

#NotHolidayButDistance Education: a study on social media use for K-12 education during the COVID-19 pandemic

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Abstract

Purpose – This study aims to explore Twitter posts of Turkish government agencies and the public under a specific hashtag, #NotHolidayButDistanceEducation, specifically related to online distance education during the Covid-19 pandemic.

Design/methodology/approach – This study used a thematic analysis on 22,547 original tweets posted by 6,970 users during the first month of online distance education in Turkish K-12 schools. Based on like and retweet counts, the study further explored the extent of stakeholders' engagement with the observed themes.

Findings – The findings showed that government agencies and citizens used Twitter to provide technical and psychological support, appreciate and motivate stakeholders, demonstrate sample distance education activities, share information and offer suggestions about the ongoing online distance education. It was also observed that the hashtag has been used for expressing negative views about online distance education and for political purposes. A positive relationship was found between social media engagement and providing technical support or sharing information for online distance education.

Practical implications – This study highlights the role of social media in providing practical and emotional support to education stakeholders in times of crisis. Thus, governments can use social media to provide evidence-based psychological and physical health support to their citizens during a pandemic. Social media can serve to improve education practices in schools through the interactions between the public and policymakers.

Originality/value – To the best of the authors' knowledge, this study can be considered unique because it demonstrates the civic use of social media for educational crisis management. This study highlights the influence of social media in educational policy and practice development in the contemporary era.

Keywords Covid-19, Distance education, Twitter, Social media engagement, K-12 education, Thematic analysis

Paper type Research paper



1. Introduction

The coronavirus disease 2019 (Covid-19) outbreak, first reported in China in December 2019, rapidly transitioned into a worldwide pandemic. To slow down the transmission of Covid-19, various measures such as lockdowns were taken in many countries. This situation caused the social isolation of individuals. Because of the spread of the Covid-19 virus across the world, every level of education and its stakeholders have been affected in many ways. Administrators had to decide on numerous issues in a limited time, especially during the transformation of education into online distance mode. Teachers, students and parents had to cope with the unprecedented challenges posed by the swift switch to online distance education (Kidd and Murray, 2020). Online distance education is still in its infancy in the K-12 context. Teachers, students and parents of K-12 education were not familiar with online education before the pandemic (Zawacki-Richter *et al.*, 2017). Therefore, providing them guidance and assistance on online distance education has become a crucial task. Due to physical distancing measures, it has not been possible to provide such support in a traditional face-to-face format. Instead, government agencies, schools and the public have used social media actively to exchange news, information and knowledge on how to handle online distance education on various levels of education, including K-12 schools (Greenhow *et al.*, 2021; Trust *et al.*, 2020). However, the nature and content of interaction between the government, schools and the public during the pandemic in social media platforms are yet to be explored. Understanding the different discourses around K-12 online distance education in social media would allow to develop more resilient education systems by developing better means to support educational stakeholders in future crises.

Previous research has shown that in times of crisis, the public can use social media actively to express their views and interact with each other and the government agencies (Pappacharissi and de Fatima Oliveira, 2012). Thus, it has become vital for government agencies to use social media platforms in crisis situations. Social media can help governments to reduce mass panic, fear and anxiety in the society by swift sharing of up-to-date information about the ongoing crisis (del Mar Gálvez-Rodríguez *et al.*, 2018; Chatfield and Reddick, 2018). Further, quantitative indicators in social media (e.g. number of likes, retweets and replies) allow examining the public's level of social engagement with the pandemic-related challenges and expectations (Avery and Graham, 2013; Gruebner *et al.*, 2017). Several studies have investigated social media discourses for understanding teachers' and students' online education experiences throughout the Covid-19 pandemic (Greenhow *et al.*, 2021; Coman *et al.*, 2020; Rohman *et al.*, 2020; Trust *et al.*, 2020). However, such studies have mainly focused on the utilization of social media for higher education. To our knowledge, no previous study has explored the social media discourse in K-12 settings. Further, previous studies have mostly focused on the thematic classification of social media discourse with little attention to the public's level of engagement with the identified themes. Moreover, the main focus of such research has been on public's perspective. There is a dearth of research on how government agencies have dealt with public communication during the crisis.

Considering these gaps, the current study aims to study how government agencies used social media for the management of online distance education in K-12 schools during the pandemic and the educational stakeholders' (schools, teachers and parents) engagement with this process. To achieve this aim, we thematically analyzed Twitter discourse from the Turkish government agencies and the stakeholders by focusing on a hashtag initiated by the Turkish Ministry of Education at the beginning of online distance education in K-12 schools in Turkey as a response to the pandemic. Drawing on the Uses and Gratifications framework, we further analyzed the level of social engagement with each identified theme.

The current study increases the knowledge on educational stakeholders' experiences and challenges during online distance education in K-12 schools. Further, it extends the social media uses and gratifications framework to crisis situations.

1.1. Literature review

1.1.1 Social media. Social media refers to “a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0 and allow the creation and exchange of user-generated content” (Kaplan and Haenlein, 2010, p. 61). Social media platforms such as Twitter, Facebook and YouTube have relied on the characteristics of openness, cooperation, co-creation, trust and commitment among people (Constantinides, 2014). With these characteristics, social media platforms have their unique collective cultures and norm (Smith *et al.*, 2012). Today, social media users have various motivations to use these platforms, such as entertainment (Kim and Kim, 2019; Gilmour *et al.*, 2020), seeking and providing information (Alksasbeh *et al.*, 2019; Rosenberg *et al.*, 2020), political campaign (Dindar and Yaman, 2018), broadcasting live streams (Junco, 2013), self-expression (Shane-Simpson *et al.*, 2018) and socialization (Alhabash *et al.*, 2014). Recent studies also reported that collaboration, engagement and academic performance are positively associated with social media use for sustainable education (Alamri *et al.*, 2020a; Alamri *et al.*, 2020b). For these motivations and benefits, many users use a hashtag, which is a specific form of a tag, and it is introduced by a hash symbol (#).

Users can share their views and experiences with a broad audience using a certain hashtag. As hashtags are open to the public, anyone can follow the conversation on social media without having an account. It is also possible to search hashtags so that people can find any topic under a certain hashtag (Small, 2011). Furthermore, hashtags allow users to access and engage in the conversation about social issues for different purposes, such as enhancing awareness and giving emotional support (Tombleson and Wolf, 2017). Hashtags may influence on how events elucidate (Calvin *et al.*, 2015). In times of crisis, hashtags can also gather people for a common goal and create a sense of solidarity (Pappacharissi and de Fatima Oliveira, 2012). For example, during Hurricane Maria #4645Boricuas, the hashtag was formed to bring attention to 4,645 deaths of Boricuas in Puerto Rico. People used #4645Boricuas to share surviving skills, express political views, demonstrate their strength and inform media regarding the death toll (García-Ramírez *et al.*, 2020).

Hashtags have also the potential to use for educational purposes. Education-related hashtags may lead to promoting professional connections and interactions among all stakeholders for collaboration (Carpenter *et al.*, 2020). Research has shown that educational hashtags have been used to facilitate teachers' professional development (Greenhalgh *et al.*, 2020; Carpenter *et al.*, 2020), provide education-related news and information (Staudt Willet, 2019), trigger student engagement (Hennessy *et al.*, 2016) and reflect on teaching processes (Rosell-Aguilar, 2018). Based on these findings, social media hashtags can be considered as affinity spaces in which education stakeholders take part in informal learning, build collective knowledge and find emotional support (Gee, 2017; Greenhalgh *et al.*, 2020; Rosenberg *et al.*, 2016; Trust *et al.*, 2020). In these spaces, by forming informal connections, personal knowledge-building activities allow people to exchange experiences of real life, in turn, contribute to professional development (Jarrahi *et al.*, 2020).

1.1.2 Theoretical underpinnings: uses and gratification framework. The Uses and Gratifications framework focuses on what users do with media rather than what media do to users (Swanson, 1979) and acknowledges the interactive structure of social media (Dolan *et al.*, 2016). According to the framework, individuals are not mere consumers of social media. Rather, they are active contributors of the medium (Chen, 2011). The Uses and

Gratifications framework particularly deals with identifying the needs and expectations for engaging with media (Katz and Foulkes, 1962). According to the Uses and Gratifications framework, users engage or choose media content based on social and psychological needs, motives or expectations (Rubin, 2009).

Cutler and Danowski (1980) suggested two main categories of media gratifications, namely, content and process gratifications. In the former, individuals intrinsically benefit from the information in the message conveyed by the media. In the latter, individuals extrinsically gain from experience by using a particular media (Cutler and Danowski, 1980). Accordingly, the needs relating to sharing and searching information might be examples of content gratifications. On the other hand, the motivation to use any media for escaping from daily life problems is considered as process gratifications. Dindar and Yaman (2018) pointed out that people mainly use Twitter for its process gratification, such as self-expression and social interaction, rather than content gratification. Wang *et al.* (2012) identified emotional, cognitive, social and habitual gratifications as the main motives for using social media. Pelletier *et al.* (2020) discovered users had different motivations for using various social media platforms. In their study, Twitter was preferred for informational purposes, whereas Instagram was used for entertainment and socialization.

Drawing on the Uses and Gratifications literature, we aimed at understanding social media use for managing K-12 online distance education during the Covid-19 pandemic by analyzing Twitter discourse from various stakeholders. Priorities of people change during a crisis. Thus, in crisis times, gratifications for people to use media might vary (García-Ramírez *et al.*, 2020; Saleh *et al.*, 2020). The public can follow updates and announcements made by authorities on specific issues (Reuter and Kaufhold, 2018). For example, during the devastating wildfire that occurred at Fort McMurray, a city in Canada, citizens intensively used Twitter and Facebook to reach government agencies for receiving information and updates on fire locations (Guo *et al.*, 2020). During the Covid-19 pandemic, social media have been used for sharing information, community support, appreciation for healthcare staff and raising concerns about food insecurity how the virus spreads (Saleh *et al.*, 2020). Based on these findings, we argue that the level of engagement with a specific social media content might shed light on to psychological and social needs of social media users.

1.1.3 Social media engagement metrics in Twitter. Engagement is “the state of being linked with a subject” (Song *et al.*, 2020, p. 2), and it is considered as an individual’s interaction with media content in digital environments. The interactive functions in social media (e.g. likes, shares and comments) enable users to rapidly engage with certain social issues (Kim, 2020), and these functions are evaluated as the metrics of social media engagement. For instance, actions such as liking, commenting and sharing on Facebook are representative of engagement. Such engagement is displayed through actions such as liking, disliking, commenting, sharing and uploading videos on YouTube (Khan, 2017). Social media engagement metrics have been used to define social cues in online communication (Kim, 2020), news selection and evaluation (Chung, 2017), organizational trust (Lin and Spence, 2019) and people’s perceptions about the importance of public issues (Spartz *et al.*, 2017).

The current study is conducted on popular social media, Twitter. In Twitter, basic indicators of social engagement can be considered as retweets and likes. The retweet function is defined as the re-posting of content that enables users to quickly share information with their followers. The information dissemination is accelerated by using retweets (Stieglitz and Dang-Xuan, 2013). It is emphasized that there might be multiple reasons, including psychological and technical factors, for retweeting (Macskassy and Michelson, 2012). Boehmer and Tandoc (2015) stated that the needs of the users are regarded

as crucial reasons to retweet a post on Twitter. User needs refer to the match between the tweet content and Uses and Gratifications of the audience (Dolan *et al.*, 2016). Although like actions in Twitter are not investigated as much as retweets, like counts have the potential to indicate peoples' preferences and needs as well (Meier *et al.*, 2014). Uses and gratification theory addresses engagement as an indicator of user needs and expectations (Rubin, 2009). Drawing on this, it can be assumed that analyzing the retweet and like counts for the posts published under a specific hashtag might inform about the public's level of engagement with the topic of interest in the hashtag.

1.1.4 Governmental and public use of social media in times of crisis. Social media has become a crucial venue for civic engagement. Through social media, individuals are able to express their worries, needs and views on public issues (Wang and Ye, 2018). When the public is interested in being involved in policy-making and public service delivery, they can communicate with authorities using social media platforms (Linders, 2012). For decades, government agencies have used social media to share information, monitor public reactions and views, control and combat rumors, facilitate government-public cooperation, build a sense of solidarity and promote academic research (Alexander, 2014; Lovari and Bowen, 2020; Mergel, 2013). A considerable number of studies emphasized the importance of social media for government agencies in managing crises. Social media use during the crisis. However, the empirical research that deals with governmental use of social media for managing education during a crisis situation are scarce.

1.1.5 Education in the time of Covid-19 pandemic. At the end of 2019, the medical doctors detected a severe respiratory disease caused by a new type of coronavirus in Wuhan, China. The World Health Organization (WHO) named this disease as Covid-19 in February 2020. Covid-19 has spread across the world rapidly, and WHO announced a Covid-19 pandemic (WHO, 2020). In response to the pandemic, public places, specifically schools, have been closed to slow down the spreading of the virus. The closure of schools has affected 862 million children and young people worldwide (UNESCO, 2020). To continue education, many educational institutions around the world have switched to online distance education as soon as possible.

In Turkey, an existing online education platform, Education Information Network – Eğitim Bilişim Ağı (EBA), was updated to provide online education and course materials to the K-12 students. EBA allows students to access all course content in Turkish K-12 education via the internet (EBA, 2020). During the Covid-19 pandemic, EBA has been actively used by approximately seven million K-12 students and one million teachers. Further, EBA appeared to be the third most visited educational Web page all over the world after distance education started (CNN Turk, 2020).

The closure of schools due to the Covid-19 pandemic and switching to online distance education have led to uncertainties, disagreements and challenges among the stakeholders of education (Wang *et al.*, 2020). This is because quality online education is not easy to achieve. Various factors such as technical infrastructure, digital inequalities, quality of course content, institutional support and teachers' digital competencies can have significant impacts on students' learning outcomes (Rannastu-Avalos and Siiman, 2020; Charitonos *et al.*, 2012). Further, various learner dispositions such as negative views about online learning or lack of self-regulation can hinder successful online learning (Kim *et al.*, 2020). Further, in the K-12 context, teachers and students are less familiar with online distance education than counterparts in higher education institutions (Means *et al.*, 2013; Zawacki-Richter *et al.*, 2017). Thus, the rapid transition from face-to-face to online education may have led to challenges in organizing online distance education in K-12 settings. However, those challenges are yet to be explored. Research has shown that social media platforms are

valuable venues for understanding public and governmental stance on societal issues (Panagiotopoulos *et al.*, 2014; Reuter and Kaufhold, 2018; Lovari and Bowen, 2020). Drawing on this, the current study explores Twitter posts of Turkish government agencies and the public under a specific hashtag, #NotHolidayButDistanceEducation. The hashtag was specifically related to online distance education during the pandemic. The research questions are as follows:

- RQ1.* What are the educational stakeholders' uses and gratifications for social media in terms of online distance education in K-12 schools during the Covid-19 pandemic?
- RQ2.* What is the educational stakeholders' level of engagement with the social media posts related to online distance education in K-12 schools?

2. Method

2.1 The context

On March 11, 2020, the first case tested positive for Covid-19 was announced by the Turkish Ministry of Health (Sağlık Bakanlığı, 2020). On March 18, 2020, the Turkish Ministry of National Education announced that from March 23, 2020, and onwards education will continue as online distance education in all Turkish primary, secondary and high schools (Anadolu Ajansı, 2020). Within a week after the announcement, the learning platform (EBA) that was developed by the Ministry of Education some years ago was updated for online distance education. Further, three brand new education TV channels were launched, namely, EBA TVs (for primary, secondary and high school). A daily schedule was announced for the students to follow their lessons on EBA TVs. One day before the online distance education started, the Turkish Minister of National Education had posted a video under the #NotHolidayButDistanceEducation (#TatilDeğilUzaktanEğitim) hashtag on Twitter (<https://t.co/3LEBTzRsRL>). In this video, he expressed that the government had set up the necessary infrastructure, and the nation was ready for online distance education. Since then, all stakeholders in the distance education process have posted tweets for different purposes using the #NotHolidayButDistanceEducation. The data in this study include tweets posted under the #NotHolidayButDistanceEducation hashtag in the period between March 18 and April 24, 2020.

2.2 Data collection

The tweets with #NotHolidayButDistanceEducation were captured through the Tweet Binder platform. Tweet Binder is a social media monitoring tool that enables researchers to generate reports and track hashtags on Twitter (Tweet Binder, 2020). The data retrieved from Tweet Binder included the tweets, likes and retweet counts for them. In the original data set, there were 22,547 unique tweets posted by 6,970 distinct Twitter accounts. Retweets were not included in the data set. In the whole sample, 20,021 of the tweets contained pictures or videos. If a tweet contained videos or pictures, the content of the tweet has been accessed by clicking on the URL provided with the tweet.

2.3 Data analysis

For the first research question, we used a thematic analysis to classify tweets under specific categories, and for the second research question, we used negative binomial regression analysis to investigate social media engagement across the themes.

2.3.1 Thematic analysis (RQ1). Thematic analysis is a qualitative research method that allows researchers to identify, analyze, organize and report themes that emerged from a data set (Braun and Clarke, 2006). The thematic analysis does not require a detailed theoretical framework, and it is appropriate for summarizing important features of a large data set (Braun and Clarke, 2006; Nowell *et al.*, 2017). Covid-19 pandemic has triggered an extraordinary situation in the education landscape that does not fit into a specific theoretical framework. Therefore, in the current study, we analyzed a large data set of tweets by using a data-driven thematic analysis rather than exploring those tweets from a particular theoretical framework. As an initial step, 1,000 tweets were randomly selected from the whole data set. Preliminary themes were established based on the thematic analysis of this sub-sample. Following, the first author coded all the tweets based on the preliminary themes that emerged from the sub-sample. During this coding process, the identified themes were updated or extended when necessary (Dindar and Yaman, 2018). During the coding process, we realized that a single tweet might include features from multiple themes. For example, a tweet could both criticize the government and offer solutions for specific online distance education issues. In such cases, the tweet was included in both themes and randomly chosen 3,382 tweets (i.e. 15% of the whole sample) were coded independently by the second author. Cohen's Kappa scores were calculated for each theme to examine the reliability of the coding process (Strijbos *et al.*, 2006). Any value for the Kappa between 0.41 and 0.60 represents a moderate agreement, 0.60–0.80 shows the substantial agreement and 0.81–0.99 is almost perfect (Viera and Garrett, 2005).

2.3.2 Quantitative data analysis on social media engagement (RQ2). Social media engagement was measured through two specific features of a tweet: likes and retweets. The distributions of like and retweet counts were over-dispersed ($M_{\text{like}} = 22.39$, $SD_{\text{like}} = 595.04$, $Skewness_{\text{like}} = 86.68$, $Kurtosis_{\text{like}} = 8,622.58$; $M_{\text{retweet}} = 4.53$, $SD_{\text{retweet}} = 129.08$, $Skewness_{\text{retweet}} = 93.52$, $Kurtosis_{\text{retweet}} = 9,973.45$). Thus, the assumption of normal distribution has not been met for conventional correlational analyses. To analyze over-dispersed count data in which the conditional variance is higher than the conditional mean, negative binomial regression is used (Hilbe, 2011; Osborne, 2017). In this study, negative binomial regression analysis was applied to estimate the impact of the themes on like and retweet counts. Prior to the negative binomial regression, the tweets in the whole data set were coded 0 or 1 for all the observed themes. For a specific theme, 0 indicates that the tweet does not belong to that theme, and 1 indicates that the tweet belongs to the theme. In the negative binomial regression analysis, we calculated the incidence rate ratio (IRR) for each theme to quantify the impact of each theme on like and retweet counts.

3. Results

3.1 RQ1 – What are the educational stakeholders' uses and gratifications for social media in terms of online distance education in K-12 schools during the Covid-19 pandemic?

Between March 18 and April 24, 2020, there were on average 752 tweets per day ($SD = 656.24$). The maximum number of tweets was counted on March 22 ($n = 4,090$). This date is the first time that the Minister of National Education tweeted on Twitter with the hashtag #NotHolidayButDistanceEducation. The minimum number of tweets was posted on protesting government or government agencies ($n = 63$). Tweet frequencies by day are displayed in Figure 1. Figure 1 shows that the tweets posted under the hashtag started to decrease after April 20, 2020. Thus, we can argue that the current data set represents the most crucial time period in capturing the perceptions of stakeholders about the transition to online distance education in Turkish K-12 schools.

Thematic analysis yielded eleven distinct themes. The themes and the Cohen's Kappa inter-rater reliability values are as follows: demonstration of sample distance education activities (0.70), Providing information about planned/ongoing distance education processes (0.62), providing psychological support (0.68), providing technical support (0.93), motivating stakeholders (0.58), appreciation of stakeholders (0.79), showing political support to online distance education (0.61), protesting government or government agencies (0.95), suggestions for the ongoing distance education (0.70), humor (0.60) and negative views about online distance education (0.63).

Themes sorted by their percent are illustrated in Figure 2. *Demonstration of sample online distance education activities* included tweets exemplifying the course activities and learning artefacts (i.e. drawings, paintings, songs, plays, physical activities and experiments) created by the students or teachers. This theme was found to include the maximum number of tweets ($n = 11,581, 44.02\%$). Tweets in *providing information about planned/ongoing distance education processes* ($n = 8,982, 34.14\%$) theme were related to the time, content and location of online distance education activities that will take place. In addition, this theme comprises tweets informing the public about the TV shows in which the education administrators will talk about ongoing online distance education processes. Tweets in *providing psychological support* ($n = 1,083, 4.12\%$) theme represented support to maintain the psychological and physical well-being of students during extended periods of social isolation experienced with Covid-19. *Providing technical support* ($n = 663, 2.52\%$) theme includes tweets on technical guidelines about accessing online distance education (e.g. how to sign up the EBA platform or how to set up a TV satellite dish to access distance education via TV). *Motivating stakeholders* ($n = 1,444, 5.49\%$) included motivational tweets to enhance the interest and engagement of stakeholders with online distance education. *Appreciation to stakeholders* ($n = 1,194, 4.54\%$) theme sheltered tweets that show gratitude to teachers, parents and students for their willing participation and outstanding performance in online distance education during the pandemic. *Showing political support to distance education* ($n = 199, 0.76\%$) theme comprised tweets about displaying political loyalty or support to the current government or specific government administrators (e.g. Education Minister). Tweets in the *protesting government or government agencies* ($n = 63, 0.24\%$) theme criticizes administrators because of mismanagement of the online distance education process. *Suggestions for the ongoing online distance education* ($n = 210, 0.80\%$) theme consisted of tweets recommending some changes for improving the current status of online distance education. *Negative views about online distance education* ($n = 555, 2.11\%$)

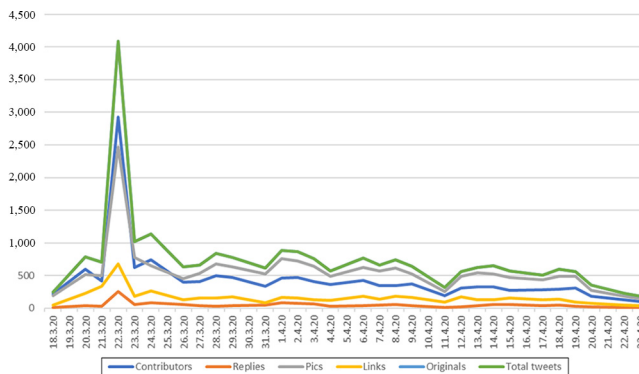


Figure 1. Tweets activity under the #Not Holiday But Distance Education hashtag by days

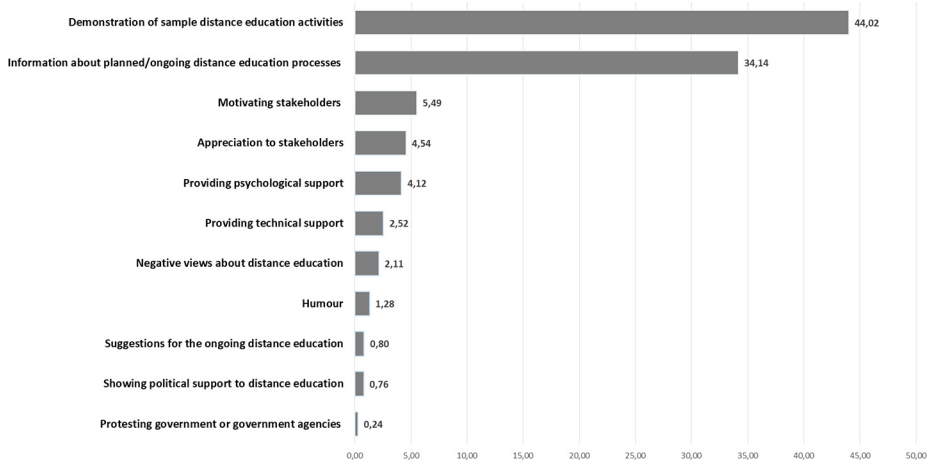


Figure 2.
Online distance education themes (x-axis = percentage of analyzed tweets; y-axis = themes)

comprised tweets are expressing that online distance education is not effective or efficient. The final theme, *humor* ($n = 336$, 1.28%), represented humorous tweets from students or parents about online distance education. The observed themes and sample tweets are shown in [Table 1](#).

3.2 RQ2 – What is the educational stakeholders’ level of engagement with the social media posts related to online distance education in K-12 schools?

The negative binomial regression allowed us to predict retweet and like counts for each identified theme. According to the regression model, the tweets categorized under the *information about planned/ongoing distance education processes* theme (IRR = 5.82, $p < 0.001$) were found to be the strongest predictor of receiving retweets. The results show that a one-unit increase of tweets in the *information about planned/ongoing distance education processes* theme would result in a 482% increase in retweets. The second strongest predictor of receiving retweets was the tweets posted under *providing technical support* theme (IRR = 3.99, $p < 0.001$). Accordingly, a one-unit increase of tweets in *providing technical support* would lead to an increase in the retweet counts by a factor of 3.99. The other significant predictors of receiving predictors were *demonstration of sample distance education activities* (IRR = 1.43, $p < 0.001$), *providing psychological support* (IRR = 1.81, $p < 0.001$), *motivating stakeholders* (IRR = 1.43, $p < 0.001$) and *appreciation to stakeholders* (IRR = 1.09, $p < 0.001$), *suggestions for the ongoing online distance education* (IRR = 1.22, $p < 0.05$) and *humor* (IRR = 1.27, $p < 0.05$). However, the IRR value indicates that a one-unit increase in the negative views about distance education would lead to a decrease in retweet counts by a factor of 0.60. Thus, tweets expressing negative views on distance education are less likely to be retweeted on Twitter. The negative binomial regression further showed no significant relationship between showing political support or protesting the government and retweet counts ([Table 2](#)).

In terms of likes received, *information about planned/ongoing distance education processes* (IRR = 4.71, $p < 0.001$), *providing technical support* (IRR = 3.22, $p < 0.001$) and *humor* (IRR = 3.23, $p < 0.05$) had the strongest impact on like counts. For instance, humor would lead to a 223% increase in the counts of likes. The other significant positive predictors of likes received were *demonstration of sample distance education activities*

Themes (<i>n</i> , %)	Sample tweets (ST)
Demonstration of sample distance education activities (<i>n</i> = 11,581, 44.02%)	ST1: 4-A class students from our school keep their learning process going by doing experiments at home. [URL shows pictures of four students in different photos who are doing science experiments.] ST2: Our special education student, [Name and Surname], is putting the objects in descending order. [URL shows a video showing one student putting jar, glass, and bottle in order.]
Information about planned/ongoing distance education processes (<i>n</i> = 8,982, 34.14%)	ST1: Broadcast schedule of this week on TRT EBA TV . . . April 6–10, 2020 [URL goes a picture illustrating the weekly schedule of primary, middle and high schools.] ST2: Our Minister of National Education, [Name and Surname], is answering questions about distance education on a live broadcast on TV [Channel Name] [URL shows a picture of Turkish Minister of National Education]
Providing psychological support (<i>n</i> = 1,083, 4.12%)	ST1: During these days when we stay at home, there are many activities we can do with our children. The strongest support is the love needed. Let us take the time to reduce anxiety in our children. [URL shows a picture that includes some recommendations about how to reduce anxiety] ST2: To protect our psychological health during the pandemic period, An Information Guide for Young People has been published. [URL includes the published guide in pdf format]
Providing technical support (<i>n</i> = 663, 2.52%)	ST1: How can you get an EBA password for your child? The step by step guideline is in our video: [URL shows a video about getting the EBA password] ST2: For those who could not set up the TV frequencies: EBA TV is in the public network [URL provides access to EBA TV live streaming Web page]
Motivating stakeholders (<i>n</i> = 1,444, 5.49%)	ST1: This process is not a holiday; we will continue education all together and meet again in our classrooms! Please join us! [URL goes a picture showing a daily schedule of primary, middle and high schools on EBA TV] ST2: For the future of this country, we need people who read more and study more science, so do not let our children and young people neglect their education in these difficult times. [URL shows a picture of Turkish Minister of National Education]
Appreciation to stakeholders (<i>n</i> = 1,194, 4.54%)	We would like to thank our teachers, students and parents who contributed to this process. We wish you success in your work. ST2: Everything is for nice spring that will bloom with your smile . . . Thank you, my teacher, thank you, pupils
Showing political support to distance education (<i>n</i> = 199, 0.76%)	ST1: EBA TV had its deficiencies and flaws. Yes, I agree. But I think it is so unfair not to see such a great effort in establishing online distance education within one week and just focus on the deficiencies and flaws. ST2: In my opinion, the Minister of National Education works well. That is why resignation is not necessary. After all, he cannot watch thousands of hours of lecture material alone. The history of our country should be taught without politicization (with regards to an animation shown to the primary school pupils. This animation included a previous Turkish Prime Minister).

(continued)

Table 1.
Results of thematic analysis and sample tweets

Themes (n, %)	Sample tweets (ST)
Protesting government or government agencies (n = 63, 0.24%)	ST1: What is the difference between those who take advantage of these difficult days to impose certain ideologies on children from those cologne, mask and antiseptic opportunists? ST2: Shame on you and your education. Do not watch TRT EBA TV, do not let them (students) watch TV! It is political propaganda [URL shows a video of a former prime minister imprisoned]
Suggestions for the ongoing distance education (n = 210, 0.80%)	ST1: For God's sake, please tell the eighth-grade science teacher (on EBA TV) to show some excitement and explain slowly! I am 42 years old, even I get tired while following! How will the child understand this? ST2: Ministry of National Education should extend the agreement with GSM operators to provide free internet to students [URL shows a picture about digital equality]
Humor (n = 336, 1.28%)	ST1: Parents who stay with their children at home day time will cooperate and explore the Covid-19 vaccine on themselves. ST2: Dear teacher, If I send you a "like" on online lecture, would you please end the course early?
Negative views about distance education (n = 555, 2.11%)	ST1: Nothing is understood from the lecture of the teachers; we are not given the opportunity to take notes; we are in distance education; if this is so, I would rather be tested positive. Please start face-to-face education! ST2: Online course duration is too short, and course content is not interactive. This is just a one-way knowledge transfer!

Table 1.

(IRR = 1.16, $p < 0.001$), *providing psychological support* (IRR = 1.61, $p < 0.001$), *motivating stakeholders* (IRR = 1.14, $p < 0.001$) and *appreciation of stakeholders* (IRR = 1.26, $p < 0.001$), *suggestions for the ongoing distance education* (IRR = 1.22, $p < 0.05$). However, *protesting government or government agencies* (IRR = 0.54, $p < 0.001$) and *suggestions for the ongoing distance education* (IRR = 0.55, $p < 0.001$) negatively predicted likes. That is, tweets under the #NotHolidayButDistanceEducation hashtag protesting government and having suggestions for distance education are less anticipated to be liked.

4. Discussion and conclusions

The goal of this study was to explore the communication between the government agencies and the public about online distance education in Turkish K-12 settings during the Covid-19 pandemic. It is known that social media serves a crucial function for public and governmental interaction, specifically in times of crisis (Jin *et al.*, 2014; del Mar Gálvez-Rodríguez *et al.*, 2018; Chatfield and Reddick, 2018; Chen *et al.*, 2020). Considering this, the current study focuses on Twitter posts of government agencies and the public about online distance education under a specific hashtag, #NotHolidayButDistanceEducation.

4.1 The themes observed in tweets posted under #NotHolidayButDistanceEducation (RQ1)

Our thematic analysis revealed eleven distinct themes in terms of the content of tweets. These themes were a demonstration of sample distance education activities, providing information about planned/ongoing online distance education processes, providing psychological support, providing technical support, motivating stakeholders, appreciation to stakeholders, showing political support to online distance education, protesting

Table 2.

Binomial regression results for themes predicting the retweet and like counts

Categories	Retweet		Like	
	IRR	SE	IRR	SE
(Intercept)	1.16	0.02	7.51	0.01
Demonstration of sample online distance education activities	1.43**	0.02	1.16**	0.01
Information about planned/ongoing online distance education processes	5.82**	0.02	4.71**	0.01
Providing psychological support	1.81**	0.03	1.61**	0.03
Providing technical support	3.99**	0.04	3.22**	0.04
Motivating stakeholders	1.43**	0.03	1.14**	0.02
Appreciation to stakeholders	1.09*	0.03	1.26**	0.03
Showing political support	1.05	0.09	0.73**	0.07
Protesting government or government agencies	1.17	0.16	0.54**	0.14
Suggestions for the ongoing online distance education	1.22*	0.09	0.55**	0.07
Humor	1.27*	0.07	3.23**	0.05
Negative views about online distance education	0.60**	0.06	1.04	0.04
Log-likelihood	-52165,87		-86530,26	
N	26,310		26,310	

Notes: IRR: incident rate ratio; SE: standard error; * $p < 0.05$; ** $p < 0.01$. The IRR value less than 1 shows a negative relationship between predictor and dependent variable; higher than 1 means positive relationship (Hilbe, 2011; Chen *et al.*, 2020)

government agencies, suggestions for the ongoing online distance education, humor and negative views about online distance education.

Twitter has been mostly used in higher education (Hull and Dodd, 2017). A systematic review study indicated that Twitter has been used for communication, collaboration, class administration, reflection and assessment in higher education (Tang and Hew, 2017). So far, only a few studies have explored the use of Twitter in K-12 education (Charitonos *et al.*, 2012; Gunuc *et al.*, 2013; Van Booren and Bess, 2013; Vazquez Cano, 2012; Waller, 2010). In these studies, teachers were found to post tweets about reminding about deadlines and providing feedback (Van Booren and Bess, 2013). Students were found to use Twitter for communicating with their peers (Charitonos *et al.*, 2012), engaging with the activities to promote their writing and linguistic competences (Vazquez Cano, 2012; Waller, 2010). Research on the use of Twitter in K-12 settings is limited to teachers and students. The current study contributes to the literature by using Twitter to explore the perceptions of stakeholders (parents, educational administrators and government agencies) along with the perceptions of teachers and students.

Teachers, parents and schools mostly shared sample online distance education activities (e.g. the experiments students had done at home) under the hashtag. The current findings indicate that social media can be used to disseminate good teaching and learning practices in K-12 settings in times of crisis. It has been found that social media is an effective way to make successful learning activities more visible in society (Waycott *et al.*, 2013, 2017). For example, during the Covid-19 pandemic, teachers from all over the world also used #remoteteaching and #remotelearning hashtags to share their teaching activities and experiences. Thus, it can be argued that social media has the potential to promote the dissemination of good educational practices for successful online distance education, specifically in times of crisis.

Informing about planned/ongoing online distance education processes was a significant theme observed in the #NotHolidayButDistanceEducation. During public crises or natural

disasters, individuals' social media usage increases (Jin *et al.*, 2014). In such conditions, social media can also contribute to the dissemination of rumors and misinformation (Celik *et al.*, 2021; Keim and Noji, 2011). Thus, people generally attempt to access information from accurate and original sources to verify the information. Therefore, for government agencies, it is crucial to provide information through social media during a crisis to avoid the spread of rumors and panic. The current study showed that Twitter has been actively used by the government to provide or access up-to-date information about online distance education during the pandemic. This information was generally about the transition process to online education, content about online courses and exams, weekly schedules of EBA TV, some tips about distance education for parents and the education administrators' talks. Previous studies have found that social media would be beneficial for teachers to inform about the assignment deadlines, project updates or exam dates (Davis, 2015; Domizi, 2013; Tang and Hew, 2017). Extending this, the current study shows that social media can also help government agencies and school administrators to provide information about ongoing educational processes during a public crisis.

The current study shows that #NotHolidayButDistanceEducation has been used to provide psychological and physical health support to the students. Schools' official Twitter accounts, teachers and parents tweeted for showing the importance of wearing masks, cleaning hands, staying at home and keeping social distance. Besides, sample physical activities were demonstrated for staying healthy during social isolation. It is emphasized that a promising approach for government and educational institutions to increase the credibility of public health information may post about public health on social media (Harris *et al.*, 2014).

Further, several studies have underlined the positive impact of social media on providing well-being support to individuals, for example, in terms of coping with social isolation, eating disorders and breastfeeding (Saleh *et al.*, 2020; Viguria *et al.*, 2020). For effective education, learners should be at an optimum mental and physical health condition. In this regard, the current study shows that maintaining the well-being of the educational stakeholders was an important facet of managing online distance education during the pandemic. The previous research also evidenced that social media tools are promising for emotional support in times of crisis (García-Ramírez *et al.*, 2020; Pappacharissi and de Fatima Oliveira, 2012). During times of crisis, people might need social support while struggling with unexpected challenges. In this regard, for teachers, social media might serve as an affinity space for teachers to share information experiences and facilitate solidarity among the teaching community (Carpenter, 2020; Greenhalgh *et al.*, 2020). Thus, it can be suggested that governments and educational policymakers should facilitate active communication and collaboration among teachers in social media in times of crisis.

Online distance education was a new phenomenon for most of the Turkish K-12 teachers and students. Our findings revealed that several technical issues have emerged with the start of using digital technologies for education during the pandemic. Therefore, government agencies provided the stakeholders with technical support using Twitter. The current finding supports previous research that underlined the utility of social media in sharing and exchanging technical information in crisis situations (Lam and Hannah, 2017). Sharing of technical information within the teacher communities (e.g. how to create an educational video, how to use various digital teaching tools and apps for remote teaching) has become specifically evident during the Covid-19 pandemic (Trust *et al.*, 2020). Overall, it can be claimed that social media can be an efficient means to provide technical guidance to educational stakeholders in dealing with online distance education.

Studies have shown that social media can help teachers to develop online communities (Macià and García, 2016). Such communities can be beneficial for teachers because they can receive emotional peer support along with encouragement, feedback and innovative classroom practices from others (Rosell-Aguilar, 2018). In this study, motivating stakeholders and appreciation to them were found as two distinct themes of Twitter use. Considering that education is more challenging during tough times such as a pandemic, encouraging stakeholders to engage in the learning and teaching process is vital for effective online distance education. Like many countries, Turkey had to switch to online distance education in a limited time during the pandemic. In this transition process, parents, teachers and students have made great efforts to continue their education. As a response to these efforts, government agencies tweeted to express appreciation and gratitude to teachers, students and parents for their effort. This finding is in line with previous research that underlined the role of social media in expressing appreciation to field workers during crisis time (Saleh *et al.*, 2020).

With the start of online distance education, tweets protesting the government agencies have appeared under the #NotHolidayButDistanceEducation. Such tweets argued that online distance education was organized poorly and had a political agenda rather than being purely educational. Conversely, some citizens showed political support to decision-makers for their online distance education decisions. Social media promotes the expression of varying views within society (Avery and Graham, 2013). People from different political backgrounds can participate in public debates on social media and expose themselves to the exchange of information and different points of view (Alexander, 2014). Supporting this, the current study revealed that #NotHolidayButDistanceEducation hashtag had been also used for political purposes by individuals with opposing views. Apart from those of politically supporting and criticizing the government, a number of students and parents mentioned their satisfaction with online distance education. In their opinion, online distance education was the only feasible option during the pandemic. Further, they found online courses effective and even better than their face-to-face lectures. Thus, it can be argued that in pandemic times, online education may be effective contingent upon appropriate pedagogical approaches.

Negative views about online distance education as another theme observed in the current study. According to such tweets, online distance education is not effective for successful learning. The main reasons for its ineffectiveness were technical problems, duration of lessons, poor learning content and lecturing methods of teachers. Rannastu-Avalos and Siiman (2020) have found that technical problems hinder learners' motivation to participate in online courses. Further, teachers' instructional strategies play a big role in successful online learning (Baran *et al.*, 2011). However, it is challenging for K-12 teachers to adapt the instructional strategies that they use in traditional classroom settings for online distance education (Sepulveda-Escobar and Morrison, 2020). Thus, the quality of online distance education could be regarded as poor by the students and the parents, particularly at the initial stages of online distance education. Therefore, we suggest that government agencies should take action to develop the online teaching skills of K-12 teachers. We also suggest that online lesson duration should be adjusted to facilitate optimum online learning conditions. Offering the same lesson duration to different levels (e.g. primary and high school) may have detrimental effects on online learning (Zheng *et al.*, 2020). We further suggest that higher importance should be given to the development of high-quality online learning materials. In addition, authorities can pay attention to the public's views to improve online distance education practices. The current study has revealed that people shared various suggestions for ongoing online distance education on Twitter. For instance, they

suggested improvements for visually impaired students. Considering this, social media can serve to optimize education practices in schools based on public and policymaker interactions.

Finally, we found out that #NotHolidayButDistanceEducation was used for humor purposes. A distinct gratification for people to use social media is having entertainment and joyful experiences (Dindar and Yaman, 2018). People use social media to pass the time, engage with the content that is enjoyable to them, as well as escape from their daily lives. It is the utilization of social media to amuse oneself as well as ease emotional tension, fear and panic (Lee and Ma, 2012). Supporting previous research, this study showed that social media also serves as an environment for entertainment and an escape from social isolation during the pandemic.

4.2 The public's social engagement with the observed themes (RQ2)

Information about planned/ongoing education processes and providing technical support might be regarded as content gratifications. Social gratification includes motivating and appreciation to stakeholders and psychological support. The remaining categories (political support, protesting government, suggestions for online education, humor and negative views) are examples of process gratifications. IRR values indicated that stakeholders in online distance education mainly engaged with Twitter for its content gratifications during the Covid-19 pandemic. In other words, information seeking and sharing are crucial needs for people to use Twitter in times of pandemic. Dindar and Yaman (2018) reported that Turkish Twitter users mainly engaged with Twitter for its process gratification. However, the current study indicates that people's preferences and needs vary in extraordinary times compared with regular living conditions. Hence, the motives to use Twitter also changes in these times.

Information about planned/ongoing online distance education processes and providing technical support were found to be the most important predictors for both retweets and like counts. That means, during the Covid-19 pandemic, Twitter posts related to information on online education and technical issues received more social engagement from the public. Further, our findings revealed that those tweets, including information about the distance education process, technical support and demonstrations of educational activities, are more likely to be retweeted and liked. Overall, these findings show that the public was confused with the ongoing abrupt digital transformation in education. Parents were worried about their children's education, and there was uncertainty about how online distance education was going to be organized. Thus, people were looking for information and guidance on social media about how to handle the situation. Consequently, they were more engaged with tweets that contained information or support about the ongoing online distance education challenges. Further, the current results highlight the importance of social media in guiding society during the crisis. Social media platforms are perceived as more credible than traditional mass media during a crisis or natural disaster (Jin *et al.*, 2014). Therefore, many people follow government officials' social media accounts to obtain information and ask for support momentarily. This gives opportunities for government officials to understand and respond to the citizens' expectations in a time of crisis (Avery and Graham, 2013). Thus, we suggested that government agencies should take advantage of social media to provide swift information and support to their citizens.

This study also evidenced that tweets providing psychological support were positively associated with increased amounts of retweets and likes. This finding is in line with studies that showed an increase in the public's social media engagement with psychological and physical health issues during the Covid-19 pandemic (Chen *et al.*, 2020; Saleh *et al.*, 2020).

Reciprocal support and sharing coping strategies about health problems can help individuals to deal with the mental and physical health stress caused by increased isolation (Naslund *et al.*, 2016). Our findings showed that individuals value social media posts about health concerns in society. Thus, governments can use social media to provide evidence-based psychological and physical health support to their citizens during crises.

Social media content with positive emotions has been found to disseminate to a higher extent (Himelboim *et al.*, 2020). Supporting this, our findings show that tweets aimed at motivating stakeholders and expressing appreciation to them received higher social engagement by the public. In stressful times, people look for social support in social media (Saleh *et al.*, 2020). It is common to organize support campaigns in social media to show solidarity with people dealing with personal and societal challenges. #Stupidcancer and #BlackLivesMatter campaigns can be considered as samples of such campaigns (Keib *et al.*, 2018; Myrick *et al.*, 2016). In line with previous findings, the current study highlights the role of social media in providing emotional support to educational stakeholders in times of crisis.

A negative relationship was observed between political tweets and the like or retweet counts. That is, tweet displaying political support to the government or protesting it received less social media engagement. It can be argued that political issues have not been a prime concern of society during the pandemic compared with education and health issues (Roy *et al.*, 2020). Therefore, people do not have to pay attention or do not like tweets containing political views. On the contrary, we found that tweets posted with humor content are more likely to be retweeted and liked. During a disaster or pandemic, people may need to have entertaining times and by doing so, they can use pictures, videos or URLs. In a study on retweeting behaviors, tweets with URLs and videos were found to be more retweeted (Suh *et al.*, 2010).

The results of the current study have several implications for government agencies in managing crises situations through social media. First, governments agencies should take advantage of social media to understand public needs and expectations around a specific issue. Analyses of social media hashtags provide opportunities for this purpose. Particularly, when the hashtags are introduced by government authorities such as the minister of education, it is most likely for the public to use these hashtags for expressing their views, needs and expectations. Second, social media metrics (e.g. like and retweets counts) provide valuable information for the government agencies to understand public's level of engagement with the issues ongoing in the society. Our study has shown that the public was more interested in engaging with the social media content that provides information on online distance education during the pandemic. Focusing on real-time alterations in social media hashtag metrics might help governments to develop timely and effective interventions to assist the public in crisis conditions. Current advancements in artificial intelligence methods offer viable solutions for this.

5. Conclusion

Government agencies and citizens used social media for various motivations during the Covid-19 pandemic. The current study focuses on a specific pandemic-related hashtag that is about online distance education. Our findings show that Turkish government agencies and the public have been using the #NotHolidayButdistanceEducation hashtag to share and exchange views, information, suggestions, criticisms and support on multiple aspects of online distance education in a time of the pandemic. The current study can be considered unique because it demonstrates the civic use of social media for educational crisis management. The study highlights the influence of social media in educational policy and practice development in the contemporary era.

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