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THE NECESSITY OF A COLLABORATIVE COMMUNICATION MODEL: AN ANALYSIS IN THE CONTEXT OF THE CONCEPTS OF CONVERGENCE, COLLECTIVE INTELLIGENCE AND PARTICIPATORY CULTURE

İŞBİRLİKÇİ BİR İLETİŞİM MODELİNİN GEREKLİLİĞİ: YAKINLAŞMA, KOLEKTİF ZEKA VE KATILIMCI KÜLTÜR KAVRAMLARI BAĞLAMINDA BİR ANALİZ

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Abstract
Communication capability, as well as air and water distribution, are vital for those stranded in devastating disasters such as earthquakes. Therefore, communication tools, especially social media, play a critical role in saving lives during disasters. In addition to this role, the fact that the media can also mediate a significant amount of disinformation causes it to be positioned as a problematic area. The current study discusses the necessity of a collaborative communication model that can be used against disinformation that can disrupt communication during disasters. Thus, it is aimed to provide a conceptual contribution to the development of a communication model that will have a positive impact on the success of crisis management. In the study conducted with the literature review technique, one of the qualitative research methods, the collected data were grouped and analyzed in a way to obtain a real result. According to the results, crisis management is significantly affected by disinformation anxiety. This anxiety prevents social media from being seen as a reliable source of information. In addition, commercial conflicts of interest also prevent the necessary collaborations in times of disaster. The necessity of a collaborative communication model emerges in order for the information and communication technological infrastructure to be used effectively by all segments of society in case of disaster.

Keywords: Social Media, Collaborative Communication Model, Disinformation, Earthquake.

Öz
Deprem gibi yıkıcı afetlerde mahsur kalanlar için hava ve su gereksinimiyle birlikte iletişim kabiliyeti de hayati önem taşımaktadır. Dolayısıyla sosyal medya başta olmak üzere iletişim araçları, afet anlarında hayat kurtarmak gibi kritik rol üstlenmektedirler. Üstlendiği bu rolün yanında medyanın önemli oranda dezenformasyona da aracılık edebilmesi, onu aynı zamanda problemli bir alan olarak konumlandırılmasına yol açmaktadır. Hali hazırdaki araştırmada afet anlarında iletişimin sekteye uğramasına neden olabilen dezenformasyona karşı kullanılabilecek iş birlikçi bir iletişim modelin gerekliliği tartışılmaktadır. Böylece kriz yönetiminin başarısına olumlu etki sağlayacak bir iletişim modelinin geliştirilmesine kavramsal bir katkı sunulması amaçlanmaktadır. Nitel araştırma yöntemlerinden literatür taraması tekniğiyle yapılan çalışmada, toplanan veriler reel bir sonuç elde edilecek şekilde gruplandırılıp analiz edilmiştir. Çıkan sonuca göre kriz yönetimi, dezenformasyon kaygısından önemli derecede etkilenmektedir. Bu kaygı sosyal medyanın güvenilir bilgi kaynağı olarak görülmesini engellemektedir. Bunların yanında ticari çıkar çatışmaları da felaket anında gerekli işbirliklerine gidilmesini engellemektedir. Bilgi iletişim teknolojik altyapısının, afet anında her kesim tarafından etkili bir biçimde kullanılabilmesi için işbirlikçi bir iletişim modelinin gerekliliği ortaya çıkmaktadır.

Anahtar Kelimeler: Sosyal Medya, İşbirlikçi İletişim Modeli, Dezenformasyon, Deprem.

INTRODUCTION

Building a strong society against the destructiveness of natural disasters is considered one of the promises of Society 5.0 (Nakanishi & Kitano, 2018, p. 2). According to this scenario, it is possible to protect against the damage caused by earthquakes and other natural disasters. Similar to Japan's plan, which shows that the aim is to build a strong society in every way, China has also prepared a comprehensive plan to strengthen the communication network after the earthquake with a magnitude of 8 centered in Wenchuan town (Ran, 2011, p. 45). Studies by Nakanishi and Kitano (2018), Keidanren (2016), Baker (2001), Ran (2011) etc. explain the plans to achieve this goal.

Since the early 2000s, the world has been tested by numerous natural disasters such as Hurricane Katrina, the earthquakes in Haiti, the tsunami in Japan, the Fukushima Nuclear Power Plant Accident, and global warming effects such as drought threats, fires, floods, and glacial melting. In addition to these, while difficult tests related to the COVID-19 pandemic were also given, Turkey experienced the Adıyaman-Kahramanmaraş earthquake on February 6, 2023, which is considered one of the world's largest disasters in terms of impact area (USGS, 2023). Although it has been said that the extent of damage and the number of deaths were high due to the wide impact area, when the earthquakes with a magnitude of 6 and above in Turkey, which are relatively narrow, are examined, it is seen that devastating major effects occur (TRT Haber, 2021). In fact, when earthquakes that occur worldwide are examined in terms of loss of life, there is data that Turkey is generally in the first place (Özkan, 2017). For example, it is understood that even earthquakes with a magnitude of 9 in Japan cause much less damage compared to Turkey. In this country, the total number of people who lost their lives in 3 earthquakes with a magnitude of 8 and above and 16 earthquakes with a magnitude of 7 and above in the last 20 years is 56 (Yeni Çağ, 2023). The number of people who lost their lives in the earthquake with a magnitude of 7.6 that occurred on January 1, 2024 was determined to be 161. When the 103 people who were missing on that date are added, the number increases to 264 (BBC, 2024).

Of course, it is necessary to investigate why earthquakes have such a devastating effect in Turkey within the scope of a large-scale study. However, this article focuses on communication problems that also affect the death toll. The effect of increasing communication capability, which is stated to be one of the first three vital elements along with air and water requirements (Ortaç & Kaplan, 2021, p. 316), on saving a life is examined. Communication tools play an important role both in determining the situations that may cause the society to be vulnerable to disasters in advance and in creating a public opinion to take preventive measures, and in the coordination of disaster-time efforts and comprehensive education of the public on disaster management and awareness (Kadıoğlu, 2008, p. 232). However, it is considered a problem that disinformation can also be produced to a large extent by using the same communication channels in such periods. Since this problem causes many official and unofficial problems, authorities may take precautions to prevent or restrict the use of communication tools (Selvi, 2023; Ayhan, 2023). While communication tools, especially social media, can be used for critical tasks such as saving lives in times of disaster, it is discussed that a collaborative communication model should be used by utilizing the concepts of "media convergence, participatory culture and collective intelligence" to prevent bad purposes such as disinformation. Thus, an opportunity is sought for both the success of crisis communication and against the misuse of social media.

Two major earthquakes (M7.8-M7.6) that affected 11 provinces, with the epicenters in Adıyaman and Kahramanmaraş, provide important examples of the disinformation and crisis management carried out during the disaster. According to the news reflected on conventional and social media, mobile lines have been insufficient since the first day, landlines have not worked, and social media has been restricted. This situation has added communication restrictions made as a precaution against disinformation to the aid and rescue problems caused by the insufficient capacity of communication tools (Levent, 2023). It is possible that the problems experienced during this period will be experienced again in possible future earthquake disasters. Because in the past, telecommunication lines have been witnessed to collapse in Turkey in major earthquake disasters. For example, GSM companies could not provide service even in the 5.8 magnitude earthquake that occurred in Istanbul in 2019 (BrandTürkiye, 2019). The fact that the “national roaming” system, which came to the agenda after the 1999 Gölcük earthquake in Turkey and whose protocol was prepared in 2001, could not be operated in the Adıyaman-Kahramanmaraş

earthquakes also shows that the problems experienced in the past have recurred. Despite all the negative situations, this article argues that today's communication opportunities have the potential to develop a collaborative solution method and that these opportunities can contribute to the success of crisis management focused on aid and rescue operations when used efficiently. When the literature is examined, although there are studies using the keywords communication and collaboration, the fact that no study has been found on the creation of a collaborative communication model using information and communication tools shows that the current study makes an original contribution to the field.

CONCEPTUAL BACKGROUND

Earthquakes as a Form of Crisis and Communication Management

When we look at the literature, we see that there are many studies on crises. In these studies, we can find many different definitions regarding the definition of crisis (Çelebi, 2021). However, the most comprehensive of these definitions is given as follows:

> They are situations or events whose causes and consequences are not fully known, are highly complex, have a low probability of occurrence but may threaten the existence of the organization when they do occur, do not usually allow enough time to respond, and whose consequences cannot be fully predicted (Akgeyik, 2003, p. 2).

When this definition is considered, it is understood that earthquakes, which carry complete uncertainty in terms of their causes and results, can be included among the major crisis events. Therefore, the necessity of a strong communication management for the management of major crises such as earthquakes naturally emerges. The following quotes show that there is a significant correlation between effective crisis management and communication skills. According to a study conducted by Steinberg and Cruz on the 1999 Gölcük-İzmit earthquake, which was examined within this scope, the lack of coordination and communication between the industry and the state and civil society organizations made it difficult to act quickly and effectively, leading to misunderstandings. For example, firefighting teams dispatched from the İzmit Fire Department to the oil refinery were kept waiting at the refinery gates for hours to receive permission to enter the facility. The incompatibility resulting from the use of different standards slowed down the firefighting efforts at the refinery for days. According to another example given by Steinberg and Cruz, after the accident situation was evaluated by the relevant authorities, industrial managers at the acrylic fiber factory asked government officials to evacuate the area within a 1.2 km radius of the factory site. However, due to lack of communication, this decision resulted in an order to evacuate an area approximately 100 times larger, including Yalova and other surrounding municipalities (Steinberg & Cruz, 2004, pp. 121-130).

In a study analyzing the damage to the communication network caused by the earthquake measuring 8 on the Richter scale centered in the Wenchuan district of Sichuan Province, China in 2008 and the priorities regarding the restoration of this network, the importance of establishing an emergency communication capability based on wireless communication is emphasized (Ran, 2011, pp. 44-47). In this study, it is stated that it has a result not only on the emergency response capacity of all government departments but also on the ability of the entire society to cope with a disaster. Accordingly, the communication sector in particular has played an important role in establishing a "lifeline" and providing emergency and rapid response capability. Ran (2011), who states that after this earthquake, China immediately initiated the relevant disaster prevention network and technical study project at the national and industrial levels to cope with future disasters, explains that lessons have been learned from the successful post-disaster emergency communication experience in the rest of the world. In this context, it is planned to strengthen the studies on wireless sensors, ad hoc networking (the process of establishing a network connection between 2 or more computers without using any wireless access point), space communication, machine-to-machine communication (M2M) communication and other new technologies used in emergency communication; then, it is planned to activate emergency call processing capabilities in next-generation networks, satellite-based emergency calls, priority calls in the public switched telephone network and early warning system.

The “national roaming” protocol, which is seen as one of the important communication opportunities in disasters such as earthquakes, is put into effect. This protocol, which became widespread after the provision of mobile phone services, generally focuses on using the network of the enterprise in that region when moving from a region where the subscriber is located to other regions. This service is classified as regional, national, international, technology and standards roaming (Yazıcı & Aydın, 2008, p. 17). Through national roaming, where the users of an operator are provided the opportunity to enter foreign networks and communicate by phone over this network, users (subscribers) have the advantage of benefiting from the network of the operator, which is the most widely used, regardless of the prevalence and quality of the infrastructure of their own operator (Deprem, 2006, p. 136). This protocol is said to resemble the “public network” system, which has been in effect for a long time in the USA, England, Canada and Japan and is seen as an important part of emergency and public safety communication (Ran, 2011, pp. 44-47). In the September 11 attacks, Hurricane Katrina and the July 7, 2005 London bombings, these services played an important role in government and emergency communication. However, since it is independent of each operator’s network prevalence and quality, and eliminates the operators’ desire to make new investments, Turkey has not been able to use the concept of national roaming effectively since it was introduced to Turkey in the early 2000s (Earthquake, 2006, p. 6). This shows that users who experience communication problems, especially due to the damaged base stations in times of disaster, may be deprived of the ability to call for help.

When the concept of communication, which is generally defined through the exchange of information and the production and transfer of information (Girgin, 2008, p. 9; Dökmen, 2004, p. 19), is placed on a rational basis as an action in accordance with Habermas' approach (Habermas, 2001), three communication goals, each representing a stage, become apparent:

a. Information gathering: It includes close relationships such as communication and being connected.
b. Information generation: It includes the interpretation of information obtained from different sources.
c. Force gathering: It is based on unity of power.

Here, communication of a dimension as wide as regions far from the face-to-face communication between individuals or small groups represents the first stage. The multi-faceted communication capability worldwide, which started with the articulation of new tools with the printing press and continued with today's information technologies, concerns both the first and second stages. The third stage refers to the gathering power of those who control the first and second stages of media tools, following Althusser (Althusser, 2002) and Chomsky and Foucault (Doğan, 2005). Since a problem-free communication capability is one of the three most important elements for victims after air and water (Ortaç & Kaplan, 2021, p. 316), it is necessary to affect these three dimensions in times of crisis by using the possibilities of information technologies. Thus, in crisis management carried out within the scope of natural disasters such as earthquakes, effective and rapid solutions can be developed by shortening the information gathering, evaluation and decision-making stages. According to a study, earthquake news was shared on social media channels such as Facebook and X during the Van earthquake, and in a short time, social media became the center of communication and cooperation. Users who received the latest news and urgent needs about the earthquake region instantly were able to run campaigns with the TAGs such as #evimevindirvan, #vanicintekyurek, #vandayanisma (Soydan & Alpaslan, 2014, p. 62).

It is stated that robots can be used to lighten the burden of people and perform certain tasks in order for people to master technology and use it for the good of humanity (KEIDANREN, 2016). Thus, people can direct their time and energy to more creative and social activities. On the other hand, many studies focus on the role of social media in times of disaster (Sciencedaily, 2023). When viewed from a human-centered perspective such as Society 5.0, all kinds of information technology, artificial intelligence, sharing platforms such as social media, robots and other information centers can be used with a collaborative approach and a data-driven power can be obtained, and all kinds of problems can be solved

quickly and effectively (Nakanishi & Kitano, 2018, p. 3). Because the data show that it is potentially possible to reach a collaborative communication model that will make media convergence, participatory culture and collective intelligence functional by using today's technological opportunities for a more effective crisis management.

Media Convergence, Participatory Culture and Collective Intelligence

The concepts of media convergence, participatory culture and collective intelligence are based on media (Jenkins, 2016). Convergence, one of these concepts, is defined in the Cambridge Business English Dictionary as "being able to watch a newspaper's video news on our mobile phone via the internet" (Cambridge, 2023). In a source where it is defined as different points coming closer or becoming integrated (Karınca, 2013, p. 263), it is stated that it refers to the disappearance of traditional boundaries in the telecommunications, information technologies and media sectors, especially with the impact of technological developments such as the internet. On the other hand, it is stated that the separation of telecommunications from the state monopoly and opening it to competition not only brought media and information technologies closer to each other, but also affected other sciences from these technologies (Yoloğlu, 2019, p. 1452). Thus, it is understood that this concept has begun to be used actively in the field of telecommunications, as well as in science, natural sciences and mathematics. According to Jenkins, convergence, which is related to the transformation of media from a passive consumption tool to an active participation platform, originates from the brains and social interactions of individual consumers rather than media devices. The nomadic behavior of media viewers who can enter almost anywhere as a result of the collaboration of various media platforms and their search for the kinds of experiences they want is the real source of convergence. Therefore, convergence emerges as "*a concept that can also describe technological, cultural and social changes depending on who is talking and what they think they are talking about*" (Jenkins, 2016, p. 19). Such a convergence of all scientific fields and disciplines suggests that the concept can contribute to a collaborative model.

In the second concept, which is considered in the same context, the participatory culture emphasizes the ability to make decisions collectively or individually within the scope of diversity and democratic values through interaction. While this culture requires people to have the capacity to express themselves in different forms and practices within a wide framework, it also refers to the interaction of media producers and consumers with each other within a new set of rules (Jenkins, 2016, p. 19). Accordingly, since consumption has become a collective process, in times of crisis, the public can make their voices heard and share their views, express their ideas, offer solutions and be involved in the crisis management process, and thus the public can become a part of the participatory culture. Thus, the active contribution of various segments of society can help to solve crisis-related problems more quickly and effectively.

The fact that the first mention of participatory culture coincided with the emergence of the internet (Çetin, 2019, p. 43) shows that there is a close connection between this culture and new communication technologies. The concept of participatory culture within the scope of participatory democracy has been used especially in recent years by socio-economically developed societies to express that the representative system is insufficient to achieve the ideal of democracy and to ensure that citizens have more say in government (other than voting) (Yaman, 2017, p. 135). In other words, participatory culture needs to develop so that citizens are not limited to the public sphere. Jenkins, in another study, lists the basic characteristics of participatory culture and highlights the following features (Jenkins et al., 2009, pp. 5-6):

a. Fewer barriers to artistic expression and civic participation,
b. Strong support for original production and sharing,
c. Some kind of informal expertise where experiences are shared,
d. Members who believe their contributions are valued and who feel some sense of social connection with one another.

As can be understood from here, in participatory culture; while the expert paradigm is destroyed, creation is emphasized and active participation is demanded, beyond personal expressions, participatory culture communities such as fan and mutual aid communities, forums, humor groups mentioned by Jenkins (2019) are also included in both production and consumption (pro-consumption) activities in the context of decision-making and mutual information exchange. Thus, more effective business models or policies can be produced by managers choosing the appropriate pro-consumption activities.

Collective intelligence, which emphasizes the gathering of knowledge and experiences of society to achieve better results, is seen as an alternative source of media power. Accordingly, if resources and skills are brought together, where not everyone knows everything but each of us can know something, significant power can be gained (Jenkins, 2016, p. 16). In this context, when we consider the views of Jenkins, who states that collective intelligence is currently used for entertainment-focused purposes such as "education, law, politics, religion, advertising and military", it can be expected that it will soon be used for more serious purposes such as crisis communication. Levy's emphasis on collective intelligence as "*a type of universal distributed intelligence that is constantly evolving, coordinated in real time and results in effective mobilization capabilities*" supports Jenkins' views (Lévy, 2000). Postman's statement that the basis of technology developed since the first industrial period is the level of interpretation of information in communication technologies can also be evaluated as supportive in this direction (Postman, 1994).

As Le Bon stated, in today's information society, which is also a real age of masses, it is not possible for thousands of individuals gathered without a specific purpose to form a psychological or intellectual mass (Bon, 1997, p. 11). In order for this crowd to be seen as a mass, they need certain factors. If these stimulating effects emerge, we may be faced with a giant crowd intelligence where all people can come together (Surowiecki, 2004). For example, it should be considered that the organized intelligence detected by observations made on large ant communities (Tonta, 1999, p. 374) may also be possible for advanced information or network societies. Because the versatility of information among individuals in the crowd, its integration and the fact that it helps more accurate estimates in decision making show that the intelligence of the crowd and collective intelligence can be used in coordination. According to Deuze's approach, the "do-it-yourself" culture that developed in the 1990s, when people increasingly demanded the right to be heard rather than spoken to, is on the rise with social media. It is this element of participation that transnational media companies struggle with, but that all kinds of local, community, minority and alternative media have relied on since the early days of the printing press. Therefore, it may be increasingly felt as a need to create platforms where the public can share their views and suggestions through events such as meetings, seminars and workshops; to collect the public's views through feedback forms or surveys on social media (Deuze, 2006, p. 274).

Today, social communities that can meet on the network can form huge crowds. The information produced and decisions made in these networks can also be applied in real social environments. Collective intelligence has started to be effective on a global scale thanks to "a digital language communication that has become valid on a global scale" with the effect of information technologies. The fact that individual and mass communication occur reciprocally without any limits all over the world makes it possible to cooperate worldwide for the news, information and power needed when needed. Therefore, the concept of intelligent society, which collective intelligence, which previously occurred at a primitive level, is now referred to, emphasizes the cooperation of individuals, large and small economies and all states at all levels in the final analysis (Castells, 2003; ITU-D, 2017; McLuhan, 2014). When examples of stating that everyone's dreams are a value (KEIDANREN, 2016) and thus encouraging the participation of the entire society in decision-making processes by expanding the culture of sharing are taken as basis, it is seen that weak or limited elements can become stronger and create intelligent solutions by cooperating.

Methods and Materials

This research is based on the necessity and possibility of a collaborative communication model that can be used in crisis management during disasters. For this reason, the literature review technique from qualitative methods was used within the scope of the research. In this context, data on studies conducted

in countries facing earthquake risk in the world were collected. In addition, the analysis method according to linguistic units from content analysis units was also used (Metin & Ünal, 2022, p. 279). Because the research universe was the statements of those actively present in the disaster area reflected in the media, the posts of those who take place on social media with their real names, and their official or unofficial views on conventional media websites. In accordance with the determined research universe, the X social media platform was selected as a sample. Thus, the obtained data were analyzed in order to reveal the role of a collaborative communication model. Within the scope of this method, the usage patterns and potential uses of today's communication technologies are also within the scope of the study. Since misuses such as disinformation prevent the efficient use of communication technologies, the necessity of a collaborative communication model that both expands communication capabilities and prevents such misuse is discussed in the light of this data. The focal point of this discussion is the opportunities offered by social media. Since the article does not use any elements that may be contrary to the data use law or other ethical rules, it does not require ethics committee approval.

Purpose of the Research

While disaster victims are waiting to be rescued, they need physical needs such as air, water, and nutrition, and supportive elements such as the ability to communicate. Here, meeting physical needs is closely related to the ability to communicate. Communication tools, especially social media, play a critical role in meeting these needs during disasters. However, disinformation can also be produced through the media as a form of malicious use during such periods. As a precaution against disinformation, authorities may implement communication outages or bandwidth reductions. In this context, it is aimed to reveal a picture of the necessity and conceptual framework of developing a collaborative communication model that can be used effectively in crisis management, both to prevent communication with victims and against the negative use of social media. Thus, it is aimed to contribute to the solution of the communication crisis experienced in major crises such as earthquakes, such as February 6 and previous disasters, by using a collaborative communication model developed. It has been observed that there are very few studies on the collaborative communication model in the literature. Therefore, it is evaluated that the study makes an important original contribution to the scientific field with the conceptual conclusion reached on the necessity of the collaborative communication model.

FINDINGS AND ANALYSIS

First Media Reflections of the Adıyaman-Kahramanmaraş Earthquake

Immediately after the Adıyaman-Kahramanmaraş earthquake, the first press bulletin was published on the website and social media by the Disaster and Emergency Management Presidency (AFAD), as an official institution (AFAD, 2023, p. Bulletin-1). According to this bulletin, an earthquake measuring 7.4 occurred in the Pazarcık district of Kahramanmaraş on February 6, 2023 at 04.17, followed by 5 aftershocks, the largest of which measured 6.6. The earthquake, which was also felt intensely in the surrounding provinces, primarily in Kahramanmaraş, Hatay, Osmaniye, Gaziantep, Şanlıurfa, Diyarbakır, Malatya and Adana, was met by disaster groups in these provinces and at AFAD headquarters within the scope of the Turkey Disaster Response Plan (TAMP). In line with the decisions taken, all provincial AFAD Directorates were put on alert and all teams were dispatched to the region. AFAD, which prepared 8 bulletins throughout the day, served a more detailed bulletin approximately half an hour later (as of 05.45) (AFAD, 2023, p. Bulletin-2). Unlike the previous one, this bulletin states that the earthquake level was declared as Level 4 within the scope of the Disaster Response Plan. It is also stated that "an international call for assistance in the field of urban search and rescue was made through ERCC (The Emergency Response Coordination Center)" and that two aircraft were assigned by the General Staff to carry governors and teams directed to the region from different regions to support coordination in the region. These findings show that institutions affiliated with the state organization quickly reached the disaster area and provided the necessary coordination.

AFAD's bulletin was quoted and served by Anadolu Agency (AA) in almost the same way (AA, 2023). It is understood that after the first news announcing the earthquake, newspapers started to give statistical news about the earthquakes that occurred in the region (Habertürk, 2023). According to the news, which was served as of 21.00 on February 6, 2023, together with an infographic prepared by AA, it is stated that the earthquakes centered in Kahramanmaraş Pazarcık and Elbistan districts affected the region

where 13 million 421 thousand 699 people live in 10 provinces. It is stated that 1651 people lost their lives in the earthquakes up to this hour, and that the earthquake with a magnitude of 7.7 at 04.17 was centered in Pazarcık, and the earthquake with a magnitude of 7.6 at 13.24 was centered in Elbistan. In the news, which emphasizes that Kahramanmaraş, Hatay, Gaziantep, Osmaniye, Malatya, Adana, Diyarbakır, Şanlıurfa, Adıyaman and Kilis are affected the most, the following information is given based on official sources (AA, 2023):

> "As of 20:20, 3,471 buildings have collapsed in the earthquakes, 1,651 people have lost their lives and 11,119 people have been injured. 14,720 personnel, 9,698 of whom are search and rescue personnel, are working in the field. A total of 3,500 military personnel, including commando battalions, are participating in search and rescue efforts in the earthquake-affected areas. Continuous aid flights are being carried out from Istanbul, Izmir and Ankara to Gaziantep and Adana with 17 aircraft, including A400M transport aircraft. 2 Akıncı TİHAs have been assigned to coordinate efforts in disaster areas."

The news of AA, which provides news based on AFAD and other official sources, has been included on internet news sites from the very beginning. For example, Medyascope's news reported that 284 people lost their lives, 2,323 people were injured and 1,710 buildings collapsed. It was also stated that "*a level four alarm was declared and that this was an alarm that included international aid, and immediately afterwards, it was reported that education in all schools in 10 provinces was suspended for a week*" (Medyascope.tv, 2023).

In the first three days of the earthquake, official, private and legal person accounts were examined via the X social media platform and the messages sent were divided into six groups. According to the findings, it is understood that the X (formerly Twitter) social media platform, primarily AFAD, was used intensively from the first moment of the earthquake. Accordingly, in the first group of posts (Anadolu Agency, 2023), news that Anadolu Agency served based on AFAD was identified. Here, the time of the earthquake, its intensity, governor statements, statements made by the Red Crescent, the Ministry of Religious Affairs and the Ministry of National Defense were given. When the institution's Twitter account was examined, it was understood that news from the earthquake region was served here instantly throughout the day. In the second group of posts (Presidency of the Republic of Turkey, 2023), Twitter posts made by the official Presidency account are seen. Here, on the one hand, messages shared by AFAD are retweeted, and on the other hand, it is understood that the messages of the President himself are spread. According to these messages, on the one hand, information about the earthquake is provided, and on the other hand, international call traffic and the content of these calls are shared. The third group of posts includes Twitter messages shared by the Directorate of Communications of the Republic of Turkey. In the examinations, it is seen that more than 200 messages were shared by this institution from its official Twitter account in the first two days. Institutional messages were also frequently shared from the account, where the official account of the Presidency and all other official institutions related to the earthquake were retweeted. When viewed from here, it seems that the official Twitter account of the Directorate of Communications of the Republic of Turkey assumes the role of a news sharing center (Presidency of Communications of the Republic of Turkey, 2023). When other official accounts are examined, the similarity with the posts made by the first five group accounts shows that the Twitter social media platform is a channel preferred by official institutions in the fields of communication, correspondence and coordination. The fourth group of posts (AHBAP, 2023) shows the posts made by a non-governmental organization (NGO) AHBAP association. As can be understood from this, while NGO associations are engaged in efforts to collect and deliver aid on the one hand, they also fulfilled their duty of informing and guiding the public about the blockages and other negativities through Twitter messages. The fifth group of posts shows Twitter posts made by some media figures. Here, it is understood that journalists, NGO leaders, artists and ministers tried to support crisis communication and coordination by using their own corporate and private Twitter accounts (Uğur, 2023; Levent, 2023; Ersoy, 2023). In the sixth group of posts, it is seen that while the corporate media prepared the news based on an official authority or an authorized source during the Adıyaman-Kahramanmaraş earthquakes, it was seen that everyone was able to share their own testimonies, feelings and thoughts on social media. Official authorities may have felt the need to apply bandwidth throttling to Twitter in order to prevent information pollution caused by those who claimed to be under the rubble despite not being

trapped in it (DHA, 2023), those who made false reports just to attract attention and those who attempted to defraud with fake aid campaigns.

This data also shows that social media, due to its relatively uncontrolled and unlimited nature, is the source of more and different information flows than corporate media. While this free flow makes social media useful in many ways in terms of rapid exchange of information, it is also understood that it can turn into an intense disinformation environment due to the sharing of unconfirmed information. This situation, which causes conscious or unconscious misdirection and thus makes it difficult for search and rescue teams to do their jobs, disrupts other aspects of crisis management, including the proper delivery of aid to the right places, can make Twitter an environment open to provocation (Demiröz, 2020, p. 297). Despite all its negativities, it can be said that the use of Twitter in aid communication and rescue coordination is due to the accessibility capability of this medium. This situation shows that social media has reached a central position in post-disaster crisis communication in our country.

When we look at the posts, it is seen that the messages published by AFAD were retweeted from the official X account of the Presidential Communications Directorate. In addition, the same account retweeted posts made by other ministers and ministries, especially those belonging to the President, and other official institutions. When the account is examined in terms of quantity, it is seen that more than 200 messages were shared by this institution in the first two days (T.C. Directorate of Communications, 2023). News from the earthquake region was also served instantly throughout the day from AA's X account (AA, 2023). On the other hand, with the posts made by non-governmental organizations (NGOs) such as AHBAP association, on the one hand, efforts were made to collect and deliver aid, while on the other hand, the task of informing and guiding the public about the blockages and other negativities was carried out through X messages (AHBAP, 2023). When looking at the X posts made by some media figures, it is understood that journalists, NGO leaders, artists and ministers are trying to support crisis communication and coordination by using their own corporate and private X accounts (Ersoy, 2023; Levent, Twitter.com, 2023; Uğur, 2023). The difference between the posts shared from private accounts and those shared from official accounts can be attributed to the concern of official authorities to ensure control and not leave room for a stir. However, unlike the limited possibilities of traditional media, it is possible to say that the restrictions applied to this medium, which is the only point of communication especially in emergency situations where rapid interventions are required, cause both increased uncertainty and fear and anxiety (Erkaraman, 2023, p. 7341).

Characteristics of Messages Shared on Social Media on Earthquake Day

On the day of the earthquake, the official X account of the Presidency of Communications of the Republic of Turkey appears to have assumed the role of a news sharing center. While the President's messages were conveyed on the official X account of the Presidency, posts made and messages shared by AFAD were retweeted on the other hand. The messages here also include international call traffic and the content of the talks (Presidency of the Republic of Turkey, 2023). When other official accounts are examined, it is understood that the similarity of the posts made is that the X social media platform was a channel preferred by official institutions in the field of communication, correspondence and coordination immediately after the earthquake. According to the data of the research company Adba Analytics, approximately 52 million posts were made in the first two days regarding the earthquake in various social media channels. X was the most used channel with 98% of the posts reaching over 40 billion access. The "aid" category ranked first in the posts made here with 21.4 million shares, followed by "under the rubble" posts with 18.4 million (Habertürk, 2023).

When the earthquake news on social media posts is examined, it is understood that the news given on the first day was based on official sources. Here, it is understood that the differences in the destruction, death and injury numbers are due to the data available at the time the statements were made. However, it is noticeable that different analyses are reflected in the media as the sources differ after the second day. For example, according to a news report on the BBC website, images they claim to have received from Maxar, Planet and Copernicus are compared with images taken before the earthquake in order to get an idea about the extent of the destruction (BBC, 2023). In an article prepared for Medium, it is aimed to show what the experienced picture means by basing it on different reports published after the

earthquake disaster. In addition to the ITU Earthquake Preliminary Investigation Report, the Earthquake Law Guide published by the Istanbul Bar Association and the report by ÇMO, the news given under the title of "Save the Children, Fear, Distress and Grief" are also among the sources used here. Accordingly, the devastating earthquakes that occurred on February 6, 2023 have put the mental health and well-being of seven million children at risk in the coming years. Even though it has only been two weeks since the earthquake, psychologists tell Save the Children that some children are showing signs of severe distress, such as nightmares, aggression or withdrawal (Medium, 2023).Euronews.com, which made a summary report about a month after the earthquake, included the criticisms made about the inadequacy of the rescue teams in the first days of the earthquake and the problems experienced by AFAD in coordinating the rescue teams coming from abroad. This report stated that the lack of soldiers who were not sent to the field in sufficient numbers led to looting. On the other hand, the sale of tents by the Red Crescent and the fact that an earthquake victim with two children living in the same tent with another family went to the governor's office every day to ask for a tent but their needs were not met were negatively reported. The President's request for "forgiveness" by saying "*Unfortunately, we could not carry out the activity we wanted in Adıyaman in the first few days*" was also considered as evidence of these negativities (Euronews, 2023).

From the above data, it is seen that social media has risen to a central position in terms of information. However, it is also seen that significant disinformation is produced through the same platforms. In a study measuring the COVID-19 misinformation outbreak on X, the following results were found regarding the 673 posts analyzed, 129 (19.2%) of which were from X-verified accounts: Most of the messages were sent by unofficial individuals or groups (448, 66.6%). This was followed by news sources or journalists (111, 16.5%). It was observed that the majority of the messages (614, 91.2%) contained serious information (548, 81.4%) about the COVID-19 outbreak. The most frequently covered topics were medical/public health (468, 69.5%), followed by sociopolitical (242, 40.0%) and financial (38, 5.6%). Only 41 posts (6.1%) contained humor, while after excluding humorous/non-serious posts, a total of 153 messages (24.8%) contained misinformation and 107 tweets (17.4%) contained unverifiable information. When X accounts were examined according to user category, it was found that unofficial personal/group accounts had more misinformation compared to others (33.8% vs. 15%). While business/NGO/government, news sources/journalists, and healthcare/public health accounts all had lower rates of misinformation (6.1%, 18.6%, and 12.3%, respectively), tweets from unverified X accounts contained more misinformation compared to verified accounts (unverified account: 31.0%, verified account: 12.6%). The number of messages containing misinformation was found to be lower in accounts with more followers (20.1%); Among the search terms, "Corona" was associated with the highest level of unverifiable information, while "COVID-19" and "#coronavirusoutbreak" were found to have the lowest level of unverifiable information (Kouzy et al., 2020, p. 4). In a study examining registered voters' exposure to fake news in X and their sharing of this news, it was concluded that interaction with fake news sources was extremely intense. Accordingly, only 1% of individuals are responsible for 80% of the fake news sources spread. In other words, it is stated that approximately 80% of the fake news shared is created by 0.1% (Grinberg et al., 2019, p. 374). In a study examining the reflection of the recent Ebola outbreak in West Africa on social media, it was revealed that false information has a much greater reach potential than true information (Oyeyemi et al., 2014, p. 1). Again, from the examination of the messages collected using certain keywords on the frenzied spread of Ebola-related news, conspiracy theories, innuendos, and rumors about the disease in X, it was concluded that the false information spread in X can sometimes resemble real newsworthy events (Jin et al., 2014, p. 93). Therefore, these data also support the basic proposition of the research regarding the necessity of a collaborative communication model.

The Impact of Disinformation on Crisis Communication and Coordination

The media, which is structured to act very quickly in emergencies due to its mission, can be said to have the opportunity to easily and effectively reach large audiences without being affected by power outages thanks to the different communication systems it has. This feature, which provides a significant advantage in times of disaster, makes the media one of the important tools that will contribute to meeting the need for a healthy communication network so that many institutions working in the region can effectively connect with each other after the disaster. Because this media network can establish a

connection not only between the units in charge, but also between disaster managers and disaster victims (Bozkurt & Demir, 2023, p. 27). Since it represents the central position where the public and authorities receive information in terms of both communication and coordination, the effective use of the media after the disaster affects the success of crisis management. From this point of view, it can be said that the media plays an active role both in creating public opinion before the disaster and in ensuring the public's preparation for disasters, and in providing general crisis management such as informing, controlling and organizing after the disaster. For example, despite the problems experienced by the public in terms of organizing in a short time due to the damage to the infrastructure in the 1999 Marmara Earthquake, the media assumed the role of a bridge in communicating with the region and ensured that the authorities, the public and the world received news from the region (Toker, 2016, p. 265). Communication and transportation problems were encountered again in the earthquakes centered in Kahramanmaraş-Adıyaman. Aid was delayed because the roads and bridges were destroyed, and there were disruptions in telecommunication services because local telephone systems and GSM operators were out of service (İşitmezoğlu, 2023; Levent, 2023; Solmaz, 2023). At this point, it is understood that social media has gradually increased to a central position since the day wikis were created to reach missing people and provide information after September 11 (Çanakçı et al., 2022, p. 885). Because it is reported that during the earthquake in the USA in 2011, when phones could not be used, X was used effectively to communicate with the public, people could reach their relatives and get information from the authorities in this way (Demiröz, 2020, p. 298).

X can also be used effectively in announcing social aid campaigns initiated by the state, private initiatives or NGOs. For example, the "One Rent One Home" campaign launched after the Izmir Earthquake continued for the earthquake victims who had to leave their homes in the earthquakes centered in Kahramanmaraş-Adıyaman. The "MyHomeBeMyHome" campaign launched by AFAD was also carried out through social media (Erkaraman, 2023, p. 7343). Considering the role it played in the Van, Bingöl and Elazığ earthquakes, it has been recorded that social media has become the center of communication and cooperation (Şahinsoy, 2017, p. 14) (Şahinsoy, 2017, p. 14; Argın, 2023, p. 143). In the days following the Adıyaman-Kahramanmaraş Earthquake, academics who saw that media outlets fed from different sources began to publish news that could lead to speculation about the earthquake, published an earthquake journalism guide and made their discomfort known via social media (Cumhuriyet, 2023). Again, verification centers working on news perceived to be speculative benefit from these platforms while ensuring that the reader reaches confirmed information by verifying many areas, from widely known falsehoods to questionable information on the agenda, from claims brought up by the written and visual media to urban legends (Kurtoğlu, 2021).

In order to prevent information pollution caused by those who claim to be under the rubble despite not being trapped in the rubble (DHA, 2023), those who make false reports just to attract attention, and those who attempt to defraud with fake aid campaigns, official authorities have been forced to implement band reductions in X (Reuters, 2023). News about the restriction of communication opportunities, news about the warnings of official authorities against speculations and the sanctions they have implemented, and X posts indicating that communication opportunities have been increased contrary to speculation are also seen. The contradiction between the content of posts made from private accounts and those made from official accounts gives the impression that this stems from the official authorities' concern to maintain control and not leave room for a stir (AA, 2023). However, unlike the limited opportunities of traditional media, the restriction applied to this medium, which is the only point of communication especially in emergencies where rapid interventions are required, can both increase uncertainty and cause fear and anxiety (Erkaraman, 2023, p. 7341).

The majority of the population that can use social media thanks to their smart phones have made social media more functional than traditional media by using the two-way communication feature of this environment. The data also show that X has become the central tool of communication and coordination during the crisis. However, it is also understood that these areas are a source of significant disinformation due to the sharing of unconfirmed information. This situation, which causes conscious or unconscious misdirection and thus makes it difficult for search and rescue teams to do their job, and disrupts other aspects of crisis management, including the proper delivery of aid to the right places, can make X an

environment open to provocation (Demiröz, 2020, p. 297). Despite these negativities, considering that many consumers now receive news from real-time social media platforms, it has become important to have quantitative methods to separate news from rumors (Jin et al., 2014, p. 93).

CONCLUSION

When the above data is evaluated together, it becomes clear that accessing accurate information in the midst of a natural disaster is of critical importance. It requires the establishment of strong communication lines so that all response plans are made in coordination with government authorities in a way that protects both response teams and citizens as well as material and spiritual assets. These communication lines should be used for the efficient implementation of joint response plans in disasters. Accordingly, with the help of a communication model developed, on the one hand, all kinds of information from the crisis area can reach the crisis coordination center, and on the other hand, rescue teams can be supported with accurate and precise information by simultaneously delivering the decisions taken to the personnel spread over the crisis area. At this point, support can be received from the concepts of media convergence established on communication technologies, participatory culture and collective intelligence. Thus, while the production of content through different platforms and its transmission through these platforms can be used by citizens, official institutions and NGOs as a source of information on the one hand, a more successful crisis management can be achieved by bringing together different perspectives and knowledge and informing the most accurate decisions made to the crisis areas. Based on the above data, it is understood that it is possible to develop a model that can meet the need for necessary information exchange between the intervention teams and the people in the region and increase morale and motivation by making adjustments to the following points:

a. Fast and effective communication: In line with the strong society motto, communication processes should be accelerated more and obstacles to the faster dissemination of information in times of crisis should be removed with the help of technology. Because social media, instant communication tools and other communication technologies can help to instantly share up-to-date information in times of crisis and to help the public act consciously.

b. Data analytics and prediction: Big data analytics and artificial intelligence technologies should be organized in a way that they can be used to analyze past data and create prediction models. In this way, it will be possible to detect future crises in advance and take appropriate measures.

c. Social media: Social media and other sharing platforms should be developed because they make it easier for the public to receive, share and request assistance regarding crises. Because these platforms also allow them to quickly share information about crises and interact with the public. On the other hand, since the number of users producing disinformation on social media platforms corresponds to a small amount compared to the total number of users, these accounts can be brought under control with deterrent policies and algorithms to be developed.

d. Human-robot collaboration: In crisis situations, robots and artificial intelligence systems should be developed to provide support to humans. Because unmanned aerial vehicles (UAVs) or robots can perform damage detection in dangerous areas, assist in search and rescue operations, or perform information gathering and communication tasks. In short, safer and more effective crisis management can be achieved by using them instead of humans in high-risk environments. e. Media convergence, participatory culture and collective intelligence: When the legal, social and technological obstacles to the adoption and operation of these concepts are removed, it is possible to use them efficiently in different decision-making mechanisms, especially in crisis management.

As a result, the provision of larger amounts of data through large-scale information systems such as social media can facilitate a more accurate understanding of human behavior, preferences, and ideas, and the ability to make decisions accordingly. By creating behavioral models from the data obtained in this way, targeting can be made more accurate and services can be customized. In addition, through cooperation and information sharing among different stakeholders, the solution to the crisis can be implemented more effectively.

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