# Evaluation of the Usability of Social Media in Education in Türkiye with Machine Learning

## RESEARCH ARTICLES

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*Abstract*

*This study aims to examine university students' views on the usability of social media in education in Türkiye with machine learning. A five-point Likert scale questionnaire was used for demographics and the usability of social media in terms of ease of learning, effectiveness, memorability, fault tolerance, and satisfaction to university students. The results were analyzed by machine learning. It was determined that participants of 34.6% to use Facebook, 36.2% to use Twitter, 90% to use Instagram, 10.8% to use Linkedin, and 93.8% to use YouTube. The participants error tolerance varies for Twitter, other factors have no bearing on the usability dimension. At the end of the research, the usability of Youtube was rated 3.44 (68.8%), that of Twitter 3.45 (69.0%), Facebook 3.44 (68.8%), Instagram 3.42 (68.4%), and LinkedIn 3.32 (66.4%). 3.42 (68.4%) was the overall usability score for social media platforms. Social metworks usability is just above 68 on the System Usability Scale, which is considered borderline. In order to determine the effects of social media on Usability, five sub-dimensions were analyzed by machine learning multi-regression analysis. It was concluded that 98.16% of the data fit the regression model and memorability had the most positive effect on the increase in usability, and the rememberability has the negative effect.*

*Keywords: usability, social media, machine learning, education, social networking, platform*

# Türkiye'de Sosyal Medyanın Eğitimde Kullanılabilirliğinin Makine Öğrenmesi ile Değerlendirilmesi

***Öz***

*Bu çalışma, üniversite öğrencilerinin sosyal medyanın Türkiye'de eğitimde kullanılabilirliğine ilişkin görüşlerini makine öğrenmesi ile incelemeyi amaçlamaktadır. Üniversite öğrencilerine demografik özellikler ve sosyal medyanın öğrenme kolaylığı, etkililiği, akılda kalıcılığı, hata toleransı ve memnuniyeti açısından kullanılabilirliği için beşli Likert ölçeği anketi uygulandı. Sonuçlar makine öğrenimi ile analiz edildi. Katılımcıların %34,6'sının Facebook, %36,2'sinin Twitter, %90'ının Instagram, %10,8'inin Linkedin ve %93,8'inin YouTube kullandığı belirlendi. Katılımcıların hata toleransı Twitter'a göre değişmektedir, diğer faktörlerin kullanılabilirlik boyutu üzerinde hiçbir etkisi yoktur. Araştırmanın sonunda Youtube'un kullanılabilirliği 3,44 (%68,8), Twitter'ın 3,45 (%69,0), Facebook'un 3,44 (%68,8), Instagram'ın 3,42 (%68,4) ve LinkedIn'in 3,32 (%66,4) olduğu belirlendi. Sosyal medya platformlarının genel kullanılabilirlik puanı 3,42 (%68,4) oldu. Sosyal ağların kullanılabilirliği, Sistem Kullanılabilirlik Ölçeğinde sınırda kabul edilen 68'in biraz üzerindedir. Sosyal medyanın Kullanılabilirlik üzerindeki etkilerini belirlemek amacıyla makine öğrenmesi çoklu regresyon analizi ile beş alt boyut analiz edilmiştir. Verilerin %98,16'sının regresyon modeline uyması ve hatırlanabilirliğin kullanılabilirlik artışı üzerinde en olumlu etkiye sahip olduğu, hatırlanabilirliğin ise olumsuz etkiye sahip olduğu sonucuna varılmıştır.*

***Anahtar Kelimeler:*** *kullanılabilirlik, sosyal medya, makine öğrenimi, eğitim, sosyal ağ, plat-form*

## Introduction

The knowledge obtained as a consequence of extensive encyclopedic research has undergone a considerable change from what was discovered in a matter of seconds with a single click. What social media is is one of the most fascinating subjects in today's society, where our habits are changing and our information consumption is gradually rising. There have been numerous hypotheses about social media up to this time, but none of them are complete (Dwivedi et al., 2021).

Social media, which is referred to by everyone as one of the things that facilitate and accelerate our lives, is a platform where information exchange and two-way engagement are accomplished at the same time due to the user-friendliness and quick communication speed brought on by newly emerging web technologies (IGI Global, 2022).

Usability design is to create products that meet user wants and expectations. The features that customers seek are meant to be present in the product design and typical applications. According to Soto et al. (2016), improving usability can increase a product's effectiveness, efficiency, and level of customer satisfaction.

The International Organization for Standardization (ISO) defines effectiveness as the union of effectiveness and satisfaction. A system's efficacy is determined by how well it achieves its goals. The quantity of resources used to attain the goals is measured as efficiency. The level of consumer satisfaction with the system is referred to as satisfaction (ISO, 2022).

This study's objective is to assess social media platforms' usitability in education. The following sub-objectives will be pursued within the parameters of this purpose in order to assess the usability of social media platforms:

• What are usability evaluation methods for social media platforms in education?

• Which social media platforms are mostly used for education?

• How is the usability of social media platforms in education with machine learning?

**Usability**

The concept of usability in general; despite the differences in terms of use in our daily life, we want the products to have functionality, easy learning, user satisfaction and convenience. The aim is to design products that respond to user requests and needs. An organized usability evaluation study during product design will make a great contribution (Budak et al., 2017). The social media platforms should be designed according to national and international published guides and instructions to be usable. Considering the importance of usability will please all users. The combination of elements that will facilitate working with a product or system that benefits the user has been defined by Neilsen (Black, 2015). He defined 5 elements with the aim of designing usable systems (Neilsen, 1993):

*Ease of learning:* It is the ease of learning that allows users who encounter the system for the first time to quickly perform the operations they want to do.

*Efficiency:* Users who learn to use the system are effective use that ensures high efficiency working in the system.

*Memorability:* Users who do not work with the system for a long time can be used by remembering their previous actions by using the system again.

*Error Tolerance:* The system has a low error rate and tries to prevent user errors.

*User satisfaction:* The system provides users with desire and ease of use.

Usability is not a static concept due to differences in human needs. For this reason, it is important to evaluate the usability features of educational institutions such as universities at least once a year in terms of positive user experience (Budak et al., 2017).

With the development of software interfaces over time, it is necessary to evaluate the usability approach in terms of interfaces. The availability of the desired features in the interfaces and the quality of the interface directly affect the usability. In order to prevent interface design errors and to guide designer background color, font size, speed and use of input tools, menu struture, headlights are important (Tching, Reis and Paio, 2019).

**Usability Evaluation Methods**

The most important feature of the usability concept is that it is linked to users and their experiences. It is the measurement of user behavior using the system or product. Features of usability criteria (Trilar, Sobočan and Stojmenova, 2021):

• There should be observable usability criteria,

• There should be usability criteria that express numerical value,

• There should be usability criteria that show user experience and orientation.

Within the scope of usability studies, two important points have been specified within the scope of user interface evaluation (Nielsen, 1993):

• Formative Evaluation: It is used to learn whether the interface is good or bad by helping to develop the interface with the method of constantly repetitive design phase.

• Summative Evaluation: It provides the measurement of the overall quality of the interface

Usability assessment methods are inspection methods and inquiry methods (Norlin and Winters, 2002). Usability testing types are In -Process ( Formative ) and End of Process (Sumative ). Design Guides-Based Approach, Expert-Based Approach, User-Based Approach and Model-Based Approach are approaches of obtaining test data. (Çagiltay, 2011).

**Expert-Based Approach**

The expert-based approach is assessment by experts. It is the most commonly used heuristic and is aimed at increasing usability. There are different number of heuristic guides that contain different heuristics (KAMİS, 2006). If it is used in product development, the tester evaluates the results and provides feedback on the errors and ensures that they are corrected. This process can be repeated more than once, depending on the scope and size of the project. It can be used in in-process and post-process tests (Cagiltay, 2011).

**User-Based Approach**

In the real application area, it is the measurement of usability by collecting data with a real system, real users and performing real tasks. As a result of the evaluation with the collected data, the product or design is tried to be made more usable. Users are asked to think aloud during the test, and all their movements and eye movements are recorded. It is the most used and realistic data collection method about the usability status of the design. While very good results can be obtained with good organization and practice, it can lead to very wrong results in cases where care is not taken (Çağıltay, 2011).

**Model-Based Approach**

Cognitive, perceptual and physical behaviors of users are tried to be modeled. Unnecessary application steps are tried to be removed in order for the user behaviors to be suitable for existing models or for the model to work faster. Although this approach has advantages such as low cost and high level data collection for usability tests, it is not preferred because it requires expertise and is a difficult test to operate in complex systems (KAMİS, 2006). This approach is not suitable for use in every system. Compatible with common applications with planned steps where tasks are precisely specified. An example of this approach is the system interfaces used by call centers (Çagiltay, 2011).

**Competencies**

In the new millennium, the nature of knowledge and the skills that learners should have changed, as a result, new definitions were made according to today's needs. 21st century skills re-adjust the goals of education in line with the needs of the new age.

It is a conceptual approach that aims to define 21st century skills are grouped under three main headings. Accordingly, the learners of this century; They must have (1) learning and innovation, (2) digital literacy, and (3) life and career skills (Trilling and Fadel, 2009).

The reality of the pandemic has shown that both students and educators do not fully have the digital competences and skills needed during the crisis. It has been observed how quickly misinformation spreads and what kind of results it can cause during the pandemic (Depoux et al., 2020), which means that it is possible to develop a critical perspective for both learners and teachers (Bozkurt et al., 2020), connect to the right sources and filter the right information. proved to be an important skill in the information age. Considering the problems experienced by educators, the importance of preparing educators according to the requirements of digital transformation has emerged by associating the technology, pedagogy and content knowledge model (TPACK) (Koehler, and Mishra, 2009) with the curricula of education faculties.

**Social Media and Machine Learning**

Social media is all of the environments that allow people to interact and share with each other over the internet. It is all of the online tools that individuals use to share their content, profile, ideas, perspectives and perceptions. One of the most important benefits of social media tools is that they make world-wide developments, news and information instantly accessible (Kapor et al., 2018).

The general logic of these platforms is that people can easily share their opinions, ideas, photos, videos or location of where they are from the Internet. In the social media, which has become a huge power today, people can quickly be informed about the events and offer their reactions or likes. In this context, it is thought that social media users become productive consumers and contribute to the formation of the agenda with the content produced and the comments made on the existing content. The agenda setting situation explains the relationships between the public, media and policy agenda and reveals how these agendas affect each other (Buchanan, 2020).

**Extensively Used Social Media Platforms**

**Facebook**

Facebook helps to communicate through various people or pages through the system. You create your own page on the site and make friends. You can send requests to people around you or receive requests from them. You can also create personal pages on Facebook and connect with people around you through these pages. It is seen that Facebook defines itself as follows in company information (Appl et al., 2020).

• Making the world more open and connected by giving people the power to share,

• Focus on creating value for marketers and developers,

• To enable people to share useful and interconnected products by connecting their mobile devices and personal computers,

• It is defined as enabling people to discover the world, to know what is happening in the world, to share their ideas, opinions, pictures, videos and other activities from their close friends to the community, and to reach their products everywhere.

**Twitter**

Twitter is a social media site, and its main purpose is to connect people and allow people to share their thoughts with a large audience. Twitter allows users to discover stories about today›s biggest news and events, follow people or companies that publish content they enjoy following, or connect with friends. Additionally, PR teams and marketers can use Twitter to increase brand awareness and delight their customers. At the same time, since various lists are created, these lists will help people to determine the agenda. In this context, the advantages of twitter (Macy, 2020):

• Requires little or no capital,

• Real-time updates.

• Creating opportunities for new ones by strengthening customer relations,

• It can be listed as enabling the monitoring of the communication made on Twitter.

**Instagram**

The most important feature of Instagram is that it allows users to share various photos of themselves on the site. The photos shared on the site can be followed by a certain audience, as in Twitter. When you upload photos on the site, the changes can be available. Moreover, unlike other social media, Instagram's prominent features (Decker, 2022).

• No need to log in to the site to connect,

• Does not require participation in a friend group to view a content,

• Does not allow other links to be pasted on the page,

• Providing users with the opportunity to comment on what they upload, share and follow,

• Opportunity to present posts from private to public with different personal settings,

• It can be summarized as the opportunity to present each photograph in 8 categories: activities, personal portraits, friends, food, drinks, fashion, equipment and animals.

**Youtube**

YouTube has come to the forefront by allowing personal videos to be published. It is a social network where you can share your videos. You can instantly interact with individuals from the comments section on the forehead by sharing the videos you have taken on this social network. With an account you create on the site, you can set your own list and make suggestions. Basically, in the YouTube operating system, a profile in which users create all kinds of amateur images they have taken or images of others that they find interesting. They can upload them to the site with the help of the help of the website and receive comments about the images they upload here. It can be stated that image formats, unlike other text and image formats, take up a lot of space, but exhibit similar features to the logic of operation of other social media environments (Macy, 2020).

It is stated that the images shared with the help of the created profile are defined as a social networking site due to the fact that they are open to friends, friends of friends or anyone outside of these restrictions, mutual communication can be established. YouTube also offers economic opportunities to entrepreneurs and companies in addition to its users who upload personal videos for the purpose of socializing (Prater, 2022).

**LinkedIn**

LinkedIn is a system that provides convenience for students, educators and employers and makes it easier to reach people who meet the required qualifications. LinkedIn is a kind of online resume. It is a platform where everyone can easily access and connect with each other, and it is the social network of those who want to improve themselves in this regard (Macy, 2020). The advantages of LinkedIn in eduction can be stated as follows (Rynne, 2016):

• A properly prepared CV increases one's network strength. In Linkedin, which aims to have job opportunities from different countries or the city of residence, the issue of learning and environment is the biggest benefit.

• Sharing one's achievements and previous experiences can reach many people in a short time. In this way, recognition and workforce potential increase. For example, a publicly shared photo demonstrates a person's talent. It allows different users to get ideas.

• Connections with contacts and groups can be strengthened and then these connections can be added to the CV. Thus, the CV filling rate also increases.

Using Linkedin for recent graduates or students opens up powerful opportunities at the beginning of their career. What users from the same industry are doing can be seen, and in this way, it becomes easier for people to chart their way.

**The Pedagogical Features of Social Media**

We frequently come across the concept of 'convenience' or 'facilitation', which we talked about in the previous sections, in social media discussions. McLoughlin and Lee (2011) list the conveniences provided by social media, for which they use the term Web 2.0 as follows:

- connection and social contact;

- collaborative knowledge discovery and sharing;

- content creation;

- information and information gathering and content modification.

In addition to these general features, it is necessary to mention the specific pedagogical features of social media.

**Presentation Features**

With the development of software interfaces over time, it is necessary to evaluate the usability approach in terms of interfaces. The availability of the desired features in the interfaces and the quality of the interface directly affect the usability. In order to prevent interface design errors and to guide designers following points are important (Tching, Reis and Paio, 2019):

- Background color,

- Font size,

- Selection speed and use of input tools,

- More effective menu structure than deep menu structure,

- Use of headlights instead of scroll buttons.

- Use multimedia-based communication,

**Skill development**

Well-designed use of social media within an educational framework contributes to the development of the following skills. You can see examples by clicking on the links:

- Digital literacy,

- Independent and self-learning,

- Collaboration/collaborative learning /teamwork,

- Internationalization/raising global citizens,

- Social networking and other interpersonal skills,

- Information management,

- Decision making within specific contexts.

**Strengths and Weaknesses of Social Media**

Here are some of the advantages of social media:

• It can be extremely helpful in developing some of the key skills required by the digital age;

• Allows teachers to create case studies or project-based online group studies and students to collect data from the field using social media on their mobile devices;

• Students, individually or as a group, can create and submit media-rich assignments;

• Students can upload the assessed assignments to their personal learning environments or e-portfolios and then use them for graduate study or job applications;

• With MOOCs, students gain more control over their own learning processes;

• With the use of blogs and wikis, lessons and learning are opened to the outside world, and it is possible to look at learning from a richer and broader perspective.

**Machine Learning and Social Media**

The goal of machine learning, a subfield of artificial intelligence (AI), is to improve the accuracy of systems by allowing them to learn autonomously. Making a system capable of autonomous learning—i.e., learning without human intervention—is the main objective of machine learning. Digital education can benefit greatly from machine learning. Building computer algorithms that can access data and then utilize those algorithms to create future predictions is the focus of machine learning. The learning process starts with observation and progresses to data control and enhanced decision-making (Taye, 2023).

The application of machine learning in digital education is the way of the future because it has many advantages for users. The following is a list of these benefits (Kooli, 2023).

• Chatbots,

• more personalized content,

• increased return on investment for digital education,

• encouraging user motivation to learn, and

• several forms of evaluation are all provided.

Supervised learning, unsupervised learning, and reinforcement learning are the three categories into which machine learning algorithm types fall (Sarker, 2021).

*Supervised learning:* These examples will help to explain supervised learning: To learn the function of translating input variables (X) to output variables (Y), labeled training data is utilized; $Y = f(X)$.

Problems with supervised learning can be of two types:

*Classification:* Making predictions about a certain sample's results using categories of the output variables. similar to the illustrations of healthy and sick men and women.

Regression: Predicting a certain sample's outcome when the provided variable takes the form of actual values. One can include information like the region's annual precipitation totals or a person's height.

*Unsupervised Learning:* In situations involving unsupervised learning, there are no output variables—only input variables (X). The basic structure of the data is modelled using unlabeled training data.

Two forms of unsupervised learning issues exist;

*Combination*: Research is done on the potential for several components to be included in a collection. In supermarket baskets, it is frequently utilized.

Clustering is the process of taking samples from one cluster and grouping them with others that share characteristics.

Size reduction is the process of lowering the number of variables in a dataset while maintaining the transmission of key information. Utilizing feature extraction and feature selection techniques, size reduction can be accomplished.

*Reinforcment Learning:* A kind of machine learning algorithm that teaches actions that will maximize reward and enables the agent to choose the best course of action depending on its present condition. Software frequently discovers the best actions in reinforcement learning through trial and error.

**Multivariate Linear Regression**

A sort of regression that takes into account several variables is known as multiple linear regression. The link between variables in data sets that depend on many variables and the dependent variable exhibits a linear rise is determined using the multiple linear regression approach. The magnitude of each independent variable's influence on the dependent variable varies in multiple linear regression. As a result, in basic linear regression, the coefficient of each variable need not be the same in addition to the equation (Stojiljkovi, 2023).

Let's say the researcher wants to investigate the correlation between two independent predictors and a dependent predictor. Let's assume that every variable is always changing. When more than one independent variable in the system influences the outcome, the multiple linear regression model comes to our rescue. In actuality, its application and reasoning resemble simple linear regression. Let's say the researcher wants to investigate the correlation between two independent predictors and a dependent predictor. Let's assume that every variable is always changing. Regression modeling is used in this instance (Siegel and Wagner, 2022).

$$Y_i = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \epsilon\ I$$

$i$ participants, i=1,…,n; Y dependent variable; $X_1$ and $X_2$ arguments; $\beta$ represents the regression coefficients and $\epsilon$ represents the error term

$R^2$ measures the significance of the connection between the dependent variable and the independent variables. The sum of squares of the model and the sum of squares of the error make up the two primary components of the total sum of squares of the dependent variable. The coefficient of multiple determination, often known as $R^2$, is the proportion of the model's squares to the variable's squares (Gregorich et al., 2021).

## Method

**Population**

Participants of the study are undergraduate students of the Faculty of Economics and Administrative Sciences of Ufuk University. Questionnaires were distributed to 142 students of participating in the study and 130 students answered the questionnaire. The response rate of the questionnaire is 92%. It is a high rate in terms of survey participation. Participants were selected according to easily accessible case sampling, one of the purposive sampling methods determined. The easily accessible situation sampling is formed by the researcher choosing a situation that is close and easy to reach in order to speed and practicality in his work (Yıldırım and Şimşek, 2013).

**Data Collection**

A questionnaire was used as a data collection tool in the research. The research is experimental. The data was collected with paper based survey. The created questionnaire consists of parts A and B. In section A, a question was presented in order to determine the demographic information of the survey participants. In part B, a question is presented to evaluate the usability of social media tools. The questionnaire is in a 5-point Likert type (1 = I strongly disagree, 2 = I do not agree, 3 = I am undecided, 4 = I agree 5 = I strongly agree) and consists of 5 dimensions. These dimensions are ease of learning, effectiveness, memorability, fault tolerance, and satisfaction for social media platform usability.

The normal distribution of the data was examined in order to decide which of the "parametric or non-parametric" tests would be used by examining the data in terms of suitability for analysis. In this context, it was decided whether the data were normally distributed or not by looking at the skewness and kurtosis values of the scale dimensions. According to Tabachnick and Fidell (2014), skewness and kurtosis values are in the range of -1.5 and +1.5, and according to Gürbüz and Şahin (2018), these values are in the range of -1 and +1, which is considered as an indicator of normality. When the kurtosis and skewness values in Table 1 were examined, it was determined that the kurtosis and skewness values of all dimensions remained within the range of $\pm 1$ and therefore the data exhibited a normal distribution, and parametric tests were used in statistical analyses.

## Analysis

The data of a total of 134 participants obtained as a result of the research were first examined in terms of outlier observation values. Since outlier values in the data significantly affect the normal distribution, extreme data analysis was made and it was decided to exclude 4 observation values with outlier values from the data set. Therefore, the analysis of the research was carried out on the data obtained from 130 participants. The data were analyzed with IBM SPSS 25 package programs. Independent group t-test was used for pairwise group comparisons, and one-way analysis of variance (ANOVA) was used for three or more group comparisons. Multiple comparison analysis and Tukey's test, one of the Post Hoc tests , were used to determine the source of the differences whose ANOVA results were found to be significant. In addition, the effect of usability items on usability was calculated with machine learning multiple regression method and Python coding.

**Usability Evaluation**

The System Availability Scale (SUS) provides a reliable tool for measuring usability. Created by John Brooke in 1996, it allows to the evaluation of a wide variety of products and services, including hardware, software, mobile devices, websites, and applications. Interpreting the scoring can be complex. The participant's scores for each question are converted to a new number, summed, and then multiplied by 2.5 to convert the original 0-40 scores to 0-100. Although scores are 0-100, they are not percentages and should be evaluated in percentile order only (Usability, 2022). According to research, a SUS score above 68 is considered above average and anything below 68 is considered below average, but the best way to interpret your results involves "normalizing" the scores to create a percentile ranking.

## Findings

In this study, the data regarding the personal and academic status of the participants are as follows. When the frequency analysis results regarding demographic information are examined, it is seen that 46.2% of the participants are female and 53.8% are male. 27.7% of the participants are between the ages of 18-20, 60% are between the ages of 21-23, 8.5% are between the ages of 24-26, and 3.8% are aged 27 and over. Considering the devices used by the participants, 20.8% use tablets, 99.2% smart phones, 69.2% laptops, 22.3% desktop computers. 76.9% of the participants are from home, 93.1% from mobile phone/tablet/ PDA, 10.8% from internet cafe, 54.6% of them connect to the Internet from School/University. 2.3% of the participants 1 hour or less, 24.6% 1-3 hours, 38.5% 4-5 hours, 14.6% 6-7 hours and 20% He uses the internet for more than 8 hours daily. 91.5% of the participants use social media, 83.8% use the internet for communication, 62.3% for news, 60.8% for shopping and 73.1% for access to information. 34.6% of the participants use Facebook, 36.2% Twitter, 90% Instagram, 10.8% Linkedin and 93.8% Youtube.

**Usability**

When the reliability of social media usability was evaluated, it was found that the Cronbach alpha coefficient of the ease of learning dimension was 0.59 low in the reliability analysis for the ease of learning dimension, and the Cronbach alpha reliability value of the effectiveness dimension was 0.84. In the reliability analysis for the recall dimension, it was determined that the total item correlation of an item was quite low, the Cronbach alpha coefficient value was 0.55, and the reliability of the dimension decreased. In the reliability analysis for the fault tolerance dimension, the Cronbach alpha coefficient value is 0.62. The Cronbach alpha reliability value of the satisfaction with use dimension is 0.88. The reliability coefficient found shows that

the dimension is quite reliable. The Cronbach alpha reliability value of the usability dimension consisting of all items is 0.80. The reliability coefficient found shows that the questionnaire is reliable.

In terms of usability, ease of learning, effectiveness, memorability, error tolerance, and satisfaction, Facebook usability did not substantially differ ($p>0.05$), according to the T-test results.

The Twitter T-test findings shows that participant's Error Tolerance levels were to be statistically significant. In comparison to the mean (Avg =3.11) of the participants who use Twitter, the participants who do not use Twitter have substantially greater levels of error tolerance (Mean =3.25, t=2.12, p0.05).

The T-test findings for Instagram shows whether participants use Instagram had no discernible effect on their sentiments toward any of the usability dimensions (Ease of Learning, Effectiveness, Memorability, Error Tolerance, Satisfaction) ($p>0.05$).

T-test results of Linkedin shows that the opinions of students do not differ significantly for usability ($p>0.05$) whether or not participnts use Linkedin.

The T-test results of Youtube show that the attitudes of the participants for Youtube do not differ significantly ($p>0.05$) according to whether or not they use Youtube.

For social media platforms it was determined that there was a significant relationship between Twitter 's fault tolerance dimension in social media usage. The Error Tolerance levels of the participants who do not use Twitter in social networks (Avg =3.25) are higher than the average of the participants who use Twitter (Avg =3.01). 93.8% of the participants use Youtube, 90% Instagram, 36.2% Twitter, 34.6% Facebook, 10.8% Linkedin. It was seen that visual social networks such as Youtube and Instagram had widespread use.

**Comparison of Usability of Social Networks**

When we look at the usability of social media platforms in Table1, Youtube ranks first with a usability score of 3,44 (%68,8); Twitter is second with a usability score of 3.45 (%69.0); Facebook   ranks third with 3.44 (%68.8); Instagram is in fourth place with 3.42 (%68.4) and LinkedIn is in fifth place with 3.32 (%66.4).  And the general usability level was 3,42 (%68,4) for social media platforms.

**Table 1**

*Comparison of Usability of Social Media Platforms*

| Dimensions | Average 5'li Likert | Average % |
|---|---|---|
| Facebook | 3.44 | 68.8 |
| Twitter | 3.45 | 69.0 |
| Instagram | 3.42 | 68.4 |
| LinkedIn | 3.32 | 66.4 |
| Youtube | 3.48 | 69.6 |
| **Total usability** | **3,42** | **68,4** |

When the usability of socil media platforms compared according to The System Usability Scale, which's score above %68 is considered above average, the usability of social medi platformsa are considered just above with %68,4 but at the limit. All the social media platforms need to be improved for usability for a better use by people.

**Machine Learning   Analysis of Usability of Social Networks**

In order to determine the effects of mobile systems on Usability, five independent variables (Ease of Learning, Effectiveness, Memorability, Fault Tolerance, Satisfaction) and dependent variable Usability were evaluated by multiple regression analysis of machine learning. For this purpose, separate regression models were established for each independent variable. The results of the regression analyzes conducted in this context are given in Table 2.

**Table 2**

*Regression Analysis Results*

| Variables | Ease of Learning | effectiveness | rememberability | Fault Tolerance | Satisfaction |
|---|---|---|---|---|---|
| Coefficients | 5.37576668 | -3.88399309 | -19.76770713 | 7.97490218 | -3.21472382 |
| Intercept | 50.04908904744808 | | | | |
| R$^2$ | 98.16 | | | | |

Usability= 50.049+ (5.37576668* Ease of Learning)+ (-3.88399309* Effectiveness)+ (-19.76770713*Rememberability)+ (7.97490218*Error Tolerance)+(-3.21472382* Satisfaction)

According to the Multiple Linear Regression Model outputs created above, the intecept value is 50.049. This means that the it is the estimated usability of mobile systems, Ease of learning, Efficiency, Memorability, Fault Tolerance, and Satisfaction of Use will be 50.049, if a unit increase in Ease of learning will increase usability by 5.37576668, if a unit increase in Efficiency will decrease usability by 3.88399309, if a unit increase in Memorability will decrease usability by 19.76770713, if a unit increase in Fault Tolerance will increase usability by 7.97490218 and if a unit increase in User Satisfaction will decrease usability by 3.21472382.

R Square is the coefficient of determination. It tells us how many points fall on the regression line. The R Squared value is 98.16, indicating that 98.16% of the data fit the regression model.

## Discussion

The concept of usability in our daily life is important. People want the products to have functionality, easy learning, user satisfaction and convenience. The aim is to design products that respond to user requests and needs. An organized usability evaluation study during product design will make a great contribution. Social media sites should be designed according to national and international published guides and instructions to be usable. These guides provide an always usable site by applying the most general methods that will provide ease of use for users. Considering the importance of usability for mobile devices, the benefits it provides will please all users.

It is considered important for learners to explain their own contributions to the lesson with their shares in the classroom and on social media. In this way, it can be stated that they are more interested in the course content and that they are socialized. Learner-centered and employed in the teaching-learning process It is understood from the opinions of the learners that the social media supported structure is enjoyable, sincere, participatory and productive. This is due to the fact that social media should be studied in different ways, with different tools, with different learner levels and different teaching contents for the purpose of teaching.

Considering how adept social media is at disseminating information; In some cases, there is also the risk that the information will transform and change shape, and the errors will spread as quickly as if they were true. At this point, the ability to distinguish between right and wrong, which can be called media competence, to

understand whether a news or information is put forward with commercial concerns, and to understand which information sources are more reliable, comes to the fore. The most affected by all kinds of development and change are children and adolescents who are more rapidly affected. Thanks to their openness to innovations and their ability to adapt quickly, they use technology more and are more exposed to its effects. For this reason, it is essential to develop the educational material development steps, taking into account the technology use and social media usage habits of children and adolescents.

There is a need for further studies on how social media can be included in the teaching process, starting from the design stage of the curriculum, and how it can be employed by those who carry out the teaching work. In addition, it is considered important to examine the skills and attitudes of those who are engaged in teaching work regarding using such social media tools and to take measures to develop them. Social media creates an environment that is used much more than other media channels in today's life. Considering the place of social media in the lives of learners, it is inevitable for education to evaluate this environment. For this reason, it is important in terms of usability that educators are encouraged to use social media to support the teaching process and that this process is facilitated.

Applications of Internet are social media systems are the systems that are widely used. It is an important area of use in designs with users, which is the use of widely used uses on the Internet in terms of usability, and is intended for use. Internet Usage Purpose Social media usage designs (Av.=3) are higher than the average (Av=2.96) for social media usage (t=-2.01, p<0.05). Internet Use was significantly higher (t=2.46, p<0.05) than the mean (Mean=331) of those who had no purpose (Mean=3.58) and those who had no purpose. This output is paralell with study which has important implications for education and health providers, particularly in universities; we recommend that they try to improve students' mental health and academic performance by providing opportunities for them to improve their IT literacy and skills (Hashemi. et al. 2022).

It has been determined that Twitter is related to those who do not have fault tolerance in the use of social media. The Error Tolerance outfit of education on Twitter (Avg=3.25) is higher than the average (Avg=3.01) of those who use it. 93.8% of the participants use Youtube, 90% Instagram, 36.2% Twitter, 34.6% Facebook, 10.8% Linkedin. It is seen that social networks such as Youtube and Instagram are widely used. This output is like the study that compared that the majority of Americans say they use YouTube and Facebook, while use of Instagram, Snapchat and TikTok was especially common among adults under 30 (Auxıer and Anderson, 2021).

In the research of Otrar and Argın (2014), it is seen that students spend most of their time on social media networks and these networks have become a part of their lives. It should not be forgotten that these networks, which attract the attention of students, have positive aspects as well as negative effects of excessive and unconscious use.

In their study, Balcı and Tezel Şahin (2016) focused on whether the features offered by Facebook to its users are a usable tool for family participation in educational programs and how these features can be used for family participation. It is emphasized that the problem of time and space, which is one of the biggest obstacles in front of the work, can be eliminated.

## Conclusion

In this study, students' perceptions of the usability of social media platforms were investigated. It was seen that all usability dimensions for Facebook, Instagram, LinkedIn and Youtube were not different. While the error tolerance of the participants differs for Twitter, other dimensions do not make a difference for the usability dimension. At the end of the study, Youtube was in the first place with usability, while other platforms, Twitter, Facebook, Instagram and LinkedIn took the next places. The total usability for social media platforms was found to be 3.42 (68.4%). According to the System Usability Scale, the usability of social media platforms is considered to be above average since it is slightly above 68, but it has been concluded that all social media platforms need to be improved in terms of usability in order for people to use it better. According to the results of the machine learning multiple regression analysis, it was seen that 98.16% of the data fit the regression model and Error Tolerance had the most positive effect on the increase in usability, and the ease of learning was the most negative.

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