



## Role Of Truecaller Application In Preventing Phone Call And Text Message Scams

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### ABSTRACT

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Increased technological advancement must be accompanied by an increase in the potential for technology abuse. It is easier for criminals to commit crimes in today's modern and sophisticated civilization using increasingly advanced technology. Scam by telephone, text message, or other forms of communication is an example of a prevalent technologically-based criminal. This study aims to investigate the role of the blocking application for calls and text messages, especially the Truecaller application, given the prevalence of telephone and text messaging fraud and crime. This research focuses mainly on the efficiency of Truecaller's features and the application's popularity among the wider public.

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### 1. Introduction

Each year, technological advancements continue to emerge. While we are still enjoying something that has just been released in specific versions, such as smartphones, television, and the applications we use every day on our smartphones, there are other latest versions available (Helbostad et al., 2017). However, it cannot be denied that the ever-rapid development of technology results from the human need for technology, which they demand to satisfy their daily needs (Qosasi et al., 2019). Currently, technology and communication are rapidly evolving and becoming more sophisticated. This development is supported by the community's growing needs and the increasing demands of the times. Gadgets are one of the tangible forms of the present and future development of technology and communication. Gadgets are modern tools that facilitate human communication activities (Stubbs-Richardson et al., 2020). According to Ismail et al. (2021), gadgets are sophisticated tools that can be used to present a variety of social networks, hobbies, news media, and entertainment.

The device's initial appearance was in a simple form, with features used solely as a means of communication (Ammar et al., 2018). However, today's devices have become increasingly sophisticated and functional and have become an essential part of human life. Currently, gadgets are defined as media used as modern communication tools. The use of technological tools facilitates human communication activities. Today's communication activities are becoming more complex due to the growth of devices. Occasionally, devices or tools that can be easily connected to the internet increase (Djanggih, 2018). Berawi (2019) estimated that approximately 45 million Internet users, of which 9 million access the web via mobile devices.

It appears that devices have become so embedded in people's social life that they cannot be separated from people. According to Holivia & Suratman (2021), over 80% of metropolitan communities in Indonesia are already equipped with smartphones. As we are all aware, the usage of smartphones is becoming increasingly widespread. The majority of social circles or classes already possess a smartphone. Employees, freelance workers, street vendors, pupils, students, and housewives of all ages, from the youngest to the elderly, are adept



at using smartphones and other touch-sensitive rectangular objects nowadays. Nowadays, a variety of significant corporations produce a variety of electronic devices that include applications with various advanced capabilities and can also show a variety of news media, social media, and entertainment that have effectively captured the public's attention (Berawi, 2019; Warner & Wäger, 2019).

The public seeks and uses applications that assist them in avoiding, preventing, or minimizing the risk of becoming a victim of the widespread digital crime that exists today (Nurse, 2018; Thomas, 2018). People are agitated due to the constant disruptions from the digital world that result in digital crime. According to Ardi & Putri (2020), several reports entered lapor.id, with 65% of those reporting digital crimes reporting spam calls or text messages that disturb their level of comfort and safety. On their social media accounts, attackers have included their victims' personal information for verification purposes or obtained it from the groups they join (Al-Charchafchi et al., 2020).

Not only do they report to the authorities as they did previously, but also swiftly contact unknown or known numbers. Victims take significant results to monitor who has been disturbing them. With their habit of using smartphones to collect data rapidly, they begin looking for helpful applications based on the issues they are experiencing (Priansa & Suryawardani, 2020). With the speed and sophistication of the internet today, it is simple for individuals to access anything and obtain already information and resources. According to Qosasi et al. (2019), if we use the internet wisely, we will be aware of its actual benefits for our needs and will not waste much time staring at our devices while enjoying.

The growth in technological advancement must be accompanied by a rise in the chance that the technology will be misused due to the fast sophistication of technology, which rarely has a positive impact. Scam by phone call, text message, or other forms of communication is an example of a prevalent technologically-based crime (Graham & Smith, 2019; Pratt, 2018). However, with the ongoing development of complexity, the digital world provides solutions for all smartphone users so that they do not have to worry about digital crimes and can handle them independently (Yohanna, 2020). One of them is the use of a device on which users download a program tailored to their needs regarding the prevention of cybercrimes, namely the Truecaller application (Truecaller, 2021). This study aims to determine the role of the blocking application for calls and text messages, especially the Truecaller application, given the prevalence of telephone and text message-based fraud and crime. This research focuses mainly on the efficiency of Truecaller's features and the application's popularity among the wider public.

## 2. Methods

The research combines two methods to achieve its stated objectives. The first method is a survey consisting of some questionnaire-collected samples. The second method involves getting secondary information from the 17 million reviews of the Truecaller application on the Google Playstore, which have an average rating of 4.7/5.0. The object of this survey is the Truecaller application user. In this study, 150 respondents used the Truecaller application as the research sample. The questionnaires were distributed online to the general public and offline to the academic community at ITB-STIKOM Bali. The obtained data will next be evaluated using descriptive quantitative methods. Users' ratings ranging from 1.0 to 5.0 are used to retrieve secondary data on the results of reviews on the Google Playstore by collecting 50 reviews for each rating from 1.0 to 5.0. Therefore, the total number of reviews is 250. The review data will next be qualitatively analyzed. The analysis commences with data reduction, coding, and conclusion drawing. The author spent six months conducting this research.

## 3. Results and Discussion

### 3.1. Truecaller Application

According to (Unuth, 2021), Truecaller is a smartphone application that identifies callers even if they are not in the user's contact list. Caller identity offers information on callers not in the user's address book, such as telemarketers and spam calls. The Truecaller application can also block unwanted calls, preventing users from being bothered by unwanted ringing. This application is now top-rated because it is believed to be quite effective at identifying and blocking unwanted calls, as well as matching names and numbers. The Truecaller application helps users determine who is calling them and who the caller is from anywhere. On incoming calls, users of this application will no longer see "Anonymous" or "Private Number". In addition to core functions

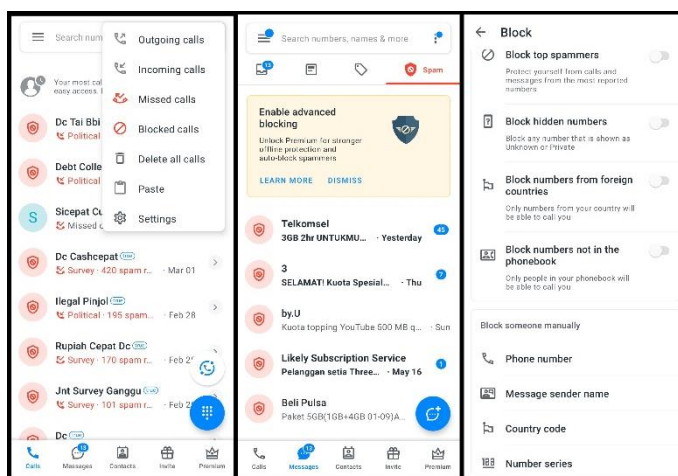


that can identify phone numbers from incoming calls, manual search features, and spam/scam/fraud detection, additional features such as Call Reason allow users to determine why they were called.



**Figure1.** Truecaller application (Source: Tribun)

Truecaller is available for free and is available for both Android and iOS. This application also offers premium services with more advanced features if considered necessary. With its many capabilities, the Truecaller application has become a trustworthy platform for communication, offering spam call and text message blocking, message categorization, group chats, and internet calls with clear sound quality. There are over 300 million users of the Truecaller app (Sebayang, 2021).



**Figure 2.** Display of Truecaller Application

### 3.2. Characteristics of Truecaller Application Users

There were 154 users of the Truecaller application who participated in this study's survey. The questionnaires were distributed online to the general public and offline to the academic community at ITB-STIKOM Bali. This study evaluated the characteristics of respondents to determine the variety of respondents based on gender, age, and duration in using the Truecaller application. This is done to provide a clear picture of the respondent's state and its relationship to the problem and objective of this research. The following tables present the characteristics of the respondents to this survey.

#### 1. Users Characteristics of Respondents Based on Gender

Users of the Truecaller app are of various genders. The gender-based characteristics of respondents who use the Truecaller application are shown in Table 1.

TABLE 1  
CHARACTERISTICS OF RESPONDENTS BASED ON GENDER

No.	Gender	Number of People	Percentage (%)
1	Female	108	70.1 %
2	Male	46	29.9%
Total		154	100.0%

Based on the table, there were 108 female respondents (70.1%), which is greater than the number of male respondents, who were 46 (29.9%).

**2. Characteristics of Respondents Based on Age**

Truecaller application users come from various age groups. The variety of characteristics of respondents that use the Truecaller program based on their age is presented in Table 2.

TABLE 2  
CHARACTERISTICS OF RESPONDENTS BASED ON AGE

No.	Age Group (Years Old)	Number of People	Percentage (%)
1	16 – 20	16	10%
2	21 – 30	132	86%
3	31 – 40	5	3%
4	≥ 40	1	1%
Total		154	100%

Based on the information in the table above, it can be seen that respondents aged between 16 and 20 years old amounted to 12 people (10%), respondents aged between 21 and 30 years old amounted to 132 people (86%), respondents aged between 31 and 40 years old amounted to 5 people (3%), and respondents aged over 40 years old amounted to 1 person (1%). The majority of respondents, 86%, are between the ages of 21 and 30, as indicated by these data.

**3. Characteristics of Respondents Based on the Usage Period of the Truecaller Application**

The diversity of characteristics of respondents who have used the Truecaller program for varying lengths of time is displayed in Table 3.

TABLE 3  
CHARACTERISTICS OF RESPONDENTS BASED ON THE USAGE PERIOD OF THE TRUECALLER APPLICATION

No.	Usage Period (Years)	Number of People	Percentage (%)
1	≤ 1	58	38%
2	1 – 2	46	30%
3	2 – 4	26	17%
4	≥ 4	24	15%
Total		154	100%

According to the data in the table above, respondents with a period of use of less than one year amounted to 58 people (38%), between 1-2 years amounted to 46 people (30%), between 2-4 years amounted 26 people (17%), and more than four years amounted 24 people (8%). According to those data, up to 58 respondents, or 38%, had used the Truecaller application for less than a year.

**4. Truecaller Application Usage**

There are questions in the questionnaire provided to collect research data in which respondents are presented with various Truecaller application feature selections and asked to select which features they use. The options include spam alerts on the phone, spam alerts on text message, text message blocking, phone blocking, blocking specific numbers, checking the identity or name of the owner of an unsaved number, phone recorder, video player when making calls, ghost calls, and caller identification information using voice recognition (call announce). Respondents are permitted to select multiple available options. The following are the results of respondents' use of Truecaller application features.



TABLE 4  
FEATURE OPTIONS USED IN THE TRUECALLER APPLICATION

No	Feature Options	Number of People	Percentage (%)
1	Spam alert on the phone	96	62.3%
2	Spam alert on the text message	75	48.7%
3	Text message blocking	44	28.6%
4	Phone blocking	69	44.8%
5	Blocking certain numbers	87	56.5%
6	Checking the identity or owner name of an unsaved number	116	75.3%
7	Phone recorder	18	11.7%
8	Video player when making a call	5	3.2%
9	Ghost call	25	16.2%
10	Caller identity information using voice (call announce)	32	20.8%

The Truecaller application feature used by respondents is the identity checking feature of the unsaved number, which was selected by 116 people (75.3%) based on the information in the table above. In addition to these features, many respondents also use the phone's spam alert feature (selected by 96 people or 62.3%) and the feature that blocks calls from specific numbers (selected by 87 people or 56.5%).

In addition to being asked to select the features of the Truecaller application they use, respondents were also asked to select the feature they find to be the most useful. Here are the findings of Truecaller's most useful respondent selection features.

TABLE 5  
THE MOST USEFUL FEATURES OF THE TRUECALLER APPLICATION

No.	Feature Options	Number of People	Percentage (%)
1	Spam alert on the phone	23	15%
2	Spam alert on the text message	9	6%
3	Text message blocking	2	1%
4	Phone blocking	9	6%
5	Blocking certain numbers	19	12%
6	Checking the identity or owner name of an unsaved number	82	53%
7	Phone recorder	1	1%
8	Video player when making a call	0	0%
9	Ghost call	4	3%
10	Caller identity information using voice (call announce)	5	3%
	Total	154	100%

The most valuable features of the Truecaller application, according to the data in the table above, are the identity check feature of an unsaved number, which was selected by 82 respondents (53%).

### 3.3 Role of Truecaller in Preventing Phone Call or Text Message Scams

In the questionnaire given to collect research data, many statements are used to determine how respondents view Truecaller's role in avoiding telephone and text message scams.

Data results were examined using descriptive analysis. The importance of descriptive analysis in a study derives from the fact that descriptive analysis examines respondents' responses to each questionnaire question. The questions were examined based on the average value of each variable and classified into the five following groups:

- Strongly disagree/Very low : 1.00 – 1.80
- Disagree/Low : 1.81 – 2.60
- Neutral/Moderate : 2.61 – 3.40
- Agree/High : 3.41 – 4.20
- Strongly agree/Very high : 4.21 – 5.00

The intervals in those categories are determined using the following equations.

$$\text{Interval} = \frac{(\text{Maximum value} - \text{Minimum value})}{\text{Number of categories}}$$



$$= \frac{5-1}{5} = 0.8$$

The maximum and minimum values are derived from the Likert scale score, where it is known that the maximum score is 5 and the minimum score is 1. The following are respondents' opinions regarding the role of Truecaller in preventing phone and text message scams.

TABLE 6  
DESCRIPTIVE ANALYSIS OF TRUECALLER'SS ROLE IN PREVENTING PHONE CALL OR TEXT MESSAGE SCAMS

No	Statements	N	Min	Max	Mean	Std. Deviation	Category
1	Truecaller helps me to identify incoming calls that may be fraudulent.	154	1	5	4.49	0.637	Very high
2	Truecaller helps me to identify possible scam text messages.	154	1	5	4.43	0.663	Very high
3	Truecaller helps me to identify potentially fake strange phone numbers.	154	1	5	4.45	0.625	Very high
4	Truecaller helps me avoid unwanted calls such as promotional messages and customer care calls.	154	1	5	4.35	0.659	Very high
5	Truecaller assists me in blocking possible scam phone numbers.	154	1	5	4.46	0.665	Very high
6	Truecaller assists me in blocking possible fraudulent calls.	154	1	5	4.40	0.648	Very high
7	Truecaller assists me in blocking possible fraudulent text messages.	154	1	5	4.29	0.661	Very high
8	Truecaller allows me to block unimportant calls, including customer service and offer numbers.	154	1	5	4.34	0.695	Very high
9	Truecaller helps me prevent calls from unimportant numbers, such as customer service or offer numbers.	154	1	5	4.31	0.679	Very high
10	Truecaller helps me block unwanted text messages, such as customer service or offer numbers.	154	1	5	4.21	0.726	Very high
11	Truecaller has been effective in preventing phone-based scams from occurring.	154	1	5	4.36	0.709	Very high
12	Truecaller has been effective in keeping me from being text message scammed.	154	1	5	4.30	0.730	Very high
13	Truecaller application is very helpful.	154	1	5	4.52	0.605	Very high
Mean Total					4.38		Very high

Table 6 provides a descriptive analysis of Truecaller'ss role in avoiding telephone and text messages scam. From the table, it can be seen that 154 respondents have completed the questionnaire. The minimum value for this variable is 1. The minimum value for all questions is 1, indicating that the lowest response from 154 respondents strongly disagreed, while the maximum value for this variable is 5. The maximum value for all questions is 5, indicating that the highest response from 154 respondents strongly agreed. The total standard deviation value for the Truecaller role variable in avoiding scams by telephone or text message is less than the mean, indicating that this variable has a low level of data distribution or data diversity.

The respondents' average rating on the variable Truecaller's role in avoiding scams by telephone or text message falls into the very high category, with a score of 4.38. This suggests that the Truecaller application has a role in avoiding telephone or text message scams since the application has assisted responders in identifying incoming calls, text messages, and unknown numbers that can potentially commit scams. In addition, the Truecaller application enables respondents to block unwanted calls, text messages, and numbers, as well as protects them against phone calls and text message scams.

### 3.4 Assessment of the Truecaller Application

Many statements in the questionnaire used to collect research data are developed to assess how respondents perceive the Truecaller application. Based on the average value of each variable, the questions were analyzed and classified into the three categories below.

- Deficient : 1 – 33
- Enough : 34 – 66
- Good : 67 – 100



The intervals in those categories are determined using the following formula.

$$\begin{aligned} \text{Interval} &= \frac{(\text{Maximum value} - \text{Minimum value})}{\text{Number of categories}} \\ &= \frac{(100 - 1)}{3} \\ &= 33 \end{aligned}$$

The following are the descriptive analysis results of the respondent's assessments of the Truecaller application.

TABLE 7  
DESCRIPTIVE ANALYSIS OF THE ASSESSMENT OF THE TRUECALLER APPLICATION

No	Questions	N	Min	Max	Mean	Std. Deviation	Category
1	From a score of 1 (lowest) to 100 (highest), how many points would you assign to the Truecaller app in general?	154	60	100	85.70	7.611	Good
2	From a score of 1 (lowest) to 100 (highest), how many points would you assign to the Truecaller app to prevent phone call scams?	154	20	100	85.76	10.198	Good
3	From a score of 1 (lowest) to 100 (highest), how many points would you assign to the Truecaller app in preventing text message scams?	154	55	100	85.82	9.063	Good
4	From a score of 1 (lowest) to 100 (highest), how many points would you assign to the Truecaller app to help you identify unknown numbers?	154	10	100	86.15	11.424	Good
5	From a score of 1 (lowest) to 100 (highest), how many points would you assign to the Truecaller app to help you block calls from certain numbers?	154	65	100	86.30	8.097	Good
6	From a score of 1 (lowest) to 100 (highest), how many points would you assign to the Truecaller app to help you block calls from possible fraudulent numbers?	154	10	100	86.10	11.017	Good
Mean Total					85.97		Good

Table 7 provides a descriptive analysis of respondents' assessments of the Truecaller application. As noted in the table, 154 respondents answered the questionnaires. The minimum value in this variable is 10, and all questions have a minimum value of 10, indicating that the lowest rating among 154 respondents is included in the deficient category. The maximum value in this variable is 100, and all questions have a maximum value of 100, indicating that the highest rating among 154 respondents is included in the good category. The respondents' assessment variable on the Truecaller application contains a standard deviation value that is less than the mean, indicating that the level of data distribution or data diversity for this variable is low.

Then it can be observed that the average respondents' assessment of the Truecaller application falls into the good category, at 85.97. This suggests that respondents believe the Truecaller application helps them identify incoming calls, text messages, and unknown numbers that can potentially commit a scam. In addition, it aids respondents in banning unimportant calls, numbers, and text messages. It protects them from phone calls and text message scams.

### 3.5 Truecaller Effectiveness Based on Ratings

Based on the results of Truecaller user reviews, it can be concluded that Truecaller has positive ratings, including that the Truecaller application is a good application that is easy, quick, and convenient to use and that the primary function of the Truecaller application is to aid users in identifying and viewing unknown numbers. In addition, the Truecaller application is relatively transparent because it can assist users in tracking the location of unknown numbers, detecting and overcoming spam numbers, and providing users with the convenience of automatically blocking spam or unknown numbers in order to protect them from hackers and scammers. Moreover, users can be guided in sorting calls and text messages, which allows users to feel



secure when receiving calls. User reviews indicate that this application helps protect user privacy, functions well, and is a trustworthy application.

According to reviews from other users, the Truecaller application has a negative side and things that need to be improved in addition to the significant aspects perceived by Truecaller users. According to user reviews, this application has several flaws, including the fact that it is a premium application that forces users to subscribe in order to access all of its features. According to several customers who have already paid for the Truecaller application, there is no difference between the application's free and premium features. Many bugs and faults, such as monthly discounts, remain available even when the application is not in use. This Truecaller application must also be connected to the internet and displays many advertisements when downloaded on a user's phone, which might cause the user's phone to overheat, causing the user to be disappointed with the application. According to written reviews, users of the Truecaller application encountered numerous obstacles, such as inaccurate location, only displaying the country, inability to find the location, incorrectly identified number, and inability to identify the number, so that the caller's name did not always appear. This prevents users from calling hidden phone numbers. This application also requires that users log in using their user data and authenticate their identity while logging in. However, while entering into the Truecaller application, many users find it difficult to log in and verify until they are contacted by spam numbers or unknown numbers, which causes users to question the application's ability to protect their privacy because accounts can be cloned. Users of the Truecaller application complain about problems, such as displaying incorrect names that do not match user data.

Additionally, the Truecaller application is not linked to WhatsApp, and this system's appearance remains confusing. Users regret using this application since the Truecaller application still requires users to first save the number in the contacts on the user's smartphone and occasionally cannot block calls automatically. The Truecaller application's record feature frequently cannot be used or error. The Truecaller application forces users to update to the most recent version frequently. After upgrading, some users encounter issues, such as losing some functions from the previous Truecaller application. This is a problem the developers of the Truecaller application must address so that this application can be used optimally.

#### 4 Conclusion

Based on the analysis of the research data, it is evident that the features of the Truecaller application that respondents use the most are the feature that reveals the identity or name of the owner of an unsaved number, the spam warning feature on the phone, and the feature that blocks specific numbers. The respondents' average rating on the variable of Truecaller's role in avoiding scams by phone call or text message falls into the very high category, with a score of 4.38. This indicates that the Truecaller application has a role in avoiding telephone or text message scams since the application has assisted respondents in identifying incoming calls, text messages, and unknown numbers that can potentially commit a scam. In addition, the Truecaller application enables respondents to ban unwanted calls, text messages, and numbers, as well as protects them against telephone and text message scams. The average rating of the variable of the respondent's assessment of the Truecaller application falls into the good category, at 85.97. This indicates how respondents assess the functionality and use of the Truecaller application.

Based on the results of Truecaller user reviews, it can be concluded that Truecaller has positive attributes, including that the Truecaller application is a good application that is easy, quick, and convenient to use and that the primary function of the Truecaller application is to assist users in identifying and viewing unknown numbers. According to respondents' views, the Truecaller application also has disadvantages, such as the fact that it is a paid application. The Truecaller feature for identifying accurate numbers and locations is not yet optimal. The Truecaller application frequently crashes and causes errors to the user's smartphone. Therefore, the developer of the Truecaller application must develop and evaluate this application to be used optimally.

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