

Volunteer Readiness for Emergency Management at Festivals

by

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Abstract

Festivals, as a prominent sector within the tourism industry, are vulnerable to a growing number of disasters that pose threats to lives and properties. The significance of effective emergency management in the context of festivals has become increasingly apparent as prominent festival has become integral components of global cultural celebrations. This study aims to investigate the potential insights gained from adopting a service ecosystem perspective in understanding and enhancing emergency management at festivals. The research explores how adopting a service ecosystem perspective provides insight into emergency management and investigates the resources volunteers bring to a festival ecosystem to achieve effective emergency response. The study employs a survey design, incorporating closed and open ended questions.

The findings reveal that festival volunteers are aware of the diverse hazards present, including human, environmental, natural, and infrastructural. They express a desire to contribute to emergency management and exhibit confidence in responding during emergencies. The study also highlights the importance of festival provided emergency management training in enhancing volunteers' confidence and preparedness. Training specific to the festival context equips volunteers with the necessary skills and knowledge to effectively respond to emergencies. Participants who received training demonstrated a higher level of confidence in their ability to contribute to emergency management. Additionally, the study underscores the significance of volunteers' familiarity with the festival emergency plan. While a substantial portion of volunteers reported being aware of the plan, many acknowledged their lack of familiarity with its details. This finding emphasizes the need to improve volunteers' knowledge and understanding of the emergency plan to ensure effective coordination and response during emergencies. This research sheds light on the crucial role of volunteers in emergency management at festivals.

Keywords: Volunteers, Service ecosystem, Co-creation, Emergency management, Festival

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Dedication

I dedicate this thesis to the cherished lights in my life, each of whom has played a unique and invaluable role in my journey.

To my dearest Zion, whose arrival brought boundless joy and inspiration into my world. Your innocent laughter and curiosity have been my daily motivation to reach new heights and strive for excellence. As you grow, may you always know that you are my greatest source of love and inspiration. I love you my baby. To my beloved husband, Olatunji, your unwavering support, encouragement, and love have been my rock throughout this academic endeavor. Your belief in me and your sacrifices have made this achievement possible. I am profoundly grateful to have you by my side, and I dedicate this thesis to our shared dreams and the love that binds us. I love you so much.

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Glossary

Term	Definition
Emergency Management (EM)	The comprehensive process of planning, and implementing measures to prevent, mitigate, respond to, and recover from emergencies or disasters.
Service Dominant Logic (SDL)	A marketing concept that emphasizes the centrality of services in the economy and focuses on the exchange of service experiences between providers and consumers (Vargo & Lusch, 2004)
Service Ecosystem	An interconnected network of entities, that collaboratively contribute to the creation and delivery of services.
Value Co-creation	The collaborative process of individuals contributing resources, skills, and knowledge to collectively enhance the overall value of a service.
Hazard	A source or situation that has the potential to cause harm, damage, or adverse effects to people, property, or the environment.
Readiness and Preparedness	The state of being fully prepared and equipped to effectively respond to and manage emergencies or disasters.
Disasters	Severe and sudden events that cause significant disruption, damage, and distress, often resulting in a need for emergency response and recovery efforts.
Emergency	A situation that demands immediate action, or intervention to prevent harm, mitigate damage, or provide assistance.

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Chapter 1 – Introduction

The tourism industry is susceptible to disasters (Novelli et al., 2018), including earthquakes, floods, rains, terrorism, and recently, the coronavirus pandemic. Numerous research studies describe the impact of disasters in the tourism sector with specific references to airlines, hotels, destinations, restaurants, festivals, and events (Zenker & Kock, 2020). The threat faced by hazards is increasing, which is causing an increase in the number and frequency of global disaster, resulting to increasing human suffering and economic costs (Gibson & Connell, 2015). The presence of disasters negatively affects these different tourism sectors, specifically festivals and their environments. A disaster is an unforeseeable catastrophic change that can typically only be addressed after the event, either through the deployment of preexisting contingency plans or through reactive response (Mair et al., 2016). The disasters and crises affect the tourism industry, ranging from disasters triggered by natural causes to human influenced incidents, terrorist attacks, political instability, economic recession, and biosecurity threats. (Faulkner, 2001).

Recently, there has been a greater focus on how disasters endanger lives during festivals. A festival is described as a "public-themed celebration" (Getz 2005, p. 21). Festivals are a sector of the tourism industry that includes music festivals, film festivals, food festivals etc. The COVID- 19 pandemic highlighted the difficulties of gathering people to celebrate when a transmissible pathogen threatens people's health. More recently, the mass casualty incident at the Astroworld festival in Houston brought the threat of human-caused disasters at events to the forefront of the media's attention, calling attention to the need for emergency preparedness and recovery. On November 5, 2021, a "fatal crash crush" happed during the opening night of the 2021 Astroworld Festival, a music event organized by American rapper Travis Scott and held at NRG Park in Houston, Texas. Prior to Travis Scott's performance, the festival had already encountered challenges related to crowd control. However, the

most devastating incident, a fatal crowd crush unfolded during his set. This unfortunate incident resulted in the immediate loss of eight lives, with two more individuals succumbing to injuries in the days that followed. Additionally, twenty-five people required hospitalization, and more than 300 festival attendees received medical treatment at the event's dedicated field hospital (Astroworld Festival crowd crush, 2021).

In addition to such human-induced incidents, festivals are also susceptible to natural disasters, as evidenced by the 2023 flooding incident at the Burning Man festival. The 2023 flooding incident at the Burning Man festival in the Nevada desert left thousands stranded, and forced to shelter in place as heavy rains transformed the area into treacherous mud, disrupting the event. "A little over 70,000 people" remained isolated, unable to leave the festival grounds, as officials halted any incoming or outgoing traffic (Burning Man Festival, 2023). Some individuals resorted to walking out of the site, but for most, including many RV occupants, escape was impossible due to the treacherous conditions. Events like this highlight the importance of disaster emergency management. Management distinguishes prevention, mitigation, preparedness, response, and recovery (Public Safety Canada, 2012).

Emergency management is the organization of resources and responsibilities pertaining to the mitigation of, preparedness for, response to, and recovery from an emergency (Public Safety Canada & Ministers Responsible for Emergency Management, 2017). Emergency is sometimes used interchangeably with the term disaster. Disaster is defined as "a serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability, and capacity, leading to one or more of the human, material, economic, and environmental losses, and impact" (UNDRR, 2020). Hazard is a process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation (WHO, 2019).

Hazard vs. Emergency: A hazard is the potential source of harm or danger, while an emergency is the actual occurrence of a situation that demands immediate attention due to the potential harm it poses.

Hazard vs. Disaster: A hazard is a precursor or condition that can lead to a disaster. A disaster is the actual occurrence of an event causing significant harm or damage.

Emergency vs. Disaster: An emergency is a situation requiring immediate action, which may or may not escalate into a disaster. A disaster is a more severe and widespread emergency, often involving extensive damage and long-term consequences.

Although there is limited research on volunteer roles in emergency management, including training, recognition and management, voluntary assistance and human support have emerged as the most critical needs before, during, and after a disaster. Volunteers play a crucial role in disaster management, and the need for their participation is widely recognized, both for prevention and disaster management (Toraldó et al., 2016). Given the essential role volunteers play in event delivery (Baum & Lockstone, 2007; Slaughter & Home, 2004), we need to understand better their position in all areas of events management, including emergency preparedness and management.

The study employed the service ecosystem perspective to understand volunteers' role in emergency management in this context. This framework can inform how diverse stakeholders, including volunteers, engage in emergency management. “The service ecosystem is defined as a relatively self-contained, self-adjusting system of resource-integrating actors that are connected by shared institutional logics and mutual value creation (Vargo and Lusch, 2016, pp. 10–11).” Applying a service ecosystem perspective to emergency management will help inform us how volunteers collaborate and use resources to co-create value.

Purpose of Research

The purpose of this study is to provide insight into festival emergency management. The study aims to understand volunteers' emergency preparedness at festivals. This study utilizes a service ecosystem perspective to understand the role of volunteers in the emergency management process and the ways in which they contribute to value co-creation in emergency preparedness for festivals.

Limited studies have been carried out to inform emergency management and events. Thus, this study utilized the service ecosystem perspective to understand the various responsibilities of festival and event volunteers in emergency management. Hence, advancing theory and contributing to safe event management practices.

Chapter 2 – Literature Review

The Need for Emergency Preparedness and Management

Emergency management (EM) takes an all-hazards approach to address natural and artificial hazards and subsequent disasters to save lives, preserve the environment, and protect property and the economy (Public Safety Canada, 2019). According to Faulkner (2001), disaster occurs when a business sector experiences unexpected, catastrophic changes over which it has little control. Disasters are increasing in frequency and severity in Canada and other parts of the world (Public Safety Canada, 2019). Before the global pandemic, numerous tourism studies revealed the short and long-term effects of disasters on tourists, stakeholders, and the community (Faulkner, 2001; P. W. Hystad & Keller, 2008; Ritchie, 2004).

Hystad & Keller (2003) investigated and demonstrated how tourism business was affected by the forest fire experienced in Kelowna, British Columbia. The study by Miller and Ritchie (2003) revealed that the 2001 foot and mouth disease outbreak in the United Kingdom had a long-term adverse effect on rural tourism and economic growth (Miller & Ritchie, 2003). The author surveyed domestic tourism in the United Kingdom, showing a loss of £1.4B during the disease outbreak revealing a severe economic impact on the UK. Tourism is an important economic sector for many countries, and many destinations depend on tourism for their growth and survival (Mair et al., 2016).

According to Miller and Ritchie (2003), a preliminary EM plan has an advantage in response and recovery. Despite the increasing negative impacts disasters have on tourism, there appears to be minimal proactive planning within the industry (Faulkner, 2001; P. Hystad & Keller, 2006; Ritchie, 2004). Emergency preparedness aids the response and recovery of local tourism businesses from disasters (Hystad & Keller, 2003). Hystad & Keller (2008) reported the preparation for disaster by the local

tourism industry aided its recovery irrespective of the damage. Faulkner (2001) argued that a rise in disaster results from technology-based systems; preliminary disaster plans should ensure unforeseeable emergencies with the expectation of disaster. The complexity of human resources and technology can generate disaster (Faulkner, 2001). The study referred to extraordinary human effort (technology) used to cope with or control the natural world from disaster as an increasing factor to the risk of life and properties, rather than causing less damage. The increasing frequency of disasters underscores the necessity of comprehending emergency management practices at events. As noted by Hystad and Keller (2008), gaining insights into the roles of various stakeholders throughout different stages of a disaster is pivotal for enhancing emergency management in the tourism sector. This extends to festivals, where the unique characteristics and demands of large-scale gatherings call for specialized approaches to emergency preparedness and response.

Festivals are a component of the tourism sector that can attract visitors to a (Anderson and Westcott, 2021). Festivals, as a tourism sector, have been studied by researchers from many perspectives. Scholars have examined its economic repercussions (Ragsdell & Jepson, 2014), its impact on community and culture (Clayton, 2016), and emergency management (Earl, 2006). The festival environment is susceptible to a broad range of potential emergencies, encompassing infrastructure disruptions such as water and power shortages, as well as extreme weather occurrences like tsunamis and heat-waves. Moreover, festivals may confront public health crises, as exemplified by the challenges posed by outbreaks like SARS and, more recently, COVID-19.

In addition, the festival landscape may encounter the risk of “chemical, biological, radiological, or nuclear events (CBRNE)” (Cole & Buckle, 2004, p. 6). The need for developing comprehensive disaster planning and management strategies is underscored by the rise in the frequency of such events within the festival sector. Given the number of emergencies at festivals, some generic themes from EM at festivals include; crowd control and management (Earl, 2006; Lund et al., 2022), emergency responses

(L. Miles & Shipway, 2020), medical preparedness (Lund et al., 2022), and fire safety. Preparedness and responses to these emergencies is necessary to manage disasters at festivals.

According to Public Safety Canada (2019), emergency management comprises four interdependent components. The long-term aspect of this framework is dedicated to fostering sustainable recovery and proactively mitigating the impact of potential future disasters. These components include:

- “Prevention and Mitigation” -Planning or plans to adapt to, eliminate, or reduce the risks or effects of potential disasters to protect lives, property, and the environment and minimize economic disruption. Prevention and mitigation may be considered independently or once.
- “Preparedness” -Availability of pre-event measures to readily respond to a disaster and manage its consequences. These measures could include secure facilities, warning systems, emergency response plans, resource inventories and training, public awareness activities, equipment, and exercise programs.
- “Response”- swift and decisive actions taken when a disaster strikes to mitigate its impact, safeguard lives and property, and ensure effective management of the situation. These actions encompass a range of activities, including timely emergency public communication, search and rescue operations, provision of emergency medical care, and organized evacuation procedures.
- “Recovery” -Restoring and repairing utilities and essential services through the measures taken after a disaster. The short-term phase of recovery provides a valuable opportunity to strengthen resilience and bounce back through reconstruction, financial assistance, counselling, and resilience measures (Public Safety Canada, 2019).

Emergencies at festivals can be managed by integrating emergency management in the event planning process and providing appropriate services and infrastructure (Earl, 2003). Earl (2005) asserted

that volunteers are responsible for providing many of the essential services at festivals, including crowd management and provision of medical supplies. Given their essential role in the production and operation of festivals, it was necessary to better understand festival volunteers in general.

Festivals and Events Volunteers

The International Labour Organization (2011) defined volunteering as unpaid noncompulsory work. Volunteering is a social activity (Snyder & Omoto, 2008) involving the dynamic behavior of individuals engaged in helping and participating freely (Reed and Selbee 2000). A diverse range of events depend on volunteers for their operations for multiple reasons. Festival volunteers' shoulder diverse responsibilities, including bringing their expertise and skills to their role, all while actively enhancing visitor satisfaction and bolstering community support (Toraldó et al., 2016). The presence of a volunteer is an essential component of the success of festivals and events (Smith & Holmes, 2011). Volunteers are also equipped with various experiences and knowledge undertaking roles with the potential to impact the quality of the customer experiences (Clayton, 2016).

Toraldó et al. (2016) argued that volunteers are the most visible elements of events, often interacting with a majority of participants and spectators. According to Snyder & Omoto (2008), volunteering is viewed as a social activity that fosters relationships not only among volunteers but also between volunteers and event organizers. Toraldó et al. (2016) described volunteering at events as a hybrid phenomenon of being economical, where productivity is achieved with no monetary compensation and symbolic when volunteers value and enjoy their experiences. Earl et al. (2003) indicated that volunteers have a role in hazard management and control at festivals, contributing to safe and accessible events.

The study by Smith & Holmes (2011) exploring volunteers in the different tourism sectors, destinations, events, and attractions revealed the focus of events volunteers has been on sporting events and less on festivals. Most studies on festival volunteers have focused on volunteer motivation, satisfaction, and retention (Rhoden et al., 2009), community building and social capital (R. E. Miles & Miles, 2007). The motivational theory has been utilized to understand volunteers' involvement and commitment to festivals.

In an earlier study on volunteer motivation, Clary et al. (1998) introduced a comprehensive framework consisting of six distinct volunteer motivation functions (pp. 1517–1518). These functions encompass aspects such as the value function, which involves volunteering as a means to express or act upon one's values, such as altruism and concerns for the welfare of others; the understanding function, representing an opportunity for individuals to acquire knowledge, practice skills, and develop their abilities; the enhancement function, involving volunteering to enhance one's self-esteem and personal development; the career function, which relates to volunteering as a means of gaining experiences that can benefit one's career trajectory; the social function, encompassing the desire to build social networks and connections through volunteering activities; and the protective function, involving volunteering as a coping mechanism to address negative emotions and inner anxieties. Volunteer motivation plays a pivotal role in shaping an individual's decision-making process and determining their readiness and capacity to fulfill specific volunteer responsibilities (Danatzis et al., 2022). 'Readiness' in this context pertains to an individual's potential and willingness to engage in specific future behaviors. (Danatzis et al., 2022).

Within the festival research, motivation has been the dominant theme. However, Kulik et al. (2016) asserted that a positive sense of community impacts the commitment to the events and increases volunteers' satisfaction with the job experience. Positive experience and satisfaction were also

considered a motivation for volunteers (Barron & Rihova, 2011); in other words, the ability to express personal values (altruism) and the opportunity for new learning and exercising new skills contribute to volunteer motivation. Satisfaction was closely related to why volunteers continued volunteering at festivals (Earl, 2006). Costa et al. (2006) revealed that volunteers evaluate their experiences based on the quality of training on the job.

Earl et al. (2003), exploring festival volunteers' knowledge and awareness of emergency management at an outdoor music festival, highlighted that few volunteers had prior knowledge of emergency management plans and practices, revealing that their knowledge influenced their confidence; inadequate knowledge and training resulted in lower confidence. Similarly, Leigh et al. (2021) study supported the notion that limited training was implemented for event volunteers; the study explored factors that shape event managers' decision-making concerning training event volunteers and identified financial constraints, organization capabilities and short-term use of volunteers as factors limiting volunteer training. However, volunteers at festivals are vital as they play a wide range of roles, including waste management, crowd management, first aid provision, events operation, and administration.

Although, the majority of these volunteers have no professional experience or training to carry out required tasks and may not be aware of potential disasters at festivals (Fahey et al., 2002). Volunteer competency can then be attained through knowledge and experience (Costa et al., 2006). Earl et al. (2005) considered that emergencies might be reduced if volunteers were aware of potential disasters, understood preventative measures, and were competently able to perform assigned tasks. Earl et al. (2003) also reflected on the need to include festival emergency management in volunteer training programs to improve emergency management at events due to a lack of awareness and knowledge that leads to volunteers' low confidence levels, as previously stated.

Miles & Shipway (2020) found that knowledge about self-protection actions and preparedness measures in the case of an emergency required significant improvement. The authors reviewed previous disaster management research in events and classified events into the small and large scale, suggesting disaster management planning and training differ among events. Training provides adequate skills necessary for volunteers to understand responsibilities and perform required tasks (Earl, 2006).

Volunteer training should be implemented in the process of event planning. Public Safety Canada & Ministers Responsible for Emergency Management (2017) also stated that training raises awareness and improves effective responses. Despite the benefits of comprehensive training programs for festival volunteers' preparedness and productivity, there are still limited training opportunities (Costa et al., 2006) and knowledge of emergency management amongst volunteers (Earl et al., 2005). However, volunteers' skills and knowledge are crucial to their preparedness for emergency management in events.

Festival and the Service Ecosystem perspective

In the service field, Service dominant (S-D) Logic is a concept introduced by Vargo & Lusch (2004) to understand service exchange and value co-creation. The S-D theory proposes that value is cocreated with other actors (Lusch & Vargo, 2011; Vargo & Lusch, 2004; Winkle & Bueddefeld, 2016). The firm, customers and other stakeholders are all actors involved in value co-creation. This evolution of S-D Logic led to the service ecosystem that emphasizes the actor to actor-network of service exchange and value co-creation (Lusch & Vargo, 2011). This service- ecosystem perspective provides a systemic approach to value creation, which can aid managers in thinking about how multiple perspectives and actors contribute to value creation. It conceptualizes the value and co-creation of enterprises, customers, and other stakeholders, such as suppliers, government agencies, and nonprofits (Lusch et al., 2008; Vargo et al., 2017).

A service ecosystem visualizes the broad range of interactions of various individuals involved in successfully creating an event. The extensive list of individuals and organizations for festival management to maintain relationships with is further convoluted by the complexity behind individual stakeholders, who may identify in multiple groups and whose influence and lifecycle will shift within the festival (Todd et al., 2017). Adopting an ecosystem view is valuable in accommodating the challenges of the actor service system. (Danatzis et al., 2021). The service ecosystem provides an insight into actor characteristics (Troisi et al., 2019). All actors engaged in festival EM need continuous collaboration, communication, and innovative methodologies, to improve preparedness for effective response at all levels (Hazel & Mason, 2020). Likewise, the service ecosystem provides a deeper insight into actor characteristics, individual dependent factors, skills, and competencies required for service providers and users to navigate an interconnected environment (Vink et al., 2021) which is important to emergency management. Thus, individual volunteers' roles, skills and resources in the festival are essential to event emergency planning and management. This study will provide insight into volunteers' emergency preparedness and management at festivals. The study aims to enhance event planning and management and advance our understanding of the role of volunteers within the service ecosystem.

Theoretical framework

Vink et al.'s (2021) research provides a comprehensive framework to investigate actors' efforts in a service ecosystem. The ecosystem design draws on how actors create intentional, long-term changes in service systems. An example of a service ecosystem is represented by a festival where value cocreation is fostered by actors full and direct involvement in an environment and interpersonal relationships that can establish synergies and a level of satisfaction (Troisi et al., 2019). Festivals are an environment where value is co-created because of active interaction among all actors in the process of

merging resources (structure, knowledge, etc.) to create a safe, meaningful, and memorable event (Troisi et al., 2019). Resources can be defined as all tangible and intangible entities actors own or have access to that they use for resource integration (Edvardsson et al., 2014). These resources at festivals include the knowledge, skill and equipment actors require for resource integration. Resource integration thus emphasizes how actors use their knowledge and skills and available equipment and tools to co-create value. The actors involved in festivals are stakeholders identified as co-producers, facilitators, volunteers, allies and collaborators, regulators, suppliers, venue audience and individuals impacted voluntarily or involuntarily by the event (Hazel & Mason, 2020).

A community of scholars has built upon the service ecosystem as a theory in marketing and other disciplines (Akaka et al., 2013; Vargo & Lusch, 2004). Vargo et al. (2017) suggest ecosystem theory can be used to explain diverse management practices. The actors shared worldview allows shared intentions and mindset from the festival ecosystem perspective. This worldview facilitates innovations and interactions among volunteers to strengthen their capacity to mitigate and respond to emergencies (Leigh et al., 2021). Necessary skills and competencies related to emergency management can provide institutional preparedness for unprecedented disasters at festivals.

The service ecosystem fosters interactions among and between multiple actors at three interconnected levels: the micro, meso, and macro (Akaka & Vargo, 2015; Fisk et al., 2016; Well et al., 2015). Figure 1 illustrates the micro, meso and macro level of an ecosystem with examples of actors at each level, using the context of the festival. The micro-level of the service ecosystem frames exchanges as they occur within individual actors (such as volunteers). The meso-level involves the exchange within service networks, enabling value co-creation amongst multiple actors. The macro-level of the service ecosystem consists of the rule that governs actors' behaviours and practices (Lusch et al., 2016). While

the micro-level is important in understanding individual actor roles in a service ecosystem, The mesolevel is crucial in connecting the micro and macro levels.

Figure 1

A festival ecosystem

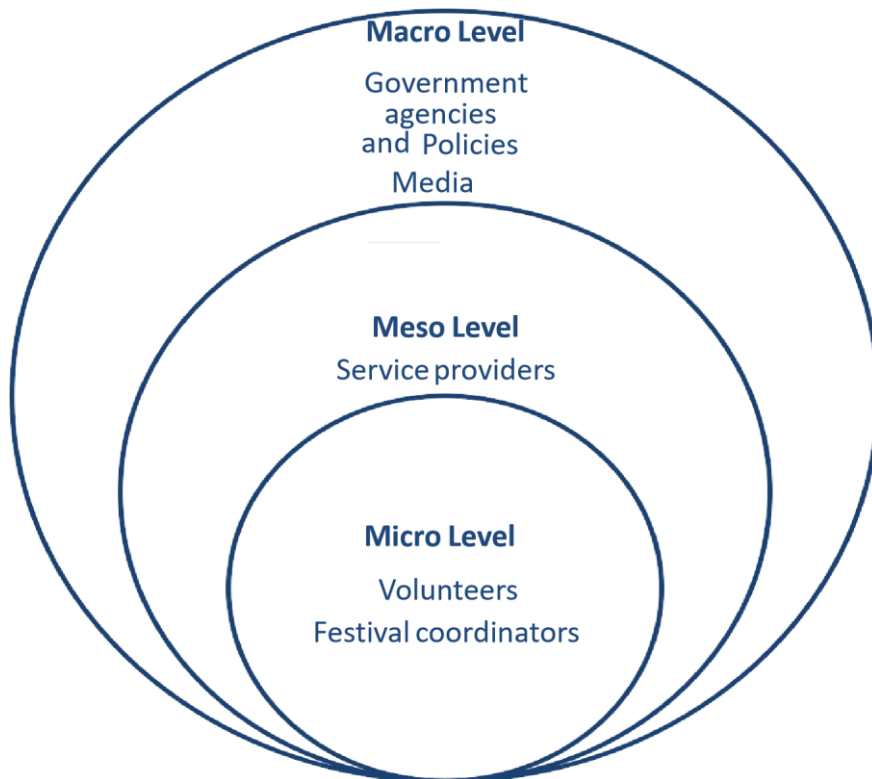
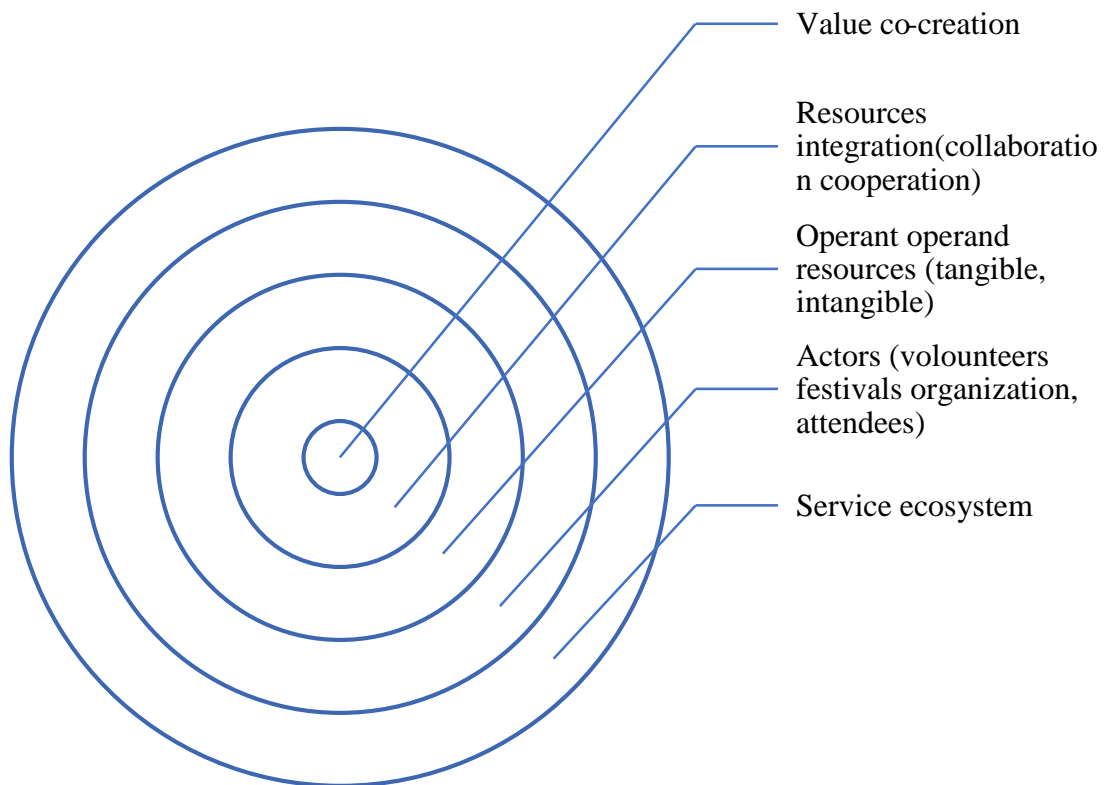


Figure 2 shows a service ecosystem process based on the festivals. This is a process where actors (volunteers) integrate resources (skill, knowledge, equipment, and materials) coordinated through service exchange (training, communication) within actor-generated institutions (festival coordinator, policymakers, etc.) interlocked in a service ecosystem (the festival). The actors in a service system are regarded as entities that can create value by direct or indirect interaction with others. This value cocreation is based on resource integration, in which service systems use their operant resources (such

as knowledge and skills) and possible operand resources (such as tools and equipment) for the benefit of others and reciprocally access valuable resources to them through these interactions.

Figure 2

Service ecosystem process



Chapter 3 – Method

The research methods and design will be discussed in this chapter and will describe how the research questions were addressed.

Research questions

To achieve the aim of the research study, the following questions were addressed:

1. What resources (knowledge, skills, materials, and equipment) do volunteers need and bring to emergency management?
2. How is volunteer readiness enhanced to ensure volunteers obtain and contribute those resources?
3. How are resources integrated to create value in an emergency management context?

Research Hypothesis

The following hypotheses are developed to address the research questions.

H1: Volunteers who receive training from the festival organizers will feel better able to deal with an emergency

H2: The more training the volunteers have, the more resources they feel they contribute to emergency management.

H3: The more skills and knowledge a volunteer feel they bring to the festival the better able they will feel they are able to deal with an emergency

H4: Volunteers who are familiar with the emergency plan will feel better to be able to deal with an emergency.

Research Design

The research design for this study was a cross-sectional survey, which allowed for data collection at a single

point in time (Mathison et al., 2021). Questionnaires were utilized as the primary method of data collection, enabling the gathering of both qualitative and quantitative data to understand volunteers' preparedness for emergency management at festivals. Survey design was employed to ensure a robust and comprehensive analysis. This design combined qualitative and quantitative data collection and analysis techniques, providing a more comprehensive examination of the research questions. Additionally, qualitative data coding involved the systematic assignment of numerical codes or categories to qualitative data, enabling researchers to quantify and analyze responses using statistical methods (Creswell et al., 2017). This coding method was applied to convert qualitative data, such as open-ended responses, into quantitative data for statistical analysis. The study adhered to a post-positivist perspective, emphasizing objectivity and the utilization of empirical evidence to comprehend phenomena (Mathison et al., 2021). In line with this perspective, both the open-ended and scale questions in the questionnaires were quantitatively analyzed, providing numerical data that could be statistically examined to explore the volunteers' preparedness for emergency management at festivals.

Furthermore, the study drew on existing theories, particularly the service ecosystem perspective, to explain the emergency preparedness of volunteers at festivals. The service ecosystem perspective recognizes the interconnectedness and interdependence of various actors and resources within a festival context. By applying this perspective, the study aimed to gain insights into how volunteers contributed to emergency management within the festival ecosystem. The utilization of quantitative analysis methods provided valuable insights into the role of volunteers in emergency management.

Context

This research involved volunteers from four Canadian performing arts festivals, referred to as Festival 1, Festival 2, Festival 3, and Festival 4. These festivals were chosen due to their emphasis on performing arts, utilization of outdoor venues, and the willingness of organizers to participate in the study. Festival 1 is an annual music festival held in a park in a Canadian province. The festival aims to celebrate music and promote folk arts within the local

community. It is known for its lively atmosphere, featuring diverse musical performances that attract a significant number of attendees and volunteers each year. Festival 2, an outdoor music festival held annually in July, provides a distinctive experience for music enthusiasts. Situated on the shores of a lake, this festival showcases a variety of musical genres and is valued for its picturesque setting and cultural significance. Festival 3, held annually in a Canadian city, highlights a diverse range of folk, roots, and world music artists. The festival draws a large audience, offering live performances, workshops, and cultural activities. Festival 4, an annual performing arts festival held in a Canadian city, is one of the largest and most respected in North America. With a history dating back several decades, it features a wide array of theatrical performances, including plays, musicals, improv, comedy, and dance, representing various genres and styles.

By selecting these festivals, the research aimed to capture a range of experiences and perspectives from volunteers involved in different festival contexts. The inclusion of the four festivals added diversity to the study and allowed for a more comprehensive understanding of volunteers' preparedness for emergency management in the performing arts festival sector.

Participant Recruitment

The participants for this study were recruited from volunteers who were working at the festivals during the 2022 edition of the festival. A convenience sampling approach was utilized, as all volunteers were invited to participate in the survey. Prior to recruiting participants, the researcher obtained ethics approval from the office of the human ethics at the University of Manitoba to ensure the ethical conduct of the study. The recruitment process began with the initial distribution of recruitment emails to the volunteers by the festival organization, aiming to generate interest and inform them about the research. One week after the conclusion of each festival, the festival organizers were contacted and provided with a participation invitation. They were asked to forward the email invitation to their festival volunteers, containing a link to the online survey hosted on the SurveyMonkey platform.

To accommodate volunteers' availability and ensure a sufficient response rate, the survey was open for approximately three weeks, allowing participants ample time to access and complete the questionnaire. This timeframe allowed for the collection of data from a diverse range of festival volunteers, contributing to the study's comprehensiveness. Participants were asked explicitly if they would like to be entered to win one of three sets of tickets and if they would like to receive a report of the findings. If they agreed, they were asked to provide an email address. This information was collected separately from their survey responses to ensure confidentiality. The email addresses were only used for the purpose of notifying the winners and sending the report of the findings, if requested. Participants were assured that their email addresses would be kept confidential and would not be shared with any third parties.

Data Collection

The data for this study was collected via an online questionnaire using the SurveyMonkey web-based platform. The survey was designed with an embedded design, incorporating both quantitative and qualitative questions. It was estimated that approximately 242 festival volunteers from each festival would be needed to complete the survey questionnaire to provide a representative sample. At the start of the study, volunteers were asked to grant informed consent before proceeding with the survey. The survey included a preamble that outlined the participant's right to withdraw at any time and provided assurance of confidentiality. An introductory email, including the link to the survey questionnaires, was sent to the volunteers. The survey questionnaire was designed to take approximately 15 minutes to complete. It covered various aspects such as the volunteers' festival volunteer experience, their role in festival emergency planning and management, and their preparedness for a festival emergency. Participants were given the opportunity to enter a draw to win one of three sets of festival tickets as an incentive for their participation.

The participants were informed that their contact information would be collected separately from their survey

responses to ensure confidentiality. The findings were planned to be sent to participants who provided their personal contact information. Their contact information was downloaded from the survey and stored in a separate passwordprotected file to maintain data security. The festival organizers were sent reminder emails twice during the survey period to encourage and remind their festival volunteers to participate in the study. These reminders aimed to increase the response rate and ensure that a substantial number of volunteers had the opportunity to provide their insights and perspectives.

The first reminder email was sent approximately one week after the initial participation invitation, serving as a gentle prompt for those who may have overlooked or delayed their survey completion. The purpose was to reinforce the importance of their participation and emphasize the value of their input in the research. A second reminder email was sent toward the end of the survey period, close to the deadline for survey submissions. This reminder was intended to create a sense of urgency and encourage volunteers who had not yet completed the survey to do so promptly. By sending these reminder emails, the research team aimed to maximize the response rate and ensure a representative sample of festival volunteers, enhancing the reliability and validity of the study findings. After all responses were collated from the participants a thank-you email was sent to festival organizers expressing gratitude for their contribution to the study. This follow-up communication not only shows appreciation but also maintains a positive connection with participants for future research endeavors.

Survey Questionnaire

The questionnaire included a combination of open-ended questions and scales that were derived from existing literature, specifically those used by Earl et al. in 2003 to assess volunteer emergency preparedness at an outdoor music festival. The questionnaire aimed to collect participant responses and covered four major areas related to volunteer preparedness for emergency management at festivals. These areas were:

- Basic demographic information: Participants were asked to provide details such as age, gender, educational background, and previous volunteer experience.
- Volunteers' knowledge of emergency management: Participants were asked about their understanding of emergency management practices, including their knowledge of emergency procedures, communication protocols, and safety measures at festivals.
- Service ecosystem - the role volunteers play in emergency management at festivals: This section focused on exploring the specific roles and responsibilities of volunteers in emergency situations, such as their involvement in crowd control, first aid, evacuation procedures, and coordination with emergency services.
- Volunteers' readiness in dealing with emergencies: Participants were asked to rate their level of confidence in managing various types of emergencies that could occur at festivals. This could include assessing their confidence in handling medical emergencies, crowd management, or communication during crisis situations.

The survey questionnaire aimed to capture a comprehensive understanding of volunteers' preparedness for emergency management at festivals by exploring their knowledge, roles, and confidence levels.

Validity and Reliability

Validity is how a concept is accurately measured in a quantitative study (Heale & Twycross, 2015). This research utilized face validity. Face validity ensures that the methods are adequate for concepts to be measured. (Gratton et al., 2009). To ensure validity in this study, several steps were taken. Firstly, the survey questionnaire employed in this research included both open-ended questions and scales derived from existing scales, such as those used by Earl et al. (2003) to understand volunteer emergency preparedness at an outdoor music festival. This approach helped establish content validity by using established measures that align with the research objectives (Polit & Beck, 2017; Earl et al., 2003). Secondly, face validity was ensured through a pilot testing phase with a small sample of volunteers (n=5). The survey instrument was carefully reviewed, and feedback was obtained to assess the

clarity, comprehensibility, and appropriateness of the questions. Thirdly, clear instructions and guidance were provided in the survey to ensure participants understood the purpose of the study and how to respond accurately (Dillman et al., 2014). Finally, informed consent was obtained from participants at the start of the study, emphasizing their right to withdraw at any time (World Medical Association, 2013).

Data Analysis

The data from this study was analyzed using the statistical package for social sciences (SPSS), a widely used software for quantitative data analysis (Stehlik-Barry et al., 2022). SPSS gave the researcher a comprehensive set of statistical procedures commonly utilized in quantitative research, measurement, and evaluation. The results were presented in a descriptive form using frequencies and percentages, allowing for a comprehensive understanding of data (Matthew et al., 2022).

Content Analysis:

The qualitative data obtained from the open-ended responses were subjected to content analysis, a widely used method for systematically examining textual data (Kuckartz, 2019). Content analysis was employed as the method of data analysis to identify common patterns within the open-ended data. Utilizing content analysis, researchers have the capability to quantify and examine the occurrence, interpretations, and associations of specific words, themes, or concepts within the data.

Stages of Content Analysis:

The content analysis process consisted of multiple stages, adhering to a rigorous and transparent approach to ensure the credibility and reliability of the findings. Non-numerical data obtained from open-ended responses were initially coded to establish nominal variables, facilitating the transformation of qualitative insights into numerical categories.

The approach to content analysis, as outlined by Gratton et al. (2009), was employed to systematically identify patterns and relationships within the diverse open-ended responses.

Coding Process:

Bengtsson (2016) asserts that the content analysis method requires the researcher to immerse themselves in the data through a thorough examination of the transcribed text. This process offers a comprehensive understanding of the broader context, answering the question, "what is going on." Subsequently, the data can be systematically broken down into smaller meaning units, facilitating detailed analysis. In the coding phase, responses underwent a rigorous process involving careful reading, categorization, and numerical coding to ensure uniformity across all responses. To strengthen the analysis, two independent researchers conducted an initial reading and coding of all responses. This dual-coding approach aimed to pinpoint common topics and concepts associated with the skills and knowledge that volunteers contribute to the festival ecosystem for emergency management.

Consensus Building:

Subsequent to the initial coding process, the researchers engaged in comparative and collaborative discussions to reconcile any discrepancies in coding choices. This iterative process was vital for reaching a consensus on key themes and categories. Through ongoing discussions and adjustments, the researchers ensured the reliability and validity of the content analysis, emphasizing transparency in decision-making.

Categorization:

In the categorization process, themes and categories are identified. In the categorization process, themes and categories are meticulously identified, offering a structured organization to the qualitative data. For instance, in the context of trainings reported in the research, specific themes emerged, shedding light on the diverse training experiences of volunteers. These experiences were categorized into key areas such as training for medical emergencies, guest safety and

Transformation into Quantitative Data:

Once the key themes and categories were identified and agreed upon, the qualitative data underwent a further transformation into quantitative items for analysis. This involved assigning numerical values or codes to each identified theme or category. For example, if the theme 'medical' emerged, it was assigned a specific numerical code (e.g., 1).

Statistical analysis

The quantitative analysis provided insights into the frequency of specific skills and knowledge areas mentioned by the participants, offering an understanding of the resources brought by volunteers for emergency management at festivals. These findings complemented the qualitative insights obtained from the open-ended responses, providing a comprehensive picture of the volunteers' preparedness and contributions. It is important to note that while the quantitative analysis was a primary focus for this study, the qualitative responses also provided valuable contextual information and nuanced perspectives. The integration of both qualitative and quantitative approaches allowed for a more comprehensive understanding of the role of volunteers in emergency management at festivals.

To address the research questions, a comparative statistical procedure using Fisher's exact test testing was conducted (see Appendix C). Fisher's exact test is a statistical test used to determine if there are non-random associations between two categorical variables in a contingency table. It is particularly useful when you have small sample sizes or when the assumptions of a chi-squared test (another test for categorical data) are not met. Fisher's exact test was used to compare volunteers' confidence levels and training. The data was examined to determine whether volunteers who received training responded differently to the confidence questions compared to those without training, ranging from "not confident" to "very confident." The data also explored the impact of different types of skills and knowledge on volunteers' confidence levels. Additionally, Fisher's exact test compared volunteers' previous experiences with emergency management and their knowledge of dealing with emergencies.

Chapter 4: Results

The results are presented to address the research questions. First, the findings of the descriptive analysis of the quantitative data within the questionnaire are described. Then the content analysis is presented for the qualitative data. Finally, the multi-variable analysis was undertaken. This study collected data from 154 participants from four different festivals. The participant distribution across the festivals was as follows: Festival 1 had 39 participants, Festival 2 had 36 participants, Festival 3 had 26 participants, and Festival 4 had 23 participants. Data screening, which involved examining data frequencies, was used to arrive at the final data set of 124 cases from the initial 154. During this process, 30 cases were identified and subsequently removed from the data set due to a lack of responses. Specifically, instances where only the first few questions were answered, and the rest of the survey was left blank were among those cases removed. This rigorous data screening process ensured that the final dataset used for analysis contained only complete responses, resulting in a more accurate and reliable representation of the study's findings. The response rate, a key metric in assessing participant engagement, was calculated based on the total number of invited participants across the four festivals. The formula used for this calculation is expressed as:

$$\text{Response Rate} = \frac{\text{Number of Completed Responses}}{\text{Total Number of Invited Participants}} \times 100$$

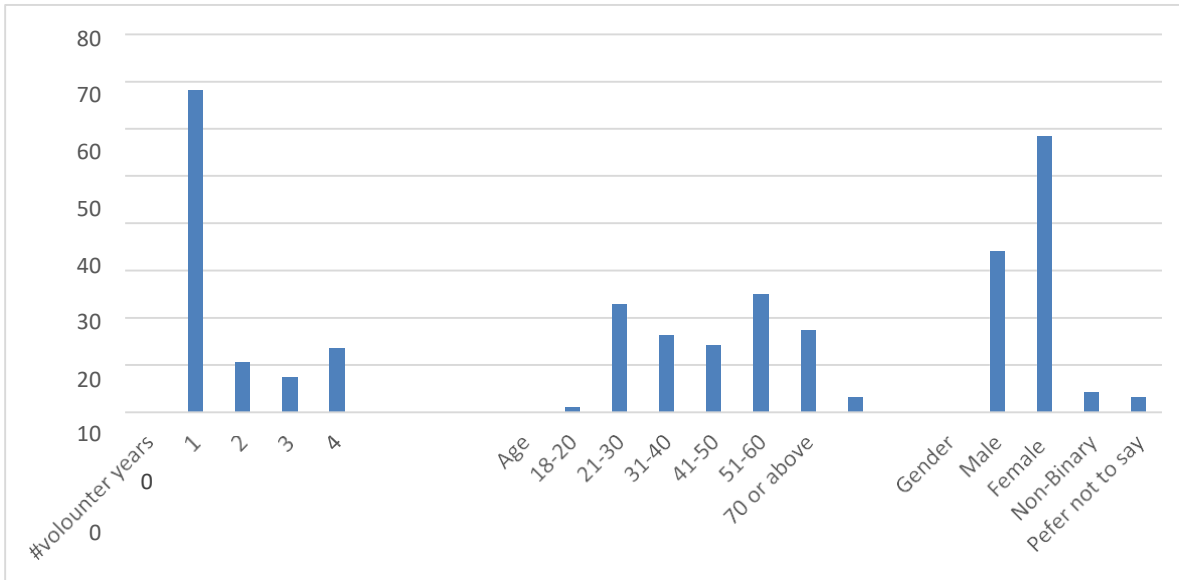
In this study, data were collected from a total of four festivals, each with an approximate volunteer count of 600. Therefore, the total number of invited participants (N) was determined as $4 \times 600 = 2400$. The response rate was then computed using the collected data of 124 responses, resulting in a response rate of approximately 5.17%.

The participants were categorized into various age groups and their gender was recorded. The age distribution among the participants revealed that the most common age group that respondents identified was 51-60 (25%), followed by 22.8% of participants in the 21-30 age group. Regarding gender distribution, 58.5% of the participants identified as female, while 34% of the participants identified as male. Furthermore, 7.5% of the participants identified as non-binary or preferred not to disclose it. Additionally, 68.2 volunteers reported having one year of experience

volunteering at the festival. Figure 3 provides insights into the age gender composition and the number of years they have volunteered.

Figure 3

Age and gender distribution



Research question one
 1. What resources (knowledge and skills) do volunteers need and bring to emergency management?

Content analysis: The participants shared an array of valuable resources they felt they brought to the festival including skills, knowledge, experiences, and materials. Table 1 presents the breakdown of the resources (knowledge, skills, materials/equipment, and experiences) identified by the participants. Moreover, their experiences included a wide range of themes, such as empathy, hazard recognition, street smarts, customer service, and event management. The participants also highlighted the various materials they bring along, such as protective equipment, policies and procedures, earplugs, food and beverages, cell phones, and medical kits.

Table 1

Categories of resources (skills, knowledge, materials, and experiences identified)

Knowledge	%
Medical (including themes such as first aid, trauma, OHS, CPR)	28.4
Management (including themes such as risk management, crisis intervention, strategic planning)	21.6
Volunteer training (including themes such as familiarity with previous festival procedures, first response and communications))	12.5
Other related experiences (including themes such as customer service and fire marshal)	15.9

Personal Attributes (Including themes such as understanding, ability to sense wrong doings)	14.8
None	6.8

Skills	%
Communication (including themes such as verbal and written communication, radio skills)	24.1
Training (including themes such as self-defense, first aid, ski patrol)	37.9
Personal attributes (including themes such as empathy, patience, calmness, authoritative demeanor)	20.7
Related experiences (including themes such as organization, negotiation risk awareness)	6.9
None	10.3
Materials and equipment	%

Medical supplies (including themes such as first aid kit, food and water, and nasal spray, injections)	37.6
Fire protection (including themes such as extinguishers)	1.7
Personal protective equipment's (including themes such as appropriate clothing; gloves, masks, and poncho)	10.1
Communication (including themes such as policies and procedure, contact information, cell phones and radio)	42.9
Other suppliers (including themes such as cleaning supplies; shovel, brooms)	2.0

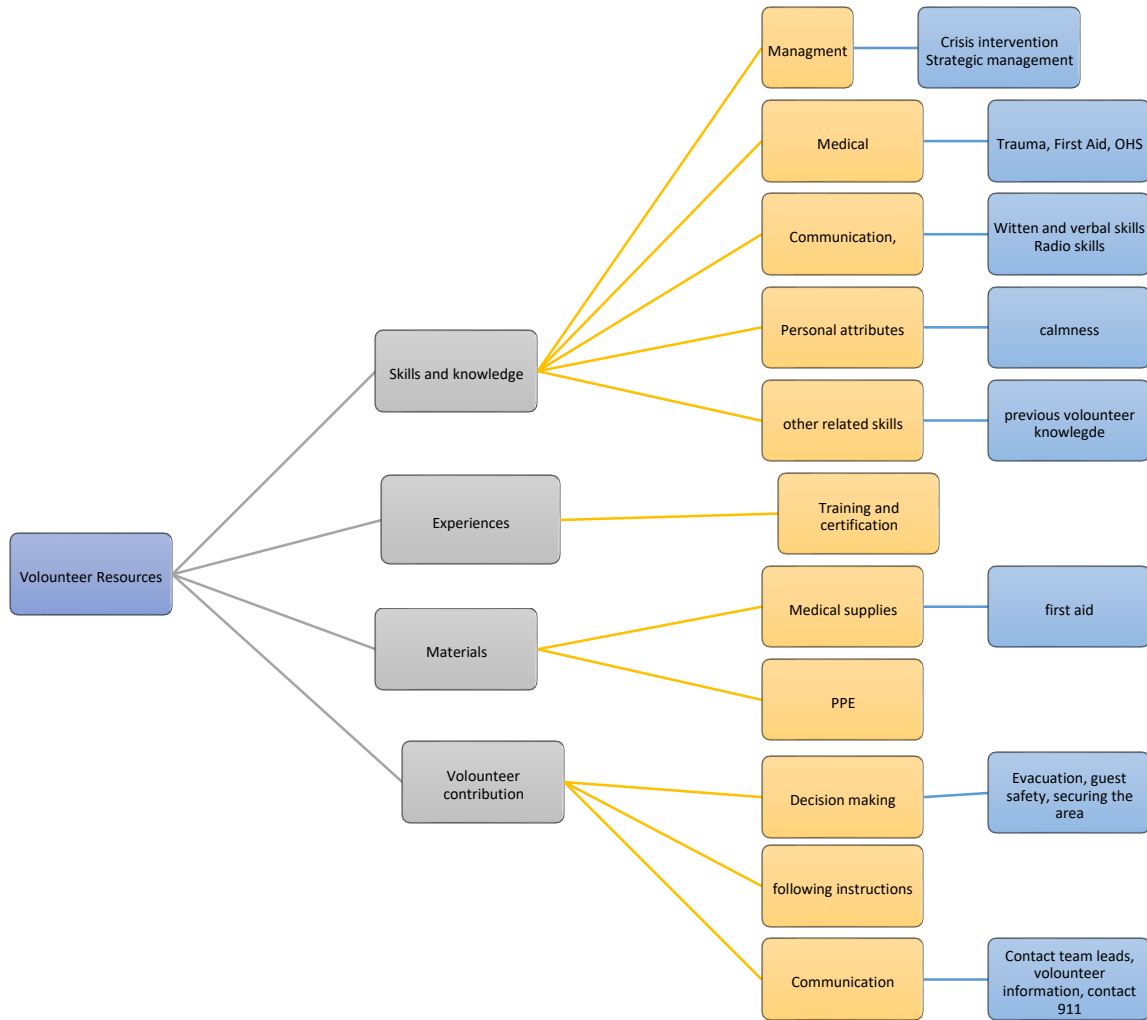
Experiences	%
Emotional attributes (including themes such as calmness, resilience, stress, and anxiety level)	24.1
Communication (including themes such as calmness interacting with volunteers, calling the appropriate team; 911 or emergency services)	37.9

Trainings (including themes such as certificates; teaching, healthcare, as well as festival emergency training, crisis intervention)	20.7
Related work experiences (including themes such as organization, customer service, event management, military experience, EM advisor).	6.9
Awareness	10.3

Note: The table represents the percentage distribution of knowledge and skill identified by the respondents.

Figure 4

A breakdown of festival volunteer resources identified.



Descriptive statistics

The participants were asked to indicate whether they are aware of or not aware of EM at the festival. For the combined festival, 74.7% indicated their awareness of how emergencies are managed at the festival while 21.1 % indicated they are unaware of festival emergency management.

Table 2

Awareness of EM at festivals

	Yes (%)	No (%)
F1 (n=39)	62.1	37.9
F2 (n=36)	69.6	30.4
F3 (n=26)	95	5
F4 (n=23)	78.9	21.1
Total	74.7	21.1

Note: The table presents the percentage of respondents who answered to their awareness of EM at festivals

In dealing with emergency situations, most of the study participants (61.1%) stated they had the ability to navigate any emergency. On the other hand, 21.1% of participants expressed a moderate level of ability to manage an emergency. Finally, a small proportion of respondents (17.7%) acknowledged their vulnerability in the face of emergencies as they felt unable to handle them. The study participants also provided insights into their perception to make a difference in an emergency. Almost half (44.5%) expressed that they had the ability to create a meaningful impact during emergency situations. In total, 10.6% indicated that they feel only a little or not at all able to make a difference during emergencies.

Research question two

2. How is volunteer's readiness enhanced to ensure volunteers obtain and contribute those resources.

Content analysis findings: Participants identified various emergency situations at festivals, Table 3 illustrates the categories of emergencies identified. The categories are distinct, in some scenarios coded responses could fit on more than one category. In this instant they were assigned to only one category and this was applied consistently across all cases. The human/biological category pertains to themes associated with human and biological factors. Examples include sprains, crowd management, sexual harassment, first aid and medical emergencies, missing children/parents, and cardiac arrest. The environmental category covers themes related to external environmental factors that can impact safety and well-being. This includes incidents caused by the surroundings, such as electrical shock, dehydration, fire, drowning, and falls., which encompassed human, environmental, natural, and infrastructural emergencies. The natural category addresses naturally occurring events and phenomena that are not solely human-made. This category includes incidents caused by forces of nature, such as thunderstorms, heatstroke, lightning, windstorms, floods, and severe weather.

Table 3

Emergency situations

Categories	Frequency (n)

Human/Biological (Including themes such as sprains, crowd management, sexual harassment, first aid and medical emergencies, missing children/parents, cardiac arrest)	33
Environmental (including themes such as Electrical shock, dehydration, fire, drowning, and falls)	19
Natural (including themes such as thunderstorm, heatstroke, lightening, windstorm, flood, and severe weather)	30
Infrastructure (including themes such as property damage, vehicle accident)	2

Note: Categories of emergency situations at festivals identified by respondents.

In response to the question regarding their roles in emergency management situations, volunteers' responsibilities were categorized into categories highlighting the diverse array of tasks they perform during crises. Within the category of "Communication," as reported by 38 participants, volunteers played an integral role in maintaining effective lines of communication. Their duties encompassed tasks such as reaching out to security personnel, collaborating closely with team leaders, initiating 911 calls when exigent, and promptly notifying

managers of emerging situations. Decision Making is another aspect of volunteer responsibilities, as highlighted by 29 participants. Volunteers played a vital role in site evacuation procedures, safeguarding guest safety, evacuating patrons from affected areas, securing the emergency site, and initiating triage efforts. Furthermore, 10 participants reported responsibilities falling within the category of "Follow and Wait for Instructions and Procedures." In this capacity, volunteers followed established guidelines and waited for instructions and procedures disseminated by festival authorities, while seven participants indicated a lack of specific responsibilities during emergency management situations,

Descriptive statistics: Approximately 45.2% of participants were familiar with the EM plan, indicating that there is a plan in place. On the other hand, 33.3% of participants acknowledged the existence of a plan but admitted their lack of familiarity with its details. A smaller portion, 20.4% of participants, admitted uncertainty about the presence of an EM plan, indicating they were unsure if one existed. Interestingly, a mere 1.1% of participants stated that there is no EM plan at the festival. Table 4 further shows the result of participants responses from each festival.

Table 4

Volunteer familiarity with the festival emergency plan

	There is no emergency management plan	I do not know if there is an emergency management plan	There is an emergency management plan, and I am unfamiliar with it	There is an emergency management plan, and I am familiar with it
F1 F2				
F3 F4		36.7	43.3	20
<i>Total</i>		13	30.4	56.5
		5	15	80
	4.3	20	40	35
	0.8	20.4	33.9	45.2

Furthermore, as shown in table 5, participants were asked to indicate

their level of confidence (ranging from very confident to not at all confident), 8.9 % indicated a low amount of confidence, a majority of the participant 30% indicated a moderate level of confidence and 24.4 % were very confident.

Table 5

Level of confidence in handling emergency

	Very confident(%)	Moderately confident(%)	Somewhat confident(%)	Slightly confident(%)	Not at all confident(%)
F1	31	20.7	20.7	24.1	3.4
F2	13.6	40.9	22.7	22.7	0.1
F3	22.2	22.2	33.3	11.1	11.1
F4	23.6	28.6	23.8	9.5	14.3
<i>Total</i>	24.4	30	20	13.3	8.9

Research Question Three

How are resources integrated to create value in an emergency management context?

Content analysis: Participants identified a range of emergency situations they were specifically trained for during the festival. Content analysis was used to place the range of situations into categories, including human-caused incidents, technological cause events, and incidents triggered by natural processes. In terms of human-caused situations, themes included injuries, alcohol abuse, active shooting scenarios, disputes, and discrimination incidents. For technological emergencies, themes included electric shocks and fires. For emergencies caused by natural phenomena, themes such as floods, heat strokes, and thunderstorms were highlighted.

Furthermore, participants acknowledged the training they received from the festival, which covered a comprehensive array of skills and knowledge. This training included first aid techniques, instruction on administering naloxone kits, strategies for de-escalating tense situations and implementing safety measures. Participants also noted communication and having access to vital contacts in emergency situations. Additionally, online training resources were provided to enhance their preparedness and competence.

The participants in the study identified various job titles corresponding to their roles at the festivals they were involved in. These roles encompassed a wide range of responsibilities, including:

- **Festival Coordinators:** This group included members of the Stage Management Team, Coordinators, Supervisors, Daytime Stages Event Coordinators, and Program Writers.

- Sales and Finance Team: This team handled activities such as managing the Box Office, ticket sales, and merchandise. It consisted of roles like Box Office Ticket Sales, Merchandise Management, and Cashiers.
- Communications & Audience Support: This group was responsible for various tasks such as production coordination, photography, greeting patrons, providing information, and answering questions. It also included roles like Ambassadors and Dispatch personnel.
- Food and Beverage Department: This department covered roles related to food service, beer tents, mobile refreshments, bartending, frontof-house management, back-stage hospitality, and garden servers.
- Wellness/First Aid Team: The wellness and first aid team primarily included the First Aid Team Leader, who was responsible for assisting injured staff, patrons, artists, or volunteers. They also provided first aid and massage services to artists.
- Site Maintenance: The Site Maintenance team, often referred to as the Green Team, handled various tasks related to site upkeep, ground transportation, waste management, and tent setup.
- Safety and Security: Participants mentioned tasks related to safety, such as screening individuals, checking photo IDs, and ensuring the presence of a safety squad on standby.

When asked about the coordination of activities within their respective areas, participants acknowledged the vital roles played by supervisors, team lead coordinators, and managers who were responsible for overseeing and organizing tasks.

Descriptive statistics:

Table 6 provides insights into participants' responses regarding their interaction with festival attendees and their role in informing them about emergency management. Less than half of the respondents (47.2%) indicated they inform festival attendees about emergency resources available while 52.8% indicated otherwise.

Table 6

Interaction with festival attendees with regards to emergency management

	Yes (%)	No (%)
F1	65.5	34.5
F2	54.5	45.5
F3	41.2	58.8
F4	57.1	42.9
<i>Total</i>	47.2	52.8

As shown in table 7, approximately one-fourth of the study participants (26.7%) revealed that they did not receive any training from the festival. In contrast, most participants (60%) indicated a moderate or limited level of training. However, a notable portion of participants (13.4%) received a significant amount of training.

Table 7

Extent of training volunteer received from festivals

	None (%)	moderate (%)	A lot (%)
F1	31.07	55.2	13.7
F2	45.5	45.5	27.3
F3	5.6	66.7	27.8
F4	19	76.2	4.8
Total	26.7	60	13.4

Note: This table shows the amount of training received from the festivals

The study participants were asked to indicate their familiarity with the festival emergency plan. Approximately 45.2% of participants were familiar with the EM plan, indicating that there is indeed a plan in place. On the other hand, 33.3% of participants acknowledged the existence of a plan but admitted their lack of familiarity with its details. A smaller portion, 20.4% of participants, admitted uncertainty about the presence of an EM plan, indicating they were unsure if one existed. Interestingly, a mere 1.1% of participants stated that there is no EM plan at the festival.

Participants were also asked if they had received training to address various emergency situations. The categories, subcategories, and specific training received are summarized below:

Medical Emergencies:

Running head: VOLUNTEER READINESS FOR EMERGENCY MANAGEMENT AT FESTIVALS

- First Aid Emergencies: Respondents reported training in first aid emergencies, which included skills such as mental health crisis response, trauma management from natural disasters, and injury care.
- First Aid Training with St. John Ambulance
 - CPR (Cardiopulmonary Resuscitation)
 - Occupational Health and Safety (OHS) Training
- Mental Health First Aid

Guest Safety

- Guest Management: Some participants reported training related to guest safety, covering scenarios like handling disturbing persons, whitewater rescue, lost child situations, and assisting struggling individuals.
- Instructions for Reporting to the Safety Squad

Substance Abuse Response (including alcohol and drug abuse)

- Alcohol Serving Training (ProServe - Alberta Alcohol Serving Training)
- Security Training, including Naloxone Administration

Behavioral Emergencies

- Verbal Aggression: Respondents indicated training in verbal aggression management.
- Crisis Intervention: Some participants reported training in crisis intervention.

In response to volunteer's willingness to contribute to EM at festivals, 56.2% want to moderately contribute, and 36% want to contribute a lot, on the other hand, 7.9% do not want to contribute at all. The table below shows the distinct reports of participants' responses across each festival.

Table 8

Contributions to festival EM

	A great deal	A lot	Moderate	A little	Not at all
F1	20.7	17.2	44.8	13.8	2.6
F2	18.2	22.7	40.9	4.5	13.6
F3	5.9	17.6	41.2	11.8	23.5
F4	4.8	23.8	47.6	14.3	9.5
<i>Total</i>	<i>16.9</i>	<i>19.1</i>	<i>43.8</i>	<i>12.4</i>	<i>7.9</i>

Among the four festivals studied, as shown in Table 9, Festival 4 stood out with 71.4% of volunteers expressing "Very Satisfied," showcasing a notably high level of contentment with their volunteer experience. Festival 1 closely mirrored this balanced satisfaction profile, where 48.3% of volunteers indicated they were "Very Satisfied," while an additional 48.3% reported being "Satisfied." When considering the collective data across all festivals, the majority of volunteers (57.8%) revealed an high level of satisfaction.

Table 9

Volunteers' satisfaction

	Very satisfied	Satisfied	Neutral	Unsatisfied	Very unsatisfied
F1	48.3	48.3		3.4	
F2	50.0	45.5	4.5		
F3	66.7	27.8	5.6		
F4	71.4	19.0	4.8		4.8
<i>Total</i>	57.8	36.7	3.3	1.1	1.1

Hypothesis Testing: Fisher's exact test is a suitable choice when specific conditions are met: Firstly, when the data has been gathered using a non-random sampling method, such as convenience sampling. This test is a preferable option when dealing with small sample sizes or when the data does not align with the

assumptions of other statistical tests, such as chi-squared tests. Additionally, if the sample size is smaller and cell values drop below 5, opting for Fisher's exact test is a recommended approach (Hess & Hess, 2017).

In this study, data was collected using a convenience method and employed Fisher's exact test to evaluate the presence of a significant association between a volunteer's self-perceived knowledge and their perceived ability to handle emergencies at the festival.

To conduct Fisher's exact test, several continuous variables were transformed into dichotomous categories. Each variable was categorized into two distinct groups, allowing for a meaningful analysis of associations. Below is a table summarizing the variables, their original continuous format, and the categories they were transformed into:

Table 10

Fisher's exact test hypothesis variables

Variable	Continuous	Dichotomous
Volunteer resources	Type of Volunteer resources	Knowledge Skills Equipment Materials
Volunteer training	Extent of Volunteer training	Training amount provided by festivals Training identified by volunteers

Festival 1, Festival 3, and Festival 4 exhibited significant associations for specific hypotheses. For Festival 1, it was found that volunteers who had more knowledge felt more capable of handling emergencies, accepting the second part of H3($p = 0.03$). Festival 3 also had significant relationships, indicating that volunteers with more training feel they had more skills to contribute to EM, as well as those who had more skills, felt more confident in their ability to manage emergencies, accepting the first parts of H2 ($p = 0.002$) and H3(0.002). Festival 4 also revealed significant findings for two hypotheses: first, volunteers who received training felt more prepared for emergencies, accepting H1 (0.017), and second, volunteers who believed they had more knowledge felt more equipped to manage emergencies, accepting the second part of H3 (0.06).

Table 11

Hypothesis Table

Festival 1

Hypothesis		P value	Significance
H1	Vvolunteers who receive training from the festival organizers and how they feel better to be able to deal with an emergency.	1	H0
H2	The training the volunteers have and the more skills, they feel they can contribute to emergency management.	0.456	H0
	The more training the volunteers have and the more knowledge they feel they can contribute to emergency management.	0.964	H0

H3	The more skills a volunteer feels they bring to the festival the better able they will feel they are able to deal with an emergency	0.168	H0
	The more knowledge a volunteer feels they bring to the festival the better able they will feel they are able to deal with an emergency	0.03	HA
H4	Volunteers who are familiar with the emergency plan will feel better to be able to deal with an emergency	0.393	H0

Festival 2

		p value	Significance
H1	volunteers who receive training from the festival organizers and how they feel better to be able to deal with an emergency.	0.136	H0
H2	The training the volunteers have and the more skills, they feel they can contribute to emergency management.	0.427	H0
	The more training the volunteers have and the more knowledge they feel they can contribute to emergency management.	0.386	H0
H3	The more skills a volunteer feels they bring to the festival the better able they will feel they are able to deal with an emergency	0.661	H0
	The more knowledge a volunteer feels they bring to the festival the better able they will feel they are able to deal with an emergency	0.413	H0
H4	Volunteers who are familiar with the emergency plan will feel better to be able to deal with an emergency	0.133	H0

Festival 3

		p value	
H1	volunteers who receive training from the festival organizers and how they feel better to be able to deal with an emergency.	0.125	H0
H2	The more training the volunteers have and the more skills they feel they can contribute to emergency management.	0.002	HA
	the training the volunteers have and the more knowledge they feel they can contribute to emergency management.	0.129	H0
H3	The more skills a volunteer feels they bring to the festival the better they feel they are able to deal with an emergency	0.002	HA
	The more knowledge a volunteer feels they bring to the festival the better able they will feel they are able to deal with an emergency	0.382	H0
H4	Volunteers who are familiar with the emergency plan will feel better to be able to deal with an emergency	0.232	H0

Festival 4

		p value	
H1	volunteers who receive training from the festival organizers and how they feel better to be able to deal with an emergency.	0.017	HA

H2	The training the volunteers have and the more skills, they feel they can contribute to emergency management.	0.936	H0
	The more training the volunteers have and the more knowledge they feel they can contribute to emergency management.	0.667	H0
H3	The more skills a volunteer feels they bring to the festival the better able they will feel they are able to deal with an emergency	0.543	H0
	The more knowledge a volunteer feels they bring to the festival the better able they will feel they are able to deal with an emergency	0.06	HA
H4	Volunteers who are familiar with the emergency plan will feel better to be able to deal with an emergency	0.565	H0

Note: The table presents the results of hypothesis testing for the relationship between various factors (training, skills, knowledge, and familiarity with the emergency plan) and volunteers' confidence in dealing with emergencies at different festivals. "HA" refers to the acceptance of the alternative hypothesis, indicating a significant relationship, while "H0" refers to the acceptance of the null hypothesis, indicating no significant relationship.

For Hypotheses H1, which explored the impact of training provided, only 1(4) support was found across all festivals. Fisher's exact test results suggest that volunteers perceive the value of training and familiarity with emergency plans in bolstering their confidence to handle emergencies at festivals. 4. However, differences emerged when examining Hypotheses H2 and H3, which focused on volunteers' perceived skills and knowledge contributing to their emergency management capabilities. The Fisher's exact test results indicate mixed outcomes, with some festivals showing a significant relationship between training

and perceived skill contribution (H3), while others did not (H2). These discrepancies may be attributed to the unique nature of each festival, the diversity of volunteer roles, their years of volunteers and the complexities of emergency scenarios that volunteers may encounter.

Chapter 5: Discussion

The study aimed to explore volunteers' emergency readiness at festivals, providing insights into volunteer resources (skills, experience, equipment, and knowledge) and their contributions to emergency situations at festivals. The findings revealed interesting insights into the participants' awareness, resources, training, and confidence in dealing with EM at festivals.

The Roles of Festival Volunteers in EM

The study focused on the important role of volunteers in festivals and events, where they contribute their skills, knowledge, and experiences to undertake diverse responsibilities. These volunteers are taking on a wide range of roles, encompassing tasks such as waste management, crowd control, first aid provision, event planning, and administration. As Toraldo et al.'s (2016) demonstrate with their research, volunteers are the most visible elements of events, actively interacting with participants and spectators.

Volunteer training and readiness for EM

This study showed a significant correlation between volunteers' level of knowledge and their confidence in handling emergency situations at festivals. This finding is in line with the observations of Earl et al. (2005), who highlighted that inadequate knowledge and training led to lower confidence levels among volunteers. In contrast, those who received training on crisis intervention felt more self-assured in dealing with potential health emergencies (Earl, 2006). This highlights the importance of equipping volunteers with the necessary training to enhance their preparedness for any unforeseen emergencies. Interestingly, the findings of this study revealed that volunteers with limited experience might struggle to identify potential hazards and the appropriate management strategies. As highlighted by Fahey et al. (2002), volunteers

without professional experience or training may not be fully aware of potential disasters at festivals. This underscores the significance of volunteer competency, which can be attained through both knowledge and experience, as emphasized by Costa et al. (2006).

However, it is worth noting that a proportion of participants were unaware of festival emergency management plans. This finding is consistent with the need identified by previous studies to increase education and training efforts for volunteers (Hutton & Brown, 2004). The findings of this study shed light on the need to address the limited training opportunities for festival volunteers. This aligns with the recommendations of Earl et al. (2006) and Public Safety Canada for Emergency Management (2017), stressing that comprehensive training enhances awareness and improves effective responses. It is recommended that festivals develop targeted interventions to enhance awareness and knowledge among volunteers regarding emergency procedures and protocols at festivals. The research conducted by Miles & Shipway (2020) provides valuable insights.

Their study emphasized the variations in disaster management planning and training differs across different event types. For instance, smaller-scale events may sometimes be assumed to require less intricate emergency preparedness, while larger-scale events, as emphasized by Miles & Shipway (2010), often receive more extensive emergency management planning and training due to their complexity and higher potential risks. However, our study's findings challenge this assumption by highlighting that even at events like festivals, volunteers may exhibit knowledge gaps that needs to be addressed, our findings emphasize that even within a festival setting, tailored communication and training are essential to bridge knowledge gaps and ensure a robust emergency response.

Volunteers who underwent training on emergency management were found to be well-equipped to

handle potential emergencies confidently. As a result, it is recommended that festival organizers prioritize training volunteers for emergency situations, providing them with the necessary resources and skills required to tackle various scenarios effectively. The findings from the study highlights the invaluable role of volunteers in festivals and events and the crucial impact of their knowledge and training on emergency management. By ensuring volunteers receive adequate training, festival organizers can bolster their preparedness to handle unforeseen challenges, contributing to the overall safety and success of the events. Furthermore, encouraging volunteers with relevant experiences in emergency management can significantly enhance the festival's ability to respond swiftly and effectively in critical situations, ensuring a positive and secure experience for all participants and attendees.

Volunteers' Resources for Emergency Management

The concept of value co-creation, rooted in the framework of resource integration underscores how service systems, including volunteers and festival organizers, leverage their operant resources, such as knowledge and skills, as well as operand resources, such as materials and equipment, to mutual benefit. In the context of our study, this framework illuminates the intricate interplay of resources and interactions within the festival ecosystem. Volunteers, as integral service systems within this ecosystem, bring their operant resources—knowledge, skills, and experiences—to the forefront of emergency management. These resources are readily deployed to benefit not only festival attendees but also the collective safety of the event. Whether it is their expertise in hazard recognition, crowd management, or first aid, volunteers contribute operant resources that are invaluable during emergencies. Simultaneously, volunteers reciprocally access valuable resources from the festival ecosystem through their interactions. Festival organizers play a central role in providing training, emergency protocols, and access to necessary tools and

equipment. This support equips volunteers with the means to effectively carry out their roles and responsibilities during emergencies, creating a symbiotic relationship within the ecosystem.

Earls (2005) study revealed that volunteers bring resources from different contexts. The study results corroborate this notion, as a substantial proportion of participants demonstrated awareness and preparedness in managing emergencies at festivals. This suggests that the majority of volunteers had at least some understandings of how emergency situations were managed at the festival, which could potentially contribute to their preparedness and confidence in dealing with emergencies. Troisi et al. (2019), describes festivals as a vibrant environment where value is collaboratively co-created through the active merging of diverse resources. This collaborative process involves the merging of resources, collective knowledge, and more, all with the overarching objective of fashioning a festival that is not just enjoyable but also inherently safe, deeply meaningful, and profoundly memorable. The study participants shared insights reflecting their preparedness, often drawing from a range of backgrounds and experiences. Some participants highlighted their extensive knowledge of festival emergency procedures, acquired through training programs, prior experiences, or other professional experiences. Others emphasized their familiarity with the festival's emergency plan, citing their awareness of evacuation routes, and key contacts. Some participants shared experiences of successfully managing minor incidents at festivals, which provided valuable hands-on incident management experience. These responses collectively serve as tangible evidence of volunteers' active involvement and the significance of their contributions to festival emergency management.

Moreover, Kim and Chon (2016) emphasize the importance of volunteers possessing specific roles and skills in disaster management. The results of this study provide a strong connection to the broader context of managing volunteers' resources and abilities for emergency management at festivals. The participants' varied knowledge and abilities serve as further evidence of the enormous value volunteers offer

to festival emergency management. The study's findings show that volunteers have a diverse array of resources that includes the ability to recognize hazards, provide quality customer service, and manage events.

Ritchie and Adair (2004) have highlighted the significance of appropriate materials and equipment in the context of event and sport tourism, paralleling the findings of the study. The resources that survey participants mentioned fit in perfectly with this viewpoint. Volunteers are carriers of crucial supplies necessary for emergency management as well as those with specialized expertise. This comprehensive assortment of materials includes protective equipment, carefully developed policies and procedures, earplugs, provisions for sustenance (food and beverages), dependable communication tools like mobile phones, and the unavoidable presence of medical kits are all included in this extensive collection of items. The diverse array of knowledge and skills identified by participants in this study, as presented in the results, supports the notion that volunteers bring valuable expertise to emergency management at festivals. Their experiences, such as hazard recognition, customer service, and event management, contribute to the overall preparedness and effective handling of emergencies.

In addition to the wide range of experiences volunteers bring to the festival, identified communication skills to both festival coordinators and emergency services, training, particularly in areas such as self-defense, first aid, and ski patrol, was also identified as experiences brought to the festival. Additionally, emotional attributes such as empathy, patience, and calmness were recognized as valuable skills in handling emergency situations. In terms of knowledge, participants identified various areas of expertise that they brought to the festival. Medical knowledge, including first aid, trauma, and CPR, was considered essential. Management skills, such as risk management and crisis intervention, were also highlighted as important resources. Furthermore, participants mentioned their familiarity with previous

festival procedures and volunteer training as valuable knowledge for handling emergencies. The study participants expressed various levels of confidence in their ability to navigate emergency situations. While a majority felt confident in handling emergencies, a small fraction acknowledged their vulnerability. This indicates that there is room for improvement in enhancing volunteers' preparedness and confidence in emergency management. It is worth noting that a considerable proportion expressed a keen sense of purpose and commitment, believing they could make a meaningful impact during emergencies. This highlights the importance of fostering a sense of purpose and empowerment among volunteers to effectively contribute to emergency management.

The findings also revealed the participants had a low to moderate familiarity with the festival's emergency plan, it becomes evident that effective communication and training are essential components of festival emergency management involving volunteers. While volunteers bring valuable skills and resources, the study's results highlight the gap that needs to be addressed; ensuring that volunteers are well-informed and adequately prepared to handle emergency situations. The findings also highlight the significance of effective communication and training within the Service Dominant Logic (SDL) framework. In this framework, the festival is viewed as a service-oriented experience where volunteers, often coming from diverse backgrounds, need to be well-versed in the festival's emergency plan. Festivals can provide a safe and enjoyable service to attendees by equipping volunteers with this comprehensive understanding, thereby fostering nuanced knowledge about hazard response and ultimately enhancing the overall festival experience.

Findings underscore the need for improved communication channels, making sure that all volunteers receive comprehensive information about the emergency plan well in advance of the event. Moreover,

training is pivotal in bridging the familiarity gap. Providing volunteers with training sessions that delve into the nuances of the festival's emergency plan empowers them to act confidently during high-stress scenarios. Training can encompass simulated emergency drills, role-specific exercises, and scenario-based learning, all tailored to equip volunteers with the knowledge and skills necessary to execute their roles effectively. Volunteers need to understand their role not only in executing the emergency plan but also in conveying critical information swiftly and accurately during crisis situations.

Hypothesis testing was conducted to assess the associations between various factors related to volunteer resources and emergency management. The results showed that there was a significant association between the more knowledge a volunteer feels they bring to the festival and their ability to deal with an emergency in Festival. This supports Earl et al. (2005) study that volunteers who had more knowledge felt more confident in their ability to handle emergency situations at the festival. However, the other tested hypotheses did not yield significant associations, indicating that further research is needed to explore the relationships between training, skills, and familiarity with the emergency plan in the context of volunteer resources for emergency management at festivals.

Value Co-creation in EM

Value co-creation behavior in the context of service ecosystems is a collaborative process where actors jointly produce value both materially and symbolically (Galvagno & Dalli, 2014). This study emphasizes the significance of volunteer contributions in emergency management (EM) at festivals, highlighting their preparedness, communication skills, personal characteristics, and competencies in cocreating value. By actively participating and leveraging their talents, volunteers play a crucial role in

enhancing the effectiveness and efficiency of emergency response at festivals. The findings of this research align with the concept of value co-creation within service ecosystems, as suggested by Grönroos and Voima (2013), where value is generated through interactive and collaborative processes. The co-creation of value in emergency management is made possible through the collaborative efforts of volunteers, festival organizers, and other stakeholders. The results of this research emphasize the crucial importance of cooperation and interaction among all participants involved.

Likewise, the service ecosystem provides a deeper insight into actor characteristics, individual dependent factors, skills, and competencies required for service providers and users to navigate an interconnected environment (Vink et al., 2021) which is important to emergency management. Festival organizers take charge of event planning, coordination, and the development of emergency protocols and plans. Additionally, they offer comprehensive training sessions and resources to equip volunteers, enabling them to make valuable contributions to emergency management efforts. The study's findings indicated that participants expressed a high level of satisfaction in their experiences as volunteers for festival emergency management. This study's findings support the idea that volunteers form an integral part of the ecosystem, bringing their diverse skills, knowledge, and experiences to the festival. They assist in various responsibilities, including crowd management, first aid provision, and other operations. As Vink et al. (2021) propose, the service ecosystem perspective offers a deeper understanding of the characteristics of various actors operating within this interconnected environment. The findings also show that volunteers also communicate with the emergency services, representing external stakeholders such as medical teams, law enforcement, and fire departments, as they collaborate closely with festival organizers and volunteers in the case of emergencies. The collective efforts of the festivals volunteers and other stakeholders ensures a safe and enjoyable experience for festival attendees throughout the event. In case of emergencies, findings

showed limited volunteers interact with festival attendees, who work to implement emergency protocols and provide on-site assistance.

The service ecosystem perspective, as explained by Akaka (2015), provides a valuable lens through which we can understand the complex interactions among multiple actors in festival emergency management. This perspective operates at three interconnected levels: the micro, meso, and macro. At the micro level, the findings of this study revealed the individual contributions of festival volunteers, each bringing their unique skills, experiences, and resources to the table. Our findings align seamlessly with this micro-level perspective, highlighting the indispensable role of volunteers in tasks ranging from crowd management to first aid provision. At the meso level, volunteers identified the few collaborative efforts among volunteers, festival organizers, and external stakeholders, such as “alerting the managers,” or “calling 911”. This study showcases the meso level interaction, as they reveal that volunteers interact with festival organizers and also communicate with external stakeholders during emergencies, representing a dynamic and interconnected web of actors. Despite the interconnected and collaborative nature of festival emergency management, the level of training provided to volunteers appeared to be somewhat constrained.

In the context of the service ecosystem, where collaboration and shared knowledge are paramount (Vargo & Lusch, 2004), the extent of training and preparedness among volunteers is a critical determinant of the ecosystem's overall effectiveness. While our participants expressed a moderate level of training, the degree of familiarity with festival emergency plans was relatively low. This finding raises questions about the balance between the micro-level contributions of volunteers and the meso-level support provided by festival organizers. It prompts us to consider whether an augmentation of training resources and support at the meso level could further empower volunteers to navigate complex emergency scenarios effectively.

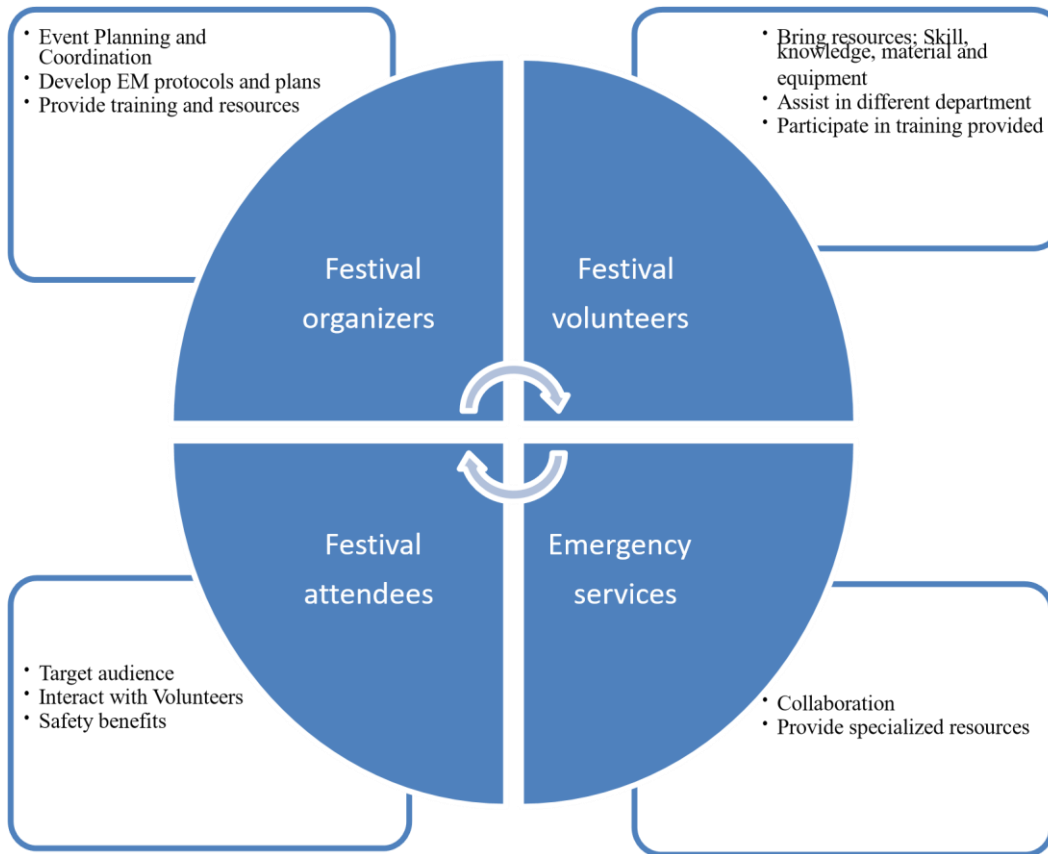
Although, volunteering typically aligns with the service ecosystem perspective, which emphasizes the collaborative nature of festival volunteering, this study yielded significant new insights into the readiness of festival volunteers for emergency management. Surprisingly, the findings from this research revealed that a lower percentage of volunteers engaged with event attendees. Leigh et al. (2021) argues that innovations and interactions among various stakeholders enhance their ability to effectively address and respond to emergency situations. While our study's findings align closely with the service ecosystem perspective, it is important to delve deeper into our results to identify any areas that might deviate from the expected. While the service ecosystem framework captures the interconnected nature of festival management, it is essential to recognize that certain challenges and opportunities may not entirely align with this perspective. One such instance emerged during our study when we discovered limited interactions between volunteers and festival attendees during emergencies. Surprisingly, the majority of participants responded with 'no' when asked about their interactions with festival attendees." This limited interaction raises questions about attendee safety and satisfaction and prompts us to critically examine whether the service ecosystem framework fully encompasses the intricacies of such dynamics.

In addition, this study suggests a high level of volunteer satisfaction, we must consider if there are underlying motivations or challenges among volunteers that might not be fully addressed within the existing literature on volunteerism within festival ecosystems. In essence, while our study largely supports the service ecosystem perspective, it also invites us to critically evaluate its boundaries and explore areas where alternative perspectives or refinements such as the Human-Centered Design, which approaches the issue from a design perspective, considering how the physical layout of festivals, signage, and communication channels might influence volunteer-attendee interactions. By scrutinizing how design choices can be optimized to facilitate improved interactions during emergencies and enhance safety measures, we can gain deeper insights into festival emergency management.

Furthermore, we observed a noteworthy distinction based on the level of training reported by participants in assisting with festival emergency management. Those who indicated they had received comprehensive training exhibited a significantly higher degree of knowledge when it came to emergency procedures and protocols, in contrast to those who reported having received only moderate to minimal training. These findings highlight the importance of continuing on-site training efforts organized by festival management and event organizers. Such training not only equips volunteers with the necessary skills and knowledge to effectively respond to emergencies but also ensures that they can play a pivotal role in maintaining the safety and well-being of festival attendees. Most notably, volunteers' familiarity with the festival emergency plan was especially low. This raises concerns about the preparedness of the volunteers entrusted with the crucial responsibility of assisting in emergency situations. Clearly, this finding highlights the importance of robust communication channels and clear guidelines for volunteers regarding their roles and responsibilities within the emergency management framework suggesting that enhancing the accessibility and comprehensibility of the plan should be prioritized.

Figure 5

Service Ecosystem for Festival Emergency Management



Note: This is a visualization of the various categories and themes of resources involved in the service ecosystem of festival volunteers. This diagram illustrates the dynamic interactions and resource exchange between festival actors in the context of emergency management at festivals.

It is important to acknowledge that when participants were asked about the training provided by the festival, few agreed that they received adequate preparation for emergency management with more than half of the volunteer agreeing they received a moderate amount of training. This finding indicates a potential area for improvement in terms of training programs and resources provided to volunteers. It is an aspect of the ecosystem that could be enhanced to further improve the overall emergency management process at festivals. The study is in line with the research by Hazel & Mason (2020) which highlights the need for all

actors engaged in festival EM to be continuously engaged in collaboration, communication, and innovative methodologies. Additionally, less than half of the participants reported having interactions with festival attendees, suggesting a possible opportunity for enhancing engagement between volunteers and festival visitors. The finding about limited interactions with festival attendees indicates a potential opportunity to enhance the level of engagement and communication between volunteers and the visitors. Improved interactions can contribute to better information dissemination, increased awareness of emergency resources, and a sense of reassurance for festival attendees.

While the study highlights the need for improvement in training programs and resources for volunteers, it does not directly imply that value is not co-created. It simply points out an aspect of the ecosystem that could be enhanced to further improve the overall emergency management process at festivals. Value co-creation still occurs in other aspects of the ecosystem, such as the collaboration between volunteers, festival organizers, and emergency services during emergencies to ensure a coordinated and efficient response. The service ecosystem's key interactions and resource exchanges revolve around volunteer training, where festival organizers equip volunteers with the knowledge and skills necessary for emergency management. This resource exchange empowers volunteers to handle potential emergencies effectively, contributing to the festival's overall emergency preparedness. Festival organizers' development of comprehensive emergency management plans is further strengthened by the input and expertise provided by volunteers. This resource exchange ensures a robust emergency preparedness framework for the festival.

More than half of the volunteers were able to identify the appropriate individuals or teams in charge of coordinating specific areas they volunteered to work in at festivals. This proficiency among volunteers in recognizing the key points of contact within the festival's organizational structure is a positive indicator of

a smoother collaboration and communication within the volunteer workforce, as well as between volunteers and festival organizers.

Clearly, these results shed light on the significance of volunteer contributions and the need for continuous improvement in training and communication strategies to enhance volunteers' preparedness and maximize their role in co-creating value in emergency management. By addressing these areas, festival organizers can further optimize the festival experience and ensure effective emergency response.

Conclusion

This study provides valuable insights into the readiness of volunteers for emergency management at festivals. The findings reveal the resources available to volunteers in terms of skills, knowledge, and experiences related to emergency management. Most participants demonstrated awareness of emergency management at the festival and possessed valuable resources that contribute to effective emergency response. The study emphasizes the importance of communication skills, training, and relevant knowledge

in equipping volunteers for emergency management. Volunteers who possess these attributes are better prepared to handle emergencies and contribute to the overall safety and well-being of festival attendees.

However, it is noteworthy that many volunteers who participated in this research were not aware of the festival's emergency plan. This finding highlights the need to foster volunteers' confidence and ensure their familiarity with the festival's specific emergency plan. Continuous training is crucial for volunteers to enhance their readiness and ability to handle emergency situations effectively. By providing ongoing training opportunities, volunteers can stay up to date with best practices, develop new skills, and reinforce their existing knowledge. This training should be tailored to address the unique challenges and requirements of emergency management at festivals.

Research implications

From a theoretical perspective, the incorporation of a service-dominant logic (SDL) framework provides a novel lens through which to view emergency management at festivals. The traditional view of emergencies often revolves around the response of professional emergency responders and authorities (Public Safety Canada, 2019). However, by adopting an SDL perspective, this research highlights the significant role that volunteers play in the co-creation of value and service delivery during emergency situations. This shift in focus recognizes volunteers as active participants in the emergency management process, challenging the conventional hierarchical approach and emphasizing the collaborative nature of emergency preparedness. By understanding the dynamic interactions between volunteers and event organizers within the SDL framework, we gain deeper insights into how volunteers' unique skills, knowledge, and experiences contribute to the overall effectiveness of emergency response at festivals.

Volunteers, driven by intrinsic motivations and a sense of purpose, actively engage in helping and supporting others during emergencies. Their voluntary contributions go beyond mere assistance; they become integral components of the emergency management system, fostering a sense of community and social cohesion.

From a practical perspective, the implications of this study have direct relevance for event organizers and emergency management practitioners. Understanding the pivotal role of volunteers in emergency situations enables event organizers to develop tailored training programs and support mechanisms for volunteers. By equipping volunteers with appropriate knowledge and skills, organizers can enhance their preparedness and response capabilities, leading to more efficient and effective emergency management at festivals. The findings emphasize the need for collaboration and communication between volunteers and professional emergency responders. Recognizing volunteers as key stakeholders in emergency management encourages closer coordination and integration of efforts between these groups. This collaboration not only improves response times and resource allocation during emergencies but also fosters a culture of inclusivity and shared responsibility.

To address the needs of volunteers with lower levels of awareness, skills, or confidence in emergency management, it is essential to implement appropriate adjustments in training programs and communication strategies. By tailoring the content and methods of training, volunteers can be better equipped to respond effectively to emergencies at festivals. One approach to improving volunteer preparedness is to customize the training content based on the specific requirements and challenges encountered at festivals. This may include providing comprehensive information on emergency protocols, hazard recognition, customer service, and event management.

Additionally, incorporating practical exercises and simulations can simulate real-life emergency situations, allowing volunteers to develop the necessary skills and confidence to handle them.

Communication strategies also play a crucial role in ensuring volunteers are well-informed and prepared. Regular and clear communication channels should be established to disseminate important information, updates, and reminders about emergency management procedures. Utilizing various channels such as email, social media, and volunteer meetings can help reach a wider audience and ensure consistent messaging.

To ensure all volunteers are adequately prepared and supported, adjustments in resource allocation may be necessary. Allocating additional resources specifically for emergency management can provide volunteers with the tools and equipment needed to effectively respond to various situations. This may include providing personal protective equipment, communication devices, first aid kits, and other essential supplies. Moreover, implementing programs or support systems can further enhance volunteers' confidence and capabilities. Experienced volunteers or designated mentors can provide guidance, share their knowledge and experiences, and offer support to new or less confident volunteers. This not only helps in building skills but also fosters a sense of belonging and camaraderie among the volunteer community.

By prioritizing training programs, communication strategies, and resource allocation, festival organizers and emergency management teams can ensure that volunteers are well-prepared and empowered to handle emergencies. This proactive approach can significantly contribute to the overall safety and success of festivals, while also enhancing the volunteers' experience and satisfaction in their roles.

Further Investigations

In light of research findings such as those by Hystad and Keller (2008) highlighting an increased frequency of disasters, the importance of comprehensive research on emergency management at festivals

becomes even more apparent. The changing environment of disaster risk emphasizes the need to increase our understanding of how gatherings like festivals can successfully prepare for and respond to emergencies. Although this study has advanced our understanding of volunteer readiness at festivals, it is critical to understand that the environment in which events occur is constantly changing. As emergencies occur with varying regularity and intensity, there is a continuous need for the examination of emergency management practices and strategies in the tourism industry. Given this ever-changing environment, it is imperative to explore innovative approaches to emergency management, which necessitates a constant examination of emergency management practices and tactics in the tourism industry. Given the dynamic nature of disasters and their potential effects on significant events, it ought to investigate novel approaches to emergency management. Future research endeavors can delve deeper into the creation of adaptable, context-specific emergency management frameworks by expanding on the fundamental ideas offered by this study.

Furthermore, a promising area for further investigation is the role of volunteers within these changing frameworks as both service providers and crucial players in disaster response. The continuing safety and enjoyment of event goers will depend on volunteers' ability to adapt to new difficulties and effectively contribute to catastrophe resilience. Further investigations can delve into understanding the factors that influence volunteers' knowledge and confidence levels. Identifying these factors will enable researchers and event organizers to design targeted interventions and support systems to enhance volunteers' preparedness and performance. Additionally, exploring potential barriers to effective emergency management can shed light on areas that require improvement, such as communication channels, coordination among stakeholders, and resource allocation. The knowledge gained from these investigations can inform future research and improvements in volunteer training and support. By addressing the identified gaps and challenges, event organizers can enhance the overall safety and emergency response capabilities at festivals. Ultimately, the well-being and satisfaction of festival attendees depend on the preparedness and effectiveness of the volunteers who contribute to emergency management.

Limitations

In this study, it is important to acknowledge certain limitations regarding the generalizability of our results. The findings are based on data collected from volunteers at 4 different festivals, and as such, they may not be entirely representative of the broader population. The volunteer participants in our study were drawn from 3 music festivals and a film festival, and their characteristics, experiences, and perceptions may differ from those who volunteered elsewhere. Caution would therefore be needed in generalizing these results beyond the context of the festivals studied.

The effect of COVID-19 and the resulting uncertainty around large gatherings also impacted the festivals themselves. The pandemic resulted in the cancellation or postponement of many festivals. Upon returning, volunteers may have been skeptical about their involvement during the study period which resulted in low volunteer participation. Although it is recommended to have a larger sample to better reflect the population, the data collected provide some insight into the role of volunteers in EM. The researcher did not participate directly in the participant recruitment or data collection process, the festival staff undertook the recruitment and data collection process in addition to their busy schedules.

Additionally, the timing of the study in relation to the festival events may have affected the availability and willingness of the participants to respond. After the festival ended, many staff members took vacations or had other commitments, which could have limited their availability to participate in the study or respond to reminders. This could have also contributed to the low response rate and potentially introduced a bias in the sample of participants.

It is worth noting that these limitations might have influenced the representativeness of the findings. Future studies in this area could consider strategies to address these limitations, such as conducting surveys

closer to festival dates, utilizing alternative methods of data collection, and exploring different recruitment approaches to increase the response rate and ensure a more diverse and representative sample of festival volunteers.

In conclusion, this study sheds valuable light on festival emergency management and the crucial role of volunteers in enhancing preparedness. By adopting a service ecosystem perspective, we have gained deeper insights into how volunteers actively contribute to the co-creation of value in emergency preparedness at festivals. This research explored the resources volunteers bring to festival EM and practical implications for enhancing event safety and security. Through this study, we have highlighted the significance of comprehensive training programs for volunteers, the need for increased awareness of potential hazards. Moreover, our findings underscore the importance of recognizing volunteers as critical stakeholders in emergency management, and the vital role they play in ensuring the smooth operation and success of festivals.

As we reflect on the experiences and resources volunteers contribute to diverse festivals, it is evident that their commitment to emergency management goes beyond the confines of their roles. Volunteer roles during festivals serves as a beacon, signaling the importance of ongoing support, training, and recognition. The findings presented here open avenues for future research, exploring evolving challenges in emergency preparedness, the impact of training interventions, and the integration of technological advancements in volunteer coordination.

In essence, this study not only contributes to the academic discourse on emergency management but also holds practical implications for festival organizers, emergency responders, and policymakers. By understanding and nurturing the readiness of volunteers and value co-creation process, this study takes a

collective step toward creating safer, more resilient communities – an endeavor that goes beyond the stages of festivals and resonates with the broader canvas of societal well-being.

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Appendix A

On-line Consent Disclosure Statement

This survey is part of a research study about volunteers' preparedness for emergency management at festivals being undertaken by Christine M. Van Winkle, Professor at the University of Manitoba

(Christine.vanwinkle@umanitoba.ca). This research was funded by the University of Manitoba Social Sciences and Humanities Research Counsel grant. This consent disclosure statement is only part of the process of informed consent. It should give you a basic idea of what the research is about and what your participation will involve. If you would like more details about something mentioned, questions about your volunteer experiences at the festival. Your participation should take approximately 15 minutes. "Survey Monkey" is used to collect your responses. "Survey Monkey" is an American website; as such, responses are subject to American laws. Risks associated with participation are minimal and are similar to those associated with many email and social media websites such as Hotmail and Facebook. The results of this research will be used to enhance emergency preparedness at festivals, which may enhance your experience as a festival volunteer. Your participation is voluntary. If you decide you no longer want to participate at any point, you can withdraw from the study by emailing the researcher at Christine.vanwinkle@umanitoba.ca until all data has been anonymized and analyzed (November 2022) at which point we will not be able to identify your data to remove it from the study. Your individual responses will remain confidential. The researcher (Christine) and a student research assistant who has signed an Oath of Confidentiality will have access to the data. At the conclusion of the survey, you will be asked to provide contact information to be entered to win 1 or 3 sets of tickets (max. \$400 per set of tickets).

Appendix B

Festival Volunteers Survey

1. Do you agree to participate in this study?

Yes/No

Festival Experience

2. How many years (including 2022) have you volunteered to work at the festival

3. What was your job title at this festival this year?

Area/Type of work

Please tell us what area of the festival you mainly worked on this year and the type of work you did.

4. Have you volunteered for other festivals? Yes, No

5. If yes, kindly indicate which other festival(s) you have volunteered at and state your job as a festival volunteer at those festivals.

Volunteers' knowledge of emergency management

For all the questions in Section 2, we ask that you share with us your understanding of emergency management and planning at the festival even if this is limited. Please attempt all the questions as we hope to understand all volunteers' perspectives.

6. Please list any hazards that you believe could affect people in the areas you have worked at the festival. A hazard is defined by Public Safety Canada as "A potentially damaging physical event,

phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation."

7. What is the most likely emergency situation that you think you may have to deal with while volunteering at the festival? Public Safety Canada defines an emergency as "A present or imminent event that requires prompt coordination of actions concerning persons or property to protect the health, safety or welfare of people, or to limit damage to property or the environment." 8. Do you know how this emergency is managed at this festival? Yes/ No
9. What is your responsibility in the situation you have described?
10. What knowledge do you bring to the festival that will help you respond to an emergency caused by any hazards you described?
11. What skills do you bring to the festival that will help you respond to an emergency caused by the hazards you described?
12. What materials or equipment do you bring to the festival that will help you respond to an emergency caused by the hazards you described?
13. What experience do you bring to the festival that will help you respond to an emergency caused by the hazards you described?
14. In the case of an emergency, who is responsible for coordinating activities in the areas you have volunteered to work in at the festival? Please note the job title of the person (rather than their name).

15. Do you know if there is an emergency management plan for the festival? Public Safety Canada defines an emergency plan as "A documented scheme of assigned responsibilities, actions and procedures, required in the event of an emergency. It contains a brief, clear and concise description of the overall emergency organization as well as a designation of responsibilities and procedures

(including notifications) involved in coping with any or all aspects of a potential credible emergency."

- Yes/No

16. Are you familiar with the festival's emergency management plan?

- There is no emergency management plan. ○ I do not know if there is an emergency management plan. ○ There is an emergency management plan, and I am unfamiliar with it.
- There is an emergency management plan, and I am familiar with it.

17. Do you know your responsibilities under this plan?

- Yes/No/Maybe

18. If you answered "yes" to the above, what is your responsibility?

The role volunteers play in managing emergencies at festivals

The questions in this section relate to your role as volunteers and what training is available to you and how this affects emergency management. You will need to reflect on the training you received for the 2022 festival.

19. To what extent did the festival provide you with any training in case of an emergency? None/A little/A moderate amount/A lot/A great deal
20. If you were provided with training, which emergency situations were you trained to deal with?
21. Did you receive training in another context to address any of the emergency situations described?
- Yes/No/Not sure
22. If yes, which emergency situations were you trained to address?
23. Do you interact with the festival attendees or inform them about the emergency resources (such as emergency exits, information, and welfare services etc.) available?
- Yes/No

Volunteers' confidence in dealing with emergencies.

24. As a volunteer, do you feel you can make a difference in responding to an emergency during a festival?
- A great deal/A lot/A moderate amount/A little/None at all

25. Please rate your level of confidence (ranging from 'not confident' to 'very confident') to deal with an emergency at the study festival?

- Not at all confident/Slightly confident /Somewhat confident /Moderately confident/ Very confident

26. To what extent do you want to be able to contribute to emergency management at the festival?

- Not at all/ a little/ a moderate amount/ a lot/a great deal

27. If an emergency arose, how well do you think you would be able to deal with the situation?

- Not at all well/Slightly well/Somewhat well/Moderately well/Very well

28. How satisfied did you feel with your volunteer experience at the festival?

- Very Satisfied/Satisfied/Neutral/Unsatisfied/Very Unsatisfied

29. How likely will you recommend the festival volunteer opportunities to

friends, coworkers, or family? ○ Very Likely/Likely/Unsure/ Unlikely/Very

Unlikely

30. How would you rate your overall experience volunteering? ○ Very positive/

Positive/Neutral/Negative/Very negative

Volunteer Demographics

Sharing your demographic information with us will help us to determine how representative the study sample is of volunteers at this festival.

31. What is your age? 21-30 31-40

41-50 51-60 61-70 71 or older

32. What is your occupation? 33.

What is your gender

Male/ Female/ Non-Binary/Prefer not to say

34. Would you like to receive a summary of the findings of this research? If so, please provide us with your contact information below (your name and contact information will remain confidential and will not be stored with or connected to your questionnaire responses in any reports).

Name

Title Address City/Town State/Province ZIP/Postal Code Email Address Phone
Number

35. Would you like to be entered to win 1 of 3 sets of tickets (max. \$400 value / set) to a festival of your choice and receive an electronic copy of the report of the results from this study? If so, please provide us with your contact information below (your name and organization name will remain confidential and will not be connected to your questionnaire responses in any reports)

Name

Title Address City/Town State/Province ZIP/Postal Code Email Address

Phone Number

Appendix C

Method and Survey Questionnaire

Research Questions	Survey	Analysis
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<p>RQ1.</p> <p>What resources (skills and knowledge) do volunteers feel they need and bring to emergency management?</p>	<p>Do you know how this emergency is managed at this festival?</p> <p>Do you have any experience in the area of emergency management? Yes/No</p> <p>If you answered "Yes" to the above, please indicate your experience.</p> <p>What skills do you bring to the festival that will help you respond during the situations you described?</p> <hr/> <p style="text-align: center;">_____</p> <p>Situation: _____ Knowledge: _____</p> <p>_____</p> <hr/> <p>What knowledge do you bring to the festival that will help you respond during the situations you described?</p> <hr/>	<p>Mean (%)</p> <p>Mean, Frequency</p> <p>Content Analysis</p>
--	--	--

	<p>If an emergency situation arose, how well do you think you would be able to deal with the situation? (4B)</p> <p>Do you feel volunteers can make a difference in responding during an emergency?</p> <p>Extremely, quite a bit, a little not at all</p>	<p>Content Analysis</p> <p>Mean (%)</p>
<p>How do volunteers obtain and contribute those resources to create value in emergency management?</p>	<p>Did the festival provide you with any training in case of an emergency?</p> <p>Yes, no, not sure</p> <p>If yes, which emergency situations were you trained to</p>	<p>Mode (frequency).</p> <p>Content analysis</p>

manage?

Situation: [] Training:

Situation: [] Training:

Situation: [] Training: _

Did you receive training in
the emergency situations

another context to address any of
described? Yes, no, not sure(3D)

If yes, which emergency

situations were you trained to Mean, mode

manage?

Chi-square

Running head: VOLUNTEER READINESS FOR EMERGENCY MANAGEMENT AT FESTIVALS

	Situation:	Training:	
	<p>Are you familiar with the festival's emergency management plan? (2B)</p> <p>There is no emergency management plan.</p> <p>I do not know if there is an emergency management plan.</p> <p>There is an emergency management plan, and I am familiar with it</p> <p>There is an emergency management plan, and I am unfamiliar with it</p> <p>What is the most likely emergency situation that you may have to deal with? (3E)</p> <p>What is your responsibility in the situation you describe?</p>		<p>Content analysis</p>

<p>RQ3.</p> <p>How are resources integrated to create value in an emergency management context?</p>	<p>In the case of an emergency, who is responsible for coordinating activities in the areas you have worked/are working in? (3A)</p> <p>Do you interact with the festival attendees or inform them about available emergency resources (such as emergency exits, information, welfare services, etc.)? Yes/No</p> <p>Do you know if there is an emergency management plan for the festival? Yes/No /Not sure (Q2A)</p> <p>Do you know your responsibilities under this plan? Yes/No</p>	<p>Content analysis</p> <p>Mean</p> <p>Mean</p> <p>Mean</p>
	<p>Do you know the responsibilities of others under this Plan?</p> <p>Yes/No</p> <p>If an emergency situation arose, how well do you think you would be able to deal with the situation?</p> <p>Not at all 1 2 3 4 5 6 7 Very Well</p>	<p>Mean/SD</p>

Appendix D

Recruitment Email to Festival Volunteers

As a _____ festival volunteer we hope you will consider participating in a research study to better understand festivals volunteers' role in festival emergency management.

The research will involve responding to an online survey that will take approximately 15 minutes to complete. The survey will be available to complete for the next month.

This research is being conducted by Debbie Olotu, a student at the University of Manitoba. If you have any questions or concerns about this study, you can contact Debbie at olotud@myumanitoba.ca.

To participate in this research, you must be over 18 years old and have volunteered for a festival within the past month.

By participating in this research, you will have the option of being entered to win one of three sets of festival tickets to the festival of choice (max \$400 value). You will also have the option to receive a copy of a summary of the study.

Thank you for considering participating in this research.

This research has been approved by the Research Ethics Board at the University of Manitoba, Fort Garry Campus.

Debbie Olotu

Graduate Student
Faculty of Kinesiology and Recreation Management
227 Frank Kennedy
University of Manitoba Winnipeg, MB R3T 2N2
Tel: [REDACTED]
Email: olotud@myumanitoba.ca

Appendix E

Ethics Protocol Approval



Human Ethics - Fort Garry
208-194 Dafoe Road
Winnipeg, MB R3T 2N2
T: 204 474 8872
humanethics@umanitoba.ca

PROTOCOL APPROVAL

Effective: May 26, 2022

Expiry: May 25, 2023

Principal Investigator: Christine Marie Van Winkle

Protocol Number: HE2022-0122

Protocol Title: *Volunteers' perceptions of festival and event emergency management* Jonathan

Marotta, Chair, REB1

Research Ethics Board 1 has reviewed and approved the above research. The Human Ethics Office (HEO) is constituted and operates in accordance with the current *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans*- TCPS 2 (2018).

This approval is subject to the following conditions:

- i. Approval is granted for the research and purposes described in the protocol only.
- ii. Any changes to the protocol or research materials must be approved by the HEO before implementation.
- iii. Any deviations to the research or adverse events must be reported to the HEO immediately through an REB Event.
- iv. This approval is valid for one year only. A Renewal Request must be submitted and approved prior to the above expiry date.

- v. A Protocol Closure must be submitted to the HEO when the research is complete or if the research is terminated. vi. The University of Manitoba may request to audit your research documentation to confirm compliance with this approved protocol, and with the UM *Ethics of Research Involving Humans* [Ethics of Research Involving Humans](#) policies and procedures.