Naval Architect and

Marine Engineer). One of them is the first woman marine engineer graduated from academy in Turkey, one of them is the first marine engineer who left the service due to hard work conditions, and one of them has started as marine engineer but later changed the profession as marine architect.

In this part significant expressions and related findings from the interviews with w participants is introduced.

(a) Significant issues

Difficulties met at Sea

Women seafarers expressed the difficulties during their sea duties starting from cadet times. There were many barriers they met from the school period but they have lifted these barriers gradually when they go forward in their career. Sexual harassment and abuse have been reported during their service period but some of them were not exactly clear. Some gender inequalities are reported for promotion.

Behaviour of the shipping companies

The women seafarers reported difficulties in finding companies willing to let them sail as cadets on their vessels to complete their training, even as an officer. Companies are generally not willing to deploy females as Captain or Chief Engineer.

Relations with male colleagues

After 21st century only a small number of male seafarers who sometimes showed resistance accepting women in maritime sector. But still there are prejudices/beliefs concerning that women could

not perform the tasks of a seafarer. This is a conservative attitude which suffers the women to show their performance at work. In some cases even a innocent saying like “Oh you are perfectly doing this hard job”, “You proved that you are able to do what the men donly” may agitate woman seafarers.

Woman officer should work harder than man:

Many women seafare believe that they had to work much harder and perform their duties better than their male seafarers to show their ability and capacity. This competition may also create a negative impact for female seafarers’ moral.

Being a woman between too many men:

Due to the small number of women working at sea, there are one or two female seafarers on board same ship. It is very difficult for a woman to acquire a social environment for herself on a ship with around twenty men. For this reason, female seafarer feels a serious loneliness, especially when they first join the duty. If there are two female sailors on board, they can establish friendship among themselves and relieve their loneliness to some extent.

At first glance, it can be said that the same situation exists for other occupational groups, but this environment is only valid for working hours. In ship life, this union lasts 24 hours and days.

Women who have difficulty in establishing a friend group put themselves completely into their jobs, which leads to psychological problems.

The loneliness of the women working on the ship is an important problem within the first six months after joining their duty, but then they also adapt to the ship living conditions.

Sexual harassment is existing and majority of them comes from superiors:

Many seafarers report experiencing sexual harassment problems.

Especially in organizations with a tight hierarchy, sexual abuse is frequently encountered. It is common for people in supervisory positions to attempt sexual abuse by using their status.

In fact, it has not been determined exactly what the sexual harassment is. While sometimes unintentional simple contact or a common slang word is considered sexual harassment, much more dangerous approaches can be ignored.

Many women think that they are constantly being watched for sexual purposes on the ship, and even their cabins are being observed by foreign eyes. In fact, voyeurism is not possible on board. However, even thinking that to be observed disturbs women.

Sexual harassment and abuse claims is mostly reported on passenger ships due to huge number of mixed crew, passengers in different character and social activities on board.

It is very rare for women working in the cargo ships due to strict rules and policies for sexual abuse and harassment as well as subsequent protection provided by companies and ship administration.

Isolation and the reasons on board:

In the rigidly hierarchical and isolated environment of the ship such behaviours could be particularly difficult for the women. Some female seafarers are hesitant to even innocent offers to eat and have fun together in a bar, fearing that sexual harassment may come out. This situation restricts women to establish social relations with other crew members.

Women are taking measures to protect themselves against harassment and abuse. In general, women avoid sitting in the dining halls, do not go to the places where the crew go collectively in the ports, lock their cabins during the night and even not having make up to refrain their female appearance.

The woman seafarers show more enthusiasm and determination:

Working in an environment where men are concentrated and their movements are more restricted than other staff, women put themselves into work and work much harder to prove that they are equivalent to men. In addition, women seafarers want to destroy the myth that “Seafaring is a job only men can do”.

Many woman officers are looking for a suitable job at shore:

Many women who are successful in the profession continue to work at sea until they reach the top rank. However, those who have difficulty in resisting the harsh conditions of sea life try to find a suitable task for them as soon as possible. Those who find a job at shore, suitable

for their abilities and skills cannot show any hesitation about leaving the sea.

(b) Findings to be noted

The women seafarers believe that they should work much harder to prove their capability. They also stated that sexual abuse is something inevitable on board.

Management level are reluctant for harassment and abuses and they advise woman officer to bear it or find a solution by herself.

There is a rigid hierarchical system on board the ships. The ship has an isolated environment. Such a hard situation seriously affects woman seafarers in a negative manner. Comparing with the males, it is very hard for females to strike up their social ambiance on board.

To be a woman in the men's world is full of hardship. So, most of woman seafarers are planning to leave for a shore duty as soon as possible.

There is a strong solidarity among female seafarers in particular for marine engineers. It is an enviable behaviour and should be regarded as an important issue to promote the status of female seafarers.

Female seafarers should work more harder than men to be successful.

Female seafarers are vulnerable, and they should understand this situation when they assume their responsibilities.

Female seafarers should made investment to ensure their future.

There is no problem at the school phase. The problem starts when you step up the gangway.

Managers in the shipping sector should not allow gender discrimination. This is the only way to solve the problems of female seafarers.

Yes, it is a challenge to work at sea as a woman.

3. DISCUSSIONS

a. Discussion on the Results of Interviews

Based on the interviews made with female seafarers, the following issues are found;

1) Feeling of loneliness

The numbers of women seafarers working on board a ship generally changes between one or two. These women who work between a huge group of males generally feel themselves alone due to lack of any other female to establish contact. This situation is unbearable after long duration at sea and creates an interesting physiological situation for them.

2) Feeling of astuteness

As a population that we are minority on board. In order to prove ourselves against men we should make less mistake. We must be patient and make our minds as clear as it can be. Otherwise, as women getting into the marine sector subsequently will not be able to destroy prejudice of community. They think of that this profession is not

appropriate for women. We must not be weak against the difficulties and events on board. 3) Marriage and Unity of Family

Marriage is quite difficult for women working on board. They can be successful when they get married mariners, in reverse, it is difficult to get marry, or they get marry at later ages. The pairs who come from same profession and understand each other can be more successful. Family is the holiest concert of the society. The only thing contributes this concert to last is the unity. As women mariners, it is a great advantage to be married to another mariner. In reverse, it is a great difficulty and a disadvantage. Being away from their husband, parents, and relatives takes them to pessimism.

4) Breaking taboos in man- dominated society

To destroy a myth, we must prove it at first. Since the women are weaker than men as physically, they are thought to be unsuccessful at sea. To destroy this prejudice we must be patient, determined, idealist and we must not make the mistakes that men do. Also the difference between man power and women power is not only related with gender. According to some researches, the power difference between man and women is only %20 so this is not a valuable thesis that women are not strong enough to work on board in 21th century that we run our ships with automation.

5) Maritime Sector Should Support Women at Sea

The women seafarers that are having some difficulties at sea training. In this stage to be defended by society and encouraged is very important for the aspect of proving ourselves.

6) Equality

Women are not given the same opportunities as men are. We do not have same rights. For instance, while men changes. This situation effects women negatively. We should change this mentality.

7) Verbal harassment

They are not in trouble with our colleagues as verbal harassment in same environment with huge population of male, we may come across with behaviours not proper for us.

8) Special conditions; pregnancy

Most of women are not employed due to the risk of pregnancy or they are demanded to sign a contract not to be pregnant. However, women do not consider benefitting from these private aspects and exceptions. Until a certain period, they continue to execute their profession.

9) Mobbing from superiors not from subordinates and colleague

Although mobbing is expected from people less educated, if is done by managers who cannot stand women as successful seafarers. They try to make women tired and cause them to escape by giving up their duties.

10) Common opinion less mechanical perception of females

It is thought that the mechanical perception is low for women. It is not difficult to understand it comes from childhood. For instance, while sons are playing with car, daughters are playing with dolls. Mechanical perfection is something just occurs with the effect of parents.

11) Visual harassment

Some kind of women cannot prevent them from verbal harassment cause of men that implies harassment think that this is their option, their right.

12) Using too many words for example obscene language, strong language

In the point that they cannot express themselves, men use obscene language, besides educated people look for solutions for problems by expressing themselves. Non- educated people believes that they can solve their problems with obscene language to express themselves.

13) Contestation with men prove herself with men's language that "she can do as much as men".

Most of women have to work harder than men to be accepted and to prove themselves. They have to make much more effort to get place as their right.

14) No problems in education as confronted as on board

Women are not in trouble and not getting difficulties as serious as confronted on board because while studying at school students helps

each other but on board a challenge about profession is always current.

15) Option to have family life

It is difficult to end the work and make a family for a female mariner. Despite all these difficulties, they must keep the balance and execute their professions.

b. Survey on Mobbing and Sexual Harassment to Female Seafarers onboard

(1) Aim of the survey

The aim of the survey is to reach valuable evidences to demonstrate the real situation, how common and serious and, provide a source for the other studies that might be done about the same topic

In this part it is intended to define mobbing and sexual harassment issues that female confront on board Turkish Merchant Ships. The other problems determined in this study has substantial evidences but to define main issues about sexual harassment and mobbing on board Turkish Merchant Ships, there is no any source.

(2) Objectives of the survey

1.To define the ratio of sexual harassment and mobbing on board to female seafarers

1.1. To define if having a greater rank is an encouraging matter to imply sexual harassment and if women think the same with us

about the effect of rank to sexual harassment

1.2. To define which ways are the most common to imply sexual harassment and mobbing

1.3. To define which ways are followed to overcome sexual harassment and mobbing

2. To define if women are satisfied by the ways followed to overcome such events.

3. How does mobbing and sexual harassment affect women's psychology

4. To define if sexual harassment is more common while conducting in social life

4.1. To define how often women confront with mobbing on board

4.2. To define the ratio of women, have knowledge about "the word mobbing".

5. To define how often women confront with mobbing on board

(3) Hypothesis

Hypothesis is prepared based on the objectives. Questionnaire is based on hypotheses.

(4) Target Groups and Percentage of the Responders to Questionnaire

69 woman officers/cadets were responded to questionnaires. The status of participants; %2.9 Captain, %32.4: Officer, %64.7: Cadets

(5) Analysis of Responds

Part 1-Sexual Harassment Analyses

1) Have you ever confronted with any form of sexual harassment by your colleagues?

82.4% of the women are confronted with sexual harassment.

17.6% of the women are not.

General majority of women are confronted with sexual harassment on board.

2) If you have confronted, which type 60.7% of the women are confronted with verbal sexual harassment. 17.9% of the women are confronted with physical sexual harassment. 60.7% of the women are confronted with sexual harassment, which is covered, as implying sexual meanings.

Verbal and physical harassment is more common than physical harassment.

3) What was the rank of the person who has confronted with

harassment?

78.1% of the person implied sexual harassment is superior

6.3% of the person implied sexual harassment is subordinates

4.4% of the person implied sexual harassment is colleague

Generally, sexual harassment is implied by superiors.

4) Do you think having a greater rank is an encouraging effect to do sexual harassment?

85.3% of the women think it is an encouraging effect to do sexual harassment

14.7% of the women think it is not an encouraging effect to do sexual harassment

Having a greater rank is an encouraging effect to do sexual harassment.

5) How did you overcome such a behaviour?

56.3% of women choose being silent

37.5% of the women tells their family to overcome.

31.3% of the women say "I couldn't overcome"

43.8% of the women choose making a report to the Captain

6.3% of the women reports to crew agency

3.1% of the women choose other ways to overcome.

Generally, women keep their silence when they confront with sexual harassment.

6) Are you satisfied because of the way followed to overcome?

0.0% of the women are never satisfied by the way followed to overcome sexual harassment.

65.6% of the women are sometimes satisfied by the way followed to overcome sexual harassment.

34.4% of the women are never satisfied by the way followed to overcome sexual harassment.

Woman has never been satisfied with the way followed.

7) How does it affect you?

59.4% of the women felt humiliated, I lost her self-confidence
6.3% of the women put a blame on herself 75.0% of the women's performance at work reduced due to working in a such disturbing place 56.3% of the women's expectations about career reduced due to being a female on board,. 15.6% of the women felt so humiliated that they could commit suicide at any moment 21.9% of the women says "It did not affect them deeply, thinking that they could face such an behaviour while working on board"

Women are affected from sexual harassment deeply that causes unrepairable damages to their psychology and career.

8) The sexual harassment is more common; 18.8% of the women said that “On board” 84.4% of the women said that “While conducting social life” *The sexual harassment is more common while conducting in social life. But 18.8 of the women answered as it is more common on board.*

Part 2: Mobbing Analyses

1) Have you ever confronted mobbing related these kinds of actions.

55.6% selected that; People laugh to you while there is no valuable reason that you know 44.4% selected that; you feel that they are talking about you when you are not at the same place. 22.2% selected that; their looks disturbs you 55.6% selected that; your colleagues do not trust the work you have done. 94.4% selected that ; Your responsibilities/duties are as easy as it can be, so that they passivated you and affect your self-confidence, performance 56.6% selected that; You feel that they are happy when you confront with a trouble 5.6% selected that; You feel that your duties are really difficult to disincipline you about the work 38.9% selected that; You feel you are worthless and ineffective because of the behaviours underway against you

The least of the participants have chosen that the duties are really difficult to discipline you about the work, this situation might give a change to prove your abilities but it is done to only 5.6% of the participants. The common way followed while assigning women is to passivate them.

2) How often such an event you confront?

44.4% selected that; Everyday, more than once 11.1% selected that; Everyday 44.4% selected that; Sometimes 0.0% selected that: Rarely 0.0% selected that; Never

All of the participants are confronted with mobbing frequently so that the situation is really serious than we imagined.

3) Have you ever heard about the word “mobbing” before? 38.9% selected that; yes 66.7% selected that; no

The term “mobbing” is not known although all the participants are faced with.

4) What kind of mobbing do you confront more frequently?

88.9% answered as; In dialogs, covered(implying) 22.2% answered as; In dialogs instinct 50.0% answered as; Discrimination while assigning certain roles 72.2% answered as; According to the groups behaviours; making gossip about you/externalizing you/laughing sarcastically

39.8% answered as; Just feeling that you are segregated from the group because of your distinctions

Various types of mobbing is confronted on board by woman but the most usual one is to in dialogs implying, so that women do not have any proof to report. Second most common way to do mobbing is done as group reactions.

5) How did you overcome mobbing when you confront or could you overcome?

55.6% answered as; Being silent 16.7% answered as; I quit the job 44.4% answered as; I couldn't overcome 56.6% answered as; Making a report to the Captain 11.1% answered as; Reporting to crew agency 5.6% answered as; Other

In the mobbing events that women seafarers experienced 56.6% of the women have chosen to be silent .On the other hand %56.6 of the mobbing events are tried to be eliminated with reporting to the Captain.

6). Are you satisfied because of the way followed to overcome?

0.0% answered as; Always 61.1% answered as; Sometimes 38.9% answered as; Never

The way followed to overcome does not satisfy women.

7) Do you think mobbing is more frequent than sexual harassment?

100.0% answered as; Yes 0.0% answered as; No

Mobbing is more frequent than sexual harassment on board.

8) What is the rank of the persons that mobs you generally?

66.7% answered as; Superior 44.4% answered as; Colleague 50.0% answered as; Subordinate

Mobbing is generally done by the superiors on board.

9) How does mobbing affect you when you face to?

55.6% answered as; I felt humiliated, I lost my self-confidence
11.0% answered as; I put a blame on myself 77.8% answered as; My performance at work reduced due to working in a such disturbing area
72.2% answered as; My expectations about my career reduced due to my gender 11.1% answered as; I do not believe in me, my potential, I feel worthless 11.1% answered as; It does not affect me deeply, thinking that I could face such an behaviour while working on board
22.2% answered as; I felt so humiliated that I could commit suicide at any moment

Mobbing causes serious damages on women seafarers' psychology and career.

CONCLUSION

The number of women participating in the maritime industry is significantly smaller than men. Women are mostly working in commercial, hospitality and catering sectors of the industry and are quite rear in high officer ranks. The duration of working at sea varies by sectors, those women who worked their way to the officer ranks usually have longer career at sea but some prefer to resign from ships and work in the marine industry ashore.

The main problems that women seafarers encounter on board of ships are discrimination, harassment and hard to work as non-equivalent opportunities. These problems are common for any industry and any job, but it is harder to deal with it when women are isolated on board of the ship. In this study, the analyses proved that how serious is the situation concerning mobbing and sexual harassment and these are the biggest obstructs for women to employ on board. Most of the participant woman seafarers have chosen to be silent and the ways followed to overcome does not satisfy the women because the problems are not specified clearly in legal ways and the solutions are left to discretion of the supervisors and the mobbers and the ones who imply sexual harassment are mostly the supervisors.

There is a strong need for preparation of legal documents to regulate the life on board both for males and females, especially to provide a safe working environment for women maritime administration and powerful international non-governmental organizations should enforce maritime sector to apply these regulations.

Maritime industry is not acting so eagerly to deploy women seafarers. Companies that do not recruit women are very often negative about female staff on board of their ships. Male crew members that have little or no experience of working with female staff tend to be negative or prejudice about women seafarers. However, those companies that are employing women are highly positive about the experience and pleased with quality of work, determination of female staff and more balanced on board environment providing all positive effects of diversity.

Companies with high profile on sexual harassment policies and applications have less sexual harassment incidents and more confident staff. Despite difficulties and problems that women face on board of the ships, they are generally positive about seafaring experience. However, some improvements in conditions of women employment have to be done.

Here are recommendations to solve some of the problems and improve working and living conditions of women at sea.

- To eliminate employees' confusion about their rights and policies, companies could implement induction trainings for all staff regarding on – discrimination, equal opportunities and sexual harassment policies.
- Companies should develop improved approach for seafaring sector regarding maternity rights and benefits.
- The positive experience of those companies employing women has to be promoted to other companies in order to increase women employment and change perception of women seafarers.
- Sexual harassment and mobbing policies should be specific for on board environment.
- Women should not provoke their male colleagues by their manners and attitude.
- To lessen women difficulties on board companies where it is possible could employ more than one woman on board of a ship.
- Companies should actively promote seafaring as possible career opportunity for young females.
- MLC 2006 should be accepted, and internationally recognized standards should be fully applied by maritime administration.

These steps could benefit for the marine industry by encouraging talented women to start their career at sea. There are enough examples of exceptionally professional and determinate women in this industry that proves women ability to fulfil this job. It is evident that men and women can work together and should not compete each other but complement each other's work.

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CHAPTER 8
**EFFECT OF ZONING CONSTRAINTS ON TWO-SIDED
ASSEMBLY LINES WITH SDST**

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INTRODUCTION

The assembly lines are flow-based production systems in order to manufacture high-quality and low-cost products. In units called the workstation, certain work tasks are performed within a certain cycle time. The workpieces are moved along the transportation lines such as a conveyor belt and assembled at consecutively settled stations. In each cycle, completed products leave the last station, while tasks assigned to other stations continue to be executed one after the other (Delice, 2019a). The process, which is analyzed by considering the number of the station, cycle time, and the relationship levels among the tasks, is called the assembly line balancing (ALB). The problem, which optimizes the line balance by taking into consideration general and specific constraints along with the tasks, the number of the station, and cycle time, is called the ALB problem (ALBP). The solution of ALBPS, which is involved in medium-term production planning, has an important role in increasing system performance (Becker and Scholl, 2006).

Firstly, ALBP which was formulated by Salveson (1955) has four major different versions. These are ALBP-1 which minimizes the number of station (m) taking into account a certain cycle time (C); the ALBP-2 minimizing the C according to a certain m ; the ALBP-F which seeks a feasible solution according to a certain m and C ; the ALBP-E that maximizes the line efficiency (E).

Day by day, different types of assembly lines have been developed in terms of characteristics of the product to be produced, production requirements, and various constraints. Sivasankaran and Shahabudeen (2014) classified assembly line types as follows:

- The structure of the task durations (deterministic and stochastic task time-based assembly lines),
- The number of the produced model (s) in the line (single, multiple, and mixed-model assembly lines),
- Station structure (single-sided, two-sided, and multiple-operator assembly lines),
- Flow type (U-type and straight assembly lines).

For some product types, while single-sided assembly lines reduce line efficiency, two-sided assembly lines provide much convenience in terms of production. Especially, it considerably increases line efficiency in the automotive industry (Figure 1).



Figure 1: Two-Sided Assembly Lines in Automotive Industry (date of access: 29.01.2021)

The two-sided assembly lines have four main advantages according to Bartholdi (1993). These are production time, number of operators, handling costs, and number of the tools required. The main characteristic of two-sided assembly lines is that both sides (left and right) can be simultaneously used. Some workpieces should be assembled from the right and/or left in the truck, bus, and automobile productions. For example, components on the left side of the automobiles such as the left door and left rearview are more convenient to assemble from the left side of the assembly line. Therefore, these lines allow operators to assemble each task synchronously at stations on both sides of the line (Mete and Agpak, 2013). In addition, materials such as the engine, hood, the fender can be assembled by using either the right or left side. Thus, the two-sided assembly lines provide flexibility because there is an alternative task assignment between mated-stations for such tasks. There are many important studies about the two-sided assembly lines (Battaïa and Dolgui, 2013; Bartholdi, 1993; Delice, 2019; Hu et al., 2008; Kim et al., 2000; Li et al., 2001; Özcan and Toklu, 2010;).

Basic ALB constraints are too insufficient in order to respond to today's ALBPs. Although two-sided assembly lines are a little more compatible with real-life problems, they may still be inadequate in their simple form. There are setup times that depend on sequence among the tasks consecutively assembled in most of the real-life assembly lines. Once certain tasks are assigned to a station, the setup times, as well as the precedence relationship of the tasks, may affect

the process sequence within the station. Assignments of tasks to stations are carried out considering this situation. Therefore, the idea of handling task setup times in a sequence-dependent manner for two-sided assembly lines will result in a more consistent assembly line structure for real life. This problem is called TALBP with setups (TALBPS) in the literature.

In TALBPS, tasks can be assigned to the same stations, taking into account precedence relationships and sequence-dependent setup times of the tasks. However, tasks may need to be carried out together in the same station or at different stations according to similar resource and technology requirements. Once these constraints, which are called 'zoning constraints', are considered together with precedence relations and sequence-dependent setup times, a structure more suitable for real-life occurs for TALBPS. There are two different zoning constraints in the literature called 'positive zoning constraint' and 'negative zoning constraint'. Positive zoning constraint represents tasks that must be executed strictly on the same stations, while negative zoning constraint represents tasks that should definitely not be assigned to the same stations. The problem involving sequence-dependent setup times and zoning constraints for two-sided assembly lines is referred to as the two-sided assembly line balancing problem with setups and zoning constraints (TALBPSZC).

In order to respond to assembly line balancing problems in real-life, as mentioned above, different constraints should be added and the appropriate line type should be determined. Although the solution

space of the problem gets smaller with the added constraints, the problem becomes more difficult to obtain the optimum result. ALBPs have an NP-Hard structure due to their combinatorial nature (Ajtenbli and Wainwright, 1998). Therefore, metaheuristic algorithms are very useful to obtain an optimum or near-optimum result.

There are many important studies on ALBP with setups (ALBPS). The first attempt was made by Andres et al. (2008). They proposed eight different heuristic rules and a binary linear programming model. Scholl et al. (2013) proposed several heuristic approaches and a mixed-integer programming (MIP) model by extending the problem.

For a decade, different meta-heuristic approaches have been used for ALBPS. Seyed-Alagheband et al. (2011) proposed the simulated annealing (SA) algorithm in order to minimize the C in the ALBPS. Yolmeh ve Kianfar (2012) presented a hybrid genetic algorithm (GA) structure in order to minimize the m in the ALBPS. Hamta et al. (2013) proposed a hybrid particle swarm optimization (PSO) algorithm for an ALBPS with multi-objective. Akpinar et al. (2013) presented a hybrid GA and ant colony optimization (ACO) algorithm for solving mixed-model ALBPS (MALBPS). Furthermore, Esmailbeigi et al. (2016) presented three formulations for two different ALPBS minimizing both the C and the m . Akpinar et al. (2017) proposed the benders decomposition algorithm for both ALBPS and MALBPS.

Martino and Pastor (2010) improved priority rule-based heuristic procedures. Giard and Jeunet (2010) proposed an integer

programming model for MMALBPS. They determined temporarily hired utility workers and sequence-dependent setup times of the tasks. Öztürk et.al (2010) proposed constraint programming model and MIP for scheduling and balancing the mixed-model assembly line with sequence-dependent setup times. Yazdanparast et al. (2011) improved a mathematical model for cost-focused ALBPS. Kalayci and Gupta (2013) proposed a PSO algorithm for disassembly line balancing (dALB) with sequence-dependent time increments.

Although there are many studies about ALBPS, the studies on TALBPS are very limited in the literature. The first attempt on TALBPS was presented by Ozcan and Toklu (2010). They improved COMSOAL-based a heuristic approach and presented a MIP model. Delice et al. (2018) proposed an ACO algorithm for TALBPS. They worked on u-type assembly lines as assembly line shape. Janardhanan et al. (2019) considered forward and backward setups for robotic assembly lines. They developed migrating bird optimization meta-heuristic and a MIP model. Li et al. (2019) presented a new MIP model and thirteen meta-heuristics for robotic TALBP. They simultaneously considered both the sequence-dependent setup time and robot setup time. Aghajani et al. (2014) proposed the SA heuristic and a MIP model for the mixed-model two-sided assembly line balancing problem with setups (MTALBPS). Yang and Cheng et al. (2020) modeled and solved (MTALBPS). They developed MIP model and variable neighborhood search (VNS) algorithm in order to minimize the number of the stations in MTALBPS. Delice (2019a)

proposed a GA approach in order to minimize the number of the m in TSALBPS.

Considering the literature, to our best knowledge, zoning constraint and sequence-dependent setup times were not simultaneously considered for the TALBPs. This paper is the first attempt for the TALBPSZC.

1. PROBLEM DEFINITION

In this paper, a straight, single model, and two-sided assembly line structure was considered. In the two-sided assembly lines, each workstation consists of a pair of the stations facing each other and called ‘mated-station’ (ms) ($j=1, 2, \dots, J_{max}$). The mated-station is the basic unit of the operational processes for the TALBP. Each task ($i=1, 2, \dots, N$) is assigned to these mated-stations by ensuring a certain precedence relationship constraint among the tasks, cycle time constraints, operational direction, and other specific constraints included in the problem.

In the TALBP, while some tasks (such as L-type task / R-type task) can be assigned to only one-side (such as R-side / L-side) of mated-station, some tasks (E-type) can be assigned to either L-side or R-side (E-side) of mated-station. Therefore, different alternative solutions may obtain for TALBP. In this paper, it was aimed to minimize the number of the mated-stations and stations for straight, single model, and two-sided assembly lines. Here, an assembly line structure more appropriate to real-life problems should be modeled to achieve

realistic results. Hence, potential setup times of the tasks and zoning constraints were considered along with basic constraints such as the cycle time of the stations and precedence relationships of the tasks. Thus, the TALBPSZC was generated with the structure discussed in this paper and a more realistic two-sided assembly line was modeled with the added constraints.

The sequence-dependent setups are the time-based constraints, and there are two types the sequence-dependent setup constraints. These are forward setup and backward setup. In any station, forward setup occurs when the operator moves from one task to a consequent task. This forward setup time is added to the total processing time at the station and subtracted from the cycle time. Moreover, after the last task in any station is performed, the operator moves to the related station's first task for the next (new) cycle. Therefore, when the operator moves to the first task, the backward setup occurs. Finally, this backward setup time is added to the total processing time at the station subtracted from the cycle time. For example, let us assign tasks i , j , and k to the left mated-station for one station of the two-sided assembly line (Figure 2). As the operator moves from task i to task j , the forward setup time sdt_{ij} occurs in the station m . On the other hand, as the operator moves from task k to task i , the backward setup time sdt_{ki} occurs in the station m . Tasks are assigned to the stations by including these setup times without exceeding the cycle time.

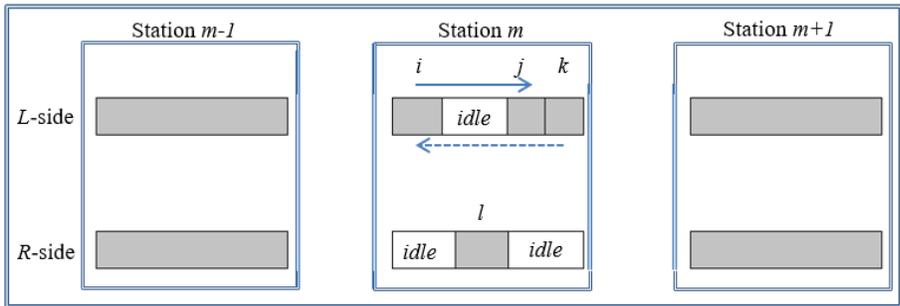


Figure 2: Two-Sided Assembly Line

The other important constraint is the zoning constraint. Although there is no precedence relationship among some tasks, the tasks may need to be zoned to assign them to the same or different stations due to the nature and compatibility of the tasks, and the equipment used. There are two types the zoning constraints. The first is the positive zoning constraint, which assigns to the same station the tasks using similar equipment using and tasks requiring a similar operation. The second is negative zoning constraint for the tasks that, by their nature, should not be on the same station. The zoning constraints are operation-based constraints.

The whole basic assumptions about the TALBPSZC are as follows:

- A single model of a product is produced on the two-sided assembly line.
- A task must be assigned to only one station.
- There are no tasks that are not assigned to the station.
- The processing time of the tasks is independent of the assigned stations.

- Each operator performs the tasks in her/his own station.
- A task is processed only once at a station at the given time.
- The task durations for each task and cycle time are deterministic and known.
- The precedence relationships among the tasks are unchangeable and known.
- The operators can simultaneously perform the tasks on both sides of the assembly line.
- Setup times consist of tool replacements, the material movements, and the travel time of the operators.
- The forward setup and the backward setup times are distinguished and can occur between any two adjacent tasks in the same station (Yang and Cheng et al., 2020).
- Some tasks should only be performed on one side of the assembly line. The others can be performed on either side of the line.
- The operators are equally and multi-skilled.
- Stations and tasks are not allowed to be parallel.
- While setup times and zoning constraints are considered, other specific constraints such as synchronism constraint and positional constraint are not considered.
- Tasks are performed on only one side of two-sided assembly lines.
- Buffer and work-in-process inventories are not allowed.

- Material movement time between adjacent workstations is negligible.
- The zoning constraints among the tasks in terms of incompatible and compatible are known.
- A large quantity of one homogeneous product is produced in a continuous and standardized way (mass production system) (Fathi et al., 2019)

Fitness Function: The primary purpose of the proposed algorithm is to minimize the total number of mated-stations (NM) within a given cycle time (C). The secondary purpose of the algorithm is to minimize the total number of stations (NS). Considering the zoning constraints and setup times for both purposes, an assembly line balance with the shortest possible and the least number of stations can be achieved.

2. MATERIAL AND METHOD

2.1. Genetic Algorithm

Assembly lines are NP-Hard problems due to their nature (Ajenblit and Wainwright, 1998). Although traditional methods such as linear programming for small-sized problems obtain optimum solutions in a reasonable time, it is not always possible to obtain solutions for large-sized problems. Metaheuristic algorithms are important alternative solution methods in combinatorial optimization problems with high complexity and uncertainty such as assembly lines. Evolutionary algorithms contain the most important metaheuristic optimization methods. They are known to produce promising results for most

computational problems that require investigation of a large number of possibilities for solutions (Mitchell, 1995).

One of the basic members of evolutionary algorithms is the genetic algorithm (GA). First, GA presented by Holland (1992) was inspired by Charles Darwin's theory of evolution. The basic process in the theory of evolution is simulated in GA. The basic principle of GA is to pass on the best genes in individuals to the next generation.

This paper presents a priority-rule-based GA algorithm for TALBPSZC. In the startup step of the algorithm, a heuristic priority rule-based procedure using 10 different priority rules from Delice's (2019a) study was used to start with the proposed GA with more promising options. This is how the first chromosomes were generated in order to improve the searching ability of the proposed GA. The basis of the algorithm is the chromosome structure in which the value expressing a priority rule is kept. These values in the chromosomes produced by the algorithm in the amount given in Table 1 determine which task will be selected from among the candidates and assigned to the relevant station during the selection phase.

The algorithm repeats the number of steps specified in table 1 and the best value obtained in each step is updated. In addition, the best chromosome value is carried to the next generation at each step. By using crossover and mutation operators, which are the basic 2 procedures of GA, chromosomes belonging to new generations are formed. The parameter values used are given in Table 1.

3. COMPUTATIONAL STUDY

Although the inclusion of positive and negative zoning constraints in two-sided assembly lines with setups provides a more realistic assembly line model, they generate a much more difficult assembly line problem structure. Commonly used test problems in assembly line literature P12 and P24 (Kim et al., 2000) and P65 (Li et al., 2001) were used to demonstrate the efficiency of the GA algorithm developed for the proposed model.

The program required to solve the proposed new assembly line structure was developed using Delphi7. The computer on which the program is run uses an i-7 processor. The speed of this processor is 1.8 GHz. In addition, the ram capacity of this computer is 8GB. Problems addressed were resolved 10 times each and the best solutions and CPU times reported. For the proposed GA, parameter values, which are widely used in the literature and given in Table 1, were used and no special parameter optimization was made.

Table 1: Parameters of GA Algorithm

Parameter	Value
Generation Size	100
Number of Population	100
Rates of Crossover and Mutation	0,8 and 0,2

In order to better understand the proposed GA algorithm, the P12 literature problem, whose details are given in Table 2 and Figure 3, was solved, and the solution obtained is presented in Table 5. For the P12 problem, task number, task time, task side, and precedence relations are used in their original form in the literature.

Table 2: Details of P12 Problem

Task No	1	2	3	4	5	6	7	8	9	10	11	12
Task Side	L	R	E	L	E	L	E	R	E	E	E	R
Task Time	2	3	2	3	1	1	3	3	2	2	2	1

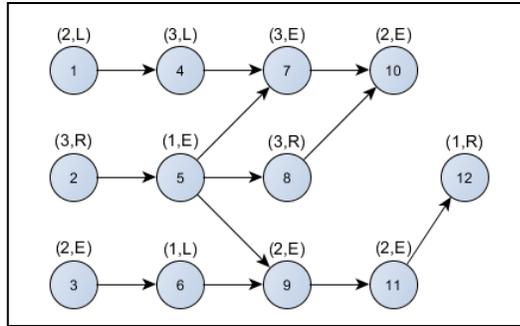


Figure 3: Precedence Relations of P12 problem

In the proposed study, low forward and backward setup times data produced by Delice (2019a) and given in Table 3a and Table 3b, respectively, were used as setup time data. In addition, the data produced by Delice (2019b) in his study were used as positive and negative zoning constraints (Table 4). These values were used in order to explain the features of the proposed new approach more accurately and to make comparisons.

Table 3: Forward and Backward Setup Times of P12

(a)												(b)													
	1	2	3	4	5	6	7	8	9	10	11	12		1	2	3	4	5	6	7	8	9	10	11	12
1	0	0	1	0	0	0	0	0	0	1	1	0	1	1	0	1	0	0	0	1	0	0	0	1	0
2	0	0	0	0	0	0	1	0	0	1	1	0	2	0	1	1	0	0	0	1	1	1	0	0	0
3	1	1	0	1	0	1	0	0	1	0	1	0	3	1	0	1	0	1	0	0	1	0	1	0	1
4	0	0	1	0	1	0	0	0	1	0	0	0	4	0	0	1	1	0	0	1	0	1	1	1	0
5	0	1	1	0	0	0	1	0	0	0	0	0	5	0	1	1	1	0	0	1	0	1	1	1	1
6	0	0	1	1	1	0	0	0	1	1	1	0	6	0	0	1	1	1	0	0	0	1	0	1	0
7	1	1	1	1	1	1	0	1	1	0	1	0	7	1	1	0	1	1	0	0	1	0	1	0	1
8	0	1	1	0	0	0	1	0	1	1	1	1	8	0	0	1	0	1	0	1	0	1	1	1	0
9	0	1	1	0	0	1	1	0	0	1	0	1	9	1	0	1	1	1	1	1	0	0	0	1	1
10	1	0	0	1	0	0	0	1	1	0	0	0	10	0	1	0	1	1	1	0	1	1	1	1	1
11	0	1	1	1	0	1	1	0	0	0	0	0	11	1	1	0	0	1	1	1	0	1	1	1	0
12	0	1	0	0	1	0	1	0	1	0	0	0	12	0	1	1	0	1	0	1	1	1	0	0	1

Table 4: Zoning Constraints of P12

Positive	(2,3), (4,5) and (8,9)
Negative	(1,3), (6,7) and (10,12)

The result obtained by solving with the proposed GA algorithm for the P12 problem, which has the above set-up time and zoning constraint values and whose cycle time is 7, is shown in Figure 4. In order to analyze in more detail, the effect of positive and negative zoning constraints on the TALBPS, the same problem was solved without zoning constraints, and the results were presented in Figure 5. In this result layout, both the setup times between tasks and the location of the tasks with positive and negative zoning constraints can be seen, clearly.

When Figure 4 is examined, the final solution layout can be seen in detail, with the left and right sides of the assembly line specified separately. In this layout, each task number and direction (TN-Side), task start time (ST), task finishing time (FT) and assigned station

number (SN) can be seen. In addition, forward and backward preparation times have been added to the layout.

Examining Figure 4 and Figure 5 shows how zoning constraints force an assembly line to a worse solution. With this approach, which better represents real life, a more realistic model is put forward by moving away from theory. It is seen that in the solution in figure 4, where setup time is included and zoning restrictions are present, there are 6 stations, 3 on the left and 3 on the right side. In the solution in figure 5, where there are only setup time and no zoning restrictions, there are a total of 5 stations, 3 on the left and 2 on the right side. It is obvious that the increase in the number of stations required will cause enormous costs in the long run.

L	TN-Side	1-L	$fs_{1,5}$	5-E	$fs_{5,4}$	4-L	$bs_{4,1}$	idle	7	6-L	$bs_{6,6}$	Idle	14	7-E	$fs_{7,10}$	10-E	$bs_{10,7}$	idle	21			
	ST	0		3		4				7				14		17						
	FT	2	0	4	0	7	0			8				17	0	19	0					
	SN	L ₁							L ₂			L ₃										
→→→									→→→													
R	TN-Side	2-R	$fs_{2,3}$	3-E	$bs_{3,2}$	Idle				7	8-R	$fs_{8,9}$	9-E	$bs_{9,8}$	Idle	14	11-E	$fs_{11,12}$	12-R	$bs_{12,11}$	Idle	21
	ST	0		3							7		11			14		16				
	FT	3	0	5	0						10	1	13	0		16	0	17	0			
	SN	R ₁							R ₂			R ₃										

Figure 4: Results for P12 (C=7) with Setups and Zoning Constraints

L	TN-Side	1-L	$f_{s_{1,3}}$	3-E	$f_{s_{3,6}}$	6-L	$bs_{6,1}$	7	4-L	$f_{s_{4,7}}$	7-E	$bs_{7,4}$	Idle	14	10-E	$bs_{10,10}$	idle	21		
	ST	0	1	3	1	6	0	7	0	10	1	14		1	16					
	FT	2		5		7		10		13										
	SN	L ₁							L ₂							L ₃				
→→→									→→→									→→→		
R	TN-Side	2-R	$f_{s_{2,5}}$	5-E	$f_{s_{5,8}}$	8-R	$bs_{8,2}$	7	9-E	$f_{s_{9,11}}$	11-E	$f_{s_{11,12}}$	12-R	$bs_{12,9}$	idle	14	Idle	21		
	ST	0	0	3	0	4	0	7	7	9	0	11	1							
	FT	3		4		7		9		11		12								
	SN	R ₁							R ₂											

Figure 5: P12 (C= 7) Results without Zoning Constraints with Setup Times

In addition, when Figure 4 is examined, it is seen that the tasks that should be carried out together due to the constraints given in Table 4 are dedicated to the same station, and the tasks that should not be carried out together are assigned to different stations.

Solution results of the proposed algorithm for P12, P24, and P65 problems of the algorithm whose details are given above are given in Table 5.

Table 5: Results of Test Problems

Problem	C	LB (Delice, 2019a)	Result Values					
			GA (Delice, 2019a)			Proposed GA with zoning constraints		
			NM	NS	CPU	NM	NS	CPU
P12	5	5	4	7	<0,01	*	*	*
	6	5	3	6	<0,01	4	6	<0,01
	7	4	3	5	<0,01	3	6	<0,01
	8	4	2	4	<0,01	2	4	<0,01
P24	20	7	4	8	<0,01	5	9	1
	25	6	3	6	1	4	7	<0,01
	30	5	3	5	<0,01	3	6	<0,01
	35	4	3	5	<0,01	3	5	<0,01
	40	4	2	4	<0,01	3	5	<0,01
P65	326	16	9	17	8	10	20	33
	435	12	7	13	1	8	15	10
	490	11	6	11	8	7	13	23
	544	10	5	10	7	6	12	2

* No Feasible Solution

The proposed algorithm results were compared with the GA algorithm proposed by Delice (2019) having no zoning constraints. The comparison shows that zoning constraints make the problem even more difficult and lead to worse solutions. It is clearly seen from the results that many feasible solutions obtained in the absence of zoning constraints turn into unfeasible solutions under zoning constraints.

CONCLUSIONS AND FUTURE RESEARCH DIRECTIONS

In this study, TALBPSCZ was modeled by including sequence-dependent setup time constraints and zoning constraints along with basic constraints such as cycle time, and the precedence relationships into TALBP. It was aimed to minimize the number of stations according to the added constraints. Thus, it was possible to generate more realistic assembly line production models. Since the problem has

an NP-Hard structure, GA, which is an important metaheuristic, was used to solve the problem. The results show that zoning constraints make the problem more difficult and force worse solutions to be obtained. However, since these constraints reflect real life better, handling zoning constraints will make future plans more realistic.

In future works, different specific constraints such as synchronism constraint and positional constraint can be included in the structure of the problem. Thus, more suitable line solutions can be obtained for real-life problems.

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CHAPTER 9

INTELLECTUAL CAPITAL REFLECTION IN BUSINESSES

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INTRODUCTION

Looking at the economic goals of businesses, factors such as profit generation, growth and sustainability come to the fore. With the 21st century being the information age, for businesses, it depends on the ability to use the resources available to ensure sustainability. This determination, which corresponds to basic capabilities, emphasizes the self-capabilities that can compete in the market for businesses. In today's world; Inadequate financial capabilities alone, customer knowledge and organizational relationship network, knowledge management and inherent skills such as creating an innovative culture have increased the importance of increasing productivity. These talents constitute the intellectual capital that focuses on the human element that adds value to the structural dynamics of the company and is based on effective relationship management. Considering the characteristics of successful businesses that understand the importance of creating company value; They are customer-oriented, supportive in employee development, encouraging entrepreneurial and innovative processes, and volunteering in teamwork and information sharing. Businesses encourage uncovering the talents of each employee by providing vocational training on the skills of their employees in order to invest and develop their intellectual capital and ensure innovation. Effective management of the intellectual capital of the enterprises supports the success of business performance, growth in the asset structure and sustainability. What should be understood here is that the increase in performance is not only due to the policies implemented or the achievement of financial balance; It is a result of

the structural and relational factors of the human element, which is the most valuable resource, as well as information-based innovative behavior models. Therefore, investment in knowledge and people is vital for organizations. As a result, the sustainability and success of an organization is strongly correlated with the reflection of the investment it has made in its intellectual capital. In this research, a perspective is drawn on what intellectual capital means for businesses, what components it consists of, how capacity can be developed, managed and measured, and ultimately its effect.

1. THE CONCEPT OF INTELLECTUAL CAPITAL

Although intellectual capital is a new concept in human resources management, it has attracted attention in the literature. The reason for this is that businesses want to center the human factor and develop models based on knowledge. (Sumedrea, 2013). Especially in management philosophy, core competence developed with knowledge emphasize the strategic feature of intellectual capital (Chang, Wu & Sheu, 2014: 1102). This feature has been shaped by two different perspectives, the first of which is to increase the competitive capacity of the company. The other is to gain a strategic advantage in the market with the extensive use of intangible assets (Sumedrea & Stnia, 2015). In this regard, Intellectual capital is the ability to manage intangible and scarce assets (Huang & Huang, 2020) and the aspect of its operator that is not reflected in the balance sheet (Frykman & Tollyrd, 2010). Fortune magazine editor Stewart defines intellectual capital as “something intangible but still enriches you” (Purohit and

Tandon, 2015: 8). Based on these definitions, it is understood that intellectual capital is presented as a value that does not appear clearly on the basis of information with the employee, but provides opportunities for the company to be successful (Gogan et al., 2016: 196). Intellectual capital is an important spiritual asset in the 21st century economies that have to use information intensely based on technology (Abdullah & Saudah, 2012). From this point of view, it seems very important to have intangible resources and capabilities for sustainability and competitive advantage in sectors operating with information infrastructure. (Elberdin et al, 2018). Intellectual capital is a hidden value that reflects the gap between the market value and book value of a business (Borowski, 2015: 572). In this regard, the linking of knowledge, skills, skills, technical and social networks, software and cultures, patents, trademarks, copyrights, production methods, business procedures and archives, etc. It also includes values (Stewart & Ruckdeschel, 1998). In this respect, intellectual capital looks like a tree. The trunk, branches and leaves of this tree are the visible parts of the tree. The part of businesses seen by the market is the information in the accounting systems. Intangible values of the business; is like the roots of the tree. If a tree is fed with healthy roots, it can produce beautiful fruits. The financial strength of a business can also enrich its intangible resources. If the root of the tree is damaged, it starts not to bear fruit and eventually goes to death (Edvinsson and Malone 1997: 10-11). Considering the definitions made, it is clear that intellectual capital is more than a static structure represented by the employee who is the source for the enterprise or the fixed and current

assets in the accounting process. This situation shows that intellectual capital represents a dynamic structure with the benefits it will bring with more competitive advantage. In this respect, if today businesses are compared to a building, it is possible to say that the intellectual capital is iron and mortar that strengthens the foundations of this building.

2. HISTORICAL DEVELOPMENT OF INTELLECTUAL CAPITAL

In the early 1980s, managers, academics and consultants started to investigate the intellectual capital, which they define as the ability of knowledge to provide economic input, on the importance of intangible assets for companies (Harrison and Sullivan, 2000, 139). Conceptually; After 1969, John Kenneth Galbraith described intellectual capital as "the difference between book value and market value" (Gupta & Singh, 2015). Galbraith linked intellectual accumulation with individual performance. In this study, the concept of intellectual capital has been evaluated as "individual intellectual ownership". While the first studies in this field focused on the definition, classification and measurement of the concept, later the effects of values on business performance came to the fore (Pena, 2002).

In today's sense, the concept of intellectual capital came to the fore with the work named "Brain Power" written by Thomas Stewart in 1991. In this research, conceptually, a definition is made as everything

that business employees know that provides competitive advantage in the market (Acar and Dalğar, 2005: 24). He later published an intellectual capital report in addition to the Skandia annual reports published in Switzerland in 1995. In this report, what the intangible fixed assets are and how these assets should be measured and reported have led to many studies (Lee & Guthire, 2010).

Today, every unit within business functions looks at the intellectual capital from its own framework. Finance and accounting department; It looks at intellectual capital according to measurement and reflection on balance sheet. The IT department focuses on how to encode intellectual capital, how the marketing department contributes to its corporate image, how much the production department contributes to productivity, and the human resources department focuses on how to reveal, develop and manage this. From this perspective, successful enterprises and managers in the 21st century have taken into account intellectual capital, and have started to emerge from organizations that focus on making effective valuation on the results by using accurate measurement methods that try to understand every aspect of this capital.

3. THE IMPORTANCE OF INTELLECTUAL CAPITAL FOR BUSINESS

Developments such as the revolution in information technologies and the information society, the gaining importance of the knowledge-based economy, the changes occurring in the relations between

people, the emergence of creativity and innovation as the basic elements in providing competitive advantage stand out in the importance of intellectual capital (Gunthrie, 2001: 28). Intellectual capital has practically evolved towards the main competitive advantage for companies in the new economy (Sharabati et al., 2010: 106). Intellectual Capital is one of the most important values that function as a backbone among the resources of the institution and form the system of cooperation (Polo & Vázquez, 2008). Recent studies reveal the importance of intellectual capital on firms' performance, for example in terms of innovation, financial returns, and value creation (Andreeva & Garanina, 2016). Intellectual capital is an important activity for organizations that want to be efficient in the market and thus gain sustainable competitive advantage (Gogan et al., 2016). In the information age, the relationship of economic sustainability with intellectual capital has gained more importance, as the effect of fixed assets and financial assets has decreased compared to the effect of intangible assets (Gogan et al., 2016). A growing number of experts support the argument that intellectual capital is an important element in achieving performance in an organization (Sydler, Haefliger, & Pruksa, 2014). Businesses need experience and innovation resources in order to differentiate from their competitors and gain competitive advantage. Intellectual capital and knowledge management can provide this resource that businesses need. (Bobylev, 2013: 99).

Looking at the main purpose here, it comes to the fore that intellectual capital creates firm value, provides competitive advantage and contributes to sustainability. However, in today's world where the speed of change and transformation is very effective, adaptation has different meanings for every business. Businesses that have to be structurally strong differ as an extension of human capital and business method. This difference persists even though they are based around similar resources in the same sector. Therefore, there is not a common profitability recipe for all businesses, and a common way is not possible for the capacity utilization rate. This means that different organizational strategies have their own specific capacities. A strategic perspective extends intellectual capital to creating business value through the effective use of information.

If a general assessment is made, competitive advantage in the knowledge economy will be provided by organizations that understand that today's real resources are innovation, creativity and intellectual capital. This explains the increasing interest and relevance to intellectual capital over the last decade (Sumedrea & Stnia, 2015).

4. COMPONENTS OF INTELLECTUAL CAPITAL

Intellectual capital is like a building whose foundations are formed from different and equally resilient columns. This building maintains its life with a structure seen from the outside, its organization, the labor of the people inside and the relationships in different formats that are not directly visible to the eye. At this point, what is meant to

be emphasized is that intellectual capital is a form of synergy brought together by different components.

Businesses need both high quality employees (working capital) and effective procedures and systems (structural capital) to maintain customer information capacity. The idea that information exchange with customers affects the value (relational capital) of firms is supported (Chen et al, 2004). Researchers argue that the elements of intellectual capital will help each other, support and develop the value of the company (Sanchez-Gutierrez et al., 2012: 35). At this point, the important criterion is; companies have all three elements at the same time. However, competitive advantages are provided by the interactions between these three elements (Shih et al., 2011: 292). At this point, all three capitals have a focus.

Human capital focuses on the knowledge, skills and experiences of employees. Structural capital focuses on organizational efficiency. If the relation capital; It is about cooperation with external environments (Chen, Zhu, & Xie, 2004). Many researchers consider human capital as the main component in terms of both relational capital and structural capital (Chahal ve Bakshi 2016: 63). Thus, human capital creates organizational intellectual capital together with structural capital and relational capital (Buşoi, 2014: 266). However, when describing these three capitals in relation to each other, it is necessary to know that the separate properties of each element are deeper. In this respect, it is necessary to explain the three elements that make up this synergy in terms of focal points.

a) Human Capital: It refers to the characteristics and intellectual qualities of people who need to respond to market changes and customer needs (Gogan et al, 2016). Human capital is a blend of genetic heritage, attitudes, education and work, life experiences (Khan, Farooq & Hussain, 2010). Human capital is often affected by the skills and professional competencies of organization employees. It represents the sum total of the knowledge and experience of a company's employees. This type of capital is unique, difficult to imitate or copy. It includes the dynamics of individual skills and the company's own creativity and innovation potential (Dzinkowski, 2000). Especially in sectors where resources are similar, companies can differentiate from each other and compete with each other, with inherent capabilities. It is beneficial to explain this in terms of imitability. The rate of change of the 21st century causes all processes to become commonplace quickly. At this point, it is possible to keep up with change with dynamic elements. In addition to the speed of change, the fact that competitors and companies that adopt a follower strategy easily imitate information such as information infrastructure, logistics channel, marketing strategy, makes business skills ordinary. At this point, businesses need valuable, rare, inimitable and non-substitutable features, and they tend to inherent capabilities and engage in value creation activity with human capital. This is related to the inability to imitate human resources, although many business features can be imitated. To give an example from the food and beverage sector, which offers close service with each other; The customer masses of restaurants with close menus change according to

the taste of the food and the taste of the people. Although the same meals are made with the same products in different restaurants, the tastes can vary. What makes the difference here is the individual work ability, business style and knowledge skills difference of the human resource making the meal. As in this example, human capital is the most important capital from which a business can differ. Of course, this difference is not independent from the place where the enterprise provides service and the quality of the service in that place.

If every person could get the full value of their service, there would be no need for companies. What makes a company's existence possible is that it pays its staff less in total than the value they carry. The difference is the profit, the return on capital. In fact, when individuals are able to retain almost all of the value of their human capital for themselves, they often become independent contractors (Stewart, 1997). When evaluated from this point of view, there will be a lack of integration and coordination, which play an important role in the success of an organization. Therefore, neither businesses are unmanned, nor people can stay away from the benefits of organizational efficiency brought by businesses. Since this bilateral relationship is known, if businesses want to create a sustainable competitive advantage, they should give the necessary value to human capital. In this respect, Robert Bosch's statement, "I am not paying a good salary because I have a lot of money, on the contrary, I make a lot of money because I pay a good salary" explains the situation.

As a result, human capital focused on the knowledge levels, abilities and social skills of the employees. As the intellectual capital component, human capital represents a very important area in increasing business performance by increasing the job satisfaction and performance of employees (Marimuthu et al., 2009: 266).

b) Relational Capital: Relational capital represents all valuable relationships between the company and customers, suppliers and other collaborators. Relational capital is represented by the company's relationship with all stakeholders (Dzinkowski, 2000). Especially in a sustainable and stable environment, the existence of this element is very important for the ability to establish relationships with stakeholders and the market, to establish interpersonal relationships and to develop relationships based on trust (Gogan et al, 2016). Relational capital has a direct impact on the market share of the enterprise by enabling the business to purchase and sell goods and services as well as establishing an effective and efficient relationship with the external environment. This type of capital also provides information about the preferences of customers and how to provide satisfactory services with them (Sumedrea, 2013).

When evaluated in this respect; Responding to customer requests and needs is seen as an obligation to create customer satisfaction and loyalty. Relational capital is considered to be the most difficult type of capital to develop and nurture, since it includes the relationships that the business establishes with the external environment and puts the customer at the center (Hobikoğlu, 2011). Establishing relational

capital is a challenging skill for businesses. It is imperative to acquire this skill at an optimum level because businesses have to relate to their environment as a social creature. This relationship helps the company to express itself more accurately and to promote the companies personally. Another benefit of relational capital is; to develop correct and effective communication channels.

It has been pointed out that this capital, which is a cycle, is a powerful element that strengthens the reputation of the enterprise and provides competitive advantage (Leaniz and del Bosque, 2013: 266-267). Brand, agreements, licenses, sales channels, bargaining capacities and networking are also included in relational capital (Janosević et al., 2013: 2). As a result; Relational capital is a value that emerges as a result of the organization's relationships with the customer, making significant contributions to both current and future revenues. It is seen as a fundamental resource in terms of competitive advantage for the knowledge economy. Therefore, establishing long-term lucrative relationships with customers has become the focus of smart organizations in the new era (Chang and Tseng, 2005: 253).

c) Structural Capital: Structural capital covers the vision, mission, strategies, culture, copyrights, patents, databases and all internal management processes of the enterprise (Szelagowski, 2019, 208). In addition, the infrastructure of the organization is the component of the organization, which can be defined as organizational processes used to obtain products and services (Gogan et al, 2016). Structural capital includes all the supportive strategies required to execute the strategy

of an enterprise, working environment and relations with other companies (Ghosh & Maji, 2014: 21). Structural capital is formed by the ability to transfer and reflect any existing and potential intellectual resource accumulation to permanent capital. (Bontis et al., 2018). Structural capital shows the innovation power of the enterprise, the organizational intelligence and the capacity of its structure to make the business successful. It also relates to processes, trademarks, intellectual property rights and other intangible assets owned by the company but not recorded on the balance sheet. This capital represents the infrastructure of human capital, including the organizational ability to adapt to the needs of the market (Pirtini, 2004: 33-34). This infrastructure includes various components such as management philosophy, corporate culture, management processes and information on information technology systems and network systems (Dzinkowski, 2000).

As intellectual capital is a component of structure, it is the harmony between this structure that matters. Especially, the integration of the relationship established with the culture and the external environment shared by the managers, as well as the integration of information infrastructure elements such as the use of material and human capital, communication technology with a managerial process, is an indication that this capital is used effectively.

The combination of these competencies ensures that intellectual capital is a strong sustainable source for the institution (Yaseen et al., 2016, p. 169). This capital has an organizational quality that promotes

continuity with the effective use of information in business activities. (Şamiloğlu, 2002). Structural capital is the emergence of intellectual capital at the organizational level. In this respect, the infrastructure of human capital is the precursor of relational capital.

5. MANAGING INTELLECTUAL CAPITAL

The management of intellectual capital is the integration of information resources such as databases, user interfaces and communication networks with human resources. The organization's human resources add value to information by determining the scope, meaning and purpose of business activities (Brooking, 1996: 131). Intellectual capital management is the process of discovering and increasing the value-creating elements for the organization, transforming it into value in the market, measuring and developing this value (Ölçer, Şanal, 2007). In this respect, if the firm knows how to manage its intellectual capital, it can create value and provide a competitive advantage (Allameh, 2018). The value creation activity here is the activity of extracting value from knowledge (González-Loureiro and Dorrego, 2012: 60 245). The accumulation, transformation and value of knowledge are at the center of intellectual capital management (Dzinkowski, 2000: 2). Effective management here is very important for companies to achieve good corporate performance and continue to grow in the information-based age (Kweh et al., 2015: 107).

The benefits of intellectual capital management to a business can be listed as the importance of knowledge and learning, shortening the implementation process, transfers from costs and investments, re-evaluation of structural and organizational capital, and creating higher value by accelerating interaction (Karacan, 2004, p. 191).

Brooking (1997) mentions that intellectual capital examines different stages in the management process. These are defining intellectual capital, developing its policy, controlling it, creating the knowledge base, storing, protecting and disseminating information.

Intellectual capital can be found in every business at different rates, the first criterion that matters here is the discovery process. However, being able to see certain talents at this entry stage, which is not very easy, is affected by variables such as the corporate culture of each enterprise and leadership characteristics of managers. It should be noted that the culture of an institution and the characteristics of its leaders are already its intellectual capital. The research, finding and processing of information is affected by all of these features. From this point of view, it can be said that the management of intellectual capital requires a collective perspective. Moreover, this capital comes out with the balanced harmony of different elements. At this stage, the balanced harmony mentioned may not find exact mathematically because the intellectual capital is Two and Two add up to more than Four. Managing this capital is a surplus of energy created by the combination of different forces. This situation, which is explained as synergy at the corporate level, is the formation of a business culture

that supports sharing, not individual talents. As a result, being able to manage this capital correctly will support organizational efficiency by revealing the internal values, ensuring an optimum level of harmony between the business and its environment and keeping the relational networks in balance.

6. MEASUREMENT OF INTELLECTUAL CAPITAL

The reason for the interest in the management of invisible assets has led to the research and development of methods for measuring intellectual capital (Montequin et al., 2006: 526). Intellectual capital, which is both abstract and difficult to measure precisely (Berzkalne & Zelgalve, 2013), is especially important for institutions that provide information and services to see their performance status (Mouritsen & Roslender, 2009). Measuring intellectual capital is very important for managers to understand the value-creating elements of businesses, to evaluate business performance, and to shorten the process of finding financial resources (Ercan et al., 2003). Purpose of measuring intellectual capital; It is not the level and size of its presence in the business, but to determine how effectively the business can use it and produce value (Al-Ali, 2003: 39). According to the Meritum Guidelines published by the "European Union" organizations regarding the measurement of intellectual capital, the basic qualities required in measurement indicators are;

- Comparability: It should be able to compare with other businesses.

- Being Reliable: It means that the indicators used are objective, accurate and verifiable.
- Objectivity: Selected indicators should not be distorted in line with interests.
- Accuracy: the information presented should show the actual situation with the business.
- Being Proven: Indicators should be able to be evaluated and verified by others.
- Compliance: It is the ability of the information to be used in the calculation to be obtained from the information systems of the business by the business managers (Berzkalne & Zelgalve, 2013).

Looking at these criteria, measuring intellectual capital may have the ability to turn the administrative control system into a functional structure. From this point of view, it may become possible to make many external analyzes with the values created within the enterprise. In particular, it can serve as a compass in order to balance relations with competitors, customers and other stakeholders, to better see their own current situation, to predict the future and to reach goals in total.

6.1. Measurement Methods of Intellectual Capital

The measurement of intellectual capital is carried out in two ways. The first is a financial-based measurement that expresses a numerical value on an enterprise basis, and the other is a measurement that does not represent a numerical value and is not financially based on capital.

a) Business Based Measurement: In this measurement, the value appraised by the shareholders to the business is related to the efficiency of the managers in using the financial and intellectual resources (Gangi et al., 2019). This method covers the measurement made over the total value of the enterprise. This measurement is made on the data available to everyone within the company, but it is difficult to make a decision about the significance of the results because it is a method that is difficult to implement (Starovic and Marr, 2005: 14). In general, two ways are used in the measurements made on an enterprise basis. The first one is found by dividing the market value by the book value and the other is the Tobin Q ratio method. In the calculation of these methods, the market value / book value ratio: It is calculated by dividing the market price of the company's revolving stocks at a certain date by the equity share per share on the same date (Çırıkçı and Daştan, 2002). This method is used especially in periods of high inflation, when the profit figures announced by the enterprises do not reflect the real earnings (Alkan, Demireli, 2007: 33). The basic assumption here is that everything remaining within market value after account breakdown must be intangible assets (Haskel & Westlake, 2018). The high result in this method, which shows the difference between two different values, indicates that the intellectual capital ratio is high (Hobikoğlu, 2011, p. 93). Another method, Tobin Q ratio method; It is more successful than the first method because it goes over the renewal value of assets while valuing intellectual capital. The reason for this is the use of current data (Starovic and Marr, 2005: 16). There are different applications in

the calculation of this ratio. Despite these differences, if we need to present a standard formula; Intellectual Capital = (Market Value + Total Foreign Source) / Total Assets formula is used (Dey and Chauhan, 2009: 1-19). If the Q ratio is greater than 1, a business has intellectual capital, If the Q ratio is less than 1, it indicates that he does not have intellectual capital (Akkaya & Bali, 2018). This method allows businesses to make proportional comparisons and help inform their investment strategies. The most important thing here is that this capital, which is difficult to measure, provides information as much as possible. This information not only provides information about the current situation but also offers the opportunity to make strategic planning for the future investment.

b) Three methods are used for capital-based measurements. The first is the balanced scorecard, the second is the skandia guide, and the third is the intellectual capital index. The first calculation method, balanced scorecard, developed by Kaplan and Norton (1996), this model was originally designed to measure the performance of businesses, but later became a part of strategic management (Sawyer and Gammack, 2008: 153). Especially the business performance that can be calculated with this method is gathered under 4 main headings. These are financial perspective, customer perspective, internal processes perspective and learning perspective. While determining the indicators under these headings, the strategic goals of the enterprise are taken as basis (Müller, 2004). In this method, a suitable environment is created for capital management to play an active role

in the management system of the enterprise. Here, the focus is on both business performance and employee performance.

Another method, the skandia guide, has been developed for the reporting of intellectual capital. It is a dynamic intellectual capital reporting method developed on the basis of a balanced scorecard and based on concepts not included in the traditional balance sheet layout. This method explains the relationship between intellectual capital and the market value of the institution and the intellectual capital value (Edvinsson, 1997). The model is based on 30 performance indicators in various fields and focuses on the human element (Roos Vd, 1998: 72).

The Intellectual Capital Index Method approach developed by Roos and Roos; It is a study that associates the changes in the intellectual capital with the changes in the market by showing the intellectual capital indicators on a single index (Hobikoğlu, 2011, p. 96). This method has different distinguishing features. These; Focusing on the monitoring of intellectual capital dynamics, taking into account the productivity values of previous periods, shedding light on the business in the examination of physical assets (Roos & Roos, 1997). This method offers managers a deep perspective on intellectual capital in one piece. In summary, these models focus on evaluating how human capital affects shareholders' structural capital compared to previous periods. In these models, generally, the aim of the organization to create a balanced structure between employees and corporate values and ultimate goals by focusing on many variables in terms of

financial, customer, process, innovation and development comes to the fore.

7. INTELLECTUAL CAPITAL EFFECTS

Intellectual capital is the activity of revealing performance through the internal processes of enterprises. The most important aspect of this activity is its uniqueness. The cost of imitating this capital, which is difficult to imitate, is also very high. Therefore, it is a valuable and unique skill. Businesses are based around a number of resources. These sources are their life water. Sectoral characteristics change in industrial conditions. However, when evaluated as an average, there are many common sources almost similar to each other in many sectors. While using these resources enables businesses to be similar, the way they use resources differentiates them from each other. When considered within the ultimate goals, businesses are expected to be different from their competitors in order to gain competitive advantage. This difference means either the work done is radically different or the way the work is done is different. We can explain this with an example from the food industry. For example, a company may be doing very well in the biscuit group. Likewise, its competitor may have had a close success in the same industry. The feature that makes these two companies different is that they either produce chocolate, which is a different product, in addition to producing biscuits, or they produce biscuits with cocoa, which is different from the other. However, in today's industry, both differences can be imitated very quickly with the possibilities of technology. Even that technology

itself can be a subject of imitation. The most important competitive factor that will emerge at this stage is the human resource, knowledge infrastructure and team relationship skills that adjust the content ratios of the biscuits produced, presenting those products with different flavors under different temperature and ambient conditions. For these reasons, the favorite biscuit brand and type of each of us is changing. The reason why you prefer the product you buy today over the other; it is a counterpart of the unique capital. This capital is intellectual capital. It is thanks to the effects of intellectual capital, which directly contributes to economic sustainability such as adapting to changing conditions, updating innovation and talent infrastructure on the basis of knowledge, and developing value-creating activities.

Many studies have revealed that intellectual capital affects corporate capabilities and company performance. (Huang and Huang, 2020). With the power created by the intellectual effect, the knowledge and skills of the employees are clearly revealed, and the analytical thinking skills that develop, activate the institutions. At the same time, production performance and sense of security are increased, relational structures are strengthened, and more inclination is provided for teamwork (Liao & Chuang, 2007). Many researchers who set out from different perspectives stated that intellectual capital has the potential to increase the value of an organization and acts as a strategic tool (Subramaniam & Youndt, 2005). This strategic perspective is vital for unstable markets. The learning skills of employees in markets with high rate of change and adaptation to change is an important business

feature. At this point, intellectual capital has the capacity to adapt rapidly to changes and positively affect firm profitability (Sumedrea & Stnia, 2015). It offers the opportunity to make today's businesses the business of tomorrow with intellectual capital, sustainable competitive advantage and long-term development.

CONCLUSION

It is understood that intellectual capital gives companies a competitive advantage and contributes to sustainability in today's information age, as well as helping to develop a strategic perspective. It is important that businesses that want to gain competitive advantage in the market have features that can make a difference compared to their competitors. The element that will make this difference is its employees, which are the most valuable resources of enterprises and their intellectual capital, which is everything that their employees know in total. Businesses that manage this capital effectively provide motivation, performance increase, spread of corporate culture to all processes and effective communication skills with all stakeholders in the external environment, which are key to the business, as a result of the learning organizational structure they have gained. As a result, it is possible to develop an organizational structure that will create company value in the new industrial order where the pace of change is very high, contribute to the basis of sustainable innovation, adapt to changing conditions, and adapt to the ecology of the sector, with the competence of intellectual capital capacity. In the industrial future,

organizations that can build and use intellectual capital capacity today will outlive their founders.

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CHAPTER 10
**DIGITAL CURRENCIES: SOME THEORETICAL AND
PRACTICAL IMPLICATIONS¹**

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¹The study was produced from the thesis titled “The Ecosystem of Cryptocurrencies in terms of Monetary Theory, 2020”.

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INTRODUCTION

Seeds, stones, metals, pearls, slaves... It is seen that they are used as money during "Money 1.0" period when from the emergence of commercial tablets to the time until 1871. The first electronic fund transfer (EFT) was realized in 1871 with the telegraph network by Western Union. When the US government removed the gold equivalent of the dollar, the "Money 3.0" period was started, in which the fiat money emerged in 1971. Recently, the idea of the beginning of the "Money 4.0" period has been expressed with the start of the transfer on Blockchain network of Bitcoin in 2009 (Birch, 2017). Accordingly, there are 4 different paradigmatic changes after the milestones in the 5000-year monetary history (Figure 1).

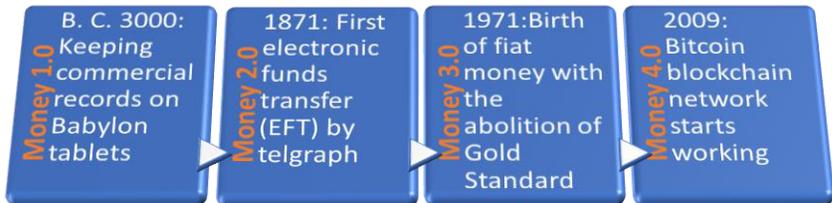


Figure 1: Some Milestones in the Monetary History

(Authorial)

Digital and corresponding assets are expressed as "Digital Currency" in the 2016 IMF report. This definition is general and inclusive (Figure 2). As a matter of fact, electronic coins with legal basis (PayPal, Digicash, First Visual, Cybercash, Visacash), virtual coins without legal basis, Linden dollars, virtual game tokens, airline miles, mobile and internet coupons, crypto coins, etc. all examples are covered in digital currency (Arkan, 2020).

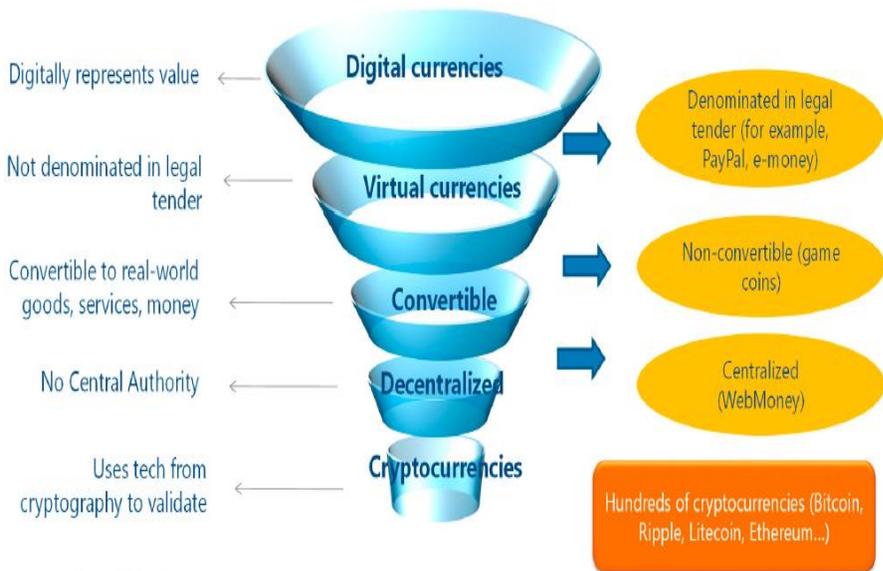


Figure 2: Taxonomy of Digital Currencies

(IMF,2016: 8)

Central Bank Digital Currencies (CBDCs) are official coins in digital form that most of the world’s central banks are working on to issue. CBDCs may contribute to the economy such as functioning as a safe store of value, increasing the effectiveness of monetary policy, facilitating its applicability, ensuring price stability, decreasing the cost of supply and thus reducing the use of paper (Bordo & Levin, 2017). However, as it can be understood from the reports published by some central banks, the transition to CBDC will not be painless and there are also sectors that it will affect negatively (BOE 2018; BOE 2020). The CBDC is not a magic wand, it is a complement to the fiat money of the local economy to which they belong. But cryptocurrencies differ with CBDC in terms of independence (Arıkan, 2020).

It is seen that cryptocurrencies are the most specialized structure compared to other digital assets in the light of Figure 2. Today, it is seen that there are some legal, structural and theoretical obstacles to the official acceptance of cryptocurrencies, which looks like an eco-digital and de facto financial instrument rather than money. “Virtual currency” and “digital currency” definitions cover the cryptocurrency, but these cannot be said to be equivalent to cryptocurrency. This study focusses on private and official digital currencies which are frequently confused in the public and media in the light of Blockchain.

1. BLOCKCHAIN

Although the word “blockchain” was not used in Nakamoto's article (2008), this technology, which is the basis of the majority of CBDC's and cryptocurrencies; In essence, it is an encrypted and decentralized e-ledger. In blockchain, data is not stored in a single system like the server computer. Instead, data is copied and stored to all system members (nodes) using the infrastructure known as the Distributed Ledger Tech (DLT). But in this case, all users of the system can access the data. It is necessary to encrypt the data so that only relevant users can access it, at this point cryptography comes into play. As a matter of fact, a block can be private, public or mixed depending on the membership type of the participants. However, verification is done by the public in any way.

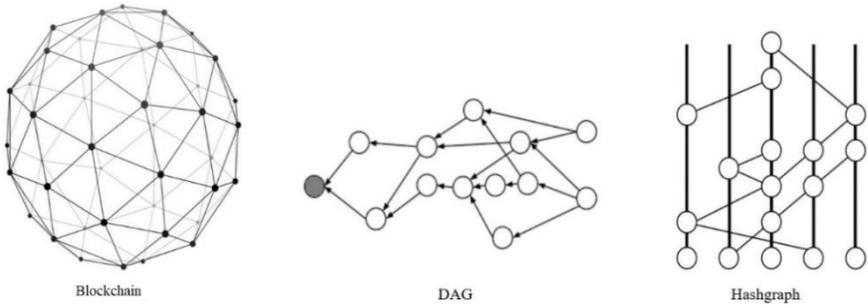


Figure 3: Blockchain & DAG & Hashgraph (Authorial)

Blockchain is not the only infrastructure option for digital assets. There are also alternative systems or exponential layers such as DAG, Hashgraph, Tangle, Lightning Network, etc (Figure 3).



Figure 4: Blockchain Eras (Authorial)

The first period of Bitcoin and its derivatives, which Nakamoto introduced as a financial solution proposal at the end of 2008, is called "Blockchain 1.0". On the other hand, the smart contract idea (Szabo, 1994) which started to be heard in the mid-90s, was implemented in 2013 on the basis of Ethereum by Vitalik Buterin and his friends with Solidity programming language. This second process of focusing on smart contracts is called "Blockchain 2.0". It did not take long to realize the different application areas of the blockchain. In addition to

finance and smart contracts, the implementation phase of the blockchain in other areas is expressed as "Blockchain 3.0". Although different definitions are made today, a "Blockchain 4.0" era is predicted in the future, where artificial intelligence and blockchain hybrid products coming soon (Figure 4).

1.1. Working Principle of Blockchain

Soon it is possible to see blockchain in different areas such as internet security, online data storage, energy, financial sectors, insurance, supply chain, transportation, internet of things, law, education, heritage, transfer of ownership or advertising. A financial blockchain transport can be summarized like Figure 5.

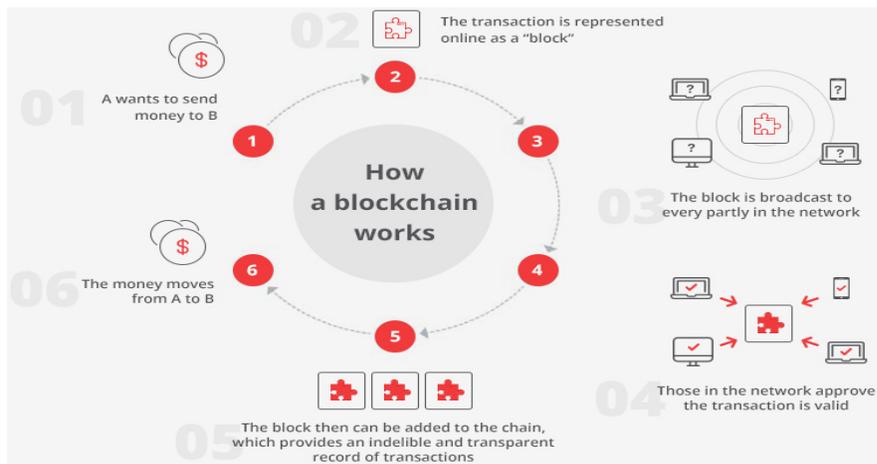


Figure 5: Working principle of Blockchain in Financial System (lykke.com)

Each node that is a natural part of the chain stores a copy of the relevant part or all of the data. The copy is updated frequently and matches all recent operations and copies of other nodes. In other words, the distributed system called blockchain actually exists with the joint efforts

of different users in different parts of the world. Known as nodes, transactions verified and approved by these users are included in the chain in blocks, creating a mechanism where power is shared independently from a center. Blockchain gets its name from the way data is organized. Indeed, the chain is a linear structure consisting of interconnected blocks. Block: It is a dataset that contains a list of past transactions with current records. It can be said that the reliability of the system increases mathematically as the chain grows with the added blocks. Blocks, like transactions, are public and transparent, but data cannot be changed. For example, it can be thought of as disclosing a written page by putting it in a locked glass box. As new blocks are added to the chain, a continuous and linear record set of interconnected blocks is created, just like successive pages of the physical ledger. Undoubtedly, the process that is intended to be made easy by analogy with a notebook is actually much more complex. One of the main reasons why backward change in the blockchain is almost impossible is that the blocks are secured by connecting them with encrypted evidence. In order to create a new block especially in old generation crypto coins, a costly and intense computational process such as mining is inevitable. The miners in the blockchain essentially provide transaction confirmation, grouping of the approved transaction, creating new blocks, and adding newly created blocks to the chain, depending on the fulfilment of the required conditions. However, it is also the responsibility of miners to enter the ecosystem of new cryptocurrencies, the reward they earn for their work. Each new block produced is linked to the previous block. The purpose of this mechanism is; After

connecting to the blockchain, it is to make the records inside the block unchangeable as a matter of fact, these records are secured with cryptographic evidence that is very costly to produce and almost impossible to solve. Blockchain; It is a linear chain of relative information blocks that are chronologically ordered and secured with crypto evidence (Binance Academy, 2020).

1.2. Some Pilot Blockchain Applications

Blockchain is not the only infrastructure option for cryptocurrencies and CBDC. The infrastructures such as Tangle, Hashgraph, DAG have presented some successful crypto proposals (Arıkan, 2021). On the other hand, many companies, financial institutions or central banks are currently working on blockchain and blockchain-product assets or cryptocurrencies.

Central Bank Digital Currency studies of more than 60 central banks continue. It is anticipated that many of these digital currencies will be blockchain-based, but it is worth remembering that they cannot be counted as cryptocurrencies with the prediction that will be central. IMF chief Lagrange compares cryptocurrencies with tulipomania and dot-com crises on the IMF's official blog. The glass half empty, being a tool to finance money laundering and terrorism. Speed, cheapness and good balance are its positive aspects. if the high risk and volatility of cryptocurrencies continues, IMF demand to issue CBDC from central banks (Lagrange, 2018) IBM and finance giant DLT's joint project "LedgerConnect" first announced in July 2018; It is a blockchain platform that 9 major banks are interested in. The platform, which aims

to prevent complexity and incompatibility by gathering blockchain applications of different banks under one roof, is still in the testing phase. IBM and Alibaba companies share the summit in patent applications for blockchain. As of December 2019, the world's largest B2B platform, Alibaba, has 90 patent applications for blockchain, and IBM has 89 patent applications. Samsung SDS, Samsung's IT subsidiary; It continues to develop the corporate blockchain platform named "Nexledger Universal" since 2017. Entrepreneurs can develop applications such as payment solutions, authentication and proof of authenticity in this platform. Utility Settlement Coin (USC) is a DLT-based digital asset defined in a private blockchain that can be used in large-amount transfers of different national currencies, which some financial institutions have been working on since 2015. It is a project that continues to be developed for the transfers to be made between banks and financial institutions and is not currently in practice (Akdağ, 2019). The general elections held in Sierra Leone in 2018 were carried out over the blockchain, a first in this field (Chohan, 2018).

It is known that Bitcoin, Ethereum and Bitcoin Cash transactions are carried out in several private banks in Switzerland. The city of Kaliningrad, Russian land within European Union, which hosted 4 matches in the 2018 World Cup, provided the opportunity to pay with cryptocurrency at its hotels throughout the organization. According to Lori Beer, JP Morgan Head of Informatics; Blockchain currently coexists with other technological advances but will replace this technology in a few years. However, regarding JP Morgan's trade with

cryptocurrency, it is known that the bank does not support cryptocurrency trading as of 2020, as it only supports regulated units. The cryptocurrency "Libra" (or Diem), which Facebook planned to issue in 2020 but had delays, was announced to the public that it will be in use in 2021. Diem which will be issued and managed by the Geneva-based association will be supported by its own applications, including Instagram and WhatsApp, and will also serve 1.7 billion people around the world who do not have access to traditional financial services (Cuthbertson, 2019).

2. CENTRAL BANK DIGITAL CURRENCY

Berentsen & Schar (2018) showed the features of CBDC in the dimensions of transfer, design and production as in Figure 6.

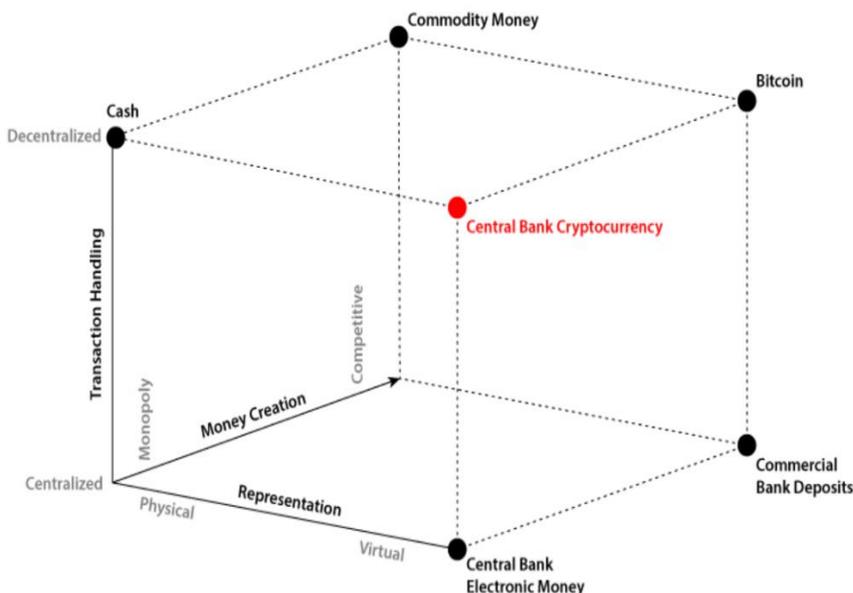


Figure 6: CBDC Suggestion

(Berentsen & Schar, 2018:98)

For example, commercial bank deposits; It is located in the centralized layer which is the tread of the cube in terms of transfer, in the virtual layer which is the right side of the cube in terms of design, and in the monopole layer, which is the back side of the cube in terms of production. It is known that banks compete with high interest rates to attract deposit customers. Or Bitcoin; it is located in the decentralized layer which is the ceiling of the cube in terms of transfer, in the virtual layer which is the right side of the cube in terms of design, and in the competitive layer which is the back side of the cube in terms of production. Central Bank Electronic Money: It is located in the central layer which is the tread of the cube in terms of transfer, in the virtual layer which is the right side of the cube in terms of design, and in the monopole layer which is the front face of the cube in terms of production. In this proposal, Central Bank Crypto Currency; it is located in the decentralized layer, which is the ceiling of the cube in terms of transfer, in the virtual layer which is the right face of the cube in terms of design, and in the central layer which is the front face of the cube in terms of production.

Dabrowski (2019) reported that the disregard of digital currencies or the prohibitive attitude would not be appropriate, and that fiat money was still firmly in place, at least in the short term, as they would not be applicable soon.

Bank of England (BOE, 2018; BOE, 2020) reports on CBDC; It has evaluated the opportunities, challenges and design. In the reports, it was stated that private banks and some business models could be exposed to adverse effects and a weakening of monetary policies could be seen. Swiss National Bank (SNB) shared its views with the public that it is in the preparations for CBDC issuance, that digital currencies to be issued by private enterprises may be a better option and that they are not very willing for CBDC.

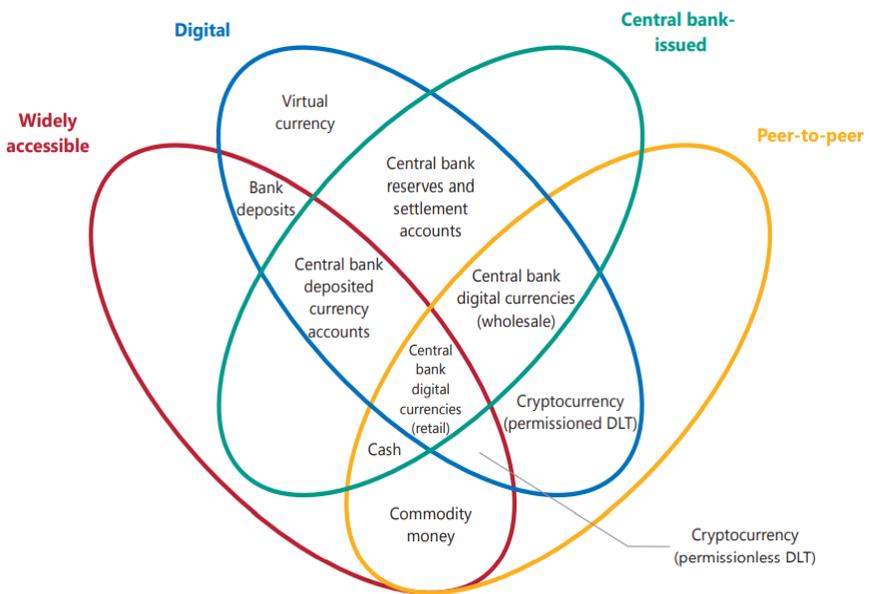


Figure 7: Money Flower: CBDC Representation with Venn Diagram (BIS, 2018)

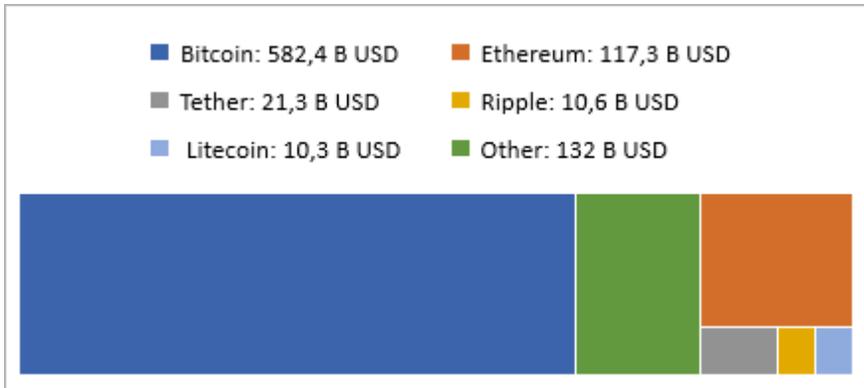
In the 2018 annual report of the Bank of International Settlements (BIS), it was reported that a CBDC will affect the financial order in 3 main streams; monetary policies, stability and the payments. According to the report, the magnitude of the impacts will depend entirely on the technological and economic design of the digital

currency that is likely to be extracted. In the report, central banks are asked to adequately consider and work on the possible risks about the CBDC, and the inability to protect the users and investors in cryptocurrencies, illegal use such as money laundering and instability factors such as volatility are the obstacles already seen. Regulation rather than prohibition has been proposed in overcoming obstacles. In the BIS (2020) first quarter report, it is seen that blockchain, DLT and P2P systems are emphasized. Money flower has also been seen that the money flower is used in The Committee on Payments and Market Infrastructures (CPMI, 2018) reports, which is one of the sub-committees of BIS. Cash in the diagram; It is defined as a non-digital coin-based coin that is accessible to the public. Bank deposits are defined as publicly accessible money in digital form. 4 types of proposals were made regarding a possible CBDC form. Central banks will be able to adopt one or more of these 4 forms in a possible official digital currency. For example, general purpose digital tokens that are the intersection of four clusters in the diagram; It is a type of CBDC available to everyone. There are different opinions on whether the CBDC will be open to everyone and complementary to fiat money or limited access to be used for large-amount payments.

3. CRYPTOCURRENCY

Technically cryptocurrencies often have Distributed Ledger Technology (DLT) and encryption based on infrastructure called blockchain that allows all nodes to verify the validity of a transaction. In terms of monetary theory, cryptocurrencies are currently the most

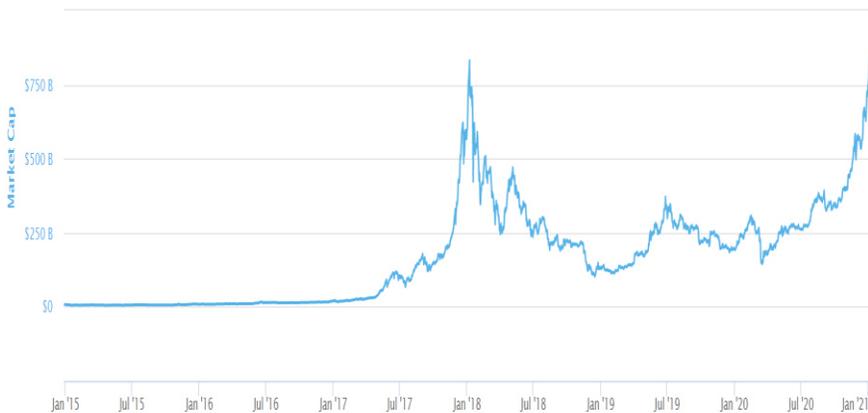
developed virtual currencies that cannot perform all the basic functions of money such as the account, exchange, and capital accumulation (Arikan, 2020).



Graph 1: Market Dominance of Pioneer Crypto Assets as of 05 January 2021

(coinmarketcap.com)

As of 05 January 2021, the number of tokens and coins in circulation is 8164. There are 32244 crypto markets. The global cryptocurrency market capacity is 874.120.482.767 US dollar. But these values are too exchangeable (graph 2) and do not include other industries in the crypto ecosystem (Physical infrastructure, dApps, digital asset service providers, etc.)



Graph 2: Cryptocurrency Total Market cap period of 2015-2021/Billion US dollar
(coinmarketcap.com, 2021)

While the reward given to miners for each block found in 2009 was 50 Bitcoins, this award is now 12.5 Bitcoins due to the halving process that takes place in approximately four years or every 210,000 blocks. The total amount of Bitcoin to be supplied is determined as 21 million. The date when all will be supplied is estimated as 2140. BTC, which reached the level of 1200 dollars in 2013, has started to be evaluated in the category of speculative financial assets due to its high volatility (Douma, 2016).

New crypto assets supply (ICO) is an important field of activity in the crypto ecosystem. Although ICOs increase market volatility and make the market sensitive with some speculative financial activities, they are an important part of the development and acceptance process of cryptocurrencies. Opinions defending that cryptocurrencies will be accepted and used by central banks in the future also offer some cryptocurrency supply suggestions that can be an option for ICOs.

Another prominent feature of cryptocurrencies is decentralization due to the blockchain structure (Almıaçık, 2019). While discussing the status of crypto currencies as a global reserve currency with their decentralized structure in the cryptocurrency, on the other hand, it is mentioned that they have the potential to eliminate financial intermediation in the long term. When the same independent structure is examined from a micro perspective, it claims to be able to ensure the security of payment and personal information. Decentralization of cryptocurrencies; It also means that only business-to-business activities may be carried out, regardless of the interests of a third person, community or organization. The concerns of central banks and governments that cannot receive taxes and do not carry out their required audits can be understood in this context. Decentralization: It means eliminating intermediaries such as supervisory institutions and banks. In the current financial system where economies aiming at free market conditions are in the majority, it is discussed that crypto currencies can be an international reserve currency with the possibility of being a new value storage and exchange tool on a global scale in the future. For example, the Nobel laureate economist Mundell (2003) has argued that reserve money used around the world that only serve the interests of a particular community cannot be effective in the long run, and instead, a Eurozone-like practice will be more successful. The fact that any group or organization does not serve monetary policies or interests draws decentralized cryptocurrencies at the centre of the discussions in this context.

Another feature that makes cryptocurrencies superior to most currencies is seen as accessibility. It is possible to transfer money internationally with the ability to make transactions 7/24 wherever there is internet access. The fact that transactions can be made quickly without waiting for any authority approval with low cost is one of the situations that makes crypto coins attractive compared to others (Arikan, 2021).

The comparison of Bitcoin with gold and fiat money (Table 1) is not limited to the study of Knottenbelt & Gurguc (2018), there are other examples (Akdağ, 2019; Baur et al., 2018; Dyhrberg, 2016; Walker, 2019).

Table 1: The Comparison of Bitcoin with Gold and Fiat Money

	Gold	Bitcoin	Fiat Money
Production Mechanism	Mineral mining using electrically-powered extraction device. Electricity in, physical commodity out.	Cryptocurrency mining using electrically-powered extraction device. Electricity in, digital commodity out.	Physical notes are printed but most money is created electronically. Typically issued by commercial and central banks of nation states.
Max. supply	Finite (but unknown). Supply has consistently increased at a rate of c. 1.5% p.a. for more than 100 years.	Finite (and known). Supply currently increasing at c. 4% p.a. but rate of increase from year to year is always decreasing and will drop to 0 by 2140.	Theoretically unlimited. Supply has increased at an average rate of c. 11.5% p.a. over the last 40 years
Concentration of resource	Varies by geography but is fixed within specific locations. Independent of global mining power deployed.	Dynamic concentration, dependent on global mining power deployed, and adjusted every 2016 blocks (+/- 2 weeks).	Dynamic, dependent on government and central bank policies.
Storage	Expensive. Requires secure physical location. Can be held directly or via nominee.	Inexpensive. Requires secure storage for private keys, which can be offline or online. Can be held directly or via nominee.	Usually inexpensive. Requires wallet, secure physical storage or bank account. Can be held directly or via nominee.
Unit of trade	Priced per Troy Ounce (31.1g). Typically available in quantities ranging from 0.5g (+/- \$30) to 1kg (+/- \$40000).	Priced per BTC. Typically available in quantities ranging from 1 mBTC (+/- \$7.60) to 100 BTC (+/- \$760000)	USD, EUR, GBP, etc. which are further subdivided into 100 units (cents/pence).
Licensing requirements for production	Typically requires a mineral extraction licence issued by government.	Typically none although certain jurisdictions have imposed moratoriums on new commercial operations.	Production rights for physical representation are exclusive to government.
Price volatility	Moderate Variable depending on currency and government	Extreme	Variable depending on currency and government
Environmental impact of	Typically viewed as negative	Typically viewed as negative	Neutral

(Knottenbelt & Gurguc, 2018)

Crypto mining is another industry that has been criticized a lot. As of 2018, the amount of energy used in mining activities has exceeded the annual electricity consumption of some developed countries such as Switzerland. Aware of this problem, the crypto community is trying to produce solutions that do not need mining with new generation programmable crypto assets (Figure 5).



Figure 5: The Generations of Cryptocurrencies (Authorial)

Cyber-attacks are common in crypto exchanges. From the hacking of personal crypto accounts to the total robbing of the hot and cold wallets of the crypto exchange, digital crimes of various dimensions are caused by individual errors or structural problems of crypto exchanges. There is no structural security weakness of the blockchain in such digital crimes.

3.1. Theoretical Problems of Cryptocurrencies

Basic theoretical problems in cryptocurrencies can be expressed as

- Theoretically still not able to fully fulfil the basic functions of money,
- Crypto users and investors cannot be protected by law, although it is not based on a legal basis around the World,

- Cryptocurrencies and blockchain or digital currency types are used interchangeably and mixed in the public and even the literature.
- An active crypto user needs a good level of information technology knowledge, and user-friendly crypto interfaces still need to time.
- Many ponzi³ ICO, tokens or crypto moneys; victimizing investors and attracting speculators to the crypto market.
- Different chain blocks cannot work with each other,
- Hiper volatility,
- Crypto exchanges eliminate the returns promised by cryptocurrencies,
- Negative attitudes of central banks and governments,
- The measurement, exchange, wealth storage, purchasing power and values of cryptocurrencies, which have not fully accepted intrinsic value, are too variable, so they cannot store value efficiently or cannot be used as a medium of exchange.
- New options to eliminate the negative effects of mining are still not absorbed in the crypto ecosystem.

Facebook and Google banned ads related to cryptocurrencies in 2018. In the statement made as a justification, attention was drawn to the theoretical paradox of crypto currencies, and it was announced that advertisements of unsupervised and speculative financial products such as high volatility and bivariate options will be banned by the said institution as of July 2018. However, Facebook's announcement that it

³ Ponzi: Pyramid sales or pyramid chain virtual projects that promise high profits but only develop their founders and lose their investors.

will release its own cryptocurrency Libra (new name Diem) in 1 year in 2019 gives the impression of a contrast.

3.2. Practical Problems of Cryptocurrencies

3.2.1. Scalability

Bitcoin, which emerged in 2009, existed as the only cryptocurrency for the first two years. Considering the insufficiencies of Bitcoin, scale problem comes first. It is too slow to use in daily operations and this speed decreases as the number of users increases. Because blocks are used to structure transactions, and the block size is limited and inefficient since the day they emerged (Bitcoin's block size is only 1 Mb). While the transaction speed in Bitcoin is 4 to 7 per second, this situation is not very different in Ethereum, which is the 2. generation cryptocurrency (maximum 15 transactions per second). However, payment methods such as Mastercard and Visa can process more than 4000 transactions per second. Efforts to find solutions to structural problems seen in 1. and 2. generation cryptocurrencies (Figure 4) with serious changes such as the use of Proof of Stake (PoS)⁴ algorithm

⁴ PoS & PoW protocols are consensual algorithms used in blockchain mining to record a new transaction and solve extremely difficult mathematical problems. The miner who solves the problem first and prints the transaction to the blockchain by verifying the block is rewarded. Both protocols are distributed systems that are primarily designed to prevent attacks on the network and do not require a central approval mechanism. The PoS process, whose main purpose is the same as PoW, is run by miners who put part of their money on a block to validate transaction blocks. Because the PoS process is faster and more efficient than the PoW process, large platforms such as Ethereum are preparing to move to a system that adopts this protocol to validate transactions. Compared to PoW, the PoS protocol saves thousands of times in cost, and electricity consumption is almost zero. The PoS protocol also encourages investors to invest more, as it increases the number of

instead of the Proof of Labor (PoW) protocol as a consensus structure or with serious changes such as Lightning Network and programmable 3. generation cryptocurrencies continue.

3.2.2. Confidence

Nakamoto (2008) stated in his manifesto that the main problem in the current monetary system is trust and the key factor of Bitcoin's birth is decreasing the value of money by central banks. However, the current high volatility is even above the value changes in the fiat currency that it criticizes and draws attention as the main problems in front of the trust in cryptocurrencies, especially in the context of the exchange and value storage function. It is not difficult to predict the meaningful relationship between investing in cryptocurrencies and the factor of trust in them, and it is known that there are empirical studies supporting this relationship (Metin, İ., & Yakut, E., 2018). Like the security weaknesses that exist in the traditional financial system are seen in the crypto market. The classic thefts in the cryptosphere; Especially in crypto exchanges, it appears as misleading payment information, phishing, payment point breakage or versatile cyber-attach. Crypto exchanges are public markets where not only individual robberies but also pump and dump⁵ attempts based on manipulation and speculation

rewards investors will receive from transaction verification, depending on the number of cryptocurrencies in their wallet and the duration of holding them in the wallet. Many of the relatively new cryptocurrencies such as Peercoin, Ohmcoin, OkCash use the PoS protocol (Dođru, 2019).

⁵ The most common manipulation type in the cryptocurrency markets is Pump & Dump. A small-volume cryptocurrency is often determined by the managers of the Pump & Dump groups organized through Telegram-like channels. Even the group members do not know what the target cryptocurrency is until the last moment.

are common. On the other hand, virtual crypto wallet loss is less recoverable than the loss of a physical wallet (Malanow, 2017). Although it has been sparse in recent years, the operations carried out by security units regarding the use of cryptocurrencies in the sale of illegal products and laundering of criminal proceeds have been known since 2011. While there are some solutions for the security problems experienced in the traditional financial system, it can be said that there are fewer legal options in the crypto market, which has not yet gained a legal basis (Gandal et al., 2018).

3.2.3. Inefficiency in the Consensus Algorithms

A lot of work has been done on the current consensus algorithms of the crypto ecosystem. Consensus algorithms are autonomous programs that provide security against attacks in networks with multiple nodes and the proper functioning of the system with the correct ordering of blocks (Mingxiao et al., 2017: 2568). Examples of commonly used are Proof of Elapsed Time (PoET), ThresholdRelay, PBFT, Stellar, Proof of Stake (PoS), Ripple, Proof of Work (PoW), Proof of Burn (PoB). However, development in consensus algorithms

Administrators specify a specific date, day and minute for all sub-members for the operation. Just before this minute arrives, managers secure their positions by purchasing the target coin at the minimum price. A few seconds later, the other group members are given the name of the target cryptocurrency. Pumps begin immediately after. Independent investors who see the increase in the value of the target cryptocurrency with manipulation previously supported by controlled disinformation on social media are included in the event. The group executives who bought the target crypto before the signal had already placed the top sell order and made a huge profit within seconds. The accumulation of novice investors entering the market at a peak price is transferred to the network members within seconds (Güleç & Aktaş, 2019).

is still not at the desired level. For example, while the PoS algorithm can cause the monopolization of production by large shareholders by reducing the distributed structure of miners, the PoW algorithm used by Bitcoin is criticized for its high energy consumption.

3.2.4. ICO Manipulations

It has become very easy to collect a large amount of funds over the internet connection in a short time without any identification by cryptocurrencies. It is estimated that more than \$ 1.7 billion in funds were collected through ICOs in 2017 alone. However, so far, most of the ICO projects have not been able to go beyond the project and have turned into garbage in a short time by failing to realize their promises. In this context, most of the ICOs that are fundraising projects in the crypto market are ponzi. The basis of the problem; This is because the cryptocurrency market is still unregulated. As a matter of fact, there is no assurance other than the words of the project owners regarding the high return on investment. However, just because a thought is good does not mean that it will be perceived massively, that it is feasible, or that the product it will produce will bring profit, or that the person producing the idea will not embezzle the collected funds. As a matter of fact, it is more difficult to trace embezzlement crimes in the crypto market, which lacks a legal basis, than the traditional financial system.

3.2.5. Cyber Attacks

There are several possible attacks on blockchain. 51% attack is the frequently discussed one. Its success depends on a malicious monopoly of more than fifty percent of the network power. This attempt could result in a change of rankings or a malicious exclusion of transactions. The 51% attack is essentially when 51% of miners come together and take control of the chain in mining-based blockchain systems. Mining pools, which are indispensable elements in old generation crypto coins, are the biggest factor that increases risk. There has not been a successful 51% attack on the Bitcoin blockchain so far, but there is a theoretical possibility. As a matter of fact, while the Chinese origin ghash.io pool came close to dominating more than fifty percent of the global mining power alone in 2014 without ulterior motives, this danger was temporarily prevented by moving miners to other pools. On the other hand, network growth means increased security. It does not make much sense to use large amounts of resources and money to attack the blockchain, as the rewards for miners will be higher as long as they are functioning properly. Also, a successful 51% attack can only change transactions that have occurred recently because the blocks are linked by encrypted evidence. As a matter of fact, to make changes in older blocks, a calculation capacity that is not possible today is needed. Other than 51% attack, some other very low probability but probable attack types are Shora attack, DDos attack, double spending and Sybil attack.

3.2.6. Data Change

While unchangeability is one of the advantages of blockchain, this is not always desirable. Unlike the possibility of repayment or withdrawal in credit card or bank transactions, transactions made with cryptocurrencies are irreversible. However, even if it is unlikely, there may be some errors specific to cryptocurrencies. For example, for Ethereum, if the last part of the address is not written, money will be lost or it will go to the desired address, but the amount may increase 256 times. There is no such problem in Bitcoin, which has an internal address verification system in the working mechanism, but there is always the possibility that the money will go to a mysterious wallet. There are reversible options in the traditional financial order for problems that may occur due to user error. Whereas, changing blockchain data; It is a near impossible situation that requires a "hard fork"⁶.

3.2.7. Keys

The blockchain infrastructure allows the user to own their own cryptocurrencies using a public key encryption system. Each blockchain address has a pair of keys belonging to it. The first is a public key that can be viewed and shared. The other is the private key and is hidden. Private keys are needed for users to access their personal cryptocurrencies. If the user loses his private key, the crypto

⁶ Hard Fork: It is the permanent separation of the block from its previous version.

The suggestions that are not in practice, such as Fedcoin, or projects that are not in circulation, such as eKrona and CADcoin, are also shown. The example of an application found in the money flower (Figure 3) is written in a strikethrough if it has become obsolete over time. For example, E-gold, one of the first digital money platforms that are not currently used and reached a volume of 2 billion dollars between 1996-2009; It was a highly scalable and practical digital currency platform where precious metals such as gold could be opened and transferred via SMS, and accessible to everyone (Mullan, 2016). M-pesa, which we see still active in Figure 3, is a digital currency platform based on mobile phones that was launched in 2007 by Kenya's largest telecommunications company. Although accounts can be opened with an intermediary institution such as the African Commercial Bank, the scattered settlements and the inability of the rural areas to frequently visit bank branches in the centers weakened banking in Kenya and made M-pesa a powerful digital option that delivers banking transactions to the public (Jack & Suri, 2011). Zamani & Giaglis (2018) stated that blockchain themed financial applications promise a potential to eliminate borders for those who do not have access to banks. Venmo seen in the diagram; It is an application that is widely used among university students especially in the USA and enables money exchanges by associating their social media accounts with their bank accounts. Requesting 1% commission for instant payments, Venmo does not charge commission for instructions declaring that the payment will be made within 1-3 business days. With Venmo, flatmates can easily split rent, bills or

accounts (Zhang et al 2017). E-gold, M-pesa and Venmo are not cryptocurrency or blockchain based platforms but are examples of digital asset providers in Figure 3. Schweigl (2018: 388-390) argues that CBDC will make a positive contribution to the monetary policy by increasing the transition effect of policy interest rates, with the availability of everyone. FedCoin (Figure 3) is an example of CBDC proposed by Koning (2016) but not approved by Fed. Fedcoin's ability to exchange fiat currency and the management of this change by Fed were considered. Fedcoin was designed with the idea that instead of a limited supply like Bitcoin, it should be issued in the amount that the public would like to hold such as cash, added to the reserves along with the cash and monetary base, and positioned as an alternative currency (Garratt & Wallace, 2018). CADcoin is a DLT-based pilot application planned to be issued by Central Bank of Canada. It is known that in Sweden, more than 90% of commercial transactions are made in digital form instead of cash. With the falling cash demand, CBDC eKrona project, positioned by the Swedish Central Bank (Riksbank), between foreign exchange deposit accounts and the retail central bank digital currency, is in a pilot phase. eKrona is thought to play a complementary role to cash. Dinero Electrónico; It is a mobile payment service supported by the Central Bank of Ecuador and used with national identity numbers by downloading a mobile application. Dinero Electrónico is a rare example within the scope of a foreign exchange deposit account, as the dollar is used as the official currency in Ecuador, but its use is very low due to local economic problems (Akdağ, 2019).

CONCLUSION

The money in bank accounts is essentially "representative money"; It consists of a digital ledger available on the bank's server computer. In other words, bank reserves are mostly dematerialized and digital records. In this context, it should not be forgotten that digital currencies are inherently de facto eco-digital records.

A problem that was effective in questioned the existence of financial intermediaries in the 2000s; It is the observation of an increase in contrast to the expected decrease in transaction costs. The widespread use of financial intermediaries and the continued increase in transaction volume are increasing the reactions to financial intermediaries. Even though the share of financial intermediaries was overlooked during the dotcom crisis, the mortgage sales (mortgage) crisis of 2007-2009 turned the attention back to financial intermediaries. Adrian & Shin (2010) argued in their studies dealing with the mortgage sales crisis that aggressive profit policies of financial intermediaries have unpredictable consequences and that these attitudes and policies of financial intermediaries lie at the center of the financial crisis. As a matter of fact, in this period, the concept of crypto money entered the financial world with the invention of Bitcoin by the programmer / group named Satoshi Nakamoto. Most of CBDC'S are electronic and blockchain form like cryptocurrencies. However, the key factor that the cryptocurrency is separated from CBDC by centralized.

The official digital currency to be issued is not a magic wand. As a matter of fact, CBDC's power depends on the fiat money it represents. Official digital currencies differ completely from cryptocurrencies in terms of centralized. Approximately 70% of central banks have concrete studies on a digital official currency according to the 2019 BIS report. Countries such as China (DCEP), Switzerland (e-franc), Japan (J-coin), Venezuela (Petro), Russia (Crypytoruble), Dubai (Emcash), Estonia (Estcoin) are in the process of developing digital currency prototypes. currently, there is no official digital currency example that can be considered successful and has been implemented by completing the pilot implementation phase and is in widespread use. Most governments, especially China, emphasize that the official digital currency to be issued will not be a decentralized crypto money, but a digital currency under the auspices of the central bank. Unlike private finance institutions, it is observed that central banks concentrate on two basic issues related to cryptocurrencies; These are the issuing of digital currencies and security problems. There are many official examples of digital currencies classification as commodities (Baek & Elbeck, 2015: 30; Dyhrberg, 2016: 140, etc...) due to tax expectation and concern for weakening monetary policies. However, crypto assets are described as "money and more than money" by the cryptocurrency community, considering their external features such as smart contracts and dApps, in addition to being a medium of exchange and value storage.

Figure 7 is a visual summarizing the key features of CBDC and cryptocurrency.

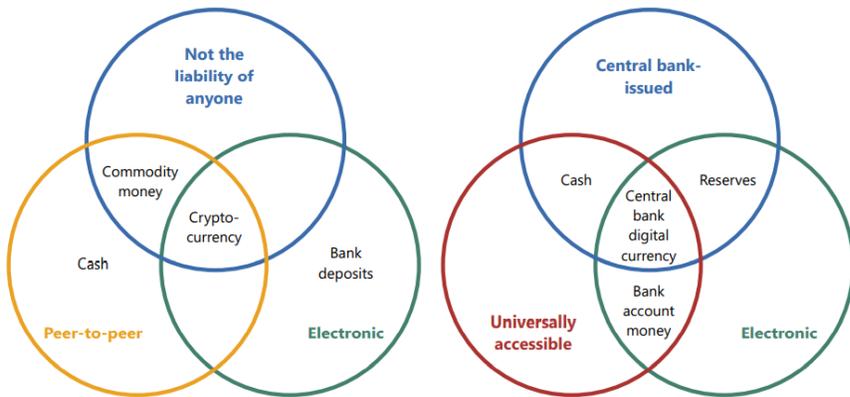


Figure 7: Cryptocurrency & CBDC

(BIS, 2017)

Central Bank Digital Currency to be issued is in digital form, just like deposit money and reserves. Although there are concrete studies on CBDC by central banks and international monetary institutions; There is no consensus yet on features such as general definition, design, anonymity, interest yield (CPMI, 2018).

CPMI (2018) has introduced a proposal for the Central Bank Digital Currency (CBDC), which is planned to be issued, which can be converted into both reserves and cash. Indeed, if this conversion is not achieved, exchange rate differences will occur between different CBDC.

Blockchain consists of a linear chain of digital relative blocks that are encrypted and verified. Each block contains, among other information, a reference to the block immediately preceding it and a list of recent transactions. The main function of the blockchain is to work like a giant

decentralized digital ledger and keep a tamper-proof record of approved transactions. Blockchain with DLT infrastructure, it can provide confidentiality, security, efficiency, accountability and transparency in formal and informal areas. It also provides users with an opportunity to directly communicate with peer-to-peer (P2P) and machine-to-machine (M2M) independently from intermediaries and exchange value over the internet at a lower cost. In this context, Blockchain has a potential that can transform in many different areas such as agriculture, government units, voting, health, education, property, along with the financial aspect. Although there are exceptions, the common and basic feature of many cryptocurrencies is the blockchain infrastructure.

Crypto users are seen by their addresses rather than their real names in Blockchain. This feature is the reason why cryptocurrencies are preferred by users in terms of privacy. However, the emerging risk of counterfeiting is a problem (IOSCO, 2017).

Blockchain is not the only infrastructure option in digital money studies. It has been observed some alternative infrastructure systems such as Hashgraph, DAG or Tangle. However, considering the pilot apps, a blockchain-based CBDC implementation stands out as a more likely option. A Blockchain-based CBDC will be issued until 2023 according to 11. Development Plan of Republic of Turkey dated 2019.

Nobel laureate economist Mundell (2003) stated that the reserve money used worldwide which only serve the interests of a certain community cannot be effective in the long run and instead, a Eurozone-like practice will be more successful. Before a reserve digital currency that is likely

to emerge in the future becomes “more than money”, it must be money. In this respect, cryptocurrencies such as Bitcoin have recently emerged as reserve money candidates. This can be possible by overcoming the more of structural and theoretical problems regarding cryptocurrencies in the future. For example, when it is accepted as a cryptocurrency exchange tool; As a unit of account and a measure of value, it can be said that the fees for goods and services will begin to be expressed in terms of the crypto asset.

According to Keynes, solid money can be in a solid economy. Hyper volatility is one of the main obstacles to the "solid" of crypto currencies independent of local economies. In January 2020 Crypto market decreased to about one third of the volume at the beginning of 2018 with 238 billion USD. It has a market volume more than US \$ 1 trillion USD as of January 2021. When these data are analysed in detail, it is concluded that the crypto market is extremely volatile and high risk (Arıkan, 2020).

Cryptocurrencies, which we saw in the literature as a different investment tool (Selmi, 2018; Shahzad, 2019), should gain the trust of consumers and official authorities before they turn into legal financial options. As a matter of fact, an international consensus is important for uninhibited crypto assets. At this point, institutions such as IMF or BIS, which have long-term and deep-rooted studies on cryptocurrencies, can take responsibility. Smart contracts are e-contracts that are based on the blockchain infrastructure, but offer a wider programming opportunity than Bitcoin, beyond just sending and receiving money, if the desired

conditions are met. It has become better known with Ethereum, which was introduced in 2014. With smart contracts, cryptocurrencies are no longer just a means of exchange and value storage. It is claimed that smart contract-based new generation cryptocurrencies are cryptic discoveries that will update the definition of the money known to have changed in the historical process.

The developments that should not be missed depends on being fast. It would be appropriate to take measures to protect digital consumers, investors and the market with timely political responses in the light of the risk acceptance capacity. It is necessary to understand the anti-order and anti-stability aspects of cryptocurrencies to avoid unnecessary precautions and fears. This can be done with a good regulation. Taking advantage of the gains of the crypto ecosystem and avoiding its pitfalls requires understanding it well. Even if banks do not completely disappear in a possible financial technology revolution as DeFi⁷, decentralized applications promoted by cryptocurrencies can help to create a more robust financial ecosystem by diversifying the financial environment and establishing a balance between financial service providers.

Cryptocurrencies cannot be said to be an immediate threat, as they still account for a small amount of the global reserve and have limited connectivity with the rest of the financial order. But authorities must be alert to 2 dangers from cryptocurrencies: forex trading and negative

⁷ DeFi refers to a decentralized ecosystem of financial applications built on Blockchain networks.

shocks. In addition, with the large-scale transition from official money to crypto assets, there may be disruptions in the business models of banks. Central banks may find it difficult to secure the stability of such a distributed and decentralized system, and with banks weakened in a crisis, they may wear out as the last lender (Lagarde, 2018).

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