

An Empirical Study on the Role of Media in Crisis Communication Management in Uncertain Times

Stavros Kalogiannidis¹, Fotios Chatzitheodoridis², Olympia Papaevangelou¹,
Eirini Eleni Nikolaou¹

¹Department of Business Administration, University of Western Macedonia, Greece

² Department of Regional and Cross Border Development, University of
Western Macedonia, Kozani, Greece

stavroskalogiannidis@gmail.com, aff00056@uowm.gr; dba00021@uowm.gr;
ereenenik@gmail.com; fxtheodoridis@uowm.gr

Abstract. Mass media was one of the most significant ways of networking in the information age. Thanks to universal access to the internet, the mass media plays an important part in fostering political unity and reshaping popular opinion. Crisis, in all of its manifestations, is an inextricable part of humanity's life, and its diversity is growing all the time. During times of crisis, the media plays a critical part in disseminating information and making people aware of the situation. The media has the ability to calm the public and inspire them to take constructive steps, or it can terrorize the public and cause havoc. This is a cross-sectional survey-based applied research project. The statistical population consisted of residents of Kozani city and simple random sampling technique was used to select 300 residents for further investigation. A questionnaire created by the researcher was used to gather data. Descriptive, correlational and regression analysis were used to analyses the study variables. According to the results, the news media plays a significant and constructive role in reporting events concerning mitigation and recovery from a crisis, in addition, the majority of respondents prefer to watch the incident's headlines before the news from emergency zones returns to normal. According to the findings, crisis managers should think about the kind of newspaper they'll use when packaging crisis material. Furthermore, crisis coordination is supported by print media management techniques for core audiences. Similarly, factual emergency analysis of the print media continues to create confidence in the public domain for the press, and facilitates crisis coordination. As a result, crisis management must study the history of a catastrophe before communicating; they must raise questions like "why," "how," and "what happened before" in order to examine the present scenario for crisis reduction.

Keywords: Crisis, risk, crisis management, media, information, objectivity.

1. Introduction

The media is one of the most critical contact partners during an emergency. The media acts as an emergency broadcast channel, delivering critical updates to those who need it the most. Reporters are less concerned with investigative journalism or making news more sensational at the start of a crisis. They are more interested in learning what happened and how to stay healthy, as is their audience. Citizens and the media, as communicators, have the same purpose in an emergency: to get accurate, up-to-date facts out first and to meet as many people as possible. The 24-hour news cycle is an excellent way to raise public awareness about the problem and provide critical protection messages in real time (Coombs, 2014). Reporters have deadlines to fulfill and a job to do. Meeting deadlines can save lives, and a good working relationship with the media can help. This study focused examining the role of media in crisis management. Crisis management was conceived as the dependent of the study whereas the different forms of media including broadcast media, print media, and internet based media were conceived as the independent variables (James, Wooten, & Dushek, 2011).

1.1 Background to the study

Climate disasters or crises, such as floods, earthquakes, and landslides, are catastrophic incidents. A natural catastrophe combines with personal and community exposure and resources to produce detrimental socio-economic impacts on a scale that exceeds the affected population's coping ability. EACDRMS (European Association for Clinical Diagnosis and (2012). As the presence and power of the media have expanded in today's world, they have become an inseparable part of every social circumstance. The ability of politicians, administrators, and civilians to access information and the pace at which new data is collected, compiled, and disseminated is improved by the mass media, which enhances its role in crisis management. The media may play a negative role in a situation by exacerbating it or a constructive role by helping in its resolution. In any case, the media's position in a crisis cannot be underestimated (Jin, Liu, & Austin, 2014).

The general sentiment is often swayed during a crisis. Under such situations, the media should deliberate attempt to control public feelings and positively affect public opinion. Also, the best intentions of politicians and management would be unsuccessful if the newspapers were to foster a constructive mindset. To stop many conflicting and confusing facts, journalists can only get information from official sources in these cases. One of the most crucial aspects of seeking answers in extraordinary and crisis circumstances is reliable and up-to-date statistics. The media's best way to help emergency victims is to include this accurate information. Journalists and media analysts act as a conduit between the public and the administration. If the media takes an active, supportive role before, after, and after natural disasters, taking into account the complexities of culture and attempting to

give positive criticism to the government's efforts, it will assist citizens and the government in disaster preparation by aiding in disaster reduction, conflict, reconstruction, and recovery efforts. As a result, journalists and the media play an essential part in bolstering society's defences against natural disasters and preventing their adverse effects (James, Wooten, & Dushek, 2011).

When the media's influence in society expands, so does its ability to navigate and play a part in different societal issues, such as disasters. By delivering factual, diverse, and original content, media sources may prevent disseminating inaccurate facts and manage public opinion. Two popular mass media strategies are increasing knowledge and awareness of a single issue, such as a crisis, and showcasing crisis trends. The media must emphasize demonstrating the fundamental interests of emergency victims, aiding authorities in collecting and distributing humanitarian assistance, and assisting law enforcement in combating looting in disaster zones during any disaster or crisis.

1.2 Problem statement

According to Perry, Taylor, & Doerfel (2003), an individual's education level, age, and economic levels determine ineffective news media consumption patterns across multiple venues. Even with strong coverage and media consumption, weak crisis managers' communication techniques and knowledge framing in the media can stymie successful crisis communication. According to Jin, Liu, & Austin (2014), crisis managers' media communication techniques may be ineffective, bad, and prejudiced as a result of societal ideology, a lack of follow-up and responsibility on communication structures, media routines and socializing, attitudes, instructing, adapting, and internalizing information, and a lack of follow-up and responsibility on communication structures, media routines and socialization. Furthermore, due to authoritarian media policies and regulations, newspapers' framing of information on critical incidents in a crisis can be ineffective. These elements, combined with personal crisis history, influence how present crises are communicated.

In the modern Greek context, however, actual investigations testing such conceptual insights are still absent (Bickes, Otten, & Weymann, 2014). Furthermore, the quality of crisis communication content has a significant impact on news media coverage of natural disaster prevention and recovery in communities, as well as crisis management agencies' reputation. Concern about the design of a national crisis regulatory policy framework necessitates and supports this investigation. Similar inquiries have not been conducted in Greece, to the best of the author's knowledge. As a result, it's impossible to say whether low media news consumption rates in the impacted populations impacted the efficiency of natural disaster communication. The lack of longitudinal study has hampered comprehension of how an individual's education, age, and income levels influence media consumption, undermining the design of public policies for crisis communication.

1.3 Objectives of the study

The study sought to establish the role of media in crisis management particularly concerning the crises or disasters in Greece. The different specific objectives of the study include;

- To determine the role of print media in mitigation of a crisis
- To establish the general Influence of Broadcast Media in the recovery from a crisis
- To explore the relevance of internet-based media in responding to crises

1.4 Research questions

Based on the different study objectives of this study, the following research questions were derived;

- 1 To determine the role of print media in mitigation of a crisis
- 2 To establish the general Influence of Broadcast Media in the recovery from a crisis
- 3 To explore the relevance of internet-based media in responding to crises

1.5 Research hypotheses

In relation to the different study objectives, the empirical findings of this study tested the following hypotheses:

H₁: Print media plays a positive role in crisis management.

H₂: Broadcast media has a positive effect on crisis management.

H₃: Internet based social media has a positive effect on crisis management.

1.6 Significance of the study

The study findings contributed a lot the existing knowledge in the area of media and crisis management most especially natural disasters in Greece and how they are managed through the media. Also, the research was noteworthy because it demonstrated the efficacy of the media in communicating natural disasters in Greece. Furthermore, proper media and communication policy strategies and frameworks were devised. Second, the report presented useful data to policymakers, allowing them to rethink media campaigns and crisis communication policies in order to strengthen Greece's natural disaster resilience. Furthermore, the results of this study included insight on possible solutions to improve crisis managers' coordination, as well as the presentation of crisis information material in Greek newspapers. The results will also be useful in maintaining accurate views of the position of stakeholders in crisis management and a positive image within Greece's impacted populations.

2. Literature Review

A study by Markesin (2011) revealed that in today's world, international developments are succeeding each other. A major element of societies is that an incident occurring in one country is enough to affect the situation of the rest of the world. In this case, any kind of crisis in a country affects the country's social, economic and political environment or the country's natural environment, on the other, it affects other countries. It is worth noting that the same rates of growth or shrinkage are not present in all countries. Each country has its own distinct behavior and its own distinct role in the global system. For this reason, the study of the crisis is not a simple process without obstacles and trouble. On the contrary, it takes time and careful study of the different elements of each country. In view of the European construction, or more globally, crisis management is a collective responsibility and a priority for all members of the system, regardless of the interests and feasibility of each country. The social system is always exposed to many new circumstances, events and data, and it often faces new challenges. For example, changing the profile of Public Administration, due to the side effects of globalization, was considered one of the main pillars of structural changes in the social system.

The complexity of the new situation and successive changes make the study even more difficult if one thinks that everyday life hides critical situations that infiltrate and render uncertain the life of man and the available resources he has to survive, the decision-making process, democracy and freedom of speech and expression. It is very difficult to anticipate the coming of a crisis, tension and its effects in the world. Every society must therefore always be on hand to prevent an upcoming crisis. In this way it will preserve its cohesion and protect its members from the dangers and the negative consequences, but at the same time it will protect its own existence. Although we are talking about a Globalized System, to achieve the eradication or even limitation of a crisis, Democracy and its dynamic processes continue to play an important role. One of these processes can be considered a referendum, where citizens through their active involvement are called upon to determine the evolutionary course of the society in which they live (Bong Hyun Kim et al 202; Pilevari at al 2021; Kalogiannidis at al 2022 Jing Xu 2022; Jae Moon Lee 2022; Rashidul Islam 2019).

According to Coombs (2011), a crisis affects the image and reputation of an organization. Many times, even though those who are interested in their actions expect to see a certain outcome or a certain development, the crisis, when it breaks out, changes every predictability of the situation. Therefore, the relations of the organism with the human being, expressed as a member of society, are worn out. However, in order to avoid such a bad possibility, civil servants mediate with their work and experience, providing solutions to avoid such a development. According to Fearn-Banks (2013), in order to overcome a crisis, it needs a dynamic capacity, which will reduce the intensity of the crisis and help the organization to take its own initiatives for the future of its existence. According to Coobs (2007), crisis

management has four interrelated factors: prevention, preparation, response and review.

Crisis management uses a series of strategic actions that involve the whole organization, while communication crises include the stakeholder communications before, during, and after a crisis. According to Fearn-Banks (2019), the communications are designed to uphold the positive image of the organization under crisis. Regarding the crisis communication management there many different protocols of crisis communications: USA, JAPAN, BULGARIA, and GREECE. According to Horsley and Barker (2017) very little literature was available about public sector crisis communication. In response to this lack of information, the researchers studied private industry crisis communication literature to extrapolate a model for public sector crisis communication. In the literature, Horsley and Barker found existing structures for the model, and their proposed model was a synthesis of these structures. The synthesis model of public sector crisis communication is "an arrangement linking processes and communication activities that organizations can use to prepare for and manage potential crisis communication events". The model includes six stages: ongoing public relations efforts, identification of and preparation for potential crises, internal training and rehearsal, crisis event, evaluation and revision of public relations efforts, and interagency coordination and political analysis.

3. Methodology

3.1 Introduction

This chapter clarifies the design, research approach, and the general technique utilized in the current research. Exploring the role of media in crisis management requires us to engage a cross-sectional research design. This research design allowed participants to provide their opinions concerning the role of media in crisis management, particularly recent earthquakes in Greece. The chapter explains the sampling strategy and techniques, target population, data collection methods or instruments, and data analysis based on different statistical tools. Finally, the chapter presents details on the different ethical requirements considered in the study, validity and reliability of the research instruments.

This study addressed the following research questions derived from the specific objectives:

- Effect of Print Media in mitigation of a crisis
- Influence of Broadcast Media in recovery from a crisis
- Explore the relevance of internet-based media in responding to crises

3.2 Research approach

Different scholars have continuously agreed that a research inquiry can be conducted in an inductive or deductive process or through a combination of both methods. This

study approach choice depends on the study's focus and the nature of the elements under study. Research studies about deductive processes involve inducements of particular instances from the significant inferences. Using the deduction approach to research starts with establishing a theoretical foundation and consequently subjecting the theory to different empirical tests. Research shows that the inductive approach to research differs from the deductive process since it focuses on developing methods from different practical realities (Soiferman 2010, p.7). The inductive processes start with an observation of different facts and truths in the research environment, and after that, collecting data on the phenomena under study. It is followed by data collection and analysis you, as well as drawing inferences based on different logical conclusions. The final stage in the inductive process of research involves the establishment of different collective propositions or theories. These depend on the emerging inferences or conclusions data drawn from the observations (Kelly, Dowling, & Millar 2018).

3.3 Research design

Sileyew (2019) defines research design as a conceptual structure that guides the conduct of a specific field of research and serves as the foundation for data collection, analysis, and presentation of findings. This study used a cross-sectional survey research design to look at multiple study variables at the same time. For data collection, analysis, and hypothesis testing, the study used a quantitative methodology approach. The cross-sectional research design is based on an in-depth investigation of a group or event in order to investigate the causes of various underlying principles related to the research problem or study topic. The cross-sectional research design has the advantage of allowing the researcher to focus on specific and compelling cases, allowing for a better understanding of the research problem (Soiferman 2010, p.13). Cross-sectional studies are also regarded as an important means of connecting various theoretical frameworks to study variables and, as a result, establishing the legal relationship between the variables under investigation. This research design made it possible to solve or address the various methodological complexities or difficulties that arose from the quantitative research study (Setia, 2016). The design aided the researcher's understanding of the media's role in crisis management. Because of the equity of participants used and the systematic selection of study variables, the different aspects of the cross-sectional survey research design support the replication of the study and, as a result, help promote the confidence bestowed on the research.

3.4 Sample Size

Sample size encompasses the totality of research participants selected to provide data in a particular research study (Palinkas et al. 2015). Different scholars have given great attention to the various issues associated with the actual sample size appropriate for different studies. However, most scholars agree that quantitative studies require relatively large sample sizes, but there is no clear description of a large sample size.

The sample size was established using the sampling techniques of Morgan and Krejcie (1970). The total number of number of people in Kozani city with knowledge on media is approximately 12000, which is a portion of over 70,000 people in Kozani. The formula used in the determination of the sample size is below, as derived by Krejcie & Morgan (1970). $n = \frac{T^2 * Kp(1-p)}{M^2(K-1) + T^2P(1-p)}$

In this case, n represents the sample size; T2 is the chi-squared table value determined at the level of 1 degree of freedom and a confidence level of 3.8416. The confidence level's value was obtained by squaring the chi-square table value for one degree of freedom, which in this case is; $1.96 * 1.96 = 3.8416$. On the other hand, K is the population's size, whereas p is the population proportion, which helps to determine the maximum sample size. In the current research, the value of p is 0.5. m is the accuracy degree, which, in most cases, is expressed as a proportion. In the current research, the value of m is 0.05; the sample size (n) is as follows:

$$n = \frac{1.96^2 * 100 * 0.5(1 - 0.5)}{0.05^2(100 - 1) + 1.96^2 * 0.5(1 - 0.5)} \sim 300$$

3.5 Data collection

Data was collected from the 300 selected residents of Kozani city of Greece. Data collection involved using a survey questionnaire that was distributed to the study participants upon their consent or agreement to participate in the research study. The data gathered helped in establishing relationships between the study variables. Utilizing a presentation letter from the university, the researcher acquired consent to lead or conduct the study. The researcher conducted a pilot study from ten respondents and a conversation control for two respondents. The researcher then utilized the remarks of these respondents to improve the study. The researcher at that point contacted the significant specialists and decide when to contact the respondents. The researcher guaranteed that questions are examined before the respondents during the information assortment measure so they are surely known; and, where essential, make acclimations to decrease the probability of rebelliousness with the device. In case of a deficient information assortment work, the scientist will reschedule arrangements to talk with respondents. Following the information assortment, we will break down the information and cycle the report, which will distinguish the last work of the examination cycle.

3.6 Data analysis

After collecting quantitative data using a survey questionnaire, it was checked for missing values and other response errors that may affect the accuracy of results. A coding manual was constructed, and this was comprised of different instructions concerning the coding procedure for each variable. The quantitative data was analyzed using the Statistical Package for Social Science (SPSS), and the findings

were displayed in the form of tables and graphs. The frequencies, percentages, and other inferential or descriptive statistics collected were used to interpret the data. The relationship between the different study variables was established using Pearson's rank correlation coefficient (r). The significance of the relationship was calculated using a 99 percent confidence interval, which is equal to a 0.01 degree of significance.

Regression analysis was conducted in a bid to establish the overall predictive strength of the different independent variables on the dependent variable of the study. In this case a multiple regression model was of great importance in estimating different predictive values.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon \dots \dots \dots 3.1$$

Where;

Y= Crisis management in Greece

β_0 = constant (coefficient of intercept);

X_1 = Print media

X_2 = Broadcast media

X_3 = Internet based media

ε = Represents the error term in the multiple regression model

$\beta_1 \dots \beta_3$ = Represents the regression coefficient of the three independent variables which double as types of media commonly used in Greece and which helped in determining the level of influence that the independent variables (Print media, Broadcast media, and Internet based media) on the dependent variable (Crisis management) in Greece.

The error term in this research study was based on the assumption that there was absence of autocorrelation. This therefore indicates that the aspect of autocorrelation was not considered in this research study. The hypotheses of the study were tested at the 5% (0.05) level of significance and the rejection and acceptance of the null hypotheses was based on the decision rule that if $p < 0.05$, then the null hypothesis should be accepted and if $P < 0.05$, then the null hypothesis should be rejected.

4. Analysis, Presentation and Results

4.1 Introduction

This chapter presents a detailed account of the analysis, presentation and interpretation of the research findings obtained using the different quantitative research tools. This chapter first discussed the demographic characteristics of the respondents whose information was collected using the questionnaire. This was followed by analysis of the different variables of study. The chapter then discussed the different specific objectives by establishing the relationship between the variables using Pearson's rank correlation coefficient and regression analysis.

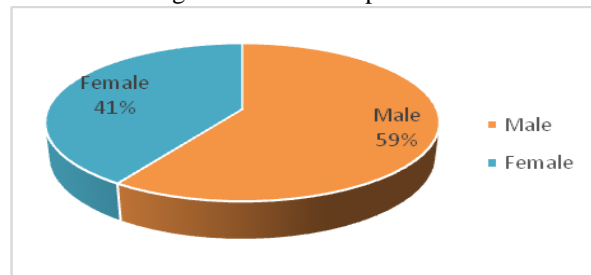
4.2 Background Characteristics of Respondents

This section presents the background characteristics of respondents and how they vary in relation to role of media in crisis management.

4.2.1 Gender of the respondents

The results concerning gender of the participants are presented in figure 1.

Fig.1: Gender of respondents



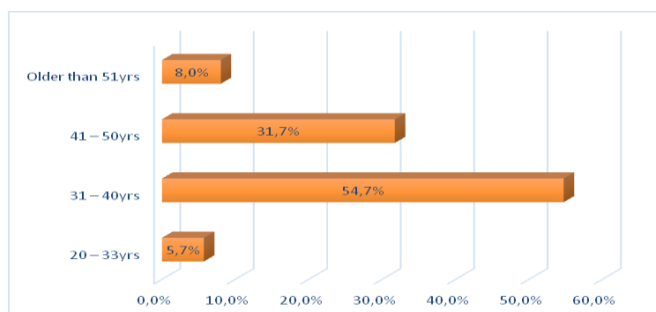
Source: Survey (2022)

Results of the study in figure 1 revealed that majority of the respondents were male 178(59%) while female were represented by 122(41%).

4.2.2 Age bracket of respondents

The results concerning the age bracket of the study participants are presented figure 2 below;

Fig.2: Age bracket of respondents



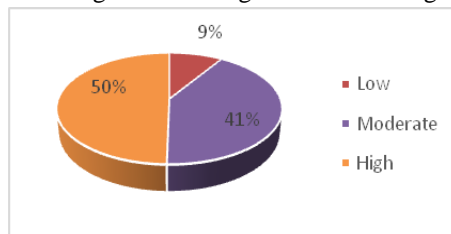
Source: Survey (2022)

The study findings also revealed that most of the respondents were aged between 31-40 years with a representation of 164 (54.7%) while least were aged 20-33years 17(5.7%).

4.2.3 Knowledge on crisis management

Results concerning respondent's level of knowledge on crisis management are presented in figure 3.

Fig.3: Knowledge on crisis management



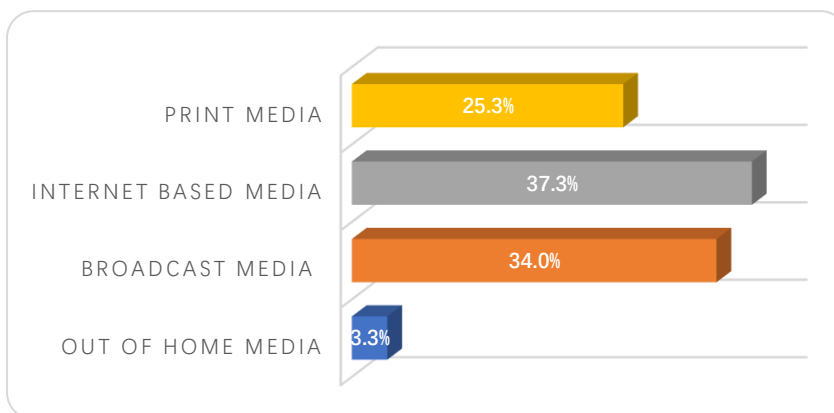
Source: Survey (2022)

From figure 3, half of the study participants (50%) had high level of knowledge on crisis management, (41%) had moderate level and only (9%) of the study participants had a low level of knowledge on crisis management. This clearly indicates that majority of the participants used in this study had good knowledge about crisis management.

4.2.4 Commonly used type of media during a crisis

The results concerning the commonly used type of media during a crisis are presented in figure 4 below;

Fig.4: Showing commonly used type of media during a crisis



**Source:
Survey
(2022)**

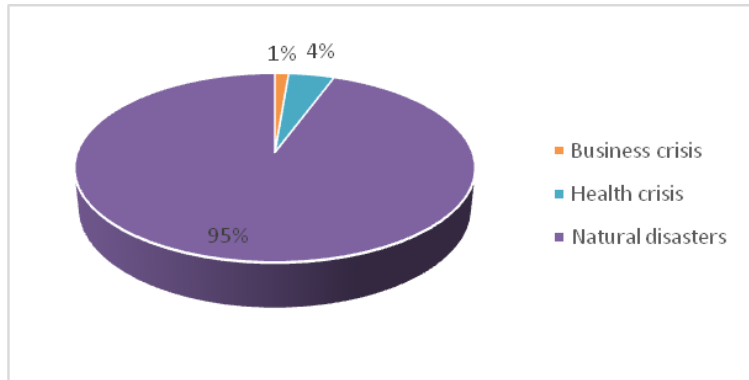
The results in figure 4 show that Internet based media (37.3%) is

the commonly used type of media, followed by broadcast media (34.0%), print media (25.3%) and the least number of respondents (3.3%) indicated that they Out of Home Media, which is much associated with getting information from home based sources such as friends, relatives and community.

4.2.5 Common crises in Greece

The results concerning the common crises that normally occur in Greece are presented in figure 5 below;

Fig.5: Showing common crises in Greece



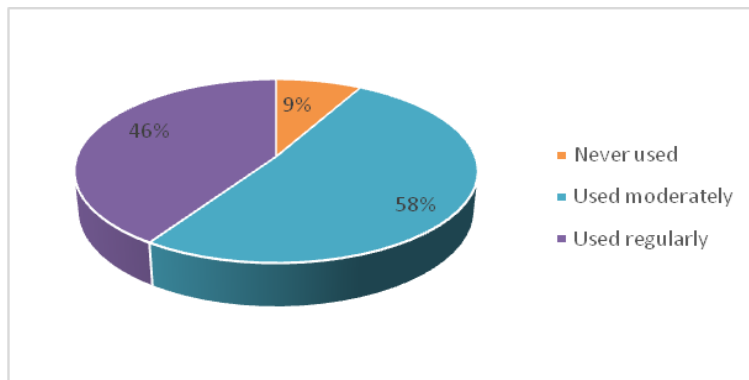
Source: Survey (2022)

Results in figure 5 show that more than half of the respondents (95%) indicated that natural disasters are the most common crises in Greece, followed by health crises (4%) and business crises (1%).

4.2.6 Reliance on media during the crisis

Participants were also requested to indicate their level of reliance on media during the crisis and the results represented in figure 6 below;

Fig.6: Rate of reliance on media during the crisis



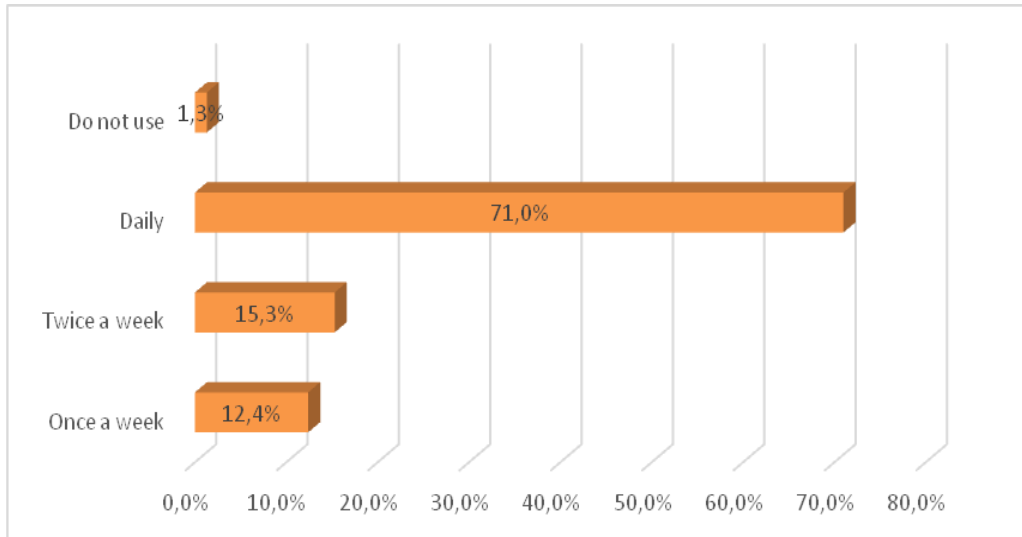
Source: Survey (2022)

From figure 6, more than half of the respondents (58%) used media regularly, 33% used moderately and only 9% never used the media during the crisis.

4.2.7 Duration of media use

The results concerning the duration of media use by the study participants are presented in figure 7.

Fig.7: Duration of media use during a crisis



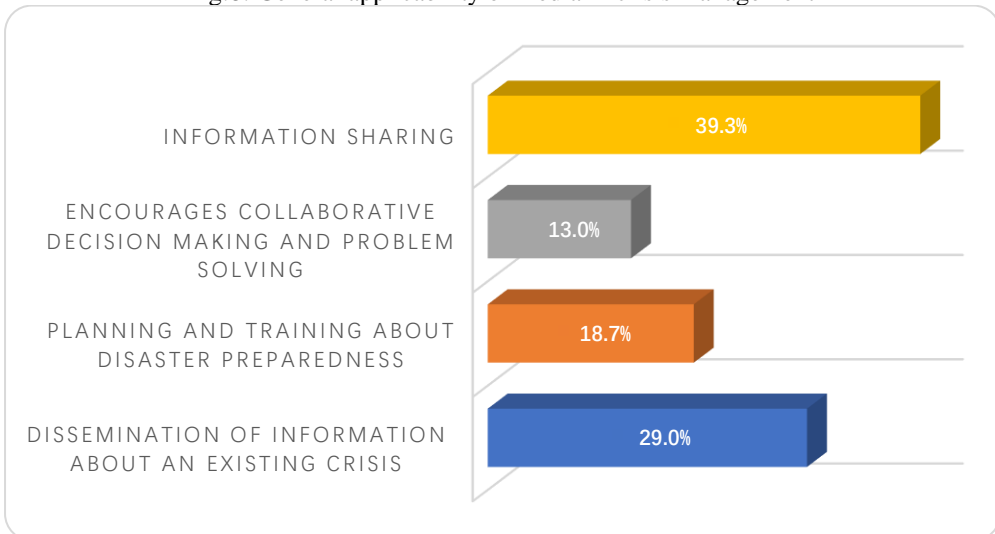
Source: Survey (2022)

Results from figure 7 show that more than half of the participants (71%) use media on a daily basis during a crisis, 15.3% use it twice a week, 12.4% use it once a week, and only 1.3% do not use it during a crisis.

4.2.8 General applicability of media in crisis management

The respondents were also requested to provide their opinions concerning the general applicability of media in management of crises and their responses are presented in figure 8.

Fig.8: General applicability of media in crisis management



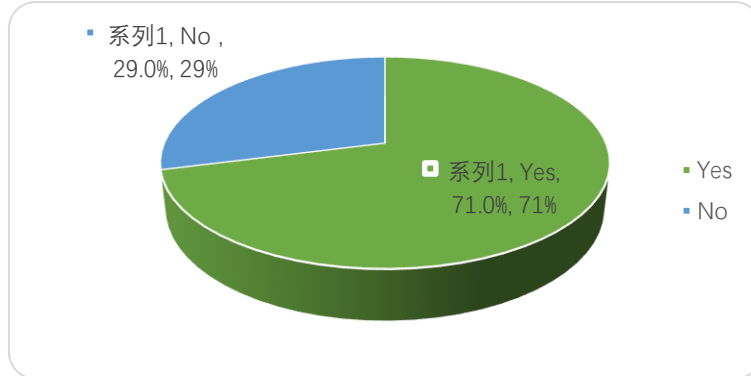
Source: Survey (2022)

From figure 8, majority of the participants (39.3%) indicated that media is used in information sharing, 29% revealed that it is used in dissemination of information about an existing crisis, and the least number of respondents (13%) revealed that media Encourages collaborative decision making and problem solving during a crisis.

4.2.9 Whether media supports crisis management

The study also sought to establish the opinion of respondents on whether media supports crisis management.

Fig.9: Showing whether media supports crisis management



Source: Survey (2022)

From figure 9, more than half of the participants (71%) agreed that media supports crisis management and only (29%) of the participants said no to this narration.

4.3 Descriptive Statistics of the Independent Variables

Descriptive results for each aspect of independent variables are presented independently.

4.3.1 Results for print media in mitigation of a crisis

The variable (Print media) was studied using four items and the results on the same were as presented in Table 1.

Table1: Frequencies and percentages for print media

Print media	F/%	SD	D	U	A	SA
Online journals and newspapers alert people on possibility of a crisis	F	14	14	65	93	114
	%	4.7	4.7	21.7	31	38.0
People always get to know about an existing crisis through reading newspapers or online journals	F	25	20	83	91	81
	%	8.3	6.7	27.7	30.3	27.0
Print media is very important in hazard and vulnerability assessment	F	23	17	79	85	96
	%	7.7	5.7	26.3	28.3	32.0

During an emergency both the communicators, and the media, have the same goal of getting updated information	F	24	19	71	85	101
	%	8.0	6.3	23.7	28.3	33.7
Newspapers are essential in educating the public about crisis management	F	24	39	63	93	81
	%	8.0	13.0	21.0	31.0	27.0

Source: Primary data (2022)

The results in Table 1 regarding whether Online journals and newspapers alert people on possibility of a crisis, 38% strongly agreed, 31% agreed, while 4.7% disagreed, 4.7% strongly disagreed and 21.7% were undecided. The results clearly show that the content posted on the different online journals or newspapers plays a key role in helping people to get prepared for any crisis by alerting them in advance. With respect to whether in people always get to know about an existing crisis through reading newspapers or online journals, the larger percentage (30.3%) agreed, 27.7% were undecided and 8.3% strongly disagreed. The results clearly showed that newspapers play a key role in informing people about an existing crisis which helps the affected parties to develop various strategies on how to handle a crisis. Regarding whether print media is very important in hazard and vulnerability assessment, (32.0%) strongly agreed and 28.3% agreed. This result clearly indicates that print media such as newspapers provide useful information guiding people on how to assess different hazards and their associated vulnerability. With respect to during an emergency both the communicators, and the media, have the same goal of getting updated information, the larger percentage (33.7%) strongly agreed while 28.3% agreed and 23.7 were undecided. These results clearly show that the role of managing crises or disasters through media utilization is a collective responsibility of both the media teams and the communicators.

Concerning whether to newspapers are essential in educating the public about crisis management, the larger percentage (33.7%) strongly agreed while 28.3% agreed and 23.7 were undecided. This clearly indicates that newspapers are essential in educating the public about crisis management.

4.3.2 Results for Broadcast Media in recovery from a crisis

Broadcast Media was conceptualized as the second independent variable affecting. Broadcast Media was studied using four items and the results on the same were as presented in Table 2.

Table 2: Frequencies and percentages for broadcast media in recovery from a crisis

Broadcast media in recovery from a crisis	F/%	SD	D	U	A	SA
Understanding information generated from TV based information assists in economic recovery after a crisis	F	27	28	71	86	88
	%	9.3	9.0	13.7	48.7	19.3
	F	25	42	55	89	89

Televisions provide information about debris management following earthquake disasters	%	9.0	13.3	18.3	19.7	39.7
People learn about housing styles that can withstand earthquakes.	F	20	37	62	87	94
	%	6.7	2.3	20.7	29.0	41.3
Radios and televisions provide the public about government recovery plans for the citizens	F	28	100	55	91	28
	%	9.4	40.3	15.1	23.1	9.0
Tvs conduct interviews with government ministers or officials to get advice about recovery from a crisis	F	16	39	54	132	59
	%	5.3	13.0	18.0	44.0	19.7
Broadcast media is essential can help enhance coordination among volunteers and emergency services.	F	13	32	46	101	98
	%	4.3	10.7	15.3	33.7	32.7

Source: Primary data (2022)

The results in Table 2 regarding whether understanding information generated from TV based information assists in economic recovery after a crisis, showed that the larger percentage (48.7%) agreed while 9.0% disagreed and only 13.7% were undecided. These results clearly confirm that the broadcast media is so essential in availing important information about economic recovery after a particular crisis.

With respect to whether televisions provide information about debris management following earthquake disasters, the larger percentage (39.7%) disagreed, 19.7% agreed and 18.3% were undecided. This result shows how televisions are utilized to educate people on the different ways to manager the after mass of a crisis or disaster. During incidents such as earthquakes, debris management is one of the conflicting interests that organizations must handle. It's critical to properly handle disaster debris in order to protect human health, comply with laws, conserve disposal capability, mitigate injuries, and minimize or avoid environmental impacts.

Regarding whether people learn about housing styles that can withstand earthquakes by watching television news, the larger percentage (41.3%) agreed while another 2.3% disagreed and 20.7% were undecided. This meant respondents agreed with the fact that watching television news helps people to learn about housing styles that can help them withstand different disasters such strong ends, heavy rains, earthquakes, and other disasters.

With respect to radios and televisions provide the public about government recovery plans for the citizens, (40.3%) disagreed and only 23.1% agreed. It is important to note that governments always have ministries that are responsible for different emergencies in the country. This results clearly confirm that radios and televisions play a key role in disseminating information to the public concerning the government plans for a crisis or disaster.

Regarding whether TVS conduct interviews with government ministers or officials to get advice about recovery from a crisis, majority if the respondents (44%)

agreed and only 13% disagreed, while 18% were undecided. This result clearly shows that most television channels operational in Greece such as Alpha TV, SKAI, Ant1, Macedonia, MAD, MTV Greece etc., normally present different interviews conducted with government officials concerning the best strategies that people can adopt to cope with the after mass of a crisis. Concerning whether broadcast media is essential can help enhance coordination among volunteers and emergency services, majority of the respondents (30.3%) agreed while the least number of respondents (14.3%) strongly disagreed. This clearly shows that broadcast media most especially online TVS, radios and associated media play a key role in coordinating different charitable organizations, volunteers and well-wishers who would wish to render help to victims affected by a particular crisis or disaster. Acts taken following a catastrophe to rebuild or strengthen the post-disaster living standards in impacted people are referred to as recovery. Infrastructure, systems, and utilities can be replaced as soon as the tragedy is under control. The recovery stage is an opportunity to improve disaster management and preparedness by rebuilding infrastructure in a manner that makes them less vulnerable and reduces their risk exposure (Ghassabi & Zare-Farashbandi, 2015).

4.3.3 Results for internet-based media in responding to crises

Internet based media was conceptualized as the third independent variable that plays a role in crisis management. Internet based media was studied using five items and the results are presented in Table 3.

Table 3: Frequencies and percentages for Internet based media in responding to crises

Internet based media	F/%	SD	D	U	A	SA
Social media creates awareness about life safety tips during a crisis	F	127	78	21	36	38
	%	42.3	26	7.0	12.0	12.7
Internet based media helps expand the reach of a message due to social sharing and the vast number of citizens who actively utilize the platforms	F	59	119	55	27	40
	%	19.6	39.7	18.3	9.0	13.3
Internet based media such as Twitter helps to give tips for incident stabilization	F	20	37	62	87	94
	%	6.7	2.3	20.7	29.0	41.3
Social media allows emergency response managers to different events in real time through social media listening	F	18	60	54	41	127
	%	6.0	20.0	18.0	13.7	42.3
Social media serves as an open communication channel for residents to respond back, ask questions, and provide updates	F	17	13	28	51	191
	%	5.7	4.3	9.3	17.0	63.7
	F	117	63	34	45	41

Social media is also useful in terms of rumor control during disaster response	%	39.0	21.0	11.3	15.0	13.7
--	---	------	------	------	------	------

Source: Primary data (2022)

The results in Table 3 regarding whether social media creates awareness about life safety tips during a crisis, showed that the larger percentage (42.3%) strongly disagreed and only 12.7% strongly agreed.

With respect to whether internet-based media helps expand the reach of a message due to social sharing and the vast number of citizens who actively utilize the platforms, the larger percentage (39.7%) disagreed, and only (9.0%) disagreed.

Regarding whether internet-based media such as twitter helps to give tips for incident stabilization, the larger percentage (41.3%) agreed while another 2.3% disagreed and 20.7% were undecided. This meant respondents agreed with the fact internet-based media such as twitter helps to give tips for incident stabilization.

With respect to whether social media allows emergency response managers to different events in real time through social media listening (42.3 %) strongly agreed and only 6.0% disagreed.

In regard to whether, social media serves as an open communication channel for residents to respond back, ask questions, and provide updates, the largest percentage, (63.7%) strongly agreed and only 5.7% strongly disagreed.

Concerning whether social media is also useful in terms of disaster relief provision during disaster response the largest percentage (39.0%) strongly disagreed and only 13.7 % disagreed. The aim of disaster relief is to provide emergency aid in order to keep people alive, increase their welfare, and boost their morale. This may include providing transportation, temporary housing, and food to displaced people, as well as building semi-permanent settlement in camps and other places. It may also include making preliminary repairs to broken facilities. During the response process, the emphasis is on addressing people's basic needs before more permanent and long-term options can be found. Humanitarian groups are often involved in this type of work (Kumar, 2006).

4.4 Crisis Management

The results concerning crisis management in Greece are presented in Table 4.

Table 4: Findings on the dependent variable (crisis management)

Crisis management	F/%	SD	D	U	A	SA
Successful crisis management is a responsibility of the media, government, and the people	F	31	8	9	228	24
	%	10.3	2.7	3.0	76.0	8.0
The 24-hour news cycle is an excellent way to raise public awareness about the problem and provide critical safety messages in real time	F	41	14	9	1	232
	%	13.7	4.7	3.0	1.3	77.3
	F	10	4	0	9	227

The goal of crisis planning is to move as quickly from the pre-crisis stage to the post-crisis stage	%	3.3	1.3	0.0	3.0	92.3
Media share the same goal in crisis management which is getting reliable, updated information out first and reaching the most people	F	44	218	0	9	29
	%	14.7	72.7	0.0	3.0	9.7
The goal of crisis planning is to go from the first stage to the stage where a crisis could occur to the stage where a full-blown crisis never occurred	F	10	4	0	9	227
	%	3.3	1.3	0.0	3.0	92.3

Source: Primary data (2022)

The results in Table 4 regarding whether successful crisis management is a responsibility of the media, government, and the people showed that the majority of the responses indicated by 76.0% agreed while 10.3% disagreed.

With respect to whether the 24-hour news cycle is an excellent way to raise public awareness about the problem and provide critical safety messages in real time, the majority of the responses showed by 77.3% agreed and only 13.7% disagreed.

Regarding whether the goal of crisis planning is to move as quickly from the pre-crisis stage to the post-crisis stage, the larger percentage 92.3% strongly agreed while only 3.3 % strongly disagreed. This meant that crisis planning helps in quick crisis management right from the pre-crisis stage to the post-crisis stage thereby reducing on the possibility of a larger negative impact caused by a particular crisis.

Regarding whether media share the same goal in crisis management which is getting reliable, updated information out first and reaching the most people, the larger percentage 72.7% disagreed while only 9.7% strongly agreed. This means that different forms of media always have varying views or goals concerning crisis management hence people have to be keen when readying certain information since some news could be misleading.

With respect to whether the goal of crisis planning is to ensure that the crisis never occurs again, the larger percentage 92.3% strongly agreed while only 3.3% strongly agreed. This clearly indicates that all plans aimed at managing a crisis are driven by a common to ensure that such a crisis does not happen again.

4.5 Correlation analysis

To establish the role of media in crisis management in Greece, correlation analysis was done. The results were given as in Table 5.

Table 5: Cross tabulation of the dependent variable and independent variables

	Print media	Broadcast Media	Internet based media	Crisis management
Print Media	1			

Broadcast Media	0.751**	1		
	0.00			
Internet Based Media	.658*	0.719*	1	
	0.00	0.001		
Crisis Management (dep.)	0.657*	0.905*	0.957*	1
	0.00	0.00	0.00	

**Correlation is significant at the 0.01 level (1-tailed).

The analysis of the results indicates a positive correlation between print media and crisis management ($r = 0.657$) and this is significant at 0.01. This shows that different print media such as newspapers, journals and magazines play a key role in enabling people to prepare for or cope with crisis situations. There was a positive correlation between Broadcast media and crisis management ($r = 0.905$) and this was significant at 0.01. This clearly meant that televisions, radios and other forms of broadcast media are essential in the management of different disasters or crisis situations. Internet based media gave a positive correlation with crisis management ($r = 0.957$) at 0.01 level of significance ($p=0.00<0.01$) showing that the different forms of internet-based media such as social media, blogs, and websites, among others are very important in management of crisis since they help in educating the general public on how to cope with or prepare for a crisis or disasters.

4.6 Results on regression analysis

Regression analysis was also conducted to further establish the level to which the different independent variables (print media, broadcast media, and Internet based media) aid in crisis management based on different predictive values. The results obtained after conducting regression analysis are presented in table 6.

Table 6: Multiple regression analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R	R ²	Adjusted R ²
	B	Std. Error	Beta					
(Constant)	.318	.136		2.338	.020	.786a	.824	.816
Print Media	.218	.057	0.328	3.836	.000			
Broadcast media	.276	.067	.234	4.095	.000			
Internet based media	.172	.049	.137	3.511	.001			

Dependent Variable: Crisis management
 Predictors: (Constant). Print media, Broadcast media, Internet based media

Source: Survey (2022)

The adjusted square of the multiple R is 0.816 indicating that the 81.6% of variance in crisis management is explained by the three independent variables jointly. There is statistical evidence to claim that three independent variables have significantly explained the 81.6 % of the variance in crisis management in the selected domain. The beta coefficient (β_2) was 0.328; the p-value (0.000) was less than the significance level (0.01). We accept the first hypothesis that, “Print media plays a positive role in crisis management.” The beta coefficient (β_3) was 0.234; the p-value (0.000) was less than the significance level (0.01). We therefore conclude that, “Broadcast media has a positive effect on crisis management”. The Beta coefficient (β_4) was 0.397. The relationship is significant as the P-value (0.000) was less than the significance level (0.01). We accept the third hypothesis that, “Internet based social media has a positive effect on crisis management”.

5. Discussion and Conclusion

5.1 Summary of findings

The current study is the result of answers by 300 residents of Kozani who helped to achieve the different objectives of the study that included; to determine the role of print media in mitigation of a crisis, establish the general Influence of Broadcast Media in the recovery from a crisis, and explore the relevance of internet-based media in responding to crises. This shows the importance of news to the participants. Most of the participants considered the media to have a high degree of influence on crisis management. Also, majority of the participants (37%) followed daily news on Internet based media followed by broadcast media (34.0%), print media (25.3%) and the least number of respondents (3.3%) indicated that they Out of Home Media. The Pearson’s correlation coefficient showed positive correlation between all the firms of media and crisis management. The adjusted square of the multiple R is 0.816 indicating that the 81.6% of variance in crisis management is explained by the three independent variables jointly. There is statistical evidence to claim that three independent variables have significantly explained the 81.6 % of the variance in crisis management in the selected domain. We accepted the first hypothesis that, print media plays a positive role in crisis management.” The hypothesis that Broadcast media has a positive effect on crisis management was also accepted. The relationship between internet-based media has a positive effect on crisis management was significant at P-value (0.000) less than the significance level (0.01) hence it was concluded that Internet based social media has a positive effect on crisis management.

The majority of the participants watched public televisions to keep up with the coverage about the tragedy and thought it played a more significant role than other

forms of communication. This may be attributed to the media's ease of use and relevance to a diverse variety of social classes. Following national television, social networks and satellite television ranked second and third, respectively; on the other hand, radio, newspapers, news outlets, and news blogs were barely used by participants to keep up with earthquake news. In another survey, though, investigating fashion TV came in second place after the Internet. This demonstrates that public television is not necessarily the most popular medium, and that other media will fill in for it depending on the topic at hand.

Finally, while there is little that can be done to deter natural disasters, their negative consequences can be significantly minimized with proper planning and management. Natural disasters often occur in catastrophe and crisis as a result of societal organization, administration, and behavior. Both forms of media play a critical role in natural disaster prevention, early warning programs, and mass public education about unpredictable events, and can help reduce the financial and humanitarian costs of natural disasters. The coverage of the tragedy is covered by the media, which also inspires people to assist the victims and alleviate their pain. Citizens want the media to provide credible, non-promotional, and unbiased reports of events and disasters, as well as to follow up on the commitments made to victims, in order to hold the interest of the public and authorities on the event.

5.2 Conclusion

These study findings confirm that investigations indicate that media plays a particularly critical role in a community-based response to a crisis. Disaster researchers often note that all disasters are local in their impact, and that the first response to a crisis comes from the community itself. Media such as local radio stations, given their resilience, flexibility, and accessibility, play a critical role in informing the public, coordinating response, and reconstituting community connections. Moreover, the finding that smaller-market stations more fully understand and embrace that role is troubling. Regardless, a battery-powered or hand-crank radio is an essential part of an emergency preparedness kit. Experience with both natural and man-made disasters highlights the simple truth that communications are useful only to the extent that they are accessible and usable by people in communities at risk. During disaster events, many vulnerable communities are often cut off from national response systems due to lack of appropriate communications that should have been in place before a disaster occurs.

It is important to note that the effectiveness is partly reflective of preparedness. In this respect, training plays a critical role, no matter how sophisticated or robust the system. An effective notification system requires continuous public education and awareness of the purpose and capabilities of the system. Whatever existing communication methods are chosen for disaster management, all groups that are part of the disaster cycles should be involved in the planning, implementation and operation of their systems. These investigations indicate that local radio plays a

particularly critical role in a community-based response to a crisis. Disaster researchers often point out that all disasters are local in their impact, and that the first response to a crisis comes from the community itself.

Local radio stations, given their resilience, flexibility, and accessibility, play a critical role in informing the public, coordinating response, and reconstituting community connections. Moreover, the finding that smaller-market stations are more fully aware of and embrace that role is troublesome. Regardless, a battery-powered or hand-crack radio is an essential part of an emergency preparedness kit. In general, science needs to develop more and strengthen multidisciplinary and multidisciplinary, such as social science, and address the issue of civil protection at local, national and international level. There is, therefore, a significant gap in knowledge and data management at national and regional level, so this gap needs to be improved. Of course, the growing presence of technology is a major challenge for many stakeholders to use it effectively in support of an integrated and adaptive approach to risk management.

References

Alexander D.: “IDRC Davos 2012: Outcomes Report”, Davos, Switzerland 2012. (Unpublished).

Asghar, S., Alahakoon, D., & Churilov, L. (2006). A comprehensive conceptual model for disaster management. *Journal of Humanitarian Assistance*, 1360 (0222), 1-15

Aula, P. (2010). Social media, reputation risk and ambient publicity management. *Strategy & leadership*, 38(6), 43-49.

Bickes, H., Otten, T., & Weymann, L. C. (2014). The financial crisis in the German and English press: Metaphorical structures in the media coverage on Greece, Spain and Italy. *Discourse & Society*, 25(4), 424-445

Bolarinwa, O. A. (2015). Principles and methods of validity and reliability testing of questionnaires used in social and health science researches. *Nigerian Postgraduate Medical Journal*, 22(4), 195.

Bong Hyun Kim and Hojin Bang (2021) When Do We Share Our Knowledge to Others, *Journal of Logistics, Informatics and Service Science*, 8(1), 51-66. DOI:10.33168/LISS.2021.0104

Chatzitheodoridis, F., Kontogeorgos, A. (2020). Exploring of a small-scale tourism product under economic instability: The case of a greek rural border area. *Economies*, 8(3), economies8030052.

Chatzitheodoridis, F., Kontogeorgos, A. (2020). New entrants policy into agriculture: Researching new farmers' satisfaction. *Revista de Economia e Sociologia Rural*, 58(1).

Chatzitheodoridis, F., Kontogeorgos, A., Liltsi, P., Apostolidou, I., Michailidis, A., Loizou, E. (2016). Small women's cooperatives in less favored and mountainous areas under economic instability. *Agricultural Economics Review*, 17(1), 63–79 30.

Chatzitheodoridis, F.; Melfou, E.; Kontogeorgos, A.; Kalogiannidis, S. (2023). Exploring Key Aspects of an Integrated Sustainable Urban Development Strategy in Greece: The Case of Thessaloniki City. *Smart Cities*, 6, 19-39. <https://doi.org/10.3390/smartcities6010002>

Coombs W.T. (2011). *Ongoing Crisis Communication: Planning, Managing and Responding*, 3rd edition, SAGE, *Thousand Oaks*.

Coombs W.T. (2007). *Ongoing Crisis Communication: Planning, Managing, and Responding* (2nd ed.), Sage, Thousand Oaks, CA.

Coombs, W. T. (2014). *Ongoing crisis communication: Planning, managing, and responding*. Sage Publications.

Cottle, S. (2014). Rethinking media and disasters in a global age: What's changed and why it matters. *Media, War & Conflict*, 7(1), 3-22.

EADRCC: www.nato.int/eadrcc/index.html

Eyisi, D. (2016). The usefulness of qualitative and quantitative approaches and methods in researching problem-solving ability in the science education curriculum. *Journal of Education and Practice*, 7(15), 91-100. <https://eric.ed.gov/?id=EJ1103224>

Fearn-Banks K., (1996). *Crisis Communications: A Casebook Approach*. Lawrence Erlbaum Associates, *Business & Economics*.

Ghassabi, F., & Zare-Farashbandi, F. (2015). The role of media in crisis management: A case study of Azarbayegan earthquake. *International Journal of Health System and Disaster Management*, 3(2), 95.

Horsley J., Barker S., Randolph T. (2002). Toward a synthesis model for crisis communication in the public sector, An initial investigation. *Journal of Business and Technical Communication*, 16(4), 406-440.

Jae Moon Lee, In Hwan Jung and Kitae Hwang, (2022). Classification of Beef by Using Artificial Intelligence. *Journal of Logistics, Informatics and Service Science*, 9(1), 1-10. DOI:10.33168/LISS.2022.0101

James, E. H., Wooten, L. P., & Dushek, K. (2011). Crisis management: Informing a new leadership research agenda. *Academy of Management Annals*, 5(1), 455-493.

Jin, Y., Liu, B. F., & Austin, L. L. (2014). Examining the role of social media in effective crisis management: The effects of crisis origin, information form, and source on publics' crisis responses. *Communication research*, 41(1), 74-94.

Jing Xu, Ha-kyun Kim,(2022) A Service System Study on the Effects of the Influencers' Characteristics on Purchase Intention. *Journal of Logistics, Informatics and Service Science*, 9(1), 136-155. DOI:10.33168/LISS.2022.0110

Johnston, M. P. (2017). Secondary data analysis: A method of which the time has come. *Qualitative and quantitative methods in libraries*, 3(3), 619-626. <http://www.qqml-journal.net/index.php/qqml/article/view/169>

Kalfas, D., Chatzitheodoridis, F., Loizou, E., Melfou, K., (2022). Willingness to Pay for Urban and Suburban Green, Sustainability, 14 (4), 23-32.

Kalogiannidis S., Chatzitheodoridis F., Savvidou S., Kagioglou F.,(2022). The Impact of Online Communications on Different Users' Social, Emotional, and Moral Competence as a Potential Business Communication Tool. *Journal of System and Management Sciences*. 12(5), 359-373. DOI:10.33168/JSMS.2022.0521

Kalogiannidis, S., Kalfas, D., Chatzitheodoridis, F. (2022). The Impact of Collaborative Communication on the Physical Distribution Service Quality of Soft Drinks: A Case Study of Beverage Manufacturing Companies in Greece. *Beverages*, 8(47).

Kalogiannidis, S., Kotsas, S., Konteos, G., Chatzitheodoridis, F. (2022). Investigation of the Redesigning Process of the Development Identity of a Local Government Regional Unit (City): A Case Study of Kozani Regional Unit in Greece. *Springer Proceedings in Business and Economics*. Springer, Cham. https://doi.org/10.1007/978-3-030-98179-2_20

Kalogiannidis, S., Loizou, E., Melfou, K., Papaevangelou, O. (2022). Assessing Relationship Between Entrepreneurship Education and Business Growth. In: Sklias, P., Polychronidou, P., Karasavoglou, A., Pistikou, V., Apostolopoulos, N. (eds) Business Development and Economic Governance in Southeastern Europe. *Springer Proceedings in Business and Economics*. Springer, Cham. https://doi.org/10.1007/978-3-031-05351-1_10 ,183-194.

Kalogiannidis, S., Savvidou, S., Papaevangelou, O., Pakaki, F. (2022). Role of Management in Optimising the Quality of Education in Educational Organisations . In: Tsounis, N., Vlachvei, A. (eds) Advances in Quantitative Economic Research. ICOAE 2021. *Springer Proceedings in Business and Economics*. Springer, Cham. https://doi.org/10.1007/978-3-030-98179-2_21.

Kalogiannidis, Stavros, Efstratios Loizou, Dimitrios Kalfas and Fotios Chatzitheodoridis. (2022). Local and Regional Management Approaches for the Redesign of Local Development: A Case Study of Greece. *Administrative Sciences* 12(69). <https://doi.org/10.3390/admsci12020069>

Kalogiannidis, S., Chatzitheodoridis, F., Kalfas, D., Kontsas, S., & Toska, E. (2022). The Economic Impact of Russia's Ukraine Conflict on the EU Fuel Markets. *International Journal of Energy Economics and Policy*, 12(6), 37–49. <https://doi.org/10.32479/ijeep.13493>

Kalogiannidis S., Chatzitheodoridis F., Savvidou S., Kagioglou F.,(2022). The Impact of Online Communications on Different Users' Social, Emotional, and Moral Competence as a Potential Business Communication Tool. *Journal of System and Management Sciences*. 12(5),359-373. DOI:10.33168/JSMS.2022.0521

Kaushik, V., & Walsh, C. A. (2019). Pragmatism as a research paradigm and its implications for social work research. *Social Sciences*, 8(9), 255. <https://www.mdpi.com/2076-0760/8/9/255>

Kelly, M., Dowling, M., & Millar, M. (2018). The search for understanding: The role of paradigms. *Nurse researcher*, 25(4), 9-13. https://aran.library.nuigalway.ie/bitstream/handle/10379/14732/Kelly_Millar_and_Dowling_2018.pdf?sequence=1&isAllowed=y

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and psychological measurement*, 30(3), 607-610. https://home.kku.ac.th/sompong/guest_speaker/KrejcieandMorgan_article.pdf

Kumar, D. (2006). Media, war, and propaganda: Strategies of information management during the 2003 Iraq war. *Communication and critical/cultural studies*, 3(1), 48-69.

Landwehr, P. M., & Carley, K. M. (2014). Social media in disaster relief. In *Data mining and knowledge discovery for big data*, 225-257.

Markesin: Greece of the crises. A personal essay, Ed. Livanis, Athens 2011.

Mohamad, M. M., Sulaiman, N. L., Sern, L. C., & Salleh, K. M. (2015). Measuring the validity and reliability of research instruments. *Procedia-Social and Behavioral Sciences*, 204, 164-171.

Moldovan, C. P. (2017). AM happy scale: Reliability and validity of a single-item measure of happiness. <https://scholarsrepository.llu.edu/cgi/viewcontent.cgi?article=1430&context=etdMolan>

Nazanin Pilevari, Saeideh Memarian, Mohammad Shokouhifar (2021). Evaluation of Distance Learning Resilience During COVID-19 Pandemic using ANFIS, *Journal of Logistics, Informatics and Service Science*, 8(2), 103-118. DOI:10.33168/LISS.2021.0206

Niininen, O., & Gatsou, M. (2008). Crisis Management: A Case Study from the Greek Passenger Shipping Industry. *Journal of Travel & Tourism Marketing*, 23(2-4), 191-202.

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and policy in mental health and mental health services research*, 42(5), 533-544.

Peersman, G. (2014). Overview: Data collection and analysis methods in impact evaluation. *UNICEF Office of Research-Innocenti*. https://www.unicef-irc.org/publications/pdf/brief_10_data_collection_analysis_eng.pdf

Perry, D. C., Taylor, M., & Doerfel, M. L. (2003). Internet-based communication in crisis management. *Management communication quarterly*, 17(2), 206-232.

Rashidul Islam (2019), Designing Sustainable Parameters for Facilities Management to Improve Operational Efficiency, *Journal of System and Management Sciences*, 9(2), 1-22. DOI:10.33168/JSMS.2019.0201

Setia, M. S. (2016). Methodology series module 3: Cross-sectional studies. *Indian journal of dermatology*, 61(3), 261.

Sileyew, K. J. (2019). Research design and methodology. In-text mining-analysis, programming, and application. *IntechOpen*. <https://www.intechopen.com/books/cyberspace/research-design-and-methodology>

Soiferman, L. K. (2010). Compare and contrast inductive and deductive research approaches. Online Submission. <https://files.eric.ed.gov/fulltext/ED542066.pdf>

Stavros Kalogiannidis, Fotios Chatzitheodoridis, Grigoris Giannarakis and Athanasia Mavrommati, (2022). Business Organizations' Flexibility as an Innovation Tool: Factors Affecting Flexibility in Organizations. *Journal of Logistics, Informatics and Service Science*, 9(4), 259-312. DOI:10.33168/LISS.2022.0417

Sulartopo Sulartopo, Daniel Manongga and Albert Kriestian Novi Adhi Nugraha (2022). Organizational Memory System Model for Higher Education Internal Quality Assurance. *Journal of System and Management Sciences*, 12(2), 21-51. DOI: 10.33168/JSMS.2022.0202

Wooten, L. P., & James, E. H. (2008). Linking crisis management and leadership competencies: The role of human resource development. *Advances in developing human resources*, 10(3), 352-379.

Wright, D. K., & Hinson, M. D. (2009). An updated look at the impact of social media on public relations practice. *Public relations journal*, 3(2), 1-27.