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Controlled and Autonomous Motivation Relation with Social Media Network Content Contribution: Post-COVID-19 Scenario

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Abstract

People are dependent on Social Media Networks (SMNs) to get in time information about crises. Therefore, emergency managers are interested in how individuals participate in social media networking sites after crises, as well as in how to encourage their participation. Based on the theory of self-determination, this study builds a theoretical model to investigate how various varieties of motivation lead to different kinds of participation in SMNs after a crisis. A survey was conducted after COVID-19, which occurred in China and Europe at the end of December 2019. The 310 data were gathered by a "time-lagged, two-wave survey" and "convenience sampling." According to the findings of this study, autonomous motivation is strongly linked to posting new COVID-19 content, while controlled motivation is significantly linked to commenting on others' COVID-19 content. Moreover, perceived autonomy and perceived relatedness are positively associated with autonomous motivation. This study proposes that crisis managers might wish to enhance various kinds of motivations; dependent on the particular take-part behavior chosen post crises. Moreover, perceived autonomy and relatedness are positively associated with autonomous motivation. The study proposes that risk managers may seek to promote different forms of motives based on the preferred style of participation after a crisis.

Keywords

Social Networks Sites, Social Media, Participating Behaviours, Self-Determination Theory, COVID-19

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1. Introduction

Crises can cause serious harm to several infrastructures and a great level of uncertainty among the populace (Nizamidou & Vouzas, 2018). Therefore, people must have access to current and pertinent information after a crisis (Vickers, 2017). People depend on communication and information technology (e.g., mobile phones and Internet services) in broad and social media network sites in specific to assist information communications (Tsatsakis et al., 2020), and current findings have started to concentrate more on the contribution of SMNs after crises. In crisis period, for instance, SMNs have been utilized to list victims (Paniker CK & Ghosh, 2013), swap knowledge (Hornmoen & McInnes, 2018), as well as play a role in awareness (Shuja et al., 2020). Further, While these research findings give useful data on how individuals respond to crises using SMNs, just several researchers have explored how folks use SMNs to obtain adequate data regarding crises (Ahmed et al., 2020).

To better comprehend how individuals take part in SMNs post crises, we chose Asia and Europe COVID-19 as such perspectives for our research and concentrated on two particular SMN inclusion behaviors: posting new content and commenting on other people's content.

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We establish a conceptual model established on self-determination theory to evaluate how various kinds of motivation consequence in numerous respondents' behaviors. Our research makes two significant contributions. Initially, the study examines different to take part behaviors expressly. Furthermore, we contend that various kinds of motivation endorse multiple kinds of involved behaviors.

Moreover, these influences have inconclusive findings or have not been addressed properly in the available literature, particularly post-crisis. Thus, the purpose of this study is to examine simultaneously these various variables that affect users 'post-crisis behavior. The remaining sections of the study are as follows. First, conduct a literature review to determine the function of SMNs post-crisis and describe the different types of SMN involvement behaviors. After that, we present our theoretical structure and establish our hypotheses. Then, utilizing data collected after COVID-19 in Asia and Europe, we evaluate our hypotheses and reveal the results. We conclude by examining the hypothetical and practical implications of our research.

1.1. The Role of SMNs Post COVID-19 Crises

Crises are uncommon occurrences affecting physical damage and social disruptions (Bergquist et al., 2020). Natural disasters and man-made disasters are illustrations of crises (e.g., terrorist attacks). Individuals require diverse systems to sustain their daily activities in everyday life (e.g., obtain relevant information). Nevertheless, post a crisis, several infrastructures can be hurt and individuals might be unable to continue with their everyday activities (Aman et al., 2019). For instance, crises can wreak havoc on the information and communications infrastructure (Lebni et al., 2021), resulting in a dearth of records. In such a situation, despite the populace's desire to know more about a crisis, timely and quick and secure might not be commonly accessible (Hagar & Haythornthwaite, 2005), resulting in a significant degree of uncertainty and depression (Thorlund et al., 2020).

Quick and efficient information can assist people to understand what's going on during crises (Meadows et al., 2019). Contextual awareness can be beneficial with a variety of action procedures, including figuring out what tools are required and making plans for what to do next. For example, if the public knows that an area has been badly affected, they can make donations or join volunteer programs that will help (Bauer et al., 2021). "There won't be a massive catastrophe in which the public will not be involved," says Berinato (2010) to sum up, getting the public the right information about crises at the right time is important to reduce fear and uncertainty and improve monitoring.

Post-crisis, traditional media might not be the best way to get information to people. Traditional media generally concentrate just on shocking parts of crises and overlook some points of view. Also, traditional media might not even give information promptly. Occasionally, traditional media can even report different things (Jones et al., 2015). So, people might switch to other media, like social networking sites, to fill the communication gaps.

In recent times, SMNs have been implemented post several crises. They help people share information. SMNs can let people know what's going on in actual time and offer them an opportunity to express their assistance to those who are hurt (Ouyang et al., 2016). Abbas et al. (2019)talk about how SMNs can give people adequate data about crises and help them connect with their relatives and the community.

In the past, research on crises has looked at several information-related topics, including defining communication methods and figuring out what those strategies mean (Yang et al., 2018). It has also been recognized how important it is for various organizations and individuals to share information (Dantas &

Seville, 2006; Hale et al., 2006), for instance, say that organizations that deal with crises need up-to-date information to do their jobs well. Even several studies, though, have attempted to look at how people get timely and accurate information from SMNs post a crisis (Pan et al., 2012). Day et al. (2009) say that if people can't receive information promptly from traditional media, they may come up with their way to get it. Still, not much is recognized regarding how this procedure of letting people know is made. Then, we talk about how participating behavior when they are part of SMNs and make hypotheses about how people participate in SMNs post a crisis

1.2. Participating Behaviours in SMNs

According to their official definition, SMNs are "web-based systems that enable people to (1) build a public or semipublic account within a contained environment, (2) express a list of other subscribers with and with who they have a relationship, and (3) perception and circumnavigate their list of interconnection and the lists of connections made by other people in the system" (Tan et al., 2021). Social media networking sites allow users to interact in a variety of ways, including posting original content relevant to a certain topic, uploading images, updating statuses, and viewing, commenting on, liking, and sharing the work of others (Naslund et al., 2016). Recent studies started to evaluate participant behavior on social media networking sites. Furthermore, the quantity of studies analyzing user behavior in SMNs remains quite low (Lin & Kishore, 2021).

Whereas prior studies have not expressly evaluated the connection between various participating behaviors and the amount of effort required, several studies demonstrate the regularity of every participating behavior and insinuate that various participating behaviors may require varying amounts of effort. Zhao et al. (2021), for instance, claim that activities requiring greater user attention and effort than browsing messages are unpopular. The fundamental assumption is that individuals are less probable to involve in an action if it demands excessive effort and a substantial amount of time.

This study focuses on two kinds of participation in social media networking sites: (a) submitting new content and (b) commenting on the content of others. These are the primary methods for sharing crisis-related information on SMNs: (Al-Ani et al., 2012). The literature demonstrates repeatedly that providing new content on social media networking sites is less prevalent than comments on the content of others (Tang et al., 2021). Posting new content likely needs more struggle and time than commenting on existing stuff. To submit new content on social media networking sites, users must first have new knowledge or ideas to share. Then, individuals must organize the essential information in a meaningful manner by encoding the pertinent information in their minds into posted content. This procedure closely resembles the process of knowledge contribution described in the literature on knowledge management (KM) (Kim et al., 2019), and individuals typically participate in critical thinking. So if the data is not original and was gained elsewhere, people may still need to digest it and integrate it in a meaningful manner. Therefore, creating fresh content on SMNs likely requires some work and can be rather difficult. Conversely, commenting on the material of others is likely, not difficult and involves considerably little effort. Individuals might still write one statement or a few phrases to say something about what other individuals have written. People sometimes just need to draw a picture of a smiley face to display that they like the content. So, these two types of behavior show that there are two very diverse approaches to using SMNs.

Most social media networking sites have ways to rate their visitors and encourage them to participate. Renren.com, a social media networking site in China that is similar to Facebook, gives extra credit to people who use it. People get one welcome bonus for each latest bit of content posted in their spots, and they get one bonus point for every 10 comments they make on the content of everyone else. Weibo.com is a social media networking site in China that is similar to Twitter. People who post new content or leave comments get medals, which are used to rank users. Posting new content is further motivating than making comments. So, if you want to move up in the ranks, you have to take part.

People can post and reply simultaneously time, which is one reason why SMNs are becoming more common (Mohammed & Ferraris, 2021). In other words, SMNs make it possible for people to talk to each other and post and comment. So, commenting on other people's posts on SMNs is also an essential way to take part (Guo et al., 2021). Since these different kinds of participation demand various levels of dedication and involvement, they may be motivated by different things.

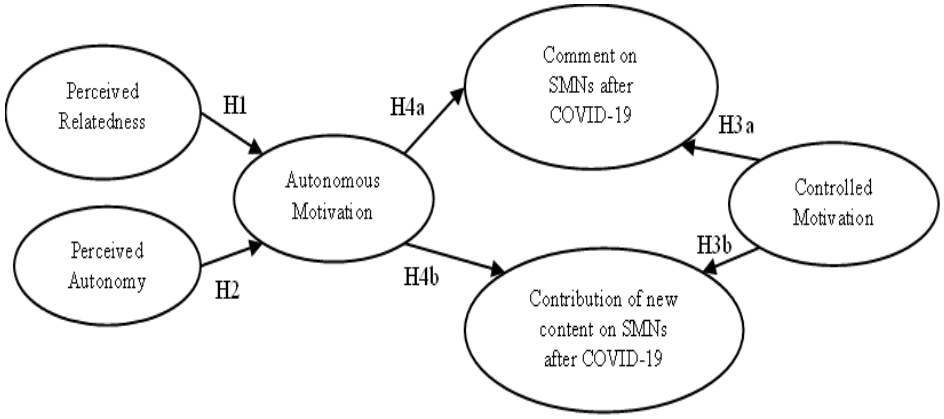


Figure 1: Theoretical Framework of the Study

2. Theoretical Background and Hypotheses Development

Our theoretical framework is based on self-determination theory (SDT), which describes people's "innate growth tendencies and innate psychological requirements, which serve as the basis for their self-motivation as well as the environments that encourage these beneficial processes." (Ryan & Deci, 2000). SDT gives a strong base. Think about both the inputs and the outcomes

2.1. Self-determination theory (SDT)

SDT distinguishes between extrinsic and intrinsic motivation (external regulation, introjected regulation, identified regulation, and integrated regulation). Motivation can be independent or regulated Gagné & Deci, 2005; Reinholt et al., 2011). Internal urges inspire autonomous people, while extrinsic benefits encourage controlled people. Those utilizing SMNs autonomously may adopt the SNS's interaction style, while those using them controlled may interact to advance in rank. SDT teaches SMN behavior patterns. Some prefer short messages, some want to elaborate (Brandtzæg & Heim, 2011). SDT reveals user motivation. Internalizing SDT's normative notions gradually develops an inherent drive (Ryan & Deci, 2000). Our study looks at COVID-19, which is a type of crisis that generally only occurs for a limited time. So, people may not get their COVID-19-specific autonomous motivation right post-COVID-19 happens. Instead, it would be better to look at how people's general motivation in SMNs affects their behavior post-COVID-19.

To sum up, people can join SMNs for many different reasons, which could have significant impacts on how they act in the future. Then, we build our hypotheses by looking at the causes and effects of different kinds of motivation.

2.2. Perceived Autonomy, Perceived Relatedness, and Autonomous Motivation

According to SDT, people's autonomous motivation could be constant when they have a greater degree of perceived autonomy and perceived relatedness (Leenknecht et al., 2021). Perceived relatedness

here mentions to the point to which individuals sense they are respected and cared for by one another (Ryan et al., 2019) perceived autonomy refers to the degree to which people feel they are in charge of their actions and can initiate them without outside influence (DeCharms, 1968). For the approval of their immediate social circle, users go onto social media sites and regularly publish new content (Ryan & Deci, 2000). People are more inclined to feel connected to others and utilize SMNs for their purposes when they believe they have more in common with them. People are more likely to share content on social networking sites (SMNs) after receiving comments, according to research by (Dawson et al., 2021). Getting responses from others might help people gauge their level of interest in their content. Having the information spread at a rapid pace gives people a sense of community because they know they are not alone. Getting your message out there and hearing what others think of your efforts may do wonders for your sense of community and motivation to achieve your own goals. Moreover, users have the freedom to decide if, when, and how they want to utilize SMNs based on their individual preferences. By selecting the content to post, individuals likely have a greater sense of perceived autonomy in this scenario. Consequently, their autonomy might also be fostered. These conversations result in the following:

H1: *The user's perceived relatedness has a significant positive relationship with their autonomous motivation.*

H2: *The user's perceived autonomy has a significant positive relationship with their autonomous motivation.*

2.3. Controlled Motivation and Participating Behaviours in SMNs Post Crises

Controlled motivation, such as incentive systems, has been demonstrated to improve everyday tasks. To advance in social networking sites, users must remark on the material of others, even if only for a single sentence (Morbée et al., 2022). Making an observation is not inherently complex or hard, and it does not take as much cognitive capacity as creating new information. People who can keep their emotions under control make the conscious decision to reduce the amount of mental effort required during times of crisis so that they may focus on gathering information as rapidly as possible (Bertollo et al., 2021). As a result, audience members are further likely to provide feedback on the work of others (Starbird & Palen, 2012), Moreover, we postulate that:

H3a: *Controlled motivation has a significant positive relationship with Comments on SMNs after COVID-19.*

Creating new content for social networking sites (SMNs) is more challenging and time-consuming than simple commenting because it requires you to learn about the issue and arrange the information you wish to contribute (Palen et al., 2007). New material uploads are thus more labour-intensive. Those who lack motivation typically make the bare minimum of an effort (Ryan & Deci, 2000). Therefore, when people desire to advance in status on a social networking site, they prefer to shun more challenging routes to participation. Therefore, the more self-restrained among us are less likely to update our profiles following a natural calamity. To ensure they have access to the most recent data with minimal effort (Procopio & Procopio, 2007). As a result, we hypothesize that:

H3b: *Controlled motivation has a significant negative relationship with the Contribution of new content on SMNs after COVID-19.*

2.4. Autonomous Motivation and Participating Behaviours in SMNs Post Crises

According to prior SDT studies, autonomous and controlled motivation can have divergent effects on performance. Self-starters often go for the most challenging and difficult professions (Ruffault et al., 2020). According to the literature on knowledge management, strategic information sharing is more

challenging than clear information distribution, and it may be driven by a desire for autonomy (Noori, 2020). Users need to make sure their fresh content makes sense before posting it on social networking sites. This is analogous to the instructional procedure (Kankanhalli et al., 2005).

Consequently, it could be challenging and time-consuming to provide new content. When an emergency occurs, the news must be broadcast immediately (Boyle et al., 2004). For others to receive up-to-date information regarding emergencies, individuals must first determine the appropriate settings, prioritize the information, and arrange the content in a specific post (Starbird & Palen, 2011). According to Thibaut et al. (2022) For this reason, it is arduous and time-consuming to accomplish. People are more inclined to volunteer useful information in times of crisis if they believe they have some control over the situation themselves. As a result, here is our opinion:

H4a: *Autonomous motivation has a significant negative relationship with Comments on SMNs after COVID-19.*

H4b: *Autonomous motivation has a significant positive relationship with the Contribution of new content on SMNs after COVID-19.*

3. Methods

The study model we developed was validated with the use of data acquired through a survey. The context, the platforms, the sample, the measurements, the data analysis, and the findings of our research are outlined in this part.

3. Context

The COVID-19 outbreak, which was instigated in December 2019, serves as the crisis context for our research. Due to an epidemic in Wuhan, China, the new virus was identified for the first time in Dec 2019. Efforts to contain the virus failed, resulting in its spread to other parts of China and, ultimately, the rest of the world. The World Health Organization (WHO) declared a worldwide public health crisis of international concern on January 30, 2020, and subsequently a pandemic on March 11, 2020. As of July 29, 2022, the pandemic has caused more than 574 million illnesses and 6.39 million confirmed deaths, making it one of the worst in human history. The purpose of this study is to investigate people's participation in Social Media Networks (SMNs) in Asia and Europe after COVID-19. Facebook, Twitter, Instagram, WhatsApp and YouTube, and Instagram will be explored in the context of Asian and European users in terms of the post-COVID-19 scenario.

4.1. SMNs of Asia and Europe

Asia and Europe adore WhatsApp, Instagram, and TikTok. WhatsApp iOS debuted in November 2009. WhatsApp Android debuted in August 2010. The chat app reached 200 million monthly users in four years. 2-billion people use WhatsApp. 2.14 billion people use social media in Asia-Pacific. Indonesians and Hong Kongers utilize WhatsApp 90%. Singaporeans use WhatsApp (73% every day). We can't investigate 18 months of internet activity since the outage COVID-19. During the outbreak, social media provided support, information, entertainment, and offers. Some companies shrank, and others grew. Egypt and Saudi Arabia use social media for three hours daily. Turkey to UAE takes 2 hours and 57 minutes. Youth are behind Arab Weekly's rise. 60% use YouTube; 75% use WhatsApp. Influencers estimated the pandemic and the need for hilarious content boosted TikTok followers by 65% in 2021. Europe isn't tech-savvy. 22nd in social media: Portugal (2 hours and 18 minutes). Poland won 1:59. Nearby are Austria, Netherlands, and Switzerland. Despite paying less, Europeans want a lot, making Europe a large market.

4.2. Sample

The study participants were from Asia and Europe. Asia and Europe have access to and time to use SMN. Respondents were questioned about their COVID-19 motives and participating behaviors and given a choice of SMNs (such as Facebook, WhatsApp, Instagram, Youtube, and TikTok). Data were collected via a "time-lagged two-wave survey" and "convenience sampling." First, participants responded to the predictor variable (Perceived relatedness, Perceived Autonomy, and Controlled Motivation) at the beginning of time (T1). At T2, participants answered questions on three outcome variables: SMN comments after COVID-19, SMN content after COVID-19, and self-motivation (T2). Two weeks separated T1 and T2. This study's best approach was convenience sampling, which uses the first available observable and no additional data streams. It speeds up data collection, reduces costs, and allows everyone to participate.

For this study, we surveyed social media users across Asia and Europe. 310 social media users were randomly given an English questionnaire. Data was analyzed using descriptive content analysis. The findings were categorized using Smart PLS. In the social media study, participants answered a random online questionnaire regarding mental health, the global health crisis, and COVID-19 fear.

Respondents were questioned about their COVID-19 motives and engagement behaviors and given a choice of SMNs (such as Facebook, WhatsApp, Instagram, Youtube, and TikTok). 45.16% of the 310 participants were women and 54.83% were males. Asia and Europe participants utilised WhatsApp 22.5%, Facebook 30.6%, Instagram 25.80%, YouTube 12.90%, and TikTok 8%.

4.3. Measures

Using Ke and Zhang's methods to measure felt relatedness, perceived autonomy, controlled motivation, and autonomous motivation. Two-item scales were used for (a) "Contribution of New Content on SMNs" and (b) "Comment on SMNs" to get a high response rate (Fuchs & Diamantopoulos, 2009; Sarstedt & Wilczynski, 2009). On a Likert scale with 5 points, 1 meant "strongly disagree" and 5 meant "strongly agree" for each item. In the Appendix, you can find the questions for the questionnaire.

Table 1. Respondents' Demographic Characteristics

Variables	Users	Percentage
Gander	Female	45.16%
	Male	54.83%
Age	20-25 years	14.51%
	26-30 years	29.03%
	31-35 years	30.64%
	36 and above	25.80%
SMNs used		
	WhatsApp	22.58%
	Facebook	30.64%
	Instagram	25.80%
	Youtube	12.90%
	TikTok	8.06%

5. Analysis and Results

We used partial least squares (PLS), which are used to build theories and models for making predictions, to evaluate our study model (Chin, 2010). We used SmartPLS Version 2.0 and the bootstrap resampling method (5,000 samples) to figure out how important the pathways in the structural model were (Ringle et al., 2005). PLS is a great method for analyzing data because 1) it doesn't assume multivariate normality, 2) it works well with small to medium amounts of data, and 3) it makes more accurate predictions (Chin, 2010). The model from this study can be used to make predictions about how often people will use SMNs.

Most of the time, a PLS sample should be 10 times bigger than the biggest structural or measurement equation. Our best structural equation can be found in two ways in the structural model. So, our sample size of 310 is more than the minimum of 20 that was required.

5.1. Measurement Model Assessment

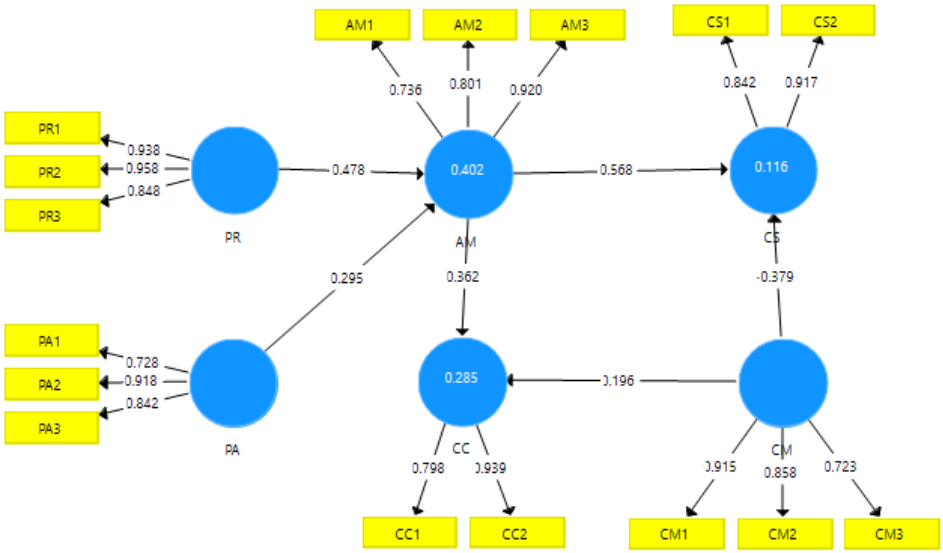


Figure 2: Measurement Model

The purpose of the validation test is to figure out how reliable a measurement scale is. Confirmatory Factor Analysis (CFA), which confirms the most important parts of a set of variables by looking at how they relate to each other, was used to check the accuracy of the data (factor loading). When an indicator's standardized factor loading (SFL) is greater than 0.70, it is thought to have solid strength (Hair et al., 2019). This is shown by the fact that Table 2's outer loading results are above the threshold.

Table 2. Outer Loadings

	AM	CC	CM	CS	PA	PR
AM1	0.736					
AM2	0.801					
AM3	0.92					
CC1		0.798				
CC2		0.939				
CM1			0.915			
CM2			0.858			
CM3			0.723			
CS1				0.842		
CS2				0.917		
PA1					0.728	
PA2					0.918	
PA3					0.842	
PR1						0.938
PR2						0.958
PR3						0.848

This research verified the “validity and reliability of the constructs” by utilizing "convergent validity, which contains "Cronbach’s Alpha(CA), rho_A, Composite Reliability (CR), and Average Variance Extracted (AVE)" (Henseler et al., 2015). “Cronbach's alpha and rho_A” are indicated to be greater than 0.7. The “Composite Reliability (CR)” of a variable is determined by a group of indicators that indicates whether or not the variable has strong “Composite Reliability (CR)”, defined as higher than 0.7. According to the proposed method, the determined value of “Average Variance Extracted (AVE)” should be higher than 0.50. Table 3 depicts that all the figures meet the threshold point, As a result, "convergent validity" has been established (Hair et al., 2017; Hair et al., 2019).

The "Composite Reliability (CR)" of a variable is calculated by a combination of indications that show whether or not this variable has a high CR, denoted as more than 0.7. As per the suggested technique, the "Average Variance Extracted (AVE)" value is more than 0.50. Consequently, "convergent validity" has been proven, as all the values in Table 3 fulfill the criterion point (Hair et al., 2019).

This study used convergent validity, which contains "Cronbach's Alpha (CA), rho A, Composite Reliability (CR), and Average Variance Extracted (AVE)," to look at the "validity and reliability of the constructs" (Henseler et al., 2015). It is thought that the values of "Cronbach's alpha" and "rho A" are higher than 0.70. A set of criteria that tells if a variable has high "Composite Reliability (CR)," which is mentioned as being more than 0.70. The suggested method says that the estimated value of "Average Variance Extracted (AVE)" should be more than 0.50. Table 3 shows that every statistic is bigger than the limit. So, "convergent validity" is true (Hair et al., 2017; Hair et al., 2019).

Table 3. Construct Reliability and Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Autonomous Motivation	0.758	0.792	0.862	0.677
Contribution of new content on SMNs after COVID-19	0.704	0.861	0.863	0.76
Controlled motivation	0.778	0.779	0.873	0.699
Comment on SMNs after COVID-19	0.715	0.759	0.873	0.775
Perceived Autonomy	0.781	0.871	0.871	0.694
Perceived Relatedness	0.91	1.006	0.94	0.839

"Note: CR, composite reliability; AVE, average variance extracted."

SEMs define the term "discriminant validity" to verify that a measure of a component is both empirically exclusive and able of describing actual phenomena that other measures in the context appear unable to explain (Hair et al., 2010). The requirement for "discriminant validity" is that "a test must not correlate too strongly with measures from which it is designed to differ" (Campbell, 1959). The discriminant validity of the questionnaire was evaluated using the (Fornell & Larcker, 1981) method. As shown in Table 4 below, this criterion requires that "the square root of the AVE is higher than the total of all correlations inside the same row and column of the specified construct."

Table 4. Fornell and Larcker

	AM	CC	CM	CS	PA	PR
Autonomous Motivation	**0.823**					
Contribution of new content on SMNs after COVID-19	0.522	**0.872**				
Controlled motivation	0.814	0.491	**0.836**			
Comment on SMNs after COVID-19	0.26	0.156	0.083	**0.88**		
Perceived Autonomy	0.441	0.277	0.187	0.012	**0.833**	
Perceived Relatedness	0.568	0.818	0.458	0.239	0.305	**0.916**

"The Fornell & Larcker (1981) criteria," which is the most widely used "discriminant validity yardstick," doesn't work in some situations (Rönkkö & Evermann, 2013). This suggests that the widely used "discriminant validity yardstick" may have a flaw (Ronkko, M., & Evermann, 2013). Henseler et al. (2015) say that their method for figuring out "discriminant validity" is better than what is used now. The Heterotrait-Monotrait Correlations Ratio (HTMT) is a new way to measure "discriminant validity." The HTMT ratio was set below 0.90 to make sure that each research construct is different from the others. Table 5 shows that none of the results met the 0.85 HTMT criteria.

Table 5: Heterotrait-Monotrait Ratio (HTMT)

	AM	CC	CM	CS	PA	PR
Autonomous Motivation	1					
Contribution of new content on SMNs after COVID-19	0.652	1				
Controlled Motivation	0.793	0.639	1			
Comment on SMNs after COVID-19	0.35	0.3	0.399	1		
Perceived Autonomy	0.543	0.43	0.32	0.357	1	
Perceived Relatedness	0.597	0.763	0.466	0.408	0.388	**1**

The multicollinearity test should be performed on the concepts under discussion before assessing the suggested structural model. It is challenging to assess the effect of a single variable on the outcome when there is collinearity. The goal of this study was to look at the use of variance inflation factors, or VIFs, in the analysis of multicollinearity. The VIF is evaluated using two thresholds: "VIF 3" and "VIF 5". The parameter of 3 is more cautious, however, the threshold of 5 is popular and appropriate because there is no concern with multicollinearity throughout the concepts (Hair et al., 2019).

Table 6: Inner VIF Values

	AM	CC	CM	CS	PA	PR
Autonomous Motivation	3.96					
Contribution of new content on SMNs after COVID-19		3.98				
Controlled motivation			4.103			
Comment on SMNs after COVID-19				4.75		
Perceived Autonomy					3.96	
Perceived Relatedness						3.143

In PLS-SEM, a model's "goodness of fit" (GoF) is how well it fits the data. On the other hand, the "goodness of fit" measurement shouldn't be used as a goodness-of-fit metric in every study because it only works in certain model settings and can't always tell the difference between correct and wrong models. To estimate appropriate indices like SRMR and NFI, the consequences of a PLS-SEM model assessment and the values of these considerations that meet a certain threshold (like SRMR > 0.08 and NFI > 0.9) are taken into account. “Based on Table 7, it has been shown that this model fits well.

Table 7: Goodness of Fit

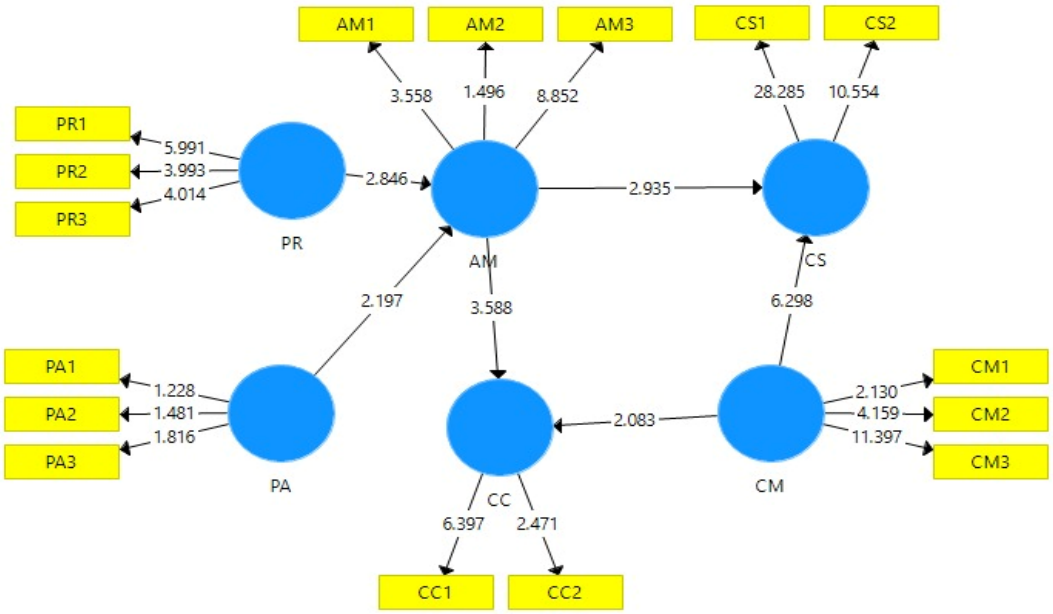
	Saturated Model	Estimated Model
SRMR	0.084	0.223
d_ULS	3.194	3.754
d_G	7.805	7.966
Chi-Square	1326.362	1343.071
NFI	0.925	0.916

If you have ever performed data analysis, you are likely aware of the term "coefficient of determination." It is a complex concept supported by statistical modeling. A statistical concept known as the "coefficient of determination" shows how two interdependent variables may impact one another's variance. This score ranges from 0.0 to 1.0, with 1.0 indicating a flawless acceptable and, therefore, extremely reliable model for future forecasts, and 0.0 indicating that the model does not fully explain the data. Autonomous Motivation, Contribution of new content on SMNs after COVID-19, and Comments on SMNs after COVID-19 all varied (40.2%, 58.5%, and 61.6%, respectively). According to Hair et al. (2019), "The coefficient of determination was denoted as R2, which reflects the variable quality incorporated into the model; criterion designated R2 value.670 as substantial, and.190 as weak."

Table 8: Coefficient of determination (R-square)

	R Square	R Square Adjusted
Autonomous Motivation	0.402	0.386
Contribution of new content on SMNs after COVID-19	0.585	0.558
Comment on SMNs after COVID-19	0.616	0.596

5.1. Structural Model Measurement



5.1. Path Coefficients

The researchers looked at the structural model used in this study to find out how the things that affect educational technology are related to each other. Several statistical measures, such as path coefficients, t-values, and p-values, can be used to figure out if the data support the hypothesis or not (Hair, Babin, Krey, 2017). SmartPLS 3.3.3 was used to run a bootstrapping method with 5000 resamples to get the data that would be used to analyze statistical importance (Hair et al., 2019).

5.2. Hypothesis Testing (Direct Effect)

To evaluate H1, H2, H3a, H3, H4a, and H4b we first examined the direct effect of predictors on outcomes. The results of the direct linking between variables are revealed in the table 9. The current study developed a statistically significant positive link between "Perceived Relatedness" and "Autonomous Motivation (Coefficient = 0.732, p = <0.05), Perceived Autonomy" and "Autonomous Motivation" (Coefficient = 0.317, p = <0.05), "Controlled Motivation" and "Comment on SMNs after COVID-19" (Coefficient = -0.436, p = <0.05), "Controlled Motivation" and "Contribution of new Content on SMNs after COVID-19" (Coefficient = 0.729, p = <0.05), "Autonomous Motivation" and "Comment on SMNs after COVID-19" (Coefficient = 0.444, p = <0.05), "Autonomous Motivation"

and "Contribution of new Content on SMNs after COVID-19" (Coefficient = 0.436, p = <0.05), Additionally, Table 9 shows the consequences of the direct association hypotheses H1, H2, representing that all hypotheses were accepted.

Table 9. Direct Relationships

Hypothesis		Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values
H_1	PR->AM	0.732	0.718	0.204	3.588	0
H_2	PA->AM	0.317	0.321	0.108	2.935	0.003
H_{3a}	CM -> CS	-0.436	-0.435	0.209	2.083	0.038
H_{3b}	CM -> CC	0.729	0.749	0.116	6.298	0
H_{4a}	AM -> CS	0.444	0.431	0.202	2.197	0.028
H_{4b}	AM -> CC	0.436	0.402	0.153	2.846	0.005

Note: "PR: perceived relatedness; AM: Autonomous motivation; PA: Perceived Autonomous; CM: Control Motivation; CC: Contribution of new content on SMNs after COVID-19; CS: Comment on SMNs after COVID-19"

6. Discussion

Recent research has begun to recognize the importance of SMNs after crises, but few studies have investigated how people use SMNs to obtain timely information about crises (Starbird & Palen, 2012; Taylor et al., 2012). Based on self-determination theory, this research investigates how diverse motivations support various participatory activities and how autonomous motivation can be fostered. Using data acquired as a result of COVID-19, we find that different kinds of motivations have different effects on people's participation patterns: Commenting on other people's posts was related to controlled motivation while creating new posts was connected with autonomous motivation. Furthermore, both a sense of relatedness to others and a sense of autonomy encourage independent motivation. Theoretical and practical applications of our research are possible.

6.1. Implications for Theory

Theoretically, our research has three implications. SDT is applied to SMNs crisis responses. Our findings corroborate our first two hypotheses, which showed that social connectivity and the personal agency would influence SMNs membership. SDT is now recognized.

Second, our data show that SMNs should not be evaluated in isolation during a crisis. This research examines content generation and conversation. Involvement in SMNs can be sparked in two ways: during crises and by adding unique content or criticism (Al-Ani et al., 2012). There are numerous differences between these two types of engagement. Responding to others' work is easier than creating fresh content. To accurately predict future SMNs usage, multiple forms of participation must be considered.

Third, our data show the elements that influence how people use SMNs after a disaster. Our findings show that commenting on others' content is connected with controlled motivation, but providing new content is associated with autonomous motivation. It supports 3a and 4a. A simplified picture of SMNs membership incentives is erroneous, according to polls. Future SMNs research should ask more specific questions.

6.2. Implications for Practice

Our research has real-world impacts. First, our research reveals that people use SMNs in crisis. Public

emergency management agencies and crisis-response NGOs (like the Red Cross Society) may deploy SMNs in an emergency. People use SMNs to transmit emergency information, according to a survey (Palen et al., 2007). Our research demonstrates SMNs can help the government handle crises. The government might establish a disaster-specific account. This account can be used to communicate up-to-date information regarding the crisis, such as its location, severity, number of deaths, safe areas, and missing people. Those harmed by calamities can obtain information and get stronger, while others can learn more (Semaan & Mark, 2011). People might also ask the government or other groups for updated answers.

Second, emergency managers must realize that people can join SMNs in different ways and that motivation affects patterns of involvement. Depending on the type of cooperation they want, emergency managers may encourage different motivations. People should be self-motivated so they can communicate what they know about a situation at the correct moment. When a crisis response has grown and emergency management is creating long-term resilience, postings should focus on humanitarian programs and effective rebuilding. Empathy and regulated motivation can be utilized to gather emergency management feedback.

6.3. Limitations and Future Studies

Our research is limited. Since our data came from SMNs users, our conclusions may not apply to other populations. Users of Asia and Europe are leading SMNs. As a result, we can conduct our research utilizing Asia and Europe's SMNs users' samples. More research is needed to confirm and generalize our results.

Our findings may not be generalizable to other surroundings, but they provide insight into SMN participation after COVID-19. Future research might examine how people participate in SMNs in different circumstances to determine if different incentives lead to different involvement patterns after disasters.

Our findings reveal fascinating research potential despite their limits. Increasing people's autonomy and relatedness can raise their autonomous motivation. Future research may focus on various sorts of involvement and their motivations. Second, we looked at two types of participation. Our research ignores individual differences. Future research should examine the moderating effects of individual traits on the motivation-involvement relationship.

7. Conclusion

As social media networks (SMNs) become more common and popular, people rely on them more and more to stay in touch after disasters (Shklovski et al., 2008, 2010; Starbird & Palen, 2012). Few studies, though, have looked at how the public gets timely information from SMNs during crises (Pan et al., 2012). Our study, which is based on SDT, is trying to find out how different motivating factors affect different types of involvement in SMNs during times of crisis. Using data from COVID-19, our study shows that different involvement behaviors are affected by several motivating factors. These results show that the government shouldn't think of all participating behaviors as belonging to the same group. Instead, it should try different ways to get people to participate based on the specific behaviors that are supported. Our findings need to be tested in more situations and the best ways to encourage self-motivation need to be looked into in further research.

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Appendix

Instrument	
Perceived Autonomy (Ke & Zhang, 2010)	
PA1	I feel _ is a place where I can freely express my ideas and opinions
PA2	In _, I can freely express what I think
PA3	I can decide what I want to share in _
Perceived relatedness (Ke & Zhang, 2010)	
PR1	People in _ care about me
PR2	People care about what I post in _
PR3	I like the people I interact with in _
Controlled motivation (Ke & Zhang, 2010)	
CM1	I am strongly motivated by various kinds of bonus (e.g., credit and rank) I can earn through my participation in _
CM2	I am keenly aware of the possible help for my life and work that may be brought by my participation in _
CM3	I am strongly motivated by the recognition I can earn from other people in _
Autonomous motivation (Ke & Zhang, 2010)	
AM1	I have a strong positive feeling toward _
AM2	The reason I participate in _ is because of the way that people interact with each other
AM3	My attachment to this group is primarily based on the similarity of my desired interaction pattern and those represented by _
Contribution of new content on SMNs	
CC	In _ I posted or forwarded relevant information or news about COVID Comment in SNSs
CC	I devoted a large number of hours to sharing information
Comment on SMNs after COVID-19	
CC	In _ I commented on the content about COVID-19 posted by others
CC	I devoted a large number of hours to comment on the information
Note. SMNs:	Social network site.